This study investigated the interpretation of wh-in-situ expressions in L2 Korean by adult native speakers of English. Previous L2 studies within a generative grammar framework focused on knowledge of constraints on wh-movement in languages such as English, and attributed non-nativelike outcomes to a failure by learners to select a strong uninterpretable wh-feature that is argued to parametrically distinguish wh-movement from wh-in-situ languages (Hawkins & Chan 1997; Hawkins & Hattori 2006). However, this dissertation argues that such parameter resetting accounts are not sufficient to capture the nature of the learning problems facing native English speakers acquiring Korean.

In Korean, wh-in-situ words can receive multiple readings. For example, mwues ‘THING’ receives a question reading (‘what’) when it occurs with a question particle, but it has an obligatory indefinite reading (‘something’) when it co-occurs with rising intonation in matrix interrogatives or with a declarative particle in embedded clauses. Thus, Korean wh-expressions are variables which require particular licensing environments to be interpreted (Aoun & Li 1993).

In this study, 47 native English speakers at high-intermediate and advanced proficiency levels of L2 Korean were administered two types of translation tasks along with a truth-value judgment task in order to explore their knowledge of Korean wh-
expressions according to the contextual co-occurrence of relevant intonation patterns and
sentential particles. The results indicated that English-speaking learners from both
proficiency groups showed statistically better performance on the question reading than
on the indefinite reading in both prosodic and morphological licensing environments. The
incorrect question interpretation declines as development proceeds, but non-targetlike
interpretations persist among several advanced learners.

These findings suggest that the greatest difficulty for adult L2 learners does not reside
in parametric selection, because both L1 and L2 grammars select the relevant features
generating wh-expressions. Instead, the L2 learners whose L1 wh-words are lexicalized
with an operator and a variable together within a single lexical item appear to have
difficulty in reconfiguring these features into a different L2 configuration in which wh-
elements are variables and its licensors are realized on distinct lexical items. This study
implements a Feature-Reassembly approach (Lardiere 2008) to best account for the L2
acquisition data.
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Chapter 1

Introduction

An investigation of the developmental nature of adult second language (L2) acquisition constitutes the heart of this thesis. This study is concerned with characterizing and explaining persistent non-target-like outcomes (but gradual progress nevertheless) observed in the L2 acquisition of the interpretation of wh-lexical items in Korean by native English speakers. Revisiting the role of parameter resetting in interlanguage representations provides the motivation for the non-parametric approach adopted here.

In generative L2 research, Chomsky’s (1965, 1975, 1981) “Principles and Parameters Theory” has been widely adopted for examining L2 speakers’ mental grammars. As a part of humans’ biological endowment, Universal Grammar (UG) is “the system of principles, conditions, and rules that are elements or properties of all human languages” (Chomsky, 1975, p. 29). UG is hypothesized to consist of invariant principles for all languages and a finite number of parameters that account for language variation. Language acquisition is assumed to involve setting a small number of parameters in response to primary linguistic data (PLD). It is also widely assumed that adult L2 speakers have access to the principles of UG. Nonetheless, the availability to adult language acquirers of parameters or parameterized principles of UG remains controversial.
Specifically, since the Principles-and-Parameters theory was developed in the early 1980s, one of the main issues in generative L2 acquisition research has been whether adult L2 acquisition is constrained by UG in the same way that L1 acquisition is. Thus, the focus on variation across languages has led generative L2 researchers to examine whether the parameters of UG can be (re)set in adult L2 acquisition and to what extent L1 transfer plays a role in parameter setting. A major difference between L1 and L2 acquisition is assumed to be the existence of the L1 representation in the L2 learner’s mind, which means the starting point for L1 children and adult L2ers is different (e.g., Schwartz & Sprouse, 1994, 1996; Schwartz, 1998b). In other words, L1 children start with principles and unfixed parameters while adult speakers start with principles and fixed parameters.

Accordingly, in second language acquisition it has widely been assumed that parametric differences between a first language and a second language may be a source of difficulty or delay for adult L2 learners going through developmental stages in the acquisition of syntactic representation. For example, Haegeman (1988) describes L2 acquisition in terms of parameter resetting, saying “to go from the L1 to the L2, learners will often have to reset existing parameters or reassign values to them” (p. 255). This issue is generally tested by looking at the L2 grammars of speakers who have a minus value of a certain parameter value acquiring a plus value of that parameter in a target language.

However, observed persistent (morphological) variability, which typically characterizes L2 grammars and their divergence from the target grammar, challenges
accounts of parameter setting in second language acquisition, since parameter setting is assumed to be an all-or-nothing phenomenon. It has also more recently been pointed out that the nature of interlanguage grammars, which are UG-constrained but nonetheless often divergent from a target grammar, may call for perspectives other than parameter resetting models in SLA (e.g., Carroll, 2000; Lardiere, 2007a, 2007b, 2008, 2009).

1.1. Why is a Non-parametric Approach Necessary for Adult L2 Acquisition?

In the context of generative L2 acquisition research, a major concern has been the extent to which adult L2 acquisition is similar to L1 acquisition. Investigating the role of UG is a primary question for generative second language acquisition research. UG was postulated as a theory of an innate language faculty (Chomsky, 1965, 1980, 1995), and the issue in SLA is whether UG-accessibility is possible for late language learners in the same way as it is for first language learners. However, parameter (re)setting approaches often fail to acknowledge three distinctive factors in adult second language acquisition: the role of the Language Acquisition Device (LAD), language variation beyond parameters, and persistent variability in L2 data.

(a) UG is not equivalent to LAD

Many generative L2 researchers’ efforts have focused on UG-involvement in the developing L2 system. Given this perspective, White (1989) and Schwartz and Sprouse (1994, 1996) stress the logic of the poverty of stimulus argument and seek to investigate the strongest possible instances of it for which a truly explanatory grammatical analysis can be given. Dekydtspotter, Sprouse, and Thyre (1999, p. 296) write:
It is important to realize that the strongest empirical arguments for UG involvement in L2 acquisition would in principle rely not on the mere compatibility of interlanguage data with the constraints of UG, but rather on the demonstration that at least some aspects of interlanguage knowledge are underdetermined by the input in domain-specific ways—that is, they require UG.

Based on the notion of Plato’s problem or the poverty of stimulus problem (Chomsky, 1986), in which a speaker obtains rich and abstract knowledge of a certain language given limited evidence, evidence that adult interlanguage grammars are constrained by UG has been amply documented in the generative L2 literature. For instance, knowledge of hierarchical structure dependence, interpretive restrictions on overt pronouns and quantifiers, movement (verb-movement, wh-movement), locality conditions (c-command, subjacency) has been demonstrated in L2 studies (e.g., Martohardjono, 1993; Kanno, 1997; Klein, 1995; Schwartz & Sprouse, 1994, 1996, 2000; White & Genesee, 1996; Dekydtspotter, Sprouse & Anderson, 1997). Some current generative L2 research has suggested that non-native speakers’ knowledge is to some extent constrained by the principles and parameters of UG and thus is a reflection of the kind of linguistic knowledge to which humans are innately predisposed. One might then wonder why adult interlanguage grammars differ in various ways from the grammars of target speakers, if the solution to the poverty of stimulus problem is the same for them as it is for first language learners.

Parameter resetting approaches based on poverty-of-the-stimulus arguments tend to disregard concerns about acquisition problems in interlanguage representations—considering the observation that adult SLA is anything but a uniformly successful, rapid
or uniform attainment of language. The language faculty comprises both UG and an innate language acquisition device. The innate linguistic knowledge system (UG) is part of the LAD, by highly restricting the learner’s possible hypotheses in the course of grammatical development, but it is not itself a learning mechanism (Borer & Wexler, 1987; Hilles, 1991; Gregg, 1996; Borer, 1996; Bickerton, 1996; Carroll, 2000). Based on the initial representational system, it is the LAD that enables a learner to construct a certain grammar that corresponds to primary linguistic data. The principles and parameter model can accordingly be a solution to the logical problem of language acquisition but not to developmental issues (Borer, 1996). Thus the issue of non-convergence with the target language must be due to the remainder of the LAD (including learning principles and parsing/processing mechanisms). In other words, UG helps us understand how a learner comes to know certain properties that go beyond input and why their interlanguage grammars are under the umbrella of UG. However, UG is not a theory of language development that can account for why adult speakers often fail to compute certain aspects of linguistic properties. Heavily relying on parameter setting metaphors in SLA will not help us understand variability in developing L2 systems or ultimate attainment.

(b) Language variation and parameterization

Language variation is conventionally characterized as the differential setting of the parameters provided by UG and thus the differences between L1 and L2 in this respect constitute an essential issue in adult second language acquisition. L1-L2 different settings of a particular parameter are considered to be a source for a lack of success in
SLA. Can the different fixing of parameters capture all of cross-linguistic variation? It does not appear that any difference in question between any two languages can be described by differences in certain parameters. For instance, in Warrgamay (spoken in Queensland, Dixon, 1981, cited in Corbett, 2001, p. 825), number marking is obligatory for the first and second person pronouns (singular, dual, or plural) and the third person pronouns (dual and plural), but the singular form of the third person pronouns is unmarked and can refer to all persons and all numbers. One might say that variation between this language and English-type languages lies in the presence or absence of \([±\text{dual}].\) But it would then be difficult to describe the idiosyncratic properties of the distribution of the third person singular in Warrgamay in terms of a certain parameter. (See Lardiere, 2008 for additional examples of problems of this type.)

The theory of parameters was originally regarded as a theory of ‘core grammar’. The set of core grammar is regarded as one that results from the fixing of the parameters of UG in limited ways, while the rest of grammar (referred to as its ‘periphery’, Chomsky, 1981) consists of marked/language-specific elements and constructions. From the perspective of parameter (re)setting models, the properties of the periphery are dissociated from language acquisition issues. One problem, then, is that there is no real way to draw a line between the two domains. The core and peripheral phenomena seem, rather, to be interwoven with each other, which means there is considerable variation across languages (Culicover, 1999; Culicover & Jackendoff, 2005). Carroll (2000) points out that P & P research in SLA appears to limit its scope to parametric variation, which misses out on language-specific properties. She stresses the necessity of describing and
explaining the “flotsam and jetsam of specific language systems” (p. 40). Without encompassing mechanisms by which learners can acquire non-core properties, we would not have an understanding of the process of language acquisition by adult speakers.

Some typologists (Dryer, 1997; Haspelmath, 2007; Croft, 2000, 2001; Newmeyer, 2005, 2008) further argue that grammatical categories and grammatical relations are language-particular and thus attempts to describe cross-linguistic variation in terms of a small set of parameters are pointless. Haspelmath (2007, p. 7) says that “it does not really make sense to ask whether a particular notion is expressed morphologically or syntactically in a given language”. This suggests that any comparison between L1 and L2 pair units is not an easy task.

(c) Differences between adult and child learners: Persistent variability

The adult acquisition of a second language is different from that of a first language in the sense that adult L2 speakers often fail to achieve target-like knowledge across the full range of L2 properties. From the perspective of parameter resetting models, a non-native outcome is accounted for in terms of learners’ failure to reset parameters from the L1 value to that of the L2. However the notorious problem of adult L2 speakers’ persistent variability (i.e. systematic errors, omissions or overuses of default forms) in some aspects of a target grammar does not seem to be explainable with the notion of parameter setting (Lardiere, 2007b, 2008). For instance, in a case study by Lardiere (1998, 2008), Patty, a fluent speaker of L2 English, showed target-like knowledge of abstract features (i.e. correct nominative case assignment and verb placement), but nonnative marking of inflection for tense and agreement. Robertson and
Sorace (1999) also reported persistent optionality in verb movement in German-speaking learners of English.

Such persistent non-convergence of L2 grammars is a problem for the Chomskyan parameter view. One of the core ideas in the parameter setting model is that when a parameter is fixed by a language learner, it is set once and for all (e.g., Fischer et al., 2000; Lightfoot, 1997). That is, as a biologically controlled process, parameter setting does not require a “period of experimentation” (Lightfoot, 1997, p. 257) and thus “a new parameter setting will represent an abrupt change in the I-language of the speakers” (van Kemenade & Vincent, 1997, p. 4). The generative view of parameter setting is often criticized for its emphasis on abruptness or discontinuity, which does not fit well with gradual changes in development and non-zero incidents of native-like levels of attainment (e.g., Birdsong & Molis, 2001).

1.2. Why Study the Interpretation of ‘Wh’-expressions?

The goal of this study is to illustrate that the language-specific assembly of primitive features sheds light on the nature of L2 learning problems. In order to demonstrate that parameter resetting approaches are not sufficient to account for the persistent divergence and variable performance observed in adult second language acquisition, the acquisition of the interpretation of Korean wh-lexical items by adult native English speakers is examined. The L1 (English)-L2 (Korean) pair was chosen to highlight learning problems beyond the setting of a parameter (namely, the wh-parameter). The different positions of wh-items in the two languages (the clause-initial
position of a wh-expression for English vs. the in-situ position of the item in Korean) can be defined by the wh-parameter, but the difference between the two languages in terms of the presence or absence of variable interpretations of wh-lexical items is not characterized by parameters. As I will discuss in further detail in Chapter 2, both English and Korean select the primitive [wh-operator], [Q], and [Variable] features for generating wh-expressions. However, those features are integrated into the wh-lexical items in English, whereas they are distributed across wh-lexical items ([VAR]) and other lexical items such as sentential particles ([wh] and [Q]) in Korean. The different configurations of features result in only question readings for English wh-expressions but question and existential/universal readings for Korean counterparts. In contrary to English, for example, the Korean lexical item mwues ‘THING’ receives a question reading (‘what’) when it occurs with a wh-question particle, but it has an obligatory indefinite reading (‘something’) when it occurs in yes/no and declarative contexts. Thus, any description of L2 learning problems must involve the reconstruction of such features for these language-specific lexical items in the target language.

With respect to a wh-parameter, a large number of studies in generative second language research have investigated the acquisition of overt wh-movement by native speakers of wh-in-situ languages, primarily to test for UG-derived knowledge of constraints on such movement (e.g. ‘subjacency’ effects). There is no consensus among their findings of whether the resetting of a wh-parameter is possible or not. Some studies (Martohardjono & Gair, 1993; White & Juffs, 1998; Yusa, 1999) reported adult learners’ successful acquisition of a strong [wh] feature, while other studies (Schatchter, 1990;
Hawkins & Chan, 1997; Hawkins & Hattori, 2006) reported learners’ failure in the acquisition of such a feature. The acquisition of wh-in-situ expressions by native speakers of overt wh-movement languages, on the other hand, has largely been ignored in second language studies, presumably on the grounds that such learners have little problem acquiring them, compared with wh-items that undergo overt movement, which is considered more costly, or ‘difficult’ (e.g., Platzack, 1996; Kim, 2003). Also, knowledge of locality constraints is considered irrelevant in wh-in-situ constructions lacking such movement, which limits the relevance of such studies to the question of whether UG is accessible to adult second language learners. Second language research has so far barely acknowledged the differences between English and Korean in terms of their assembly of (interpretable) features.

By investigating the L2 grammars of English native speakers at different levels of proficiency in Korean, this study attempts to illuminate the nature of the acquisition process of reassembling features from the way they are assembled in the native language of the adult learners. The possible divergence in the developmental process of English speakers’ interlanguage grammars is theoretically interesting because it will provide a window onto some facets of the reassembly of features in the lexical items of a target language and the nature of the remapping problems for adult L2 learners.
1.3. Goals and Outline

In general, there are two main goals of this study. One objective is to characterize cross-linguistic variation between wh-in-situ languages and wh-movement languages in terms of interpretable features. In particular, the characteristics of the relevant features generating wh-lexical items in English and Korean are extensively discussed in terms of morpho-syntactic and semantic features from the view of native English speakers facing the task of reconstructing new lexical items for the target grammar. The other objective is to see whether the findings can be accounted for under recent versions of parameter resetting models. Further, we would like to demonstrate how an alternative approach, the feature-reassembly approach, offers a better account of developmental problems in SLA.

The remaining chapters of this dissertation are organized as follows. Chapter 2 provides a descriptive account and theoretical reanalysis of the distribution of Korean wh-in-situ elements, concentrating on the interpretive aspects of these expressions. Adopting a claim of Kuroda (1965), Nishigauchi (1990), Li (1992), Aoun and Li (2003), S-W. Kim (1989), and A-R. Kim (2000) among others, Korean in-situ wh-elements are treated as variables and thus require licensing environments to be interpreted. This chapter in particular focuses on an illustration of how relevant features are differently assembled and realized between the second language learners’ L1 (English) and L2 (Korean). In Chapter 3, I outline a theoretical background of parameter setting and show how views of parameters have changed over time. I also address the implications and challenges of this for adult second language acquisition. Specially, I examine current approaches in second language acquisition that involve L1 influence and review relevant
second language studies involving the acquisition of wh-in-situ constructions: the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse, 1994, 1996), the Representational Deficit Hypothesis (Hawkins, 2005; Hawkins & Chan, 1997; Hawkins & Hattori, 2006; Tsimpli, 2001, 2003), and the Feature-Reassembly Approach (Lardiere, 2005, 2007a, 2007b, 2008). Problems with the application of parameter resetting accounts to the acquisition of Korean wh-interpretation are pointed out. Chapter 4 presents my research questions and discusses the methodology of this study and the procedures used in the data analysis. Chapter 5 presents the results and statistical analyses of two translation tasks and one judgment task performed by adult English-speaking learners of Korean. Group results and individual results for each task are reported. In chapter 6, the major findings observed in chapter 5 are summarized and analyzed in relation to the conditions (intonation and sentential particles) that govern the interpretation of Korean variable expressions. Chapter 6 also discusses the nature of the learning problems confronting native English speakers acquiring Korean. Chapter 7 consists of a discussion of the theoretical implications of the study’s major findings in light of parameter resetting models and the feature-reassembly approach. The theoretical predictions made by each model are revisited and evaluated. Finally, this chapter presents a summary of the major findings of the dissertation and concludes with implications for future research.
Chapter 2

The Interpretation of Korean Wh-in-situ Expressions

This chapter provides a descriptive account and theoretical analysis of the distribution of Korean wh-in-situ expressions, concentrating on the interpretive aspects of wh-expressions.

Two main types of proposals have been offered to account for the parametric differences between overt wh-movement and wh-in-situ languages: the Movement Approach (e.g., Chomsky, 1995, 1998, 2000) and the (Unselective) Binding Approach (e.g., Nishigauchi, 1990; Aoun & Li, 1993). According to the movement analyses (e.g., Chomsky, 1995, 2001; Rizzi, 1990; Huang, 1982; Adger, 2003), wh-phrases in languages like English obligatorily move to [Spec, CP] because the head of C has an (strong) uninterpretable feature, [wh] or [Q], which has to be checked or valued by the interpretable feature [wh] of a wh-phrase before Spell-out. Meanwhile, wh-in-situ phrases lack such movement because the relevant uninterpretable feature is weak or absent (e.g., Huang, 1982; Adger, 2003). The parametric difference between wh-movement and wh-in-situ languages is assumed to be due to the presence or absence of a (strong) uninterpretable feature [+wh].

An alternative approach (the Binding Approach) has been proposed to capture the fact that in many languages wh-in-situ items can have interpretations other than wh-question words, such as existential or universal quantifiers, in different contexts. This
view relies on Heim’s (1982) proposal that indefinites are variables that must be bound by operators. Recognizing the kinship between wh-elements and indefinites, the binding approach proposes that overt and covert wh-movement languages differ on whether wh-words have quantificational force on their own (overt movement languages) or not (covert movement languages). Specifically, Nishigauchi (1990), S-W. Kim (1989), Cheng (1991, 1997), Aoun and Li (1993, 2003), Tsai (1994, 2003), and Cole and Hermon (1998) claim that wh-expressions in wh-in-situ languages are variables that must be bound by a quantifier licensor, which means that there is no motivation for the movement of the wh-expression. In the case of wh-movement languages such as English, the operator and the variable are lexicalized in the wh-words; thus, the wh-phrases are required to undergo overt movement to the scope position since they bear an operator feature.

In this chapter, I will briefly discuss the movement analysis of wh-question constructions and then examine the environments in which wh-in-situ expressions in Korean can have a question versus an indefinite interpretation in terms of the binding analysis. Adopting the claims of Kuroda (1965), Nishigauchi (1990), Tsai (1994), Aoun and Li (2003), S-W. Kim (1989), and A-R. Kim (2000) among others, I will treat Korean in situ wh-expressions as variables which require licensing environments to be interpreted. The cross-linguistic properties of wh-expressions in English (the L1 of the learners in this study) and Korean (their L2) will also be discussed. Moreover, this chapter will discuss the learning problems confronting native English speakers acquiring Korean wh-in-situ expressions.
2.1. The Movement Analysis of Wh-constructions

In generative grammar, the difference in the position of a wh-phrase in Koreantype languages and English-type languages has been characterized in terms of the Wh-movement Parameter. For instance, in English, a wh-phrase is moved to the front of matrix clauses, as illustrated in (2.1a). The wh-phrase in embedded clauses like (2.1b) is overtly moved to the embedded [Spec, CP].

(2.1)  

a. What did Mary buy \( t_i \)?

b. Mary knows \[ CP \text{ what} \_ [IP John bought \( t_i \)] \]

However, in Korean, the wh-phrase does not overtly move to a left-peripheral position, which we can identify as the Specifier of the Complementizer Phrase (CP). As seen in (2.2), wh-phrases remain in situ in both matrix and embedded interrogatives. Thus, it is assumed that Korean,\(^1\) like Chinese and Japanese, is a wh-in-situ language.

(2.2)  

a. Mary-ka mwues-ul sa-ss-ni?  
Mary-Nom THING\(^2\)-Acc buy-Past-Q  
‘What did Mary buy?’

Mary-Top John-Nom THING-Acc buy-Past-Q know -Decl\(^3\)  
‘Mary knows what John bought’

\(^1\) Note that basic Korean word order is subject-object-verb (SOV).

\(^2\) The capitalized THING (and PERSON/PLACE) indicates terms that are not fully specified for meaning. Thus, for example, THING indicates that the element can be the wh-question pronoun what or its indefinite counterpart something.

\(^3\) The following abbreviations are used: Nom-Nominative case marker; Acc-Accusative case marker; C-Complementizer; Decl-Declarative marker; Q-Question marker; Imp-Imperative particle; Exh-Exhortative particle; Top-Topic marker; Sub-Subordinate; Quot-Quotative; Disj-Disjunctive; Sup-Suppositive mood particle; Past-Past tense marker.
Within the minimalist program, the presence (or selection) of an uninterpretable wh/Q feature\(^4\) in the C functional category triggers wh-movement in English-type languages, since uninterpretable features must be eliminated for the LF (Logical Form) to converge (Chomsky, 1995). \(^5\) However, because Korean lacks a strong [−interpretable] wh/Q feature in the head of C, its wh-phrases do not move to the Spec of CP (Chomsky, 1995; Rizzi, 1990; Adger, 2003).

---

\(^4\) I am assuming here that, following one version of the Minimalist Program (Chomsky, 2000; Hawkins, 2005; Tsimpli, 2003; Pesetsky & Torrego, 2004; Adger & Smith, 2005), the grammatical features of lexical items are divided into interpretable and uninterpretable features in terms of whether or not they can be interpreted by the semantic component. That is, the interpretable features of a lexical item make a semantic contribution but its uninterpretable features do not. The uninterpretable features primarily play a role in the syntactic derivation and possibly have a PF-realization. For examples, phi-features (person, number, gender) on verbs are uninterpretable but such features on pronouns (e.g., I, she, they) are interpretable. For this study, I focus on interpretable features generating wh-expressions such as [Q], [wh-operator], and [Variable].

\(^5\) Note that some languages such as French appear to have a mixed system with regard to the wh-parameter, allowing both wh-movement and wh-in-situ (see Denham, 2000; Cheng & Rooryck, 2000), as in (i).

(i) a. Qu’ est-ce que tu fais?
   ‘What are you doing?’
   b. Tu fais quoi? [rising intonation]
   You do what (Denham, 2000, p. 235)

Meanwhile, in-situ wh-phrases are not allowed in embedded interrogatives. The movement of a wh-phrase in the embedded clause is obligatory, as seen in (ii):

(ii) a. Jean a demandé [ce que Marie a fait]
   John has asked what Mary had done
   ‘John asked what Mary did’
   b. *Jean a demandé [Marie a fait quoi/ce que] (Denham, 2000, p. 237)

It appears that like English, French wh-elements bear a wh-operator and thus they obligatorily move to the Spec of CP. However, in-situ wh-words in matrix interrogatives are possible in “strongly presupposed contexts” (Chang, 1997, p. 45, cited by Cheng & Rooryck, 2000) such as echo-questions (Kim-Renaud, p.c.). That is, according to Chang, wh-in-situ and wh-movement constructions have a different property in terms of question-answer sets. For the wh-movement construction (ia), negative answers like rien ‘nothing’ are legitimate. However, for the wh-in-situ construction (ib), the negative answer rien is not acceptable. Different intonation patterns may play a role in differentiating information wh-questions from echo-questions. Thus, the absence of intonation in embedded clauses appears to disallow the in-situ wh-elements. Denham (2000) has proposed an alternative account that French may not select C obligatorily from the numeration. However, when the embedding verb takes an interrogative complement, C-selection is obligatory. This leads the wh-phrases to undergo obligatory movement in French embedded clauses.
Recently the wh-movement parameter has been modified by Chomsky (1998, 2000), who claims that English-type wh-phrases obligatorily undergo movement due to an EPP (extended projection principle) feature that is associated with a [+Q] C. More specifically, the Complementizer Phrase is argued to allow a Spec, which is the Extended Projection Principle (EPP). The EPP feature does not have semantic properties; that is, it is uninterpretable. Unlike the EPP-feature of T(ense) P(hrase), which is assumed to be present across languages, the presence of an EPP-feature in C is due to a parameter setting (Chomsky, 2000). It is assumed that in English-type languages, C obligatorily bears the EPP feature and forces a wh-phrase to move to the Spec of CP. The wh-phrase, when moved to the edge position of the CP, deletes the EPP-feature of C. For Korean-type languages, C doesn’t bear the EPP-feature and thus the movement of a wh-phrase is not forced. The selection of the EPP feature for C is argued to be responsible for a typological difference between English-type (wh-phrase movement) languages and Korean-type (no movement) languages.

However, the distribution of Korean wh-(in-situ) words is not sufficiently accounted for in terms of the presence vs. the absence of movement of wh-words. As shown in (2.3), the same lexical item mwues in embedded clauses can be interpreted as an interrogative or as an indefinite. That is, mwues ‘THING’ in (2.3a) has an obligatory question reading, and the same form in (2.3b) has the indefinite pronoun reading.
These examples show that the lack of overt wh-movement is not the only crucial issue for the acquisition of wh-lexical items in wh-in-situ languages like Korean. We must also examine the nature of the interpretation of indeterminate wh-elements (or variable expressions) in Korean more closely.

2.2. Binding Analysis

The wh-movement analysis focuses on uninterpretable features that trigger the movement of a phrase in the surface syntax. However, the relevant interpretable features, which make a semantic contribution to constructions involving wh-lexical items, are focused on here, because this dissertation explores issues in the acquisition of the interpretation of Korean wh-lexical items. In this section, I will adopt an alternative approach to the issue of multiple readings of Korean indeterminate in-situ wh-elements, the binding analysis of Nishigauchi (1990) and Aoun and Li (1993), according to which a wh-element in a wh-in-situ language is a variable expression that obtains quantificational force when it is bound by an operator. I will claim that the quantificational force of Korean variable expressions is determined by different elements with inherent quantificational force, such as question operators, existential operators or universal operators, an analysis along the lines of Kuroda (1965), Nishigauchi (1990), Li (1992),

2.2.1. Wh-questions and Korean Sentential Particles

It has been proposed that a wh-question denotes the set of propositions expressed by its possible answers (e.g., Hamblin, 1973; Karttunen, 1977; Groenendijk & Stokhof, 1984). For example, the questions in (2.4) denote the set of propositions that describe what John bought; \{John bought a banana, John bought an apple, John bought a peach, \…\}.

(2.4)  

a. What did John buy?

b. John-i mwues-ul sa-ss-ni?  
   John-Nom THING -Acc buy-Past-Qwh  
   ‘What did John buy?’

c. [WHx: thing (x)] [John bought x]

(2.5)  

a. John bought everything/something.

b. [∀/∃: thing (x)] [John bought x]  (Higginbotham & May, 1981)

Parallel to a quantified sentence like (2.5), in which the universal/existential quantifier moves to a position governing its trace at LF (Logical Form), the logical form of a wh-question is represented in (2.4c) (Higginbotham & May, 1981; May, 1985). Thus, in the semantic representation of a wh-question, the wh-quantifier (WH[x]) c-commands the proposition containing its variable co-indexed with the wh-quantifier/operator. It is
assumed that languages share the same semantic representation of wh-questions regardless of whether a wh-phrase moves overtly or not.

A question that then arises is why English and Korean realize this semantic representation differently at their syntactic interfaces. In English, according to Chomsky (1976), the interpretation of a wh-question is derived from the movement of the wh-phrase, which bears a [+wh] feature. The moved wh-phrase is viewed as a quantifier and its trace or copy as a variable forming an operator-variable relation, just as in structures involving quantifiers. Cheng (1991, 1997) proposes that languages with question particles, like Korean, can type a clause as a wh-question with a Q [+wh] particle; that is, a wh-question marker plays a role in the interpretation of wh-question structures. In wh-in-situ languages, the presence of a wh-operator in C quantifies the wh-in-situ expression itself, yielding the operator-variable relation (e.g., Baker, 1970). I will argue that this analysis holds for Korean.

To identify the wh-question particle in Korean, we need to examine Korean sentential particles first. Korean clauses are typed by specialized sentential particles, encoding the sentential force of a given clause. The location of the sentential particles is assumed to be in the CP domain (e.g., Baker, 1970; Cheng, 1991; Rizzi, 1996; Han,

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6 After examining languages with wh-movement and those with wh-in-situ, Cheng (1991) proposes that questions are marked at surface syntax either by a wh-particle or by wh-movement:
(i) Clausal Typing Hypothesis: “Every clause needs to be typed. In the case of typing a wh-question, either a wh-particle in C is used or else fronting of a wh-word to the Spec of C is used, thereby typing a clause through C by Spec-head agreement” (Cheng, 1997, p. 22).
For example, the sentential particles –*ta*, –*ni* and –*la* mark the clause types declarative, interrogative and imperative, respectively, as in (2.6) below.

(2.6) a. John-i sakwa-lul mek-ess-*ta*.
    John-Nom apple-Acc eat-Past-Decl
    ‘John ate an apple’

    b. John-i sakwa-lul mek-ess-*ni*?
       John-Nom apple-Acc eat-Past-Q
       ‘Did John eat an apple?’

    c. sakwa-lul mek(e)-*la*!
       apple-Acc eat-Imp
       ‘Eat an apple!’

Unlike English, Korean wh-lexical elements occur in matrix clause types other than interrogatives. Consider the following examples:

(2.7) a. John-i mwues-ul mek-ess-**ta**.
    John-Nom THING-Acc eat-Past-Decl
    ‘John ate something’

    b. mwues-ul mek(e)-la/ca!
       THING-Acc eat-Imp/Exh
       ‘Eat something!’/ ‘Let’s eat something’

---

7 Korean uses special particles to mark certain clause types. Based on Shaddock & Zwicky’s (1985) criteria for clause types (which should be mutually exclusive), Korean has three main clause types: declaratives, interrogatives and imperatives (Pak, 2004; Pak, Portner & Zanuttini, 2004). The sentential particles –*ta*, –*ni* (–*nya*, –*ka*, –*kka*), and –*la* mark declaratives, interrogatives, and imperatives, respectively. Many other sentential particles such as –*yo*, –*a/-e* and –*o* are classified as speech style particles or special mood particles which occur across clausal types (see Pak, 2004 for details on sentence final particles).
The wh-lexical item obligatorily receives an indefinite reading when it occurs in the scope of \([-Q, -wh]\) clause type particles such as declarative and imperative markers, as in (2.7). In (2.8), the lexical item can either be associated or not with the question marker. That is, the indeterminate wh-element can have either a wh-question or an indefinite reading. If Cheng (1991) is right, we can assume that the wh-lexical item has the question reading only when the associated Q-particle has the \(+wh\) feature that serves as a binder. Note that following Aoun and Li (1993), I assume that C determines clause type, and its head carries four sets of \([\pm Q]\) and \([\pm wh]\) clause-type features, which are interpretable. More specifically, \([+Q, +wh]\) yields wh-interrogatives. \([+Q, -wh]\) yields yes/no interrogatives, and \([-Q, -wh]\) yields declaratives or imperatives (as the default set).\(^{9}\)

\(^8\) For direct questions, the clause typing particle varies depending on the register: \(ni\) or \(nya\) for the informal speech style question marker and \(–kka\) for the formal speech style marker. In addition, some speech style markers such as \(–o\), \(-e\), \(-yo\) are used as sentential particles for declaratives and interrogatives—in this case intonation distinguishes their illocutionary forces from each other (e.g., Sohn, 1999; Pak, 2004). In colloquial contexts, the plain speech style marker \(–e\) is used across clausal types such as declaratives, wh-interrogatives, and yes/no-interrogatives:

(i) Mary-ka mwues-ul mek-ess-e.
    Mary-Nom THING-Acc eat-Past-Plain
    a. ‘Mary ate something’
    b. ‘Did Mary eat something?’
    c. ‘What did Mary eat?’

When the above sentence ends with a falling intonation without stress on the wh-element, it leads to the declarative reading in (ia); when it ends with a rising intonation without stress on the wh-element, it is interpreted as yes/no question, as in (ib); and when it ends with a falling intonation with stress on the wh-element, it is a wh-question, as in (ic).

\(^9\) In addition, as noted by Aoun and Li (1993), \([-Q, +wh]\) might yield exclamatory constructions:

(i) nalssi-ka elmana cohun-ci
    weather-Nom HOW nice-Sup ‘What wonderful weather!’
Before going into a detailed discussion about the binding relation between the wh-question particle and wh-lexical items in Korean, I would like to first consider the properties of wh-lexical items themselves (henceforth ‘variable’ expressions).

2.2.2. The Properties of WH-elements of Korean as Free Variables

As mentioned in Section 2.1, in Korean, wh-question words and the corresponding indefinite pronouns share the same morphological form\(^{10}\) (e.g., Choe, 1994; Chung, 1996; C-M. Suh, 1989; Kim, 1982; Jang, 1999), a property which is also observed in other wh-in-situ languages, such as Chinese and Japanese (e.g., Cheng, 1991; Kuroda, 1965):

\(^{10}\) It is argued that the adverbial wh-words, except for \textit{way} ‘why’, have two readings as well (e.g., Choe, 1994; A-R. Kim, 2000), as shown in (i):

(i)  
\begin{tabular}{lll}
encey & ‘when’ & ‘sometime’
ettehkey & ‘how’ & ‘somehow’
way & ‘why’ & *
\end{tabular}

However, the two adverbial wh-expressions \textit{encey} ‘when’ and \textit{ettehkey} ‘how’ sound a little bit unnatural associated with the declarative particle \textit{ta}, as in (iia). To receive the indefinite reading in a declarative clause, the existential/universal quantifier particle -\textit{tunci} must attach to the bare adverbial wh-elements, for example, \textit{ettehkey-tun(cj)}. In addition, the adverbial wh-items appear to receive a question reading rather than an indefinite reading when associated with a matrix Q, as in (iib):

(ii) a. ?? Tom-un ettehkey Mary-lul man-ass-ta.
    Tom-Top HOW Mary-Acc meet-Past-Decl
    Lit. ‘Tom met Mary somehow’

    b. Tom-un ettehkey Mary-lul man-ass-ni?
    Tom-Top HOW Mary-Acc meet-Past-Q
    ‘How did Tom meet Mary?’/ ?? ‘Did Tom meet Mary somehow?’

It appears that these adverbial wh-items might not receive an indefinite reading across constructions and the adverbial wh-words tend to receive strong question readings compared to nominal wh-words. Thus, the adverbial wh-words are not considered in this paper.
The close relationship between wh-question words and indefinite pronouns has been pointed out by Katz and Postal (1964), Klima (1964), and Chomsky (1964, 1995), who claim that English-type wh-words (that is, the wh-phrase itself plus the question reading) are composed of a wh-feature, and an abstract element underlying indefinite pronouns (and [±human]) (Chomsky, 1995, p. 263). For example, English what is derived from the conflation of [Wh] and [something] (= [D, non-human]). The first part of the wh-phrase, the (interpretable) wh-feature, is regarded as an operator (or wh-quantifier), which quantifies a proposition containing a variable, and its remaining parts are considered variables (Chomsky, 1964; Kuroda, 1965; Higginbotham & May, 1981). The wh-feature may be morphologically realized as a wh-prefix in English, but there is no corresponding morphological form to the other parts of the wh-phrase. Because English wh-expressions bear the operator, they must be raised to the scope position [Spec, CP] of questions.

The fact that Korean wh-lexical items themselves do not denote wh-interrogatives, contrary to English, suggests that the Q(uestion)-operator is not necessarily associated with the lexical items. The wh-in-situ lexical items in Korean introduce free variables with some semantic restriction (e.g. nwukwu ‘PERSON’: [D, +human]) that must be in the domain of a licensor. Thus Korean variable expressions do not move to the scope position. Accordingly, it has further been proposed that typological variation in wh-

\[2.9\] nwukwu ‘who/whom/whose’ ‘someone’
mwues ‘what’ ‘something’
eti ‘where’ ‘somewhere’

\[11\] The term “operator” is equivalent to “quantifier” in general. In particular, in this paper, the operator feature ([+OP]) indicates a Q-operator.
constructions is attributable to different morphological properties\textsuperscript{12} of wh-lexical items \textit{per se}, such as the absence or presence of a Q-operator in wh-expressions (Watanabe, 1992; Tsai, 1994; Cole & Hermon, 1998; Aoun & Li, 1993, 2003). In other words, crosslinguistic differences in wh-question constructions may be rooted in different assemblies of features in wh-lexical items. As pointed by Cole and Herman\textsuperscript{13} (1998), there might be no need to postulate variation in the selection of (strong) uninterpretable features associated with the [+Q] C. On the basis of the assumption that the Q-feature in C is universally strong, the strong feature is checked by the movement of a single unit ([Operator + Variable]) or by the insertion of Question Operator separately (in in-situ constructions). The configuration of the lexical items contributes to variation in wh-movement across and within languages.

Following Aoun and Li (1993) and Cole and Hermon (1998), I assume that the feature composition of English-type wh-lexical items consist of a Q-operator part and a Variable part, while Korean-type counterparts are only variables without an operator. In the next section, I consider the possible interpretations of variable expressions and the locus of the operator that binds these variables in Korean.

\textsuperscript{12} In Tsai’s terms, the different morphological properties of English-type versus Chinese-type wh-words can be schematized as in (i):

\begin{itemize}
  \item [(i)] English: \texttt{[DP wh + Ind.(x)]-OPx[O]} \hspace{2cm} vs. Chinese: \texttt{[CP OPx[O] … DP WH(x)]} (Tsai, 1994, p. 53)
\end{itemize}

\textsuperscript{13} Cole and Herman (1998) argue that Malay has two options for wh-expressions: they can have either the English or the Korean/Chinese type of assembled features. When an operator is clustered into a wh-expression, the wh-word undergoes movement, obeying the movement constraints. On the other hand, when the operator is separated from the wh-expression, the Malay wh-expression is variable and remains in situ in the domain of an operator.
2.2.3. Multiple Interpretations of Variable Expressions and their Operator Items

Korean variables expressions have at least three possible interpretations—question words, indefinites and universal quantifiers—depending on their context, as in (2.10-2.11):

\begin{align*}
\text{(2.10) a. Mary-ka & mwues-(ul) & sa-ss-\textit{ni}?} \\
& \text{Mary-Nom & THING-Acc & buy-Past-Q_{wh}} \\
& \text{‘What did Mary buy?’} \\
\text{b. Mary-ka & mwues-(i)-nka}^{14} & \text{sa-ss-ta.} \\
& \text{Mary-Nom & THING-\exists-(Acc) & buy-Past-Decl} \\
& \text{‘Mary bought something’} \\
\text{c. Mary-ka & nwukwu-\{i\ tunci/na\} (lul) & cohahan-ta.} \\
& \text{Mary-Nom & PERSON-\forall-(Acc) & like-Decl} \\
& \text{‘Mary loves everyone’}
\end{align*}

\begin{align*}
\text{(2.11) a. Mary-ka & mwues-ul & sa-ss-ta.} \\
& \text{Mary-Nom & THING-Acc & buy-Past-Decl} \\
& \text{‘Mary bought something’} \\
\text{b. mwues-ul & mek-ca!} \\
& \text{THING-Acc & eat-Exh} \\
& \text{‘Let’s eat something!’}
\end{align*}

\footnote{It has been proposed that Korean indefinite pronouns like \textit{mwues-inka} ‘something’ are derived from indirect questions, where Q licenses the variable element (Chung, 1996; Jang & Kim, 1996; Ha, 2004):

(i) \textit{mwues-i-n-ka} \\
\text{THING-be-Present-Q} \\
\text{‘something’}

It is assumed that the question marker \textit{ka} in this context is different from the typical question marker \textit{ni}, which marks a \textit{hearer-addressed} question requiring an answer from a hearer. According to Jang (1999), the question marker \textit{ka} is classified as a \textit{self-addressed} question marker which expresses speaker uncertainty (see Jang, 1999 for detailed discussion):

(ii) a. nay-ka chencay i-n-ka? \\
\text{I-Nom genius be-Present-Q} \\
\text{‘I wonder whether I am a genius’} \\
\text{b. *ne-ka chencay i-n-ka?} \\
\text{You-Nom genius be-Present-Q} \\
\text{‘I wonder whether you are a genius’ (Jang, 1999, p. 850)}

Following Chung (1996) and Kim (2000), -(i)\textit{ka} is considered an existential force particle in this paper.}
In (2.10), there are overt lexical items, namely wh-quantifiers, existentials, and universal quantifiers, which license the interpretation of the variable expression. That is, the variable expression is interpreted as a question word when associated with the question particle –ni in (2.10a); the expression can be interpreted as an indefinite pronoun when bound by the existential licensing morpheme –(i)nika in (2.10b); and the wh-item nwukwu in (2.10c) has a universal quantifier reading associated with the universal licensing morpheme\(^{15}\) –(i)tunci or –na. In (2.11), the variable words receive an indefinite reading in any contexts in which a quantifier is not overtly present, such as in declarative and exhortative (“let’s” construction) contexts. In other words, without the presence of an overt quantifier, the indefinite reading is assigned to the variable expression by default, possibly by being bound by an implicit existential quantifier.\(^{16}\)

\(^{15}\)na and -tunci are argued to function as universal licensing morphemes located in C (C-S. Suh, 1990; C-M. Suh, 1987; Chung, 1996). Some possible evidence for the location of this element is as follows, from Chung (1996):

(i) Mary-ka nwukwu-lul coha-tunci/na, sangkwaneps-ta.
   Mary-Nom PERSON-Acc like-Disj (\(\forall\)) not care-Decl
   ‘No matter who Mary likes, I do not care’

In (i), the universal quantifier licensing particle can also occur in a clausal projection (possibly in the domain of C), rendering the variable word in the clause as a pseudo-universal quantifier. This issue is beyond the scope of this paper, so -na/-tunci is simply labeled as the universal licensing morpheme (Chung, 1996; Kim, 2000; Hong, 2004).

\(^{16}\)In the semantics framework proposed by Kamp (1981) and Heim (1982), when a quantifier force operator is absent in a context containing a variable, an implicit existential quantifier is introduced via a process of \textit{Existential Closure}. For example, in English, indefinites are variables requiring a quantificational force (e.g., Heim, 1982), as in (i). Here the indefinite \textit{a restaurant} receives a universal quantifier reading because it is bound by the adverb \textit{always}, which bears a universal quantificational force.

(i) a. If a restaurant is good, it is always expensive. (Heim, 1982, p. 133)
   b. \(\forall x \ [\text{restaurant}(x) \land x \text{ is good}] \ [x \text{ is expensive}]

However, in a case like (ii) where there is no quantificational element, such as adverbs like always and seldom in the sentence, the variable is bound by an implicit existential quantifier that existentially closes off the nuclear scope.

(ii) a. A man owns a llama
   b. (\(\exists x, y\) \[x \text{ is a man} \land y \text{ is a llama} \land x \text{ owns } y\]) (Diesing, 1992, p. 6)
As also argued in proposals by Nishigauchi (1990) for Japanese wh-in-situ expressions, and Cheng (1997) and Aoun and Li (1993, 2003) for Chinese wh-words, these data suggest that Korean wh-lexical items themselves do not have inherent quantificational force and therefore require licensors bearing quantifier features (e.g., S. Kim, 1989; Jang, 1999; Chung, 2000). Quantificational operators appear to be generated with (c)over particles independently from variable expressions in Korean. As observed in this section, Korean wh-items do not necessarily function as wh-question phrases or existential/universal quantifier phrases. Rather, the interpretation of the variable words varies according to a contextual binder. In the following sections, I discuss the contextual environments that determine the interpretation of wh-(in-situ) items in matrix and embedded constructions.

2.3. Interpretive Environments of Variable Expressions: Matrix Interrogatives

Let’s consider Korean simple interrogatives in detail. Regardless of whether a variable expression is present or not, a sentence with a question marker is interpreted as a question, as illustrated in (2.12):

(2.12) a. John-i sakwa-lul mek-ess-ni?
    John-Nom apple-Acc eat-Past-Decl
    ‘Did John eat an apple?’

b. John-i mwues-ul mek-ess-ni?
    John-Nom THING-Acc eat-Past-Q
    (i) ‘What did John eat?’
    (ii) ‘Did John eat something?’
In (2.12b), when the noun phrase sakwa ‘apple’ is replaced by the variable expression mwues ‘THING’, the variable word in the clause marked by the Q-particle can be interpreted either as a question word or as an indefinite. This indicates that the question marker is employed for both yes/no- and wh-questions.

When we examine simple matrix clauses more closely, intonation appears to play a role in disambiguating the reading of variable elements (e.g., Cho, 1990; Choe, 1994; Jun & Oh, 1996, 2000).

(2.13)  a. John-i mwues-ul mek-ess-ni? ↗
       John-Nom THING-Acc eat-Past-Q
       ‘Did John eat something?’/*‘What did John eat?’

       b. John-i mwues-ul mek-ess-ni? ↘
       John-Nom THING-Acc eat-Past-Q
       ‘What did John eat?’/*‘Did John eat something?’

If there is rising intonation, the variable expression must be construed as an indefinite pronoun, as illustrated in (2.13a), which makes (2.13a) a yes/no question. On the other hand, when the stress is on the variable expression itself, along with a falling intonation, the variable expression is obligatorily interpreted as a wh-question word, as in (2.13b). In other words, it appears that the two readings of the variable expression are disambiguated by prosody in matrix interrogatives (e.g., Martin, 1951; Choe, 1985; Jun & Oh, 1996).17

17 In addition to the prosody condition, adverbial intensifying or delimiting expressions such as totaychey ‘on earth/the hell’ and com ‘a bit/some’, which otherwise contribute little to the denotations of the sentences in which they appear, may play a role in disambiguating the interpretation of Korean wh-in-situ items in matrix interrogatives. The addition of those particular items to the examples in (2.13) leads to disambiguation of the variable expression. For instance, when totaychey occurs in a clause with a wh-word
The different intonation patterns between yes-no and wh-questions, which are also observed in English-type languages, lead us to assume that the Q-morpheme ni is specified with the feature [±wh] in addition to the feature [+Q]. One compelling piece of evidence that supports this assumption comes from the fact that question morphemes for wh-questions morphologically differ from those for yes/no questions in some dialects spoken in Kyeongsang province of Korea (see Kim, 1982; Suh, 1987). In direct interrogatives in these Kyeongsang dialects, the potential ambiguity of variable words is clarified by morphologically different Q-particles. For example, consider the sentences (2.14a) and (2.14b):

(2.14) a. John-i nwukwu-lul cohaha-no\(^{18}\)?
John-Nom PERSON-Acc like-Q [+wh]
(i) *‘Does John like someone?’
(ii) ‘Who does John like?’

b. John-i nwukwu-lul cohaha-na?
John-Nom PERSON-Acc like-Q [−wh]
(i) ‘Does John like someone?’
(ii) *‘Who does John like?’

like (ia), it receives a wh-question reading. In contrast, when com co-occurs with the expression in a simple interrogative like (ib), the sentence is likely to be interpreted as a yes/no question.

(i) a. John-i [totaychey mwues-ul] mek-ess-ni?
John-Nom on earth THING-Acc eat-Past-Q
‘What on earth did John eat?’

b. John-i [mwues com] mek-ess-ni?
John-Nom THING a bit eat-Past-Q
‘Did John eat something?’

\(^{18}\) There is still the same distinctive intonation as in (2.13). That is, in the case of the wh-question (2.14a), the Korean wh-element receives stress with a falling intonation, while in the case of the yes/no question (2.14b), the sentence has rising intonation.
(2.14a), with the [+Q, +wh] particle *no*, must be interpreted as a wh-question, and (2.14b), with the [+Q, −wh] particle *na*, is obligatorily interpreted as a yes-no question, with an indefinite reading for the variable-expression.

Multiple wh-element constructions confirm the suggestion that the reading of variable expressions depends on two types of Q-particles in Korean. If the variable words had inherent quantificational force of their own and did not depend on the [±wh] features specified by Q-particles for their interpretation, then there would be four possible readings for the multiple wh-in-situ constructions. However, this is not the case. Consider the following examples:

(2.15) Nwukwu-ka mwues-ul sa-ss-ni?
    PERSON-Nom     THING-Acc   buy-Past-Q
    (i) ‘Did someone buy something?’ [Rising Intonation]
    (ii) ‘Who bought what?’           [Falling Intonation]
    (iii) *‘Who bought something?’   
    (iv) *‘What did someone buy?’     A-R. Kim (2000, p. 315)

As noticed by A-R. Kim (2000), the two variable expressions in the interrogative clause must have the same interpretation—either both are indefinites (associated with the [−wh] Q-particle) or both have question readings (associated with the [+wh] Q-particle)—which shows that the multiple wh-elements must be unselectively bound by a single licensor (Q-particle).

Thus I propose that Korean variable expressions receive a question reading only when they appear with a sentential particle bearing the features [+Q, +wh]. In some dialects of Korean, such as those spoken in Kyeongsang, the [±wh] features of Q are spelled out as distinct elements; meanwhile those features are identical phonologically.
(but not identical in terms of features) in standard Korean (e.g., Kim, 1982; Choe, 1994; A-R. Kim, 2000).

Consider again the relation between intonation and the reading of variable expressions in matrix interrogatives in (2.13), as repeated here as (2.16-2.17):

(2.16) a. John-i mwues-ul mek-ess-ni? →
   John-Nom THING-Acc eat-Past-Q
   ‘Did John eat something?’/ *‘What did John eat?’
b. [∃x [John-i THING (x)-Acc mekess]-QY/N]

(2.17) a. John-i mwues-ul mek-ess-ni?  
   John-Nom THING-Acc eat-Past-Q
   ‘What did John eat?’/ *‘Did John eat something?’
   b. [OPx [John-i THING (x)-Acc mekess]-QWH]

For yes-no questions, the Q-morpheme lacks the [+wh] feature and is associated with rising intonation. It appears that the [+Q, −wh] feature has phonological properties that require rising intonation. As observed in the previous section, Korean variable expressions are interpreted as indefinites in the unmarked reading when no other quantificational force elements are available to bind them, and thus variable elements governed by the [−wh] Q-particle are interpreted as indefinites. That is, the yes-no question does not appear to contain a lexical quantifier such as a wh-question particle or an existential or universal quantifier particle. Hence, the variable expression is presumably bound by an implicit existential operator, as represented in (2.16b). In the case of wh-questions like (2.17), the question marker carries the [+wh] feature. The Q-operator may be directly merged into [Spec CP] establishing an agreement relation with the head C, which has [+Q, +wh] feature (e.g., Tsai, 1994; Aoun & Li, 1993, 2003; Cole
& Hermon, 1998; Ko, 2005).\(^{19}\) In the logical representation of the wh-question in (2.17b), the Q-operator binds the in-situ wh-expression. Accordingly, because the Q-operator is present, rising intonation is unavailable. Thus, the presence or absence of the Q-operator seems to explain the difference in the intonations of matrix yes/no and wh-interrogatives.

To sum up, I propose that a covert Q-operator is generated with the question particle bearing the \([+Q, +wh]\) features. The presence versus absence of the Q-operator in Korean matrix interrogatives is marked by intonation. The variable expression has a question reading only when bound by the Q-operator; otherwise, it has an indefinite

\(^{19}\) I leave open the possibility that the Q-operator can occur in the Spec of an XP housing clausal typing features projected below TP (as suggested by Aoun and Li, 1993)). However, Ko (2005) proposes that Korean way ‘why’ is directly merged into the Spec of CP in matrix interrogatives and embedded interrogative clauses:

(i) a. Mary-nun way Sewul-lo ttena-ss-ni?
   Mary-Top why Seoul-to leave-Past-Q
   ‘Why did Mary leave for Seoul?’

   John-Top Mary-Nom why Seoul-to go-Past-Q ask-Past-Decl
   ‘John asked why Mary went to Seoul’

Note that way ‘why’ does not have multiple ridings, contrary to Korean other wh-elements, indicating that way ‘why’ has inherent quantificational force.

An alternative analysis is proposed by Watanabe (1992, 2001). Observing that Japanese wh-in-situ constructions appear to be subject to wh-island but not complex NP island constraints, Watanabe (1992, 2001) proposes that a null operator that is part of the wh-phrase overtly moves to the Spec of CP in Japanese.

(ii) a. kara-wa [dare-ga kaita] hon-o yonde-iru no?
   He-Top who-Nom wrote book-Acc read-Prog Q
   ‘Is he reading a book that who wrote?’

b. ??[nani-o doko-de katta ka] oboete-iru no?
   what-Acc where-At bought Q remember-Prog Q
   ‘What do you remember where we bought?’ (Watanabe, 2001, p. 205)

However, as pointed out by Shimoyama (2001), under the (unselective) binding analysis, the wh-island effect can be account for in terms of binding or licensing mechanisms, as in (ii). To receive quantificational force, the wh-element must be bound by the closest operator. Dare ‘who’ can associate with the question particle across the complex NP but the wh-element cannot associate with the question particle across the embedded question particle ka.

(iii) [...WH ..] complex NP] .... Q]
    *[ [...WH ..] ....  Q] ....Q]
reading due to binding by an implicit existential operator. In short, in Korean, the
denotation of a wh-question involves an overt Q [+wh] marker c-commanding a
proposition containing a variable word (e.g., Aoun & Li, 2003).

2.4. Interpretive Environments of Variable Expressions: Embedded Clauses

Let us examine the distribution of variable expressions and their interpretations in
embedded clauses, in which intonation does not play a role. As is well known,
embedding verbs subcategorize for different types of clausal complements (e.g.,
Chomsky, 1965, 1973; Huang, 1982, 1995). Just as in English, the differences in
grammaticality in the Korean complex sentences in (2.18-2.20) are attributed to the
selectional properties of the matrix verbs of the KNOW-type, THINK-type and
WONDER-type. More specifically, Korean verbs like alta ‘know’ can take either
declarative or interrogative clauses, as shown in (2.18). However, a verb like
sayngkakhata ‘think’ takes only declarative complements, as in (2.19), and a verb like
kwungkumhata ‘wonder’ only takes questions, as in (2.20).
(2.18) KNOW-type verb:

   Mary-Top Tom-Nom THING-Acc buy-Past-Decl-C know-Decl
   ‘Mary knows that Tom bought something’

   Mary-Top Tom-Nom THING-Acc buy-Past-Q know-Decl
   ‘Mary knows what Tom bought’

(2.19) THINK-type verb:

   Mary-Top Tom-Nom THING-Acc buy-Past-Sub think-Decl
   ‘Mary thinks that Tom bought something’

   Mary-Top Tom-Nom THING-Acc buy-Past-Q think-Decl
   ‘Mary thinks what Tom bought’

(2.20) WONDER-type verb:

   Mary-Top Tom-Nom THING-Acc buy-Past-Decl-Sub wonder-Decl
   ‘Mary wonders that Tom bought something’

   Mary-Top Tom-Nom THING-Acc buy-Past-Q wonder-Decl
   (i) ‘Mary wonders what Tom bought’
   (ii) ‘Mary wonders if Tom bought something’

\(^{20}\) It is assumed that clause type particles are manifested as a CP (Yoon, 1989; Jung, 1995). The clause type particles are located before the subordinating particle ko. Unlike English in which *that* functions as both a subordinator and clause marker (as a lexical complementizer), in Korean the two elements are separated in declarative clauses, as *ta* (declarative marker) and *ko* (subordinating particle) (Bhatt & Yoon, 1991). For the sake of simplicity, I follow Yoon (1989) in assuming that *ko* acts in general to indicate verbal subordination, at least in the examples in this study. Meanwhile, for Korean indirect questions, *nunci* seems to function as a clause marker as well as a subordinator in that the subordinating particle *ko* is not allowed with the embedded question particle, as in (i):
   (i) Mary-nun Tom-i mwues-ul sa-ss-nunci-(ko) an-ta.
      Mary-Top Tom-Nom THING-Acc buy-Past-Q-Sub know-Decl
      ‘Mary knows what Tom bought’
I put aside detailed discussion for now, but return to the issue of the C-domain in Chapter 6.
The selectional requirements of a matrix verb for its subcategorized complements are realized with sentential particles in Korean: \( ta \) for a declarative complement and \( nunci \) for a question complement. For instance, \( alta \) ‘know’ identifies its embedded clause either as a declarative or an interrogative by use of these particles: Declaratives and interrogatives are introduced by the sentential particles \( ta \) \([-Q]\) and \( nunci \) \([+Q]\) in the clauses it embeds, respectively.

As far as the interpretation of an indeterminate wh-element in embedded declarative clauses (selected by Korean THINK- or KNOW-type verbs) is concerned, the embedded variable expression \( mwues \) ‘THING’ is construed as an indefinite, as shown in (2.18a) and (2.19a). That is, the expression obligatorily has an indefinite interpretation when the declarative particle \( ta \) co-occurs. Recall the simple non-interrogative clause (2.11a), repeated here as in (2.21):

(2.21) Mary-ka \( mwues-ul \) sa-ss-\( ta \).
Mary-Nom THING-Acc buy-Past-Decl \([-Q]\)

(i) ‘Mary bought something’
(ii) *‘What does Mary buy?’

As discussed in the previous section, variable expressions receive an indefinite reading as their default reading when they appear in sentences lacking explicit quantifier particles. The overt presence of a declarative particle \([-Q, \sim wh]\) might also play a role in triggering the indefinite interpretation (non-question reading) of the embedded variable word in (2.18a) and (2.19a).

When matrix verbs select question complements, the variable expression is not uniformly interpreted, as can be seen in (2.18b) and (2.20b). In (2.18b), the variable
expression has a question reading when embedded by *alta* ‘know’. In a case like (2.20b), in which the variable expression is embedded by *kwungkumhata* ‘wonder’, the expression is ambiguous, with an indefinite or a question reading. This shows that referring only to selectional requirements is not sufficient to capture the different interpretations of embedded variable expressions in question complements under KNOW-type and WONDER-type verbs.

This leads us to look at question complements more closely. Although both WONDER-type and KNOW-type verbs take questions as their complements, these question complements cannot be identical. Consider the following embedded interrogatives:

---

21 Note that English verb *remember* takes a question complement but doesn’t allow *if/whether* complements, although the verb *know* takes the *whether*-complements (Hector Campos, p.c.). As pointed out by Campos, the question complements embedded by KNOW-type verbs in English can be treated as free relative clauses.

(i) I know what John ate. (=I know the thing which John ate)

However, in Korean, there are syntactic differences between embedded wh-question clauses and relative clauses in terms of the wh-question particle and the variable expressions.

(ii) a. na-nun John-i mek-*un kes-ul* an-ta.
   ‘I know the thing which John ate’

b. na-nun John-i *mwues-ul* mekess-*nunci* an-ta.
   ‘I know what John ate’

22 It has been noted that the embedded question markers *whether* and *if* in English complex sentences exhibit different distributions (e.g., Bolinger, 1978); *whether*-complements are more widely used than *if*-complements.

(i) a. The bartender told me *who* was drunk/*whether* I was drunk.
   b. # The bartender told me *if* I was drunk. (Adger & Quer, 2001, p. 109)
The verb *kwungkumhata* ‘wonder’ takes a question complement regardless of whether a variable expression is present or not, as shown in (2.22). The well-formed sentence (2.22a), in which the question complement (selected by *kwungkumhata* ‘wonder’) contains no variable element, suggests that the embedded Q lacks a [+wh] feature, and thus the Q-marker does not require a variable in its domain. Notice that the embedded

---

23 Note that the other possible embedded question particle – *nunka* ‘if’ can be selected by the Korean WONDER-type verbs but not by the KNOW-type verbs.

(i) *na-nun Tom-i kapang-ul sa-ss-nunka kwungkumha-ta.*

(I-Top Tom-Nom bag-Acc buy-Past-Q wonder-Decl
‘I wonder if Tom bought a bag’

b. *na-nun Tom-i kapang-ul sa-ss-nunka an-ta.*

(I-Top Tom-Nom bag-Acc buy-Past-Q know-Decl
‘I know if Tom bought a bag’

---
question particle nunci is employed for both types of interogatives. However, the verb alta ‘know’ cannot select a question complement with a noun phrase, as shown in (2.23a). The embedded clause here is anomalous when the noun phrase kapang ‘bag’ replaces the variable expression mwues ‘THING’—which would otherwise indicate the presence of an operator—associated with the embedded Q. In addition, in contrary to the WONDER-type verb like (2.22c), the KNOW-type verb cannot select an alternative question, as shown in (2.23c). This appears to indicate the Korean KNOW-type verbs can take wh-question complements but not whether-complements. The ungrammaticality of (2.23a) and (2.23c) and the grammaticality of (2.23b) require further division in relation to wh-question and yes/no question complements.

It has been noticed that the two types of verbs that embed questions (KNOW-type verbs vs. WONDER-type verbs) have different denotations—Mary knows the true answers to the question What did Tom buy? in (2.23b), when embedded under KNOW-type verbs, but no such entailment is understood in questions embedded under WONDER-type verbs, as in (2.22b). Complements of verbs like alta ‘know’/kiekhata

\[\text{\textcircled{24}}\] An embedded question without a variable expression under a KNOW-type verb is better when in the context of a matrix yes/no question or matrix negation.

(i) a. Mary-nun Tom-i kapang-ul sa-ss-nunci a-ni?
   Mary-Top Tom-Nom bag-Acc buy-Past-Q know-Q
   ‘Does Mary know whether Tom bought a bag?’

   b. Mary-nun Tom-i kapang-ul sa-ss-nunci molun-ta.
   Mary-Top Tom-Nom bag-Acc buy-Past-Q not know-Decl
   ‘Mary doesn’t know whether Tom bought a bag’

This observation can also be found in English with respect to the KNOW-type verbs:

(ii) a. I don’t remember if you ate/*I remember if you ate.
   b. I don’t know if you ate/*I know if you ate.

Here the semantic property of the matrix verb is changed from factivity to nonfactivity by the addition of a yes/no question force or negation. In other words, in yes-no and negation contexts, the embedding verb is not a real propositional predicate. These unselected embedded questions are beyond the scope of this paper. See Adger and Quer (2001) for relevant discussions.
‘remember’ are propositional, the set of propositions expressed by the true answers to the embedded question. In contrast, complements of verbs like kwungkumhata ‘wonder’ are not propositional (Groenendijk & Stokhof, 1982; Berman, 1991; Lahiri, 1991). As argued by Adger and Quer (2001), these question embedding verbs must be further divided into P(ropositional-selecting) and Q(uestion-selecting) predicate classes. Verbs like KNOW and REMEMBER fall into the P-predicate class and verbs like WONDER and ASK fall into the Q-predicate class. It appears that the KNOW-type verbs take wh-question complements but not yes/no question complements in Korean. On the other hand, the WONDER-type verbs take both wh-questions and yes/no questions as complements.

Turning now to the interpretations of variable expressions in indirect questions, the interpretation of a variable expression under the Q-predicate kwungkumhata ‘wonder’ is, as mentioned above, ambiguous, as seen in (2.20b). This could be explained by

---

Groenendijk & Stokhof (1982) categorize question-embedding verbs into intensional predicates (WONDER-type verbs) and extensional predicates (KNOW-type verbs), which is independent of the nonfactive versus factive verb distinction, a presupposition-based distinction. In their account, the intensional matrix predicates directly embed a question act, and the sentence as a whole functions as a matrix question. Meanwhile the extensional predicates introduce a meaning which extensionalizes the relation between the matrix predicate and the embedded clause, changing the question act to the set of propositions that are true answers to the embedded question.

Note that these subclasses (P-predicates vs. Q-predicates) do not always have one-to-one mappings to verb classes (WONDER-type versus KNOW-type) classified by selectional requirements. For example, the Korean verb moluta ‘not know’ and molukessta ‘not sure’ fall into the WONDER-type class and only take a question complement.

(i) a. (Na-nun) Mary-ka mwues-ul mek-ess-nunci molun-ta.
   I-Top Mary-Nom THING-Acc eat-Past-Q not know-Decl
   ‘I don’t know what Mary ate’ / ‘I don’t know if Mary ate something’

   I-Top Mary-Nom THING-Acc eat-Past-Q not know-Modal (epistemic)-Decl
   ‘I am not sure what Mary ate’ / ‘I am not sure whether Mary ate something’

However, moluta ‘not know’ is a member of the P-predicate class while molukessta ‘not sure’ is a member of the Q-predicate class. That is, the variable expression obligatorily receives a question reading when it is in a question complement under the P-predicate moluta ‘not know’, while the variable expression has ambiguous readings when it is embedded by the Q-predicate molukessta ‘not sure’.
suggesting that when the variable expression receives a question reading, the question marker is specified as [+wh], while when the expression receives an indefinite reading, the embedded Q is specified as [−wh]. This further indicates that the question predicates (of question-embedding verbs) can optionally select either [+wh] or [−wh] features. Meanwhile, the variable expression in an indirect question is obligatorily interpreted as a question word when embedded under the P-predicate KNOW, as seen in (2.18b), which indicates that there is a [+wh] Q. The propositional predicate must therefore select the wh-feature for its interrogative complement. Presumably, Korean embedded question markers (like matrix Q-markers) are differentiated by the features [±wh]. This is supported by the morphologically distinctive embedded Q-markers in the Kimhay dialect:

(2.24) a. nay-nun [Swunhi-ka Chelswu-lul cohaha-{na/*nunkong}] kwungkumha-ta.
   I-Top Swunhi-Nom Chelswu-Acc like-Q[−wh]/Q[+wh] wonder-Decl
   ‘I wonder if Swunhi likes Chelswu’

   b. nay-nun [Swunhi-ka nwukwu-lul cohaha-{nunkong/*na}] kwungkumha-ta.
   I-Top Swunhi-Nom who-Acc like-Q[+wh]/Q[−wh] wonder-Decl
   ‘I wonder who Swunhi likes’

   (Choe, 1994, p. 279)

In (2.24a), the Q-marker nunkong, which carries a [+wh] feature, cannot co-occur with a non-question word. On the other hand, in (2.24b), the Q-marker na, which has a [−wh] feature, cannot co-occur with the question reading of nwukwu ‘who’. It appears that as we have observed for the matrix question particles, the embedded question particles can be specified with either [+Q, +wh] or [+Q, −wh]—although they share the same morphological form nunci in standard Korean.
Accordingly, we assume that a wh-question particle is selected by a matrix P-predicate such as *alta* ‘know’ in Korean. The following example confirms that there is an operator (associated with the Q-particle *nunci*), functioning as a scope marker, just as wh-phrases in English do (Kim, 1982; Choe, 1994):

(2.25) Mary-nun [John-i nwukwu-lul cohaha-*nunci*] a-ni?
   Mary-Top John-Nom PERSON-Acc like-Q know-Q
(i) ‘Does Mary know who John likes?’
(ii)*‘Who does Mary know whether John likes?’

In (2.25), when Q appears in both embedded and matrix clauses, the wh-word takes only narrow scope. It is difficult to construe a variable element within an embedded question clause as taking matrix scope. The sentence is interpreted as a yes-no question, as illustrated in (2.25). This indicates that the variable element is bound by the closest operator, which determines the scope of the expression. The variable expression cannot be licensed by the matrix Q across the embedded scope marker, since the scope assignment of quantificational expressions obeys a locality constraint (e.g., May, 1977, 1985).

In short, based on evidence from the Kimhay dialect, embedded question markers can be specified as either [+wh] or [−wh], although embedded yes-no Q and wh-Q particles in Standard Korean are morphologically identical, as pointed out by Choe (1994). Table 2.1 summarizes the environments in which [wh] and [Q] features are distributed in relation to embedding verbs:
Table 2.1. Korean Embedding Verbs and Complements

<table>
<thead>
<tr>
<th>Verb Type</th>
<th>Declarative [−Q]</th>
<th>Interrogative [+Q]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes/no Question</td>
<td>Wh-Question</td>
</tr>
<tr>
<td></td>
<td>[−wh]</td>
<td>[+wh]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>verb</th>
<th>declarative</th>
<th>interrogative</th>
</tr>
</thead>
<tbody>
<tr>
<td>sayngkakhata</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>kwungkumhata</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>alta</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

The remainder of this study will focus on clauses embedded by KNOW type-verbs in the acquisition of the interpretation of Korean variable expressions. This is because the interpretation of a variable expression is determined by overt sentential particles: the declarative particle ta for the indefinite reading and the question particle nunci for the question reading. Thus, as discussed in this section, Korean KNOW-type verbs can select either the declarative particle [−Q, −wh] for the declarative complement or the interrogative particle [+Q, +wh] for the question complement.

2.5. Crosslinguistic wh-constructions in English and Korean

In this section, after briefly providing a descriptive account of English direct and indirect interrogatives, I will analyze the differences in the properties of wh-expressions and the functional category CP between English and Korean in terms of uninterpretable and interpretable features.

As far as English simple interrogatives are concerned, the features [+Q] and [+wh] are employed for wh-questions, and presence or absence of a moved wh-phrase in
SpecCP (due to the wh-feature in the wh-word) differentiates yes/no and wh-interrogatives. English yes/no- and wh-questions are shown in the sentences in (2.26) below:

(2.26) a. Did John eat something?   (Rising intonation)
   b. What did John eat?   (Falling intonation)

Although the Q-feature is not overtly realized, Subject-Auxiliary inversion indicates the presence of a Q-feature in the English matrix interrogatives in (2.26). Like Korean, English has intonational differences between wh- and yes/no matrix interrogatives. However, the intonation pattern does not play a key role in distinguishing a wh-question from a yes-no question in English. Rather, the presence of a wh-word which obligatorily moves to the Spec of CP marks the clause as a wh-interrogative. In English, the wh-expression has inherent quantificational properties: for example, a Q-operator [wh/Q] and a variable [D, −human] are lexicalized in the single lexical item what, and thus it has an independent interpretation, with only the question reading.

As for English complex sentences, embedded clauses are marked by particular lexical items: that for an embedded declarative and a wh-phrase for an embedded wh-question:

(2.27) a. John knows \([CP (that) Mary bought something]).
   b. John knows \([CP what, [∅ [Mary bought \(t_i\)])].\)
With regard to embedded wh-questions, as in (2.27b), the [+Q, +wh] morpheme is null. Indirect wh-questions are marked by the movement of a wh-phrase to the embedded Spec of CP, which has to move because the wh-phrase carries an Operator.

Table 2.2 summarizes the differences in the realization of (interpretable) clause-typing features between English and Korean. In contrary to English, the clause-typing features domain is morphophonologically richly manifested in Korean.

Table 2.2. Feature Organization and Spell-outs for Clause Typing

<table>
<thead>
<tr>
<th></th>
<th>Matrix Clause</th>
<th>Embedded Clause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
<td>Korean</td>
</tr>
<tr>
<td>Declarative</td>
<td>[−Q, −wh]</td>
<td>ta</td>
</tr>
<tr>
<td>Yes/No Interrogative</td>
<td>[+Q, −wh]</td>
<td>ni (+rising)</td>
</tr>
<tr>
<td>Wh-interrogative</td>
<td>[+Q, +wh]</td>
<td>ni (+falling)</td>
</tr>
</tbody>
</table>

In English, the composition of [−wh] and [−Q] features is not overtly realized in matrix clauses but it can be optionally marked by the functional lexical item *that* in embedded clauses. On the other hand, such features are obligatorily manifested as *ta* in both matrix and embedded clauses of Korean. In English, the features [+Q, −wh] and [+Q, +wh] in the head of CP are not manifested as lexical items in matrix clauses, but the [+Q, −wh] features are realized as *if* in embedded clauses. In Korean the two types of interrogatives are overtly realized as different items in matrix and embedded clauses. As for matrix interrogatives, although they share the morphological expression *ni*, different intonation patterns differentiate [+Q, −wh] (*ni* + rising intonation) from [+Q, +wh] (*ni* + falling
intonation). For embedded interrogatives, *nunci* is utilized for marking [+Q, +wh] and *nunci (aninci)* is employed for marking [+Q, −wh].

Let’s consider the crosslinguistic differences between English and Korean in relation to wh-question constructions in more detail. Table 2.3 shows the selection and assembly of features in the C domain of each language.

Table 2.3. Selection and Assembly of Features of Wh-expressions in the C domain

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

As far as the features related to the functional category CP are concerned, according to Chomsky (1998), an (uninterpretable) EPP-feature is selected in the head of CP in English and is eliminated by movement of the wh-expression to [Spec, CP]. On the other hand, in Korean, the complementizer does not select an EPP-feature, resulting in no overt movement of a wh-item. Meanwhile, the head of C presumably selects both interpretable [+Q] and [+wh] features universally in the construction of wh-question structures. Although in the minimalist program the head C of yes-no and wh-questions appears to be uniformly treated as [+Q], with the [±wh] feature not specified, some
languages such as Chinese and some Korean dialects employ morphologically different question particles for yes-no and wh-questions. Thus, following Aoun and Li (1993), Choe (1994), and Kim (2000), I have assumed that languages have \([\pm Q]\) and \([\pm wh]\) feature combinations in the functional category C, which determines sentential forces. The features \([+Q]\) and \([+wh]\) on C are not lexically realized in English while they are realized as the sentential particles \(ni\) and \(nunci\), for matrix and embedded interrogative clauses in Korean, respectively.

With respect to the DP domain, the interpretable \([Q\text{-}operator]\) and \([Variable]\) features are integrated into wh-expressions \([\{OP + VAR\}]\) in English. These features can not be easily teased apart by identifying which morpheme in the wh-expressions corresponds to which feature, though it seems possible that the operator feature might be realized as the morpheme \(wh\) in wh-words like \(who\). Because English wh-expressions contain an operator feature, they must be moved to the scope position. All of the elements of the wh-expression move together to \([Spec, CP]\) (via pied-piping), as they are inseparable. The copy of the moved wh-phrase functions as a variable in the logical representation. Korean wh-lexical items lack inherent quantificational force (an operator) and thus are variables. As discussed by Chomsky (1995), an abstract element underlying indefinite pronouns and the feature \([\pm \text{human}]\), which together make up a variable, are assembled in the Korean wh-elements. Because the Korean wh-lexical items are variables \([\{VAR\}]\), they need an operator to bind them. A null operator appears in the Spec of C with the features \([+Q, +wh]\) and the variable expression in the domain of the Q-operator is obligatorily interpreted as question word.
2.6. Possible Learning Problems

Let us now turn to the issue of learning problems confronting English-speaking learners of Korean in acquiring the interpretation of Korean variable expressions. Before entering into a discussion of these learning problems, I briefly review the crucial properties of Korean wh-in-situ constructions and the interpretation of variable expressions. This study focuses on two different interpretations of variable elements—question and indefinite readings in simple interrogatives and embedded clauses.

As discussed above, a variable expression is interpreted as a question only when it is licensed by a Q-operator. The realization of the Q-operator varies in different types of constructions. With respect to matrix question constructions, the question-operator is associated with a particular intonation. For instance, when an operator occurs in the C domain, the interrogative has falling intonation, as in (2.28a). In the absence of the Q-operator, the interrogative has rising intonation and an indefinite reading for the variable expression, as in (2.28b).

(2.28) a. John-i mwues-ul mek-ess-ni? (Falling intonation)
    John-Nom THING-Acc eat-Past-Q_wh
    ‘What did John eat?’

    b. John-i mwues-ul mek-ess-ni? (Rising intonation)
    John-Nom THING-Acc eat-Past-Q_y/n
    ‘Did John eat something?’

In embedded clauses, in particular with KNOW-type verbs, the operator co-occurs with the overt wh-question marker nunči. The interpretation of the embedded variable expression depends on the type of the clause embedded under the KNOW-type verbs,
which can take either declarative or (wh-)interrogative complements. When licensed by
the [wh] Q-particle *nunci*, the embedded variable expression receives the question
reading, as in (2.29a). When it occurs with the embedded declarative particle *ta*, which
indicates the absence of a Q-operator, the variable element has the default indefinite
reading, as illustrated in (2.29b):

(2.29) a. John-un Mary-ka *mwues-ul sa-ss-nunci* an-ta
    John-Top Mary-Nom thing-Acc buy-Past-Q know-Decl
    ‘John knows what Mary bought’

    b. John-un Mary-ka *mwues-ul sa-ss-ta-ko* an-ta
    John-Top Mary-Nom thing-Acc buy-Past-Decl-Sub know-Decl
    ‘John knows that Mary bought something’

The acquisition of wh-in-situ items has not been seriously taken into account in
second language research, based on the assumption that the properties of wh-lexical items
in wh-in-situ languages like Korean are not different from those of wh-lexical items in
wh-movement languages like English, except for the absence of wh-movement. Because
wh-lexical items do not undergo overt movement in wh-in-situ languages, it has been
assumed that as long as speakers of wh-movement languages learning wh-in-situ
languages have acquired lexical items corresponding to their L1 wh-question words, there
should not be any considerable learning problems. However, as we have observed above,
a speaker of a wh-movement language learning a wh-in-situ language might have to deal
with complex licensing conditions in order to appropriately interpret variable expressions
in wh-in-situ languages like Korean.
In relation to the acquisition of the interpretation of Korean variable expressions by native speakers of English, L2 speakers must reorganize features on the L1 wh-lexical items to provide correct non-question readings for the corresponding L2 lexical items in obligatory contexts. Note that the acquisition of new features is not required to master the L2 lexical items in question (e.g., wh-elements, clause-typing particles). In addition, it appears that the features involving quantifier readings such as wh-question, existential, and universal readings appear in all natural languages. Therefore, an important learning task facing the native English speakers is to redistribute the relevant features as required by the L2. More specifically, the learning problems do not simply involve the selection of certain features (regardless of whether the features are interpretable or not) that are not present in their L1, since the presence or absence of multiple readings of wh-elements is not due to differently selected features between the L1 and the L2. Rather, learning problems posed by language-specific assemblies of features arise (e.g., Lardiere, 2005, 2007a, 2008, 2009). In other words, assuming that primitive interpretable features are present in any speaker’s mental representation, the learning problems are due to a failure to figure out how those features are distributed and realized under a certain condition in their L2 Korean.

Both English and Korean select the features [Q] and [wh] when generating wh-expressions. However, these features are assembled and manifested differently in each language. In English, the Q/wh-operator is conflated into the wh-lexical items themselves. Accordingly, English wh-lexical items have a fixed question interpretation. Inherent quantificational forces are generated as one of the features of English nouns,
such as *who* ([wh]), *something* ([∃]), and *everything* ([∀]), and thus their quantificational readings do not depend on other lexical items. On the other hand, in Korean, wh-lexical items are variables lacking inherent Q-operators or other quantifier operators. Therefore wh-question words like *who* and *what* and their corresponding existential quantifiers *someone* and *something* are not lexically differentiated. The readings (question vs. existential or universal quantifier) of Korean variable expressions are determined within the domain of an appropriate binder, which is realized as an independent lexical item. The [+wh] and [+Q] features in Korean are realized on sentential particles, which play a role in indicating the presence of the Q-operator.

Native speakers of English therefore need to acquire the L2 Korean sentential particles which morphologically realize the features in the C. The fact that [+wh] and [−wh] question markers share their morphological forms in Korean might add a burden to the learners’ mastery of licensing markers (or sentential particles). Moreover, the features [+wh] and [+Q] are manifested differently in different structures: they appear as *ni* with a falling intonation in matrix interrogatives, and as *nunci* in embedded interrogatives. This suggests that learners must also determine how those features are manifested in different constructions. Even if the learners manage to acquire the sentential particles, it is still possible that they would not correctly interpret variable expressions bound by the corresponding operators until they have acquired the properties of the Korean wh-lexical items as variables. Native speakers of English might not be sensitive to binding relations between variable expressions and (Q- and default existential quantifier) operators because their L1 wh-lexical items carry a Q operator on their own.
Accordingly, learners encounter a complex learning task in the acquisition of the interpretation of L2 Korean variable expressions. Unless they recognize the different configurations of the relevant features in question, they will not be able to correctly interpret variable expressions in L2 Korean. In addition, the acquisition of the interpretation of Korean variable elements is mainly related to configurations of interpretable features and thus the learners might not have sufficient negative evidence; that is, since the interpretation of L2 wh-lexical items does not involve the grammaticality of wh-in-situ constructions in terms of the position of the lexical items, L2 learners’ incorrect question readings of wh-lexical items in wh-in-situ constructions might not be visible to native Korean speakers. For instance, a L2 speaker might answer ‘Tom’ to the yes/no question *nwu-ka wass-ni?* (*Who came?’/’Did someone come?’). Accordingly, the learners may not get feedback from native speakers of the target language. Thus, it seems that the acquisition of the interpretation of Korean variable elements is not guaranteed to succeed. In particular, the indefinite reading of variable elements may not be easily acquirable by native speakers of English. Even when they lack [+wh] and [+Q] features in the L2 C domain, the learners might be likely to provide the question reading for variable expressions due to the influence of L1 configurations of relevant features on the L2. In their L1, the interpretable features in question are assembled in the wh-lexical item itself and thus the wh-lexical item in English is obligatorily interpreted as question word. Nonetheless, the necessary re-assembly of features should be gradually acquired, since it involves learning rather than the (re)setting of parameterized (uninterpretable) features (which is argued to be unacquirable by
proponents of no parameter resetting views). So it is expected that less proficient learners would provide an incorrect question interpretation for variable expressions in the absence of a question-operator significantly more often than more proficient learners. Furthermore, L1 influence on the assembly of relevant features might be sustained in some highly proficient learners’ L2 grammars due to the complexity of the learning tasks (in particular, in acquiring the different clusters of features and their phonological realizations in different contexts) and to the lack of negative evidence.

2.7. Summary

This chapter has examined the properties of Korean variable expressions and the contextual environments where variable expressions receive different interpretations. Following the proposals of Nishigauchi (1990), S-W. Kim (1989), Cole and Hermon (1998), Tsai (1999), Aoun and Li (1993, 2003) and many others, I assume that Korean wh-lexical items are variables and thus that their interpretations vary depending on the type of the (quantificational) operators that bind them. In Korean, wh-lexical items do not seem to play a key role in the interpretation of wh-questions. Rather, Q-particles that bear a [+wh] feature lead to a question reading. The [+wh] Q-particle appears to take over the role of an English-type wh-phrase (operator). The generalization just reached shows the relevance of Q-features to the licensing of the question interpretation of Korean variable expressions. The presence versus absence of [+Q, +wh] features is realized in prosodic patterns (falling vs. rising intonations) and sentential particles (nunci
vs. *ta*) in the case of matrix and embedded clauses containing the wh-in-situ items, respectively.

Based on a comparative analysis of English and Korean wh-constructions, possible learning problems confronting native speakers of English acquiring the interpretation of Korean variable expressions were also discussed. The learning problems might involve figuring out how the features of [Q], [wh], and [Variable] are realized lexically in each construction and how the binding relationship between a variable expression and an operator is achieved in L2 Korean.
Chapter 3
Parameters and Parameter Setting in SLA

This chapter presents an overview of the notion of parameters and parameter setting, and then addresses its implications for and challenges in adult second language acquisition.

In this chapter, before addressing some of the unresolved issues of parameter setting in adult L2 acquisition, we first need to explore the essential issue of what constitutes a parameter by examining different notions of parameters and views of parameter setting in the generative linguistic framework. Diverse notions of parameters, which differ as to where syntactic properties are parameterized, are examined. Next, we will address views on parameter re-setting as it applies to L1 transfer in L2 acquisition. After discussing the parameter resetting approaches in L2 acquisition, we will tackle issues and learning problems that must be solved by going beyond the parameter setting metaphor.

This chapter is organized as follows. In Section 3.1, parameters and parameter setting are defined as they are in the Principles and Parameters theory, followed by historical perspectives on the standard view of parameters (within Chomsky’s frameworks). In Section 3.2, two contrasting views (macro- versus micro-parameter) are discussed with respect to scope of parameters. In Section 3.3, the parameters associated with functional categories considered in SLA research are examined. In Section 3.4,
parameter resetting views in relation to L1 transfer are discussed. In Section 3.5, morphological variability issues are introduced and how they are explained under parameter resetting models is visited. In Section 3.6, three relevant SLA proposals about non-native-like divergence are examined and applied to possible sources of non-target performance in the acquisition of the reading of Korean variable expressions by adult native speakers of English. Finally, the chapter 3 is summarized in the section 3.7.

3.1. Parameters in the Minimalist Program

Since 1965, Chomsky has explored “an element of shared biological endowment” (Chomsky, 1981, p. 8), referred to as Universal Grammar (UG), which characterizes the representation and acquisition of natural languages:

The main task of linguistic theory must be to develop an account of linguistic universals that, on the one hand, will not be falsified by the actual diversity of languages and, on the other, will be sufficiently rich and explicit to account for the rapidity and uniformity of language learning. (Chomsky, 1965, p. 28)

In other words, the theory of Universal Grammar satisfies the following two conditions: (1) “it must be compatible with the diversity of existing (or possible) grammars” and (2) “[it] must be sufficiently constrained and restricted in the options it permits so as to account for the fact that each of these grammars develops in the mind on the basis of quite limited evidence” (Chomsky, 1981, p. 3). UG theory holds that a speaker is born with the knowledge of a set of principles for all languages and limited options of parameters that encode variations among languages.
As an evolution of generative theory within the Principles & Parameters (P & P) model, the Minimalist Program (MP) aims at the optimal design for language in terms of *economy of derivation*. The MP assumes that the language faculty consists of a cognitive system (a computational system and lexicon) and a performance system (the external systems of articulatory-perceptual and conceptual-intentional), which interacts with the cognitive system at two interface levels of PF and LF, respectively. That is, the MP is a theory of language that attempts to satisfy the requirement of an “optimal solution to interface conditions” (Chomsky, 1995, p. 2). This leads to a radical simplification of the nature of UG, yielding a model in which the notion of linguistic level is largely reduced to ‘bare phrase structure’ (= narrow syntax) in which semantics and phonological properties are built derivationally.

In relation to the nature of parameters, parametric variation is confined to the lexicon (Borer, 1984; Chomsky, 1995). According to Chomsky, “there is a single computational system $C_{HL}$ for human language and only limited lexical variety” (Chomsky, 1995, p. 7). In other words, parametric variation is related to functional lexical items rather than to the grammars of entire languages (as hypothesized in the earlier GB-version of the parameter view). In minimalist terms, the (inflected) lexicon enters the computational system and a derivation set is generated. Any derivation needs to converge—to be interpretable—at both interface levels PF and LF; if a derivation is not interpretable at the interface levels, it crashes.

With the further development of the theory of functional categories (Fukui & Speas, 1986; Pollock, 1989), Chomsky postulates that parameterization is restricted to
functional heads like T(ense), Agr(eement), Comp(lementizer) and Det(eminizer). In the early years of Minimalism, the notion of parameters was described in terms of the feature strength of a functional head. A formal feature associated with a particular functional category could be strong or weak across languages, resulting in different syntactic consequences. If a functional head is specified as strong, then the strong feature triggers overt movement, since the feature presumably must be checked by a categorical feature (Chomsky, 1995, p. 232). It is assumed that although the inventory of functional heads might be encoded uniformly by UG, the feature strength or value of each of these heads is specified for each language.

More specifically, feature strength is treated as an abstract morphological property. A strong feature is required to be checked before Spell-Out (the mapping to the phonological component), forcing overt movement of inflected lexical items; otherwise, strong features will cause a derivation to crash. On the other hand, a weak feature is not visible at PF and thus does not need to be checked off before Spell-Out. Note that in the earlier version of the standard parameter view, a particular setting for the Head directionality Parameter was required for each language; but in the MP, strength must be specified in individual functional heads. Parametric variation in languages is assumed to occur in relation to the properties of functional heads. For example, in relation to wh-movement, English-type languages are assumed to have a [+strong] C (or Q) and thus a wh-expression undergoes movement to check the strong feature in the C. Since languages like Chinese and Korean have a [−strong] C feature, which is invisible at the PF level, there is no movement triggered. In the early MP, the parametric distinctions
across languages were accounted for in terms of the binary choices of parameters, namely strong versus weak feature values. As pointed out by Vincent (1997) among others, however, no independent principles determine the strength of functional heads (or features), particularly given that there is no necessary correlation between overt morphology and strength.

The locus of parametric differences in the MP in terms of the strength of a functional head has more recently been placed on individual lexical items in functional categories, making reference to (un)interpretable features. That is, lexical items associated with functional categories are postulated to have an uninterpretable feature which needs to be checked before Spell-Out. It appears that the concept of functional strength is dispensed with or is weakened. Stressing “an optimal solution to minimal design specification” (Chomsky, 2001, p. 1), the principles of UG are reduced to basic syntactic operations (Merge, Agree, and Move), and conditions on Spell-Out. In MP terms, UG makes available a set of features and a series of computational procedures (limited to recursive Narrow Syntax) that access features of generative expressions (Chomsky, 2001, p. 40). That is, for each language, a subset of features is selected from the full set of features and is assembled as its lexicon. Chomsky (1998, p. 13) writes:

L(anguage) makes a one-time selection of a subset [F] of F, dispensing with further access to F. It is reduced further if L includes a one-time operation that assembles elements of [F] into a lexicon Lex, with no new

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27 Three operations Merge, Agree, and Move enter the computational system. Merge is a primary operation in the system, which takes units and combines them. This operation is therefore ‘costless’. Agree and Move (combining Merge and Agree) are apparent ‘imperfections’ of the system, which result from the presence of ‘uninterpretable’ (formal) features.

28 Chomsky (1998, p. 13, n27) puts aside the issue of feature assembly, saying that “I will put these topics aside here, including questions about organization of assembled features within a lexical item LI. Also left
assembly as computation proceeds. On these assumptions, acquiring a language involves at least selection of the features [F], construction of lexical items \textit{Lex}, and refinement of $C_{HL}$ is one of the possible ways—parameter setting.

In this view, every formal feature (interpretable or not) becomes associated with items in the lexicon before the numeration is constructed. Assuming the presence of certain distinct functional categories across languages, cross-linguistic variation is hypothesized to arise because of the parameterization of the lexicon (these features).

As mentioned for the early MP, during the derivation features must satisfy the full interpretation of the interface levels. All uninterpretable features\textsuperscript{29} (such as EPP or Phi-features) have to be checked and eliminated in the derivation before Spell-Out: this is assumed to be the mechanism of movement (or dislocation). On the other hand, the interpretable features, like Number, can be checked but not eliminated since they need to persist until LF in order to convey meaning. For instance, the wh-parameter follows from the presence of an uninterpretable [wh] feature (of C) with a strong value that triggers movement of wh-phrases to a sentence-initial position (Adger, 2003).

We have briefly examined how parameters are perceived within the standard parameter theory. Parametric variation was initially assumed to lie in a small set of options associated with grammatical rules (or principles). However, later it was proposed that parameters were reducible to lexical variety: “variation of language is essentially morphological in character, including the critical question of which parts of a 

\textsuperscript{29} An imperfection of language, uninterpretable formal features must be deleted in the course of the computation of LF by forming the probe-goal relationship with relevant interpretable features in a local domain.
computation are overtly realized” (Chomsky, 1995, p. 7). This modification of parametric views has triggered the fine-grained parameters proposed in current linguistic theory; more discussion of this issue will appear in the next section. The notion of parameters is seemingly moving toward them being more idiosyncratic properties of lexical entries.

3.2. Micro-Parameter versus Macro-Parameter Views

There are two broad approaches to identifying parameters, which depend on the extent to which a particular parameter determines variation in terms of its range—Micro and Macro parameters.

Kayne (1996, 2000, 2005) and Rizzi (1982, 1997) argue for micro-parameters, parameters with a very small range, to account for syntactic variation (generally by contrastively comparing Romance dialects). Kayne (2005) claims that micro-parameters could shed light on aspects of parameters “by examining sets of very closely related languages that differ from one another in only a relatively small number of syntactic ways” (p. 3). In other words, because investigating closely related languages can minimize the interactions of distinct parameters, it is argued that we can easily identify a parameter differentiating one language from another and determine the consequences of that parameter. Proponents of micro-parameters focus on morphosyntactic properties associated with functional heads, particularly clitic behavior, participle agreement, null subjects and verb movement across Romance dialects. This falls under the recent view of parameters under the MP, according to which the locus of parameterizations is assumed
to reside in functional heads. Kayne (2005) notes that the “dramatic” range of effects of a parameter is arbitrary, and each parameter does not necessarily “have an equally wide range of effects” (p. 5). In addition, it is possible that micro-parameters are involved in the larger parameters that differentiate between different language groups. According to Kayne (2005, p. 10), “every parameter is a micro-parameter.”

Under the micro-parameter view, many distinctive parameters can be generated. Renzi and Vanelli (1983, cited in Rizzi, 1986), for instance, assume that there are more than 25 syntactically distinct languages/dialects in Northern Italy alone, after discovering a fine-grained feature system underlying the subject clitics. Kayne (1996) estimates that there are at least 500 syntactically distinct languages in Italy. This profusion of languages leads its advocates to expand functional categories. For instance, Longobardi (2003) proposes 30 binary parameters for the DP domain alone. This perspective can produce too many parameters, which can mean that it is no longer explanatorily adequate. In this respect Newmeyer (2005, p. 68) points out that “comparing the grammars of individuals could easily lead to the estimate that there are five billion or so distinct grammars differing by one or more parameter settings.” Lightfoot (1997) further questions whether the many parameters proposed in every issue of any normal syntax journal constitute real parameters:

Postulating 30-40 parameters does not allow much scope for analysis; they would need to be more general, more simple and very different from what one sees in the literature—sometimes a single issue of Linguistic Inquiry contains 30-40 proposed parameters. Some linguists have come to equate parameters with superficial ‘differences’ among languages. This runs the risk of allowing parameters to proliferate and run out of control, and in fact parameters have become more and more fine-grained, each one capturing smaller ranges of phenomena. (p. 254)
There appears to be a very fine distinction between micro-parameters and ‘superficial differences’ between languages. The micro-parameter perspective contrasts with the original underlying assumption of parameters, namely that a small number of parameters “create the extensive superficial differences between unrelated languages” (Baker, 2003, p. 349) and ease children’s burden acquiring a language.

A contrasting position is the macro-parameter view that comes from Baker’s works. Baker (1996) attempts to find parameters that have an impact over a wide range of constructions and thus can differentiate different language groups such as polysynthetic languages (e.g., Mohawk) versus non-polysynthetic languages (e.g., English). Those parameters proposed in GB (Government and Binding) and in early MP (Minimalist Program) were more likely to be macro-parameters rather than micro-parameters.

According to Baker, at least some micro-parameters may be subsumed under a larger grammar. Baker (1996) follows Sapir’s (1921) notion of parameters that:

[… ] structural genius of the language is something much more fundamental, much more pervasive, than any single feature of it that we can mention, nor can we gain an adequate idea of its nature by a mere recital of the sundry facts that make up the grammar of the language. (Sapir, 1921, p. 120)

Baker states that “high-level parameters” affect the abstract properties of language and thus observed variation between particular grammars might show only indirect properties of a high-level parameter, “mediated by influence of other principles, parameter values, and lexical properties” (Baker, 1996, p. 8). In other words, it is a macro-parameter that is
“deeply embedded in the grammatical system that it affects all kinds of linguistic structures” (Baker, 1996, p. 3).

As an example of a possible macro-parameter, Baker (1996) proposes that a Polysynthesis Parameter distinguishes polysynthetic languages like Mohawk from non-polysynthetic languages like English. The basic idea is that “every argument of a head must be associated with a morpheme in the word containing that head” (p. 400) and the theta criterion is satisfied via either an agreement relationship or a movement relationship (=incorporation) in Mohawk-type languages (Northern Iroquoian languages):

(3.1) Polysynthesis Parameter (=The Morphological Visibility Condition):
A phrase \( X \) is visible for \( \theta \)-role assignment from a head \( Y \) only if it is coindexed with a morpheme in the word containing \( Y \) via:
(i) an agreement relationship, or
(ii) a movement relationship (incorporation)
Yes: Mohawk, Nahuatl, Mayali, …
No: English, French, Chichewa, … (Baker, 1996, p. 17)

This parameter captures the essence of the productive syntactic noun incorporation of polysynthetic languages and the various syntactic and morphological properties that result in contrast to non-polysynthetic languages. On the other hand, variation within the polysynthetic languages can be accounted for in terms of micro-parameters—“only in features that can be attributed to idiosyncratic morpholexical properties” (p 9). For Baker, micro-parameters are not deep enough to capture the variation between fairly distantly related groups of languages (not within groups of languages)—such parameters should instead ideally be collapsed into a few macro-parameters, which serve to describe clusters of properties. However, in more recent generative theory research, parameters are getting
more fine-grained, applying to only idiosyncratic morphological properties (e.g., Borer, 1984; Chomsky, 1995), rather than becoming broader.

The two opposite views of parameters cast doubt on whether we can claim that any particular cluster of properties is directly tied to a particular parameter. In other words, the clustering properties discussed in the standard theory of parameters may not be direct consequences of a certain parameter, but rather may be mediated by interactions with principles, other parameters and idiosyncratic lexical properties (Baker, 1996; Kayne, 2000, 2005). Considering that the micro and macro-parameter approaches differ in identifying true parameters, it appears that we haven’t set up the independent analytic tools and checklists to detect such parameters yet (e.g., Baker, 1996; Culicover, 1999; Culicover & Nowak, 2003).

Although Chomsky characterized syntactic variation in terms of parameters back in 1981, we still have not reached a consensus on what constitutes a “real” parameter (Ayoun, 2003; Newmeyer, 2004, 2005, 2008; Webelhuth, 1995). Nonetheless, macro-parameters are more in line with the earlier GB notion of parameters, whereby a single underlying parameter induces unrelated clustering effects that distinguish one grammar from another. Meanwhile, micro-parameters are seemingly more in line with the recent Minimalist Program notion, whereby a parameter is reduced to morphological properties in the lexicon and the limited lexical variety induces surface consequences. The micro-parameters have a tendency to proliferate the number of proposed parameters, which

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30 Baker (1996, p. 8), in particular, says that “linguists seem to long for a simple checklist of properties that they can mechanically run through in testing a parametric claim.”
seems to ruin the more explanatory aspects of the Principles-and-Parameters theory and to raise a question of the status of parameters as a part of UG.

In the following sections, we will address views on parameters and parameter (re)settings in adult second language acquisition. Special focus will be placed on the issue of how different types of parameters and different proposals regarding parameter resetting are applied and interpreted in SLA. Lastly, we will examine how parameter resetting proposals predict the acquisition of the interpretation of Korean wh-elements, and then introduce an alternative approach, the Feature-Reassembly approach.

3.3. What Constitutes Parameters in SLA?

Within the framework of Chomskyan linguistic theory, as discussed above, parametric variation between languages is assumed to lie in the properties of lexical items, particularly functional categories—Comp, Infl (which can be further split into agreement Agr and tense T), Negation (Neg), Determiner (Det), Number (Num) and so on (Borer, 1984; Chomsky, 1995; Ouhalla, 1991; Fukui, 1988, 1995; Fukui & Speas, 1986). L2 generative researchers have attempted to single out parameters responsible for variations between the L1 and L2 of language acquirers and have given exclusive values for each parameter. In particular, three types of parameters—functional categories, features of associated functional categories, and feature values—are taken into account in generative second language acquisition (White, 2003b, p. 10).
3.3.1. Functional Categories

One view on grammar has proposed that the set of functional categories might be cross-linguistically varied (e.g. Bobaljik & Thrainsson, 1998; Koeneman, 2000; Webelhuth, 1995; Fukui & Speas, 1986). For instance, Fukui and Speas (1986) and Fukui (1995) propose that Japanese-type languages lack functional categories such as Infl, Comp, Det and English-type languages instantiate these functional categories. The implication of this view is that the presence of a particular functional projection (the presence of an overt functional head) in a particular language does not indicate its presence in all languages. Based on this assumption, SLA researchers, under parameter resetting models, have examined whether Chinese/Japanese speakers are able to acquire the new functional category D(eterminer) of English by looking at Chinese speakers’ overt production of the English determiners in obligatory contexts (e.g., Leung, 2005; Robertson, 2000).

However, the issue of whether languages differ in terms of their instantiated functional categories is still controversial in linguistic theory. The *cartographic* perspective of functional categories (e.g., Rizzi, 1997; Cinque, 1999) postulates that the set of functional projections is regarded as a starting point for grammatical analyses, arguing in favor of a universal set of functional categories. Under this view, it is assumed that all languages share finer distinctions for each functional category identifying a locus for grammaticalized morphemes. With regard to the CP domain, SLA researchers generally assume that all languages share at least the functional category C subsuming
features of [Q], [Wh], [Topic], [Focus], and [Finite]. L2 studies have yet to explore acquisition of the complex functional categories within the C domain (Lardiere, 2007a).

What constitutes the set of functional projections is a central issue that must be determined in order to justify generative SLA studies under the parameter setting models. In this respect, Webelhuth (1995, p. 83) raises relevant critical questions to be resolved:

(3.2)  
a. Is there a universally classified list of functional heads?  
b. Do all functional heads exist in all languages?  
c. If not, what are the necessary and sufficient conditions for the postulation of functional heads?  
d. Must all functional heads be spelled out overtly?  
e. Does it matter whether a head is realized as a free form or an affix?  
f. Can functional projection be recursive? All of them or just particular ones?  
g. Is the order of embedding of functional projections fixed universally? If not, are there any constraints on parameterization?  
h. Is parameterization restricted to functional heads or can it affect lexical heads as well?  
i. What positional typology is imposed on the specifiers of functional heads? Is their typology universal or open to parameterization?

3.3.2. Features

Even when languages share a particular functional category, the features associated with the functional category can vary. This is because, under the assumptions of the MP, the pool of formal features varies cross-linguistically. According to Minimalist terms, lexical items (LIs) are comprised of three different sets of features that are assumed to be distinct: the set of phonological features, the set of formal syntactic features, and the set of semantic features. The set of formal features is further classified into interpretable and uninterpretable features, which play a role in syntactic operations.
Uninterpretable features have to be deleted by means of establishing a checking relation with a corresponding interpretable feature. For example, although English and Chinese/Korean share the functional category C in relative clauses, it is postulated that English has an (strong) uninterpretable wh-feature associated with C[pred] while Chinese and Korean lack the uninterpretable wh-feature (e.g., Hawkins & Chan, 1997; Hawkins, 2005).

3.3.3. Feature Values

Under earlier versions of the MP, as discussed, the value of a particular feature could cross-linguistically vary in terms of strength (Pollock, 1989; Chomsky, 1995): it could be either strong or weak. Different word orders between languages are assumed to be the consequences of the different feature strength. For example, English Agr was argued to be weak feature whereas French Agr was strong. The parametric differences in the relevant feature strength resulted in the presence of verb-raising in French and its absence in English (Pollock, 1989; for relevant SLA studies relying on this distinction see, e.g., Eubank & Grace, 1998; Eubank, Bischof, Huffstutler, Leek & West, 1997; Beck, 1998; Lardiere, 1998; White, 1990, 1991).

Another type of a feature value is an obligatory condition, as proposed by Hawkins (2001a) and Franceschina (2005). Obligatoriness is hypothesized by Hawkins (2001a) to induce a parametric difference between English-type and Chinese-type languages. For instance, although a [topic] feature is instantiated in both languages, it is obligatory in Chinese but optional in English. In L2 acquisition, Hawkins predicts that
Chinese speakers should be unable to set the topic feature to be [−obligatory]. However, as Lardiere (2007b) points out, the binary values of [±obligatory] for the same feature appear to be somewhat incompatible with the conventional binary values of formal features such as [±wh] and [±null subject]. In the core grammar, obligatoriness is the typical requirement for a certain parameter value, disallowing optional movement of a head. Thus the [obligatory] value sounds descriptively ad hoc as a parametric value.

In sum, three potential sources of parameters (functional categories, features, feature values) have been taken into account in this section. It is unclear whether parametric variation can arise from all three sources, and if it can, how those sources interact with one another. As discussed in the previous sections, there have been too many kinds of parameters proposed to determine what constitutes a possible parameter in theory. It is not surprising that the notion of parameters and its application is a messy one in second language research. Unless we can answer what determines the number and distribution of functional projections and what constitutes the set of formal features that can project, L2 studies involving parameter setting may not be able to advance.

3.4. SLA Views of Parameter (Re)setting

In the context of SLA research following the principles-and-parameters theoretical framework, it has been assumed that the language acquisition mainly involves the setting of binary options on the basis of input the learners encounter. There are, however, obvious differences between adult second language acquisition and child first language acquisition. Adult L2 speakers already have prior knowledge of a particular
language (their L1s). They have reached steady states of overall cognitive development and might have passed through optimal periods for acquiring a language. These characteristics of L2 learners lead L2 acquisition approaches to focus on to what extent L1 properties play a role in setting parameters for the L2 and whether new parameterized properties can be acquired after a hypothesized critical period.

The initial status of parameters in adult L2 acquisition is typically characterized as “parameterized UG” (Klein, 1986, p. 2) since adult L2 speakers have established knowledge of a mature grammar with its parameters fixed to the appropriate values for the L1. Accordingly, the issue of parameter (re)setting and the L1 role is of crucial importance in adult L2 acquisition. Although principles of UG may remain operative in adult L2 acquisition, parameter setting, as a primary part of the L2 acquisition process, is claimed to make adult L2 acquisition more difficult (e.g., Beck, 1998; Eubank et al., 1997; Eubank & Grace, 1998; Hawkins & Chan, 1997; Hawkins, 2001, 2003, 2005; Tsimpli & Roussou, 1991). Parameter (re)settin g approaches in SLA further assume that the learner’s failure to correctly acquire an L2 has been accounted for in terms of different parametric properties of L1 and L2.

More specifically, the SLA proposals related to parameter resetting issues share the view that interlanguage grammars indeed fall within a possible range permitted by UG. The central debate in parameter resetting SLA research revolves around the question of whether adult L2 speakers are able to acquire new functional categories and feature values beyond L1 parametric functional properties. No Transfer or Partial Transfer positions (e.g., Epstein et al., 1996; Vainikka & Young-Scholten, 1996; Beck,
1998) dissociate L1 grammar (or L1 feature strength) from the L2 learners’ grammar. However, a number of studies (e.g., White, 1985; Hawkins & Chan, 1997; Schwartz & Sprouse, 1996; Martohardjono & Gair, 1993) report evidence of an L1 role in the L2 grammar, particularly associated with functional categories. For example, in White’s (1992) study that examined adult French speakers acquiring English verb placement, the French L2 speakers produced French-like verb orders in sentences with adverbs: Subj-Verb-Adv-Obj. This indicates the transfer of a strong feature value (of the L1 French Agr) into the interlanguage grammars. It could not derive from the L2, since English has a weak Agr and thus disallows a verb-raising, yielding the word order Sub-Adv-Verb-Obj. In addition to the observed L1 influence in adult interlanguage grammars, L2 research on developmental and ultimate attainment stages has found that even some highly advanced L2 speakers display performance that diverges from the target grammar. These observations shift the inquiry of SLA researchers within the parameter (re)setting models from L2ers’ initial instantiation of functional categories to their ability to reset new formal features.

There has been considerable research on whether parameter resetting can account for the nontarget-like L2 grammars, which has been carried out by investigating whether properties associated with a particular parameter can be observed in the interlanguage grammar. Two positions have attempted to account for the observed divergence grammars: Partial or Full Access, with L1 Transfer. The two positions are distinguishable only by their claims of how new parametric properties are set, given that both approaches assume L1 influence on L2 grammar. For advocates of Partial Access
persistent variability is attributable to adult speakers’ inability to reset new parameters. According to this view, adult L2 speakers’ grammars are confined to L1 feature values, being blind to triggers of parameters from L2 input. For example, Hawkins and Chan (1997) and Hawkins and Hattori (2006) hypothesize that Chinese and Japanese speakers learning English, even those with ample L2 input that illustrates the obligatory movement of wh-phrases, should be unable to acquire the (strong) wh-feature because Chinese and Japanese lack such a feature. Nonetheless, the results of their studies indicate that some adult speakers show evidence of wh-movement in relevant constructions at much better than chance level (say, above 70%). With increasing proficiency levels, there is also evidence in favor of the adult L2 speakers’ improvement in relevant properties (e.g., increasing accuracy of rejection of resumptives in L2 English wh-constructions).

For the “Full Access” part of Schwartz and Sprouse (1994, 1996, 2000), it is claimed that variability can occur due to the absence of rich L2 input rather than a failure of parameter resetting, even though learners arrive at an analysis that is compatible with UG. Advocates argue that restructuring of the interlanguage representation does not take place without evidence indicating that the learners’ L1-based analysis does not work. Even if positive evidence exists, the learners might not set the target parametric values properly, but instead might use a setting from another natural language. Given that UG operates in interlanguage grammars, in what ways L1 properties and L2 input can hinder appropriate parameter setting for the L2 is unclear. Moreover, L2 studies of the wh-
parameter have revealed somewhat conflicting results: Johnson and Newport (1991) and Hawkins and Chan (1997) reported that wh-in-situ speakers had nonnative-like performance in subjacency violating structures, while Martohardjono and Gair (1993), Li (1998), and White and Juffs (1998) reported native-like performance in these ungrammatical sentences.

Although the issue of whether parameter resetting is possible after a critical period remains debatable, the SLA accounts in terms of parameter setting are not sufficient to accommodate the persistent variability observed in advanced L2 data. That is to say, those views that claim that L2 learners have partial access to UG expect there to be a sudden decrease in UG availability, and those views that claim that L2 learners have full access to UG expect there to be a sudden change of a speakers’ mental representation. In the following section, we will see whether parameter setting accounts can be reconciled with the issues of L2 persistent variability. In the 3.6 section, I will discuss the two main parameter resetting approaches, namely the Full Transfer/Full Access Hypothesis and the Representational Deficit Hypothesis (a more recent version of Full Transfer/Partial Access), and their relevance to my study in more detail.

3.5. A Challenge to Parameter Resetting Models: Morphological Variability

This section addresses the optionality/variability of L2 grammars in relation to formal features and determines whether such variability can be explained by parameter resetting models. Recent generative SLA research adopts the notion of parameters described in the MP, according to which morphological features associated with
functional categories are parameterized. Accordingly, in the L2 acquisition context, mastering formal features and their morphological realization has been described in terms of parameters. Acquiring the surface forms associated with functional heads has been most problematic for adult L2 speakers, even those in their final stages of acquisition. We will closely examine the persistent variability in adult L2 data in terms of the switching-flipping account of parameter setting.

3.5.1. What is Variability in L2 Grammars?

Second language research has reported uncontested variability in interlanguage grammars, which illustrates nonnative speaker/native speaker divergence. A number of L2 studies have reported that the grammars of adult L2 speakers differ from those of native L2 speakers, even though the L2 grammars are UG-constrained. In particular, there are cases in which advanced L2 speakers fail to achieve target-like production of morphology (Hawkins & Chan, 1997; Hawkins, 2000; Hawkins & Liszka, 2003: Lardiere, 1998a, 1998b, 2000, 2007b; Prevost & White, 2000). The persistent variability in supplying surface forms for formal features is sometimes tied to L1 influence in terms of a different setting of a given parameter.

A definition of morphological variability is given by White (2003b, p. 178) as follows:

It is well known that L2 learners exhibit optionality or variability in their use of verbal and nominal inflection and associated lexical items. Morphology relating to tense, agreement, number, case, gender, etc., as well as function words like determiners, auxiliaries and complementizers, are sometimes present and sometimes absent in spontaneous production
data, in circumstances where they would be obligatorily produced by native speakers. Furthermore, when morphology is present, it is not necessarily appropriate; certain forms are overused occurring in contexts where they would not be permitted in the grammar of a native speaker.

That is, variability or optionality in L2 research indicates the contexts where inflectional morphology (e.g., tense marking and agreement, as in (3.3a)) and functional words (e.g., articles and auxiliaries, as in (3.3b)) are optionally present (or omitted). In addition, some particular forms may be overused in spontaneous data, as in (3.3c), in which a nonfinite form is used instead of a finite form.

(3.3) a. The police caught the man and take him away. (Hawkins & Liszka, 2003, p. 21)
   b. I was applying to college and uh, I Ø applying mostly to junior college.
      (Lardiere, 2007b, p. 95)
   c. tout le monde rester á le salon.
      everyone stay-INFL in the living-room (Prevost & White, 2000, p. 210)

Unlike L1A, variability in adult L2 grammars typically persists in advanced stages of development and even ultimate attainment (Lardiere, 1998a, b, 2000, 2007b; Robertson & Sorace, 1999; Sorace, 2005, 2006), indicating adult learners’ tolerance for non-target-like variability even when they have long periods of exposure to a target grammar. For instance, Patty, a Chinese-speaking advanced acquirer of English, displays a very low production of inflection of tense and agreement in obligatory contexts even though she has been exposed to a rich target-environment for 18 years (Lardiere, 1998, 2007b). In addition, adult speakers’ variability has been characterized by systematic divergences (Prevost & White, 2000)—i.e., certain default forms are relied on in place of more specified forms to manifest a certain formal feature in question.
3.5.2. The Issue of Persistent Variability in terms of Parameter Resetting

In generative second language research, a great deal of research in recent decades has been devoted to explaining variability within a framework of principles-and-parameters. There is no doubt about the success of all children who are exposed to the same language. In L1 acquisition, children need some time to learn morphological paradigms, but they have few persistent problems in the morphological domain after this learning. On the other hand, the stable state of adult L2 speakers is quite divergent from that of speakers of a target grammar. Under parameter setting models, it is often argued that the L2 morphological variability is accounted for in terms of a failure of parameter resetting.

In parameter resetting accounts, there are optional formal features in the universal inventory of F(eatures). Making different choices of optional syntactic features from F is a point of parametric variation across languages (Hawkins & Liszka, 2003; Hawkins, 2001a, 2005). A selected optional feature must be checked by an associated morphological expression, since formal features are uninterpretable at LF. The no parameter resetting proposals argue that the absence of a morphological form is equivalent to the absence of the corresponding formal feature (e.g., Eubank, 1996; Franceschina, 2005; Hawkins, 2000, 2001a; Hawkins & Liszka, 2003). Thus, for advocates of no parameter resetting models, morphological variability in obligatory contexts has often been taken as evidence of an underlying deficit in the syntactic feature or functional category corresponding to its reflexes. The source of this optionality
correlates to the different selections of relevant formal features between the L2 and the L1 of an adult speaker.

3.5.3. Variability Data in Adult SLA

Let us take a closer look at some studies that have directly examined L2 persistent morphological variability. Several generative L2 studies have observed variability in the production of the verbal morphology associated with finiteness. Possible parameter resetting approaches that assume full access to UG seem to imply that L2 acquisition should be successful (e.g., Epstein et al., 1996, 1998; Schwartz & Sprouse, 1994, 1996, 2000). On the other hand, no parameter resetting approaches that assume only partial access to UG appear to imply that L2ers should have difficulty with inflectional morphology because of an underlying deficit in the L2 representation (e.g., Beck, 1998; Eubank et al., 1997; Hawkins & Liszka, 2003; Tsimpli & Roussou, 1991; Smith & Tsimpli, 1995).

For example, in generative SLA research, \([\pm\text{past}]\) is typically taken as a parameterized formal feature. If an adult acquirer of L2 English optionally marks the past tense /-ed/ of a lexical verb in obligatory contexts, the no parameter resetting models can claim that the speaker’s representation lacks the associated functional feature. According to Hawkins and Liszka (2003, p. 25):

\[\ldots\] there is a syntactic (i.e. semantically uninterpretable) tense feature which, for the sake of exposition, we call \([\pm\text{past}]\), which is available in the universal inventory \(F\), but which is optional. English has selected it, but Chinese has not. In English, the presence of \([\pm\text{past}]\) in finite \(T\) has a consequence for the morphology of the verb. \([\pm\text{past}]\), being a syntactic
(formal) feature, is not semantically interpretable at LF and so must be eliminated from a syntactic expression before such interpretation takes place. This elimination is effected through a checking (or matching) of the features of T with the morphological features of inflected verb forms like *was, had, walked, ran*.

In parameter setting terms, acquiring past tense is claimed to involve setting or selecting the [past] feature, which triggers matching between syntactic features and morphological realizations (inflected verb forms). That is, the setting of the positive value of the past feature is linked to its morphological realizations (tense marking -s for 3sg present tense versus -ed for past tense). This view predicts that verbs marked for past tense will not be observed in the interlanguage grammars of adult speakers if their L1 lacks such feature.

To test the prediction, Hawkins and Liszka (2003) investigated the spontaneous oral production of advanced L2 speakers of English from three different L1 backgrounds: Chinese, which lacks the positive value/or the presence of [±past], and Japanese and German, which have the positive value of this feature, like English.

<table>
<thead>
<tr>
<th>Verb Type</th>
<th>Chinese (n = 2)</th>
<th>Japanese (n = 5)</th>
<th>German (n = 5)</th>
<th>Patty (Lardiere’s Chinese informant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>62.5%</td>
<td>91.9%</td>
<td>96.3%</td>
<td>5.8% (8/138)</td>
</tr>
<tr>
<td>Irregular</td>
<td>84.2%</td>
<td>93.3%</td>
<td>95.2%</td>
<td>46.1% (135/293)</td>
</tr>
</tbody>
</table>

After observing that the Chinese informants did not show as high a rate of past-tense marking in obligatory contexts as the Japanese and German informants did, Hawkins and
Liszka (2003) claimed that optionality in past-tense marking in the Chinese speakers’ grammars could be attributed to the different settings of the [past] feature between their L1 Chinese and L2 English, saying that “Chinese speakers have difficulty assigning the formal (i.e. syntactically-relevant) feature [past], which determines the morphophonological forms of verbs in English, to the feature inventory of the category T(ense) in the lexicon, because this feature is not selected in Chinese, and is subject to a critical period” (p. 25).

However, as pointed out by Lardiere (2007b, p. 126), although the Chinese speakers’ marking rate is significantly different from other language speakers with respect to regular verbs in Hawkins and Liszka’s study, the Chinese speakers appear to supply the tense marking at a level above chance in spontaneous production data. Furthermore, the Chinese informants supplied the past-tense marking for irregular verbs at around an 84% rate, and these verbs also contain the morphological reflexes of the [past] feature, as noticed by Hawkins and Liszka themselves. These results do not support the parameter-resetting-failure account. If the Chinese speakers are unable to select the [±past] feature, we would not expect them to supply a high level of past-tense marking—under the accounts of parameter setting, the acquirers’ suppliance of corresponding morphological reflexes should not significantly differ from random performance if the Chinese speaker’s grammar lacks the particular formal feature.

Patty’s production data in Lardiere’s study (1998a) was similar to that of the Chinese informants in the study of Hawkins and Liszka. The highly advanced English speaker with an L1 Chinese background showed a very low rate (around 6%) of past-
tense marking on regular verbs but a significantly better rate (46%) on irregular verbs in obligatory finite past contexts, as seen in Table 3.1. Furthermore, she also barely produced the morphological reflex of the agreement feature (the 3rd person singular –s marking) associated with a T(ense) functional category in non-past obligatory contexts: she exhibited only around a 4% production rate of agreement marking on lexical main verbs. Thus, for Hawkins and Liszka, Patty might be a good example of failure to acquire finiteness features (past-tense and agreement features).

However, this is not the case. The variability in Patty’s use of verbal morphology (associated with finiteness) does not entail variability in her production of associated syntactic phenomena such as overt subjects, case marking and verb placement, as shown in Table 3.2.

Table 3.2. Patty’s Syntactic Knowledge in Finite Contexts (from Lardiere, 1998a, 1998b)

<table>
<thead>
<tr>
<th>Overt subjects</th>
<th>Nominative case</th>
<th>*Raising/Neg</th>
<th>*Raising/ADV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1479/1500 (98.27%)</td>
<td>503/503 (100%)</td>
<td>0/112 (0%)</td>
<td>1/122 (0.8%)</td>
</tr>
</tbody>
</table>

Patty exhibits striking accuracy in the related syntactic properties. That is, with respect to subjects in finite contexts, Patty correctly disallowed null subjects and assigned nominative case value31 to pronouns in the subject position. As Lardiere (2007b) has

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31 Following Chomsky’s recent works (1998, 2000), Radford and Ramos (2001) postulate that case value is assigned by entering into agreement with a head in the c-commanding domain: “an unvalued case-feature on a (noun or pronoun) expression serving as a Goal is valued as specified (and deleted) via agreement in person and number with a c-commanding Probe (=higher head) which carries a specific set of interpretable features; the Goal’s case feature is valued as: (i) Nominative if the Probe is a tensed INFL, (ii) Accusative if the Probe is a transitive v, (iii) Genitive if the Probe is a definite D” (p. 48).
argued, this suggests that the finiteness feature in T is specified for [+finite] in Patty’s L2 grammar (Chomsky, 1995; Radford & Ramos, 2001). As for the feature strength of AGR, her perfect performance—strongly rejecting the raising of thematic verbs over negation and adverbs—suggests that Patty assigned the correct [−strong] feature strength. Therefore her failure to correctly mark tense and agreement does not come from her inability to reset the parameterized features associated with TP, but rather from her failure to correctly map the morphophonological manifestations of the syntactic features in question.

Turning back to the L2-specific parameter resetting models, No Parameter Resetting proposals posit that the observed persistent divergence from the target language in SLA is the consequence of a breakdown in the representational system. Under this assumption, the absence of a functional feature is attributable to adult L2ers’ inability to acquire it. However, we have observed that morphological variability does not necessarily entail a similar deficiency in adult L2ers’ syntactic knowledge. Possible Parameter Resetting views, on the other hand, posit that L2 syntactic development is not necessarily contingent upon morphosyntactic realization. It is assumed that L2 speakers may have knowledge beyond what they actually produce. However, the Full Access theories say nothing much about maturational effects on the acquisition of morphological paradigms. In terms of poverty of stimulus, the Full Access theories are in line with L1 acquisition. Then the question remains: What causes adult learners difficulty in acquiring language-specific paradigms despite positive evidence?
3.5.4. Revisiting L2 Variability

Let us revisit the observed L2 morphological variability in terms of the theory of parameters. As discussed earlier, parameter setting is characterized by an on-and-off switch metaphor, making it in principle an all-or-nothing phenomenon. In formal syntactic theories, it is postulated that ‘real’ variability does not exist (e.g., Fukui, 1993; Adger, 1996). Accordingly, it has been widely assumed that since parameters settings are “all-or-nothing” events, a new parameter setting should bring about a sharp change in learners’ grammars\(^{32}\) (e.g., van Kemenade & Vincent, 1997; Jackendoff, 1997; Lightfoot, 1991, 1999). This implication is echoed by Lightfoot (1999), who says that “if we use biological grammars as our unit of analysis, then abrupt change happens” (p. 83) and this abrupt change, derived from a new parameter setting is distinct from “the piecemeal, gradual, chaotic changes which constantly affect the linguistic environment” (p. 105).

Indeed, rapid acquisition of word order has been documented in L1 acquisition, which suggests that there has been an abrupt parametric change. For instance, Lightfoot (1991) observed that children acquiring a V2 language placed only finite verbs in the second position of matrix clauses after a very brief period of experimentation. Rapid parameter change is also observed in relation to the null subject parameter. Two-year-old children acquiring a null-subject language (Italian) omit subjects more often than 2-year-old children acquiring an overt subject language (English) (e.g., Valian, 1991). The L2 case studies of Haznedar and Schwartz (1997) and Haznedar (2001) show different developmental paths in syntactic and morphologic domains: abrupt parametric change for

\(^{32}\) The grammar I refer to is an internal system, what Chomsky called the I-language (Chomsky, 1986), which is distinct from the E-language (the external linguistic production).
syntactic properties and gradual change for (inflectional) morphological properties. Haznedar examined spontaneous data from Erdem, a four-year-old Turkish child learning English. In this longitudinal study, divergent developmental paths were observed—an abrupt change in the null subject parameter (a syntactic property) versus a very gradual development of verbal finite inflectional morphology. Erdem started with a very low production of inflected forms and produced both uninflected and inflected forms quite persistently (for a year, from Sample 13 to 46). The incidence of inflectional morphology gradually increased: Sample 13 (18.18%), Sample 26 (25%), Sample 35 (38.68%) and Sample 41 (51.32%). On the other hand, Haznedar and Schwartz found that Erdem abruptly stopped producing null subjects, with none produced (0/22) at Sample 13. Before Sample 13, Erdem produced a high level of null subjects, 83.33%. These data clearly suggest that the acquisition of morphology is different from the acquisition of purely syntactic properties, which seems directly related to an abrupt change in the grammatical representation.

Hence, this switching account of parameter setting contrasts with a notion of learning that is characterized in terms of gradual development. Given that grammars are said to change abruptly from one value of a certain parameter to another value, the issue of persistent wavering between the opposite values is hardly captured by parameter setting models. Parameter setting in relation to biological grammars does not cope well with unabrupt change and the co-occurrence of both values of a binary-valued parameter. Therefore, variability must not be a matter of parameter setting, but rather a matter of the

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33 Erdem’s first data was collected a month and a half after his initial exposure to the L2 English and the data collection lasted a year and a half.
learning process. Although parameter resetting models might provide a coherent way of modeling the syntactic developmental process in terms of its momentum, they have very little to say about gradual change or persistent morphological variability. Moreover, some seemingly gradual developments in relation to a parameter might not indicate gradual parametric change. They might instead be attributed to processing limitations on production. Bloom (1990) notes that “there is no evidence that an individual child’s gradual decrease in subject omission correlates with anything other than his or her ability to produce long sentences” (p. 502), pointing to a “processing bottleneck” in children’s language production. In other words, what a child produces does not necessarily mirror his/her knowledge of syntax.

The morphological variability observed in stable states of L2 grammars poses a challenge to generative parameter setting models. As noted by Lardiere (1998, 2000) and Sorace (2000, 2005), the important question is whether the locus of persistent variability is internal or external to the domain of narrow syntax. This account is advanced by proposals regarding the mapping problem (Lardiere, 1998, 2000; Prevost & White, 2000), according to which morphological variability results from a mapping failure in between formations of features and their morphological manifestations: “[...] the problem lies in figuring out how (and whether) to spell out morphologically the categories they already represent syntactically, i.e., the mapping problem” (Lardiere, 2000, p. 121). So under this account, the developmental disjunction between Patty’s case-marking and lack of verb-raising on the one hand, and lack of finitely inflected verbs on the other, is related to the morphological (or phonological) modules failing to map fully specified abstract
features onto overt phonological forms in English.\textsuperscript{34} Hence, the source of L2 variability can be found in the morphological (or lexical) domain, rather than in the narrow syntax domain. More recently, Lardiere (2005; 2007, 2008, 2009) proposes that L2 variability may take place when L2ers have difficulty in reconfiguring primitive features into different formal configurations for the L2, referred to as the Feature Reassembly approach, which will be discussed in greater depth in the next section.

To sum up, this section has focused on the extent to which the parameters of UG are involved in the reported persistently variable L2 data. The patterns of morphological variability seem to be a challenge for the models of parameter (re)setting. An alternative approach to parameter resetting models must be considered to account for such variability.

\subsection*{3.6. Relevant SLA Approaches?}

For this dissertation, I will focus on relevant L2 approaches that address the learning problems of native English adult speakers acquiring Korean (beyond the initial stages of the L2 grammar). While the fact that the L2 grammar is often divergent from that of native speakers is uncontroversial, there is relatively little agreement as to what this implies, in particular whether it is indicative of the failure of adult L2ers to reset an appropriate value for a certain parameter. At least three different approaches can be discerned and will be considered here. Among them, two hypotheses from parameter resetting models are relevant for our purposes because of their principled accounts of the

\textsuperscript{34} In addition, L1 phonological constraints such as L1 prosodic structure have also been suggested as potential sources of variability (e.g., Goad & White, 2003, 2006).
relation between parameter resetting and learning problems during the course of L2 development (assuming L1 full transfer). Namely Full Transfer/Partial Access (more recently evolved into the Representational Deficit Hypothesis) and Full Transfer/Full Access (FT/FA) assume that convergence of general L2 grammars is not expected or not guaranteed when values of a certain parameter are set differently for the L1 and the L2. The last approach, the Feature-Reassembly approach, can account for persistent L2 learning problems beyond parameter setting, and will serve as an alternative approach for parameter resetting models. The Feature-Reassembly approach holds that the feature reassembly part of L2 acquisition plays a role in accounting for developmentally divergent L2 grammars because L2 acquisition requires teasing apart assembled primitive features in the lexical items of the L1 and then reassembling the features within the lexical items of the L2. In the following section, we will examine more closely the core conceptual and empirical arguments of each approach.

3.6.1. The Full Transfer/Full Access Hypothesis

The Full Transfer/Full Access (FT/FA) Hypothesis (Schwartz & Sprouse, 1994, 1996) posits that because the development of a second language system starts from the L1, the developmental stages and possibly the ultimate attainment stage differ from those of first language acquisition. In other words, the different starting point between L1A and L2A is considered to be a major source of the differences between them: L2 acquisition begins with a full set of fixed parameters but L1 acquisition begins with a full set of unspecified parameters. Speakers of different languages acquiring the same L2 are
therefore predicted to behave differently in the course of development of the target grammar because their initial representations differ. Moreover, if positive L2 input does not confirm that the L1-based analysis is inappropriate, the L1 influence is hypothesized to appear beyond the initial stage of the L2.

In more detail, according to Schwartz and Sprouse (1994, 1996, 2000), the initial-stage representation of the L2 consists of the abstract syntactic properties of the L1, which is the “Full Transfer” part of this model. That is, the initial assumption of the previous knowledge of syntactic properties imposes L1 analyses on the L2 input (except for the phonetic matrices of lexical/morphological items). Thus the L2 initial representation consists of the L1 functional categories (e.g., DP, TP, CP, etc.), associated formal features (e.g., person, number, gender, case, tense, aspect, and question features) and their associated values. On the other hand, the full range of functional categories and associated abstract features of the target language are argued to be available to adult L2 speakers. Accordingly, parameter resetting is argued to be possible in response to L2 positive evidence, which is the “Full Access” (to UG) part of this model:

[the] initial state of the L2 system will have to change in light of TL input that cannot be generated by this grammar; that is, failure to assign a representation to input data will force some sort of restructuring of the system (‘grammar’), this restructuring drawing from options of UG (and hence the term ‘Full Access’). (Schwartz & Sprouse, 1996, p. 41)

In other words, when properties of the L2 input suggest that the L1-based representation is not appropriate, the adult L2 speakers are forced to revise the L1-based grammar with recourse to the options of Universal Grammar (UG).
One might wonder how a divergent L2 grammar fits into the “Full Access” part, which applies to subsequent stages of L2 development (including the final state). Note that the subsequent syntactic restructuring is failure-driven. Therefore, if there is no evidence suggesting that the learner’s initial representation does not match the target language, it is argued that the L2 initial system remains unrevised (Schwartz & Sprouse, 1994, 1996):

The system of L2 knowledge changes as more and more PLD (Primary Linguistic Data) are perceived to be in need of accommodation, forcing the parameter values to be revised (and perhaps re-revised) along the way. If it is correct that L2ers bring the already fully specified set of parameter values associated with the L1 grammar to the task of L2A, it is in principle possible that certain hypotheses that ‘need’ to be revised cannot be revised or will in practice only seldom be revised because of the absence or rarity of certain pieces of PLD. (Schwartz & Sprouse, 1994, p. 319)

Schwartz and Sprouse (1996, p. 42) go further, saying that “L2 acquirers will never be able to arrive at the TL grammar” in the absence or scarcity of L2 input. In those cases, the relevant properties are hypothesized to potentially fossilize. This seems to imply that as long as L2 positive evidence is available, there is nothing to prevent the adult language acquirer from achieving a nativelike level of proficiency.

Furthermore, The FT/FA model appears to imply that both child and adult L2 learners would arrive at the same final-state grammar if they were native speakers of the same language (e.g., Schwartz, 2003, 2004; Unsworth, 2002, 2005). This suggests that there is no effect from the role of age whatsoever between child and adult L2 learners. This assumption is not generally supported by studies relating to critical periods (e.g., Birdsong, 1999; Birdsong & Molis, 2001; Bialystok & Hakuta, 1994, 1999; Long, 1990),
according to which language ability gradually declines after puberty, although ultimate attainment is not impossible for later L2 learners. That is, younger learners in general outperform older learners with respect to eventual outcome.

To sum up, the Full Access part of the FT/FA proposal provides a clear explanation for UG-based restructuring in L2 grammar development. Proponents claim that the FT/FA model accounts for developmental grammars and for both the steady and initial states of L2. However, the FT/FA model does not predict the exact stages (aside from the initial state) that adult L2ers are likely to go through when acquiring a different L2 grammar, or more crucially for our purposes, why nontarget-like properties are persistent despite rich positive evidence. In focusing on developmental issues, we need to examine why many adult L2 speakers do not reach a native-like level of grammar even though they do have a UG-constrained grammar. The FT/FA model does not seem to be very helpful in accounting for divergent L2 grammars in the presence of ample relevant PLD.

*FT/FA Application*

When attempting to apply the FT/FA proposal to the acquisition of the interpretation of Korean indeterminate wh-in-situ elements by native speakers of English, we find it difficult to explain the acquisition issues in question. That is, this model presumes that native speakers of English should bring to the task of learning L2 Korean wh-constructions their L1 parameterized [wh] feature, and subsequently should be able to deselect the uninterpretable strong wh-feature (or EPP-feature) based on L2 positive evidence (wh-in-situ structures). As a result, the fact that there is no overt movement
should be acquired by native English speakers. In this respect, Full Access is supported. But, as discussed in Chapter 2, the wh-parameter, as per its extensive definition, is not sufficient to capture the differences between English and Korean with regard to the interpretation of wh-lexical items. Accordingly, the FT/FA approach tells us only a little about the learning problems confronting native speakers of English acquiring Korean wh-elements.

Nonetheless, if English native speakers have difficulty in acquiring the interpretation of Korean variable expressions (in particular the use of the indefinite type), this model might attribute the English speakers’ nonnative L2 representations to the absence of the appropriate L2 Korean input. In other words, grammar restructuring might be hindered by a lack of available disconfirming evidence in the input. However, this seems unlikely. As far as the different interpretations of variable expressions are concerned, the L2 Korean positive evidence appears to be neither so murky or highly complex as to lead the L2ers to rely only on their L1 English representations when interpreting Korean variable expressions. For example, as discussed in Chapter 2, intonation patterns determine the interpretation of Korean variable expressions in simple questions. Considering the fact that the learners’ L1 English and L2 Korean share the intonation conditions associated with sentential interpretation of yes/no and wh-questions, this proposal seems to suggest that learners are likely to provide appropriate interpretations of matrix variable expressions from early stages. Moreover, the close relationship between intonation and the interpretation of matrix questions is also
explicitly described in major Korean textbooks, which are used in the second or third semester of intensive Korean language courses in American universities, and therefore taught in classroom settings. Thus the interpretation of variable expressions in relation to the intonation patterns should be easily detectable in the naturalistic environment as well as in formal settings.

In relation to morphological conditioning in Korean, sentential particles are essential to type an embedded clause. When the embedded variable expression receives a question reading, the question particle is obligatorily required. Moreover, clause-type markers are evident in constructions in the target language (e.g., la for imperatives, ta for declaratives, ni for interrogatives, and ma for promissives). It therefore appears that there is nothing to prevent native English speakers from correctly providing an indefinite reading of the L2 variable expression when a question sentential particle is not present, and instead an overt declarative marker is present within the domain.

In short, in the context of Korean L2 acquisition, the FT/FA proposal predicts that native English speakers would initially transfer their L1 properties of C and wh-lexical

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The two possible readings of variable expressions and their relation with intonation patterns are descriptively explained in several textbooks, including Korean Conversation 2 (1995, p. 47) published by Korea University, which says: “The meaning of a wh-question changes by the intonation of the sentence ending. In the case of a wh-question, if there is low intonation at the end of the question, it’s question for the wh-word. While we raise the end of a sentence when we want to ask about the verb of the sentence.” Integrated Korean: Beginning 2 (2000, p. 181-2) published by University of Hawaii, says: “Questions words and indefinite pronouns have different intonation patterns. The question word is stressed, and the sentence has a falling intonation, just as a statement does.”

\[
\begin{align*}
\text{Nwukwu-ka} & \quad \text{ka-ya?} \, \checkmark & \quad \text{‘Who is going?’} \\
\text{[PERSON-Nom go-Polite]} & \\
\text{Nwukwu-ka} & \quad \text{ka-ya?} \, \checkmark & \quad \text{‘Is someone going?’}
\end{align*}
\]

items onto the L2 counterparts. With exposure to L2 Korean wh-in-situ constructions and the associated interpretations of variable expressions, the “Full Access” part of the FT/FA hypothesis tells us that it should not be so challenging for the learners to acquire the different interpretations of the expressions associated with prosodic patterns (e.g. rising vs. falling) and sentential particles (e.g., ta for declaratives and nunci for questions). In a parameter-setting-based proposal, the co-existence of [+Q] and [−Q] readings of variable expressions in obligatory contexts is not expected in advanced L2 learners’ grammars. However, if we should find non-target interpretations in the grammars of native speakers of English, we would require an additional explanation for why the correct interpretation of the L2 fails to be successfully acquired, considering that the relevant interpretable features are present in both L1 and L2 and the input needed for resetting the L1 feature values is evidently present in the linguistic environment.

3.6.2. The Representational Deficit Hypothesis

The second hypothesis that attempts to account for the divergence between native and non-native grammars to be considered is the Representational Deficit Hypothesis. This position argues for the impossibility of parameter resetting in adult L2 acquisition, contrary to the FT/FA proposal. Although this model allows for the possibility of the Full Transfer of the L1 representation to the L2 in early stages, it maintains, unlike the FT/FA proposal, that UG is only instantiated via a speaker’s previous knowledge of his/her L1 with respect to uninterpretable features manifested in functional categories,
along the lines of the Full Transfer and Partial Access views\textsuperscript{36} (e.g., Bley-Vroman, 1990; Schachter, 1989), as discussed in section 3.4.

This proposal is a theoretically-updated version of the Failed Functional Features Hypothesis (Tsimpli & Roussou, 1991; Hawkins & Chan, 1997), according to which functional features that are not present in L1 but are required in L2 are not available to adult speakers:

Exposure to samples of language during that critical period fixes the values of the features and associates them with particular morphophonological realizations. Beyond the critical period the virtual, unspecified features disappear, leaving only those features encoded in the lexical entries for particular lexical items [...] The principles of UG, however, remain fully available and constrain grammar building. We will call this the \textit{failed functional features hypothesis}. (Hawkins & Chan, 1997, p. 216)

Within the more recent framework of the MP, in which the notion of formal features has been elaborated in terms of LF-interpretable and LF-uninterpretable features, the Representational Deficit Hypothesis (RDH) proposes for adult speakers a permanent loss of uninterpretable features that have not already been parametrically selected in the L1 (Hawkins, 2005; Hawkins & Hattori, 2006; Tsimpli, 2003; Tsimpli & Dimitrakopoulou, 2007).

Under the RDH position, the selection of uninterpretable features from the hypothesized universal inventory is the point of parameterization across languages. The

\textsuperscript{36} In terms of learnability, this model seems to have a UG-based perspective of Contrastive Analysis (Lado, 1957), in which a shared property in the L1 and L2 facilitates learning the target language (\textit{positive transfer}) while a different property interferes with it (\textit{negative transfer}); “We assume that the student who comes in contact with a foreign language will find some features of it quite easy and others extremely difficult. Those elements that are similar to his native language will be simple for him, and those elements that are different will be difficult” (Lado, 1957, p. 2).
distinction between interpretable and uninterpretable\textsuperscript{37} syntactic features in this model refers to whether they are interpretable at the LF level:

*Interpretable syntactic features* are those which, while relevant to syntactic computation, are also used by the semantic component in determining the meaning of syntactic expressions: feature like [singular] [3\textsuperscript{rd} person], [past] and [Question]. *Uninterpretable features* are the counterparts of interpretable features (Pesetsky and Torrego, 2001) but are not usable by the semantic component. They may, however, have effects on the morpho-phonological realization of syntactic expressions. (Emphasis added) (Hawkins & Hattori, 2006, p. 270)

Under the RDH model, those uninterpretable features, which play a role in syntactic derivation and possibly in its PF-realization, are subject to the hypothesized critical period. Hawkins and Hattori (2006, p. 271) speculate that a possible reason why only uninterpretable features are affected by a maturational effect is “functional usefulness”. That is, since of the set of uninterpretable features is a small, closed set, there might be “functional disadvantages to hav[e] all the uninterpretable features of the UG inventory permanently available” and thus after selecting from these features in response to linguistic input, the unselected features cease to be available. Meanwhile, interpretable features must always be available in order to construct new open class lexical items.

The following prediction is specifically formulated under this model:

The prediction is that speakers of an L1 (or L1s) with uninterpretable feature [\textit{\textit{u}}\gamma] also present in the L2 will fully acquire target representations involving the feature [\textit{\textit{u}}\gamma]. But speakers of an L1 (or L1s) lacking [\textit{\textit{u}}\gamma] who are exposed to an L2 beyond some point of early development will no longer have that feature available, and will construct representations for

\textsuperscript{37} According to Hawkins and Hattori (2006), for instance, since the English finite T has uninterpretable [person] and [number] features, the present form *be* is realized differently: \textit{(I) \textit{am}, \textit{(she) is, (we) are}}, against the T functional category, which does not play any role in semantic interpretation. However, the corresponding features on the DP (pronoun), which are realized as \textit{I, she}, and \textit{we}, are interpretable.
the relevant L2 structures with alternative resources made available by UG. (Hawkins & Hattori, 2006, p. 295)

The implication is that properties associated with uninterpretable features not already activated in the mother tongue pose a tremendous problem for adult L2 speakers because the unselected uninterpretable features are inaccessible. Meanwhile, all other aspects of UG remain available, including computational devices such as Merge or Agree, invariant principles, interpretable features, and uninterpretable features already selected by the L1 (Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007; Tsimpli & Mastropavlou, 2008). Note that this model maintains that nonnative grammars observed in adult L2ers are attributed to their inability to reselect (or reset) formal features, but says little about their inability to reassemble the features into lexical items.

In sum, according to the RDH model, adult L2ers rely on a subset of uninterpretable features, those from the L1, to analyze L2 data. The L1 feature set is claimed to constitute the L2 representation from the initial state through ultimate attainment. Thus, adult learners are predicted to encounter difficulties with uninterpretable L2 features that are not in the L1, and thus the primary language is considered a major source of adult learners’ non-targetlike grammars. In other words, an adult speaker’s success in the L2 is determined by the presence of relevant uninterpretable features in the L1. In the next section, the acquisition wh-constructions is examined with regard to this proposal.
RDH: Evidence and Assessment

There are two relevant studies that test the RDH in contexts of the acquisition of wh-constructions. One study was conducted by Hawkins and Chan (1997) in order to test the earlier version of the RDH (the Failed Functional Features Hypothesis). They investigated the L2 grammars of native Chinese speakers and native French speakers at three different proficiency levels of the L2 English. With respect to restrictive relative clauses (RRCs), according to Hawkins and Chan, the Chinese speakers were selected because until the L2, their L1 does not have the [wh] feature in C, and the French speakers were selected because their L1 has the [wh] feature, like the L2.

More specifically, following Huang (1995), Hawkins and Chan (1997) assume that Chinese and English parametrically differ in relation to the featural specification of the functional category C[pred], with the presence of a [±wh] feature for English and the absence of such a feature in Chinese. As seen in (3.4) (examples modified from Hawkins & Chan, 1997), English RRCs can be introduced by a wh-phrase [+wh], by the complementizer *that* [−wh], or by a null operator [wh] (in non-subject relativizations). The co-occurrence of complementizer *that* and a wh-phrase is not possible because this would yield a feature clash in the spec-head agreement relation: [−wh] in C but [+wh] in Spec of CP, following Rizzi (1990):

---

Note that according to Hawkins’ more recent analysis (2005), C[pred] in English has a strong uninterpretable [wh*] feature but C in Chinese lacks the uninterpretable [wh] feature. Thus the difference between English and Chinese lies in the assumption that English both C[pred] (for relative clauses) and C[Q] (for wh-question clauses) carry the strong uninterpretable [wh] feature. As for Chinese, C[Q] has a weak uninterpretable [wh] feature but C[Pred] has no uninterpretable [wh] feature.
According to Hawkins and Chan, the wh-feature in C induces operator movement, which is subject to subjacency constraints. Meanwhile, in Chinese, it is assumed that the $[\pm\text{wh}]$ feature does not appear in the C, and thus there is no operator movement to Spec CP for feature checking. Instead, Chinese relative clauses are assumed to have the representation $\text{[Topic \ldots (null) pro]}$, similar to its topicalization constructions, in which the null topic base generated in Spec C binds a (null) resumptive pronoun (Xu & Langendoen, 1985) as in (3.5).

(3.5) $\text{[null-Topic}_i \ [\text{Wo xihuan ta/} e_i \ ] \ de] \ neige \ nuhai}$  
\hspace{1cm} I like her C the girl

‘The girl who I like’

Accordingly, Chinese RRCs are not subject to subjacency constraints. Meanwhile, French and English are alike regarding wh-operator movement. Nevertheless, the nodes that induce subjacency violations are different: NP and IP for French versus NP and CP for English (e.g., Sportiche, 1981).

Based on the assumptions they make about the parametric differences between Chinese and English, Hawkins and Chan (1997, p. 216) specifically predict that although Chinese speakers might master the surface morphophonological forms of the L2 English by mapping the L2 morphological forms onto the L1 feature specifications (“L1 syntax with L2 lexical items”), they would be unable to reset the wh-feature required by the L2.
That is, they predicted that the Chinese speakers would incorrectly accept both English RRCs with resumptive pronouns and subjacency-violating RRCs. Meanwhile, the French speakers would not have difficulty in acquiring English RRCs since their native and target grammars share the [±wh] feature in question and thus they were expected to outperform Chinese speakers with the same L2 English proficiency.

Using a grammaticality judgment task, Hawkins and Chan found that the French speakers performed significantly better on grammaticality tests in English relative clauses than the Chinese speakers, as seen in Table 3.3. The advanced French speakers, moreover, showed target-like performance in the associated properties of the English relative clauses. This appears to be compatible with Hawkins and Chan’s prediction.

Table 3.3. Accuracy of Judgments of Chinese and French Speakers (in %; from Hawkins, 2005, p. 126, combined tables 2)

<table>
<thead>
<tr>
<th>Groups</th>
<th>*Double-filled CP</th>
<th>*Resumptive pro</th>
<th>*Subjacency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wh-island</td>
</tr>
<tr>
<td>Chinese</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>50</td>
<td>38</td>
<td>63</td>
</tr>
<tr>
<td>Intermediate</td>
<td>68</td>
<td>55</td>
<td>54</td>
</tr>
<tr>
<td>Advanced</td>
<td>83</td>
<td>90</td>
<td>41</td>
</tr>
<tr>
<td>French</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>91</td>
<td>81</td>
<td>59</td>
</tr>
<tr>
<td>Intermediate</td>
<td>95</td>
<td>90</td>
<td>66</td>
</tr>
<tr>
<td>Advanced</td>
<td>98</td>
<td>96</td>
<td>85</td>
</tr>
<tr>
<td>English</td>
<td>Controls</td>
<td>96</td>
<td>98</td>
</tr>
</tbody>
</table>

The results obtained from the Chinese speakers show that their performance with the L2 CP morphology was not correlated with their performance with the subjacency violations. That is, as the Chinese speakers’ proficiency level increased, the accuracy at which they detected subjacency violations actually decreased, while the accuracy at which they
detected doubly filled CP and resumptive pronouns increased, as seen in Table 3.3. This observation led Hawkins and Chan to claim that the Chinese speakers’ seemingly target-like rejection of the doubly filled CP and resumptive pronouns results not from operator-movement involving a trace ([WH ...ti]), but from the L1-based in situ constructions involving a null (resumptive) pro ([WHi...proi]).

However, it may not be plausible to assume that the gap in the [CP ...gap] pattern was taken as the null pro in the L2 grammars because “there does seem to be something very odd about a grammar which permits null resumptives and disallows lexical ones” (White, 2003b, p. 125). If Hawkins and Chan were right, then the Chinese speakers should also accept overt resumptive pronouns in the L2 relative clauses since there is no constraint on disallowing such pronouns. However, the advanced Chinese speakers correctly rejected relative clauses with resumptive pronouns 90% of the time. Moreover, with increased proficiency, both Chinese and French speakers showed improved accuracy in their judgment of ungrammatical doubly-filled CPs and resumptive pronouns. Note that beyond the elementary level of L2 proficiency, the Chinese speakers correctly rejected the doubly filled CP (*[CP who that]) constructions at a greater than chance level-around 70% and 80% for the intermediate and advanced level, respectively. It is unclear what could have motivated the Chinese speakers to correctly detect the doubly filled CP without referring to the syntactic features associated with the CP morphology: [+wh] in wh-words versus [−wh] in the complementizer that. If the Chinese speakers did not have access to the [wh] feature, as argued by Hawkins and Chan, then the wh-elements in the interlanguage grammars should lack the wh-feature; possibly being
treated as topicalized items. Then there is no ground for the learners to disallow the co-occurrence of wh-elements and *that* in the CP domain; but they did.

Additional possible counterexamples to the claim of the RDH can be found in the data of the advanced French speakers. Recall that due to the parametric difference between French and English (bounding nodes are NP and IP for French versus NP and CP for English), operator-movement from wh-islands is possible in French, unlike in their L2 English. Thus, this model should predict that the French speakers across proficiency levels would display asymmetric judgments in grammaticality regarding wh-islands and Complex NP violations, since parameterized properties are permanently unacquirable. The lower proficiency groups of the French speakers did show asymmetric accuracy influenced by the L1 French bounding nodes (with greater accuracy in Complex NP than in wh-island violating sentences), but the advanced group did not. The advanced French speakers showed target-like performance in both constructions involving extractions from wh-islands (85%) and complex NPs (90%). Hawkins and Chan (1997) noted this:

> If the difference in the status of bounding nodes is a parameterized one, given our assumptions it is surprising that the advanced French speakers appear to acquire the appropriate syntactic representations. It would be a counterexample to the claim that the features of functional categories are no longer accessible to adult L2 learners. (p. 214)

It appears that with positive input, the French speakers can successfully reset the parameter of the bounding nodes for the L2.

The other study testing a more recent version of the RDH was conducted by Hawkins and Hattori (2006). They investigated superiority/subjacency-effect violations
among adult native speakers of Japanese acquiring English wh-interrogatives to test L2ers’ inability to select an uninterpretable wh-feature (with a strong value). Adopting Adger’s (2003) analysis, it is assumed that although English and Japanese share an uninterpretable wh-feature ([uwh]) specified in the interrogative C, they differ as to whether this uninterpretable feature is strong (in which case, as per Adger, it is marked with an asterisk ([uwh*])) or not. When it is strong, it forces the wh-word to move from its base position to the Spec of CP. The different positions (displacement versus in-situ) of a question word between English and Japanese are due to the presence or absence of [uwh*], as seen in (3.6) (Examples from Hawkins & Hattori, 2006, p. 275).

(3.6) a. English wh-interrogative: [C, Q, uwh*]
   *What did John remember [t_i Mary bought t_i yesterday?]*

   b. Japanese wh-interrogative: [C, Q, uwh]
   *John-wa [Mary-ga kinou nani-o kat-ta to] oboete imasu ka?*
   *John-Topic Mary-Nom yesterday what-acc buy-past-C remember is Q?*
   *‘What did John remember Mary bought yesterday?’*

The prediction of the RDH model is that native speakers of wh-in-situ languages (like Japanese and Korean) would not have the uninterpretable feature [uwh*] in their L2 grammars of English-type languages, regardless of overall L2 proficiency levels.

To examine the sensitivity of the Japanese speakers to the locality constraints on wh-movement in the L2 English bi-clausal interrogative sentences, a truth value judgment task was used, including three pragmatically possible answers to a reading comprehension question. According to the RDH, if the interlanguage grammars of the

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39 An example of the truth value judgment task (Hawkins & Hattori, 2006, pp. 286-7) follows:
English L2ers have the uninterpretable \[wh^*\] feature of the English interrogative C, then they should reject answers that violate ‘superiority’ (3.7a) and ‘subjacency’ (3.7b) constraints (Hawkins & Hattori, 2006, p. 286):

(3.7) a. Superiority violation:
*Who did Sophie’s brother warn [Sophie would phone <who> \(^{40}\) when]?*

b. Subjacency violation:
*When did Sophie’s brother warn [who Sophie would phone <who> <when>]?*

Table 3.4. Multiple Wh-questions: Mean Choice of Answers Corresponding to the Scope of a Matrix Wh-word (Hawkins & Hattori, 2006, p. 291)

<table>
<thead>
<tr>
<th></th>
<th>Embedded scope</th>
<th>Matrix scope</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L2ers</td>
<td>Natives</td>
</tr>
<tr>
<td></td>
<td>Japanese</td>
<td>English</td>
</tr>
<tr>
<td>Embedded scope only</td>
<td>0.96</td>
<td>0.97</td>
</tr>
<tr>
<td>Embedded &amp; Matrix scope</td>
<td>0.78</td>
<td>0.75</td>
</tr>
<tr>
<td><em>Embedded &amp; Matrix scope</em> (superiority violation)</td>
<td>0.75</td>
<td>0.33</td>
</tr>
<tr>
<td><em>Embedded &amp; Matrix scope</em> (subjacency violation)</td>
<td>0.58</td>
<td>0.21</td>
</tr>
<tr>
<td><em>Embedded &amp; Matrix scope</em> (superiority &amp; subjacency)</td>
<td>0.58</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Context (provided in the L1, Japanese, of the L2 speakers): “Sophie was angry. Her holiday had been ruined because the hotel she had booked through a travel agency was full and she had to sleep in a tent. Sophie’s brother was a friend of Norman who owned the travel agency. He spoke to Norman on Thursday and told him that Sophie would be phoning his manager, Mrs. Smith, the following day to ask for her money back.”

(Q) Who did Sophie’s brother warn Sophie would phone when?

Answers:
(1) He warned Norman that Sophie would phone on Friday. (grammatically possible)
(2) He warned that Sophie would phone Mrs. Smith on Friday. (*the superiority violation)
(3) He warned Norman on Thursday that Sophie would phone. (*the subjacency violation)

\(^{40}\) Following Hawkins and Hattori (2006), the position from which a constituent has moved is indicated by angled brackets < >.
The results (see Table 3.4) demonstrate that unlike native speakers of English, the Japanese speakers did not significantly distinguish L2 English bi-clausal multiple wh-interrogatives with subjacency and superiority violations (e.g., *When did Sophie’s brother warn [who Sophie would phone ti]?) from the multiple wh-interrogatives without any violations (e.g., When did Sophie’s brother warn [Sophie would phone who ti]?). That is, the Japanese speakers incorrectly accepted the embedded reading at a rate of 58% for subjacency-violating sentences and 75% for superiority-violating sentences. These results are put forward as evidence that the adult Japanese speakers did not have access to the uninterpretable, strong wh-feature.

These data, however, do not necessarily support the view that the L2 learners failed to select a [uwh*] feature. First, the Japanese-speaking learners’ (incorrect) acceptance rate of the subjacency-violating constructions was not categorical; that is, they correctly rejected the ungrammatical constructions 42% of the time. If there were a failure in the resetting of an uninterpretable feature, we would expect the L2ers to accept all sentences with subjacency violations. Thus it is not certain that the Japanese speakers were in fact unable to acquire the L2 strong [uwh*] feature. Next, the L2ers were less likely to allow ungrammatical embedding readings than grammatical matrix readings (58% vs. 93%, respectively) for the multiple wh-interrogatives; there might be statistically significantly different judgments between the two scope readings, though Hawkins and Hattori did not test this. Again, it is likewise not certain that the Japanese speakers’ tendency to reject ungrammatical structures can be explained in terms of “the unavailability of the new uninterpretable feature” in the learners’ grammars (Hawkins &
However, in English, wh-words are also used as relative pronouns, which are obviously unfocused in sentences like (3.8).

(3.8) I saw the girl who you like.

Contrary to Hawkins and Hattori’s assumptions, L2 positive evidence in which the wh-phrases (as relative pronouns) are moved to the Spec of CP without the [Foc] feature might trigger the L2ers’ revision of their L1-based representation. That is, the Japanese speakers are able to delink their L1 transferred focus-feature from the properties of the L2 English wh-words in response to wh-movement in the L2 relative clauses.

Moreover, according to Kobayashi (2000), Japanese multiple wh-movement is obligatory only when it is tied to the exhaustive interpretation of referential wh-phrases.
Both multiple wh-questions in (3.9) can have the default reading (3.10a), but only the interrogative (3.9b) containing two scrambled wh-phrases can receive the pair-list/exhaustive interpretation (3.10b) (Examples from Kobayasi, 2000, pp. 189-190).

(3.9) a. \[\text{[VP matigatte dare-ga nani-o katta] no?} \]
    Mistakenly who-Nom what-Acc bought Q
    ‘Who bought what by mistake?’

    b. \[\text{Dare-ga$_i$ nani-o$_j$ [VP t$_i$ t$_j$ matigatte katta] no?} \]
    who-Nom what-Acc mistakenly bought Q

(3.10) a. Single-Pair Reading (default reading) for (3.9a and 3.9b)
    John-ga hon-o (matigatte) katta.
    John-Nom book-Acc (mistakenly) bought
    ‘John bought a book (by mistake)’

    b. Pair-List Reading (=exhaustive interpretation) for (3.9b)
    John-ga hon-o, Mary-ga tokei-o Bill-ga nekutai-o (matigatte) katta.
    John-Nom book-Acc Mary-Nom watch-Acc Bill-Nom tie-Acc bought
    ‘John bought a book, Mary a watch, and Bill a tie (by mistake)’

Meanwhile, non-referential wh-phrases (e.g., \textit{itsu} ‘when’) do not obligatorily undergo movement. If Kobayashi’s analysis turns out to be correct, we wonder how the Japanese speakers could come to analyze obligatory (referential and non-referential) wh-movements in English as a scrambling operation that is used for the exhaustive readings of multiple referential wh-questions in their L1. In other words, what constitutes an obligatory context for wh-movement (scrambling) in the L1 (Japanese) differs from what constitutes an obligatory context for wh-movement (operator movement) in the target grammar.

In sum, adult speakers’ non-native performance in subjacency-violating sentences led Hawkins and his colleagues to conclude that the L2 speakers lacked the (strong) wh-
feature and instead utilized their L1-based non-movement representations instead of operator movement. They claimed that there was topicalization in English relative clauses in the L2 grammars of the Chinese speakers and scrambling for English wh-questions in the L2 grammars of the Japanese speakers. However, other studies, as noted by Hawkins and his colleagues (1997, 2006), have shown conflicting findings. Evidence for the proposal that a new uninterpretable feature can be acquired after a primary language learning period is supported by Martohardjono and Gair (1993), Li (1998), and White and Juffs (1998). For instance, in relation to the parameterized [+wh] feature, results indicate that high-proficiency native Chinese and Japanese speakers, whose L1 lacks the wh-feature, performed accurately when detecting sensitivity to strong versus weak violations\(^{41}\) of subjacency in L2 English (e.g., Martohardjono & Gair, 1993; Yusa, 1999). Note that the subjacency-violating sentences Hawkins and Hattori tested were weak violations of subjacency. Meanwhile, their findings show that the L2 learners’ acquisition progress tends to be gradual. What are the results in the relevant L2 studies so gradient if parameter resetting has taken place? It appears that the L2 learners require learning processes to figure out how relevant features are configured and its contingent operation (wh-movement) is language-specifically conditioned in the target grammar (i.e., bound nodes, discourse-linked wh-phrases, selectional requirements of matrix verbs).

The mixed results regarding subjacency violations in SLA require an alternative explanation. If presence or absence of the strong [\(\nu\)wh] feature were all that were

\(^{41}\) (i) a. Weak violations of subjacency (wh-island, CNPC):
   *What did Rebecca wonder who would believe <what>?

   b. Strong violations of subjacency (RRC, Adjunct):
   *What did your parents visit a restaurant which served <what>?
involved in the attainment of L2 wh-constructions, we would not expect these conflicting findings in question. We therefore need to move on to the question of what makes adult L2 speakers find it difficult, but not impossible, to acquire certain types of wh-constructions (involving wh-island and superiority effects), focusing on the interface between syntax and other domains such as semantics, morphology and pragmatics. A good starting point may be Culicover’s questions: “how much linguistic knowledge is innate and how much is learned, how much is universal and how much is contingent, and how much is syntactic […]” (1999, p. 18).

*RDH: Application*

Turning to the acquisition of the interpretation of Korean variable expressions, the RDH might predict the native English speakers would fail to acquire that the uninterpretable feature associated with the interrogative C is not strong or has no EPP diacritic in the L2. On the other hand, this proposal has no prediction about the acquisition problems of the relevant interpretable features (selected during the course of the L1 acquisition). Under the RDH model, it is hypothesized that only uninterpretable features unselected by learners’ L1s make it problematic for adult speakers to master the relevant properties of the L2. Note that the uninterpretable feature that forces the dislocation of a wh-phrase is, crucially, not involved in the interpretation of Korean variable expressions. Rather, knowledge of the interpretable features [wh-operator] and [Q], which are instantiated in both the L2 Korean and L1 English grammars, plays a role in the interpretation of variable expressions. Because uninterpretable features are regarded to be only source for adult speakers’ divergent grammars in this model, it is far
from clear how this model could explain problems involving the acquisition of interpretable features in the C domain. Presumably, under this account, acquiring interpretable features should not necessarily cause considerable difficulty in second language acquisition, particularly in cases where the interpretable features are represented in both languages.

Although Hawkins and his colleagues’ earlier accounts did not say much about how interpretable features are mastered within a parameter setting framework, more recently, proponents of the proposal (Hawkins & Hattori, 2006; Tsimpli & Dimitrakopoulou, 2007; Tsimpli & Mastropavlou, 2008) explicitly suggest that interpretable features (as well as computational procedures and principles of the language faculty) continue to be available throughout life, even when the L1s do not select those interpretable features. Because of the unlimited availability of interpretable features, adult L2ers with sufficient L2 experience are claimed to achieve a certain level of a target grammar (or “apparent target-like L2 performance” (Hawkins, 2003, p. 135)) for L2 properties involving new interpretable features. In other words, under this account, it seems likely that L2 learners’ knowledge of interpretable features would not be divergent from that of native speakers of the target language. In particular, since the relevant interpretable features of [wh], [Q], and [Variable] are selected by both English and Korean, we should not expect that English speakers would have difficulty in interpreting the L2 variable expressions (or fail to do so). As far as interpretable syntactic features are concerned, the RDH and the FT/FA hypotheses share the view that the L2ers should not have problems as long as they have valid L2 input.
3.6.3. An Alternative Account: The Feature-Reassembly Approach

In this section, we will examine an alternative approach that attempts to account for L2 speakers’ divergent performance in terms of feature-reassembly, rather than parameter switching. This alternative, the Feature-Reassembly Approach formulated by Lardiere (2005, 2007a, 2008) offers a different perspective on second language acquisition. In order to capture cross-linguistic variation and learning problems of adult speakers, this approach takes into account the assembly of formal features in second language acquisition. We will see how this approach might account for the problems of native speakers of English acquiring the interpretation of Korean variable expressions.

The Feature-Reassembly Approach

As we discussed in the previous sections, within generative approaches to SLA, adult L2 speakers’ divergence from a target grammar has been accounted for in terms of a speaker’s inability to switch from the L1 value of a given parameter to the L2 value. However, as pointed out by Lardiere (2005, 2007, 2008), because parameter resetting should involve abrupt changes in a speaker’s internal grammar, the persistent variability observed in stable stages of L2 speakers is hard to reconcile in terms of parameter resetting.

An alternative approach, referred to as the Feature-Reassembly Approach (Lardiere, 1998, 2000, 2005, 2007, 2009) is formulated to account for observed (morphological) variability in terms of morphological competence. This approach is based within the framework of Distributed Morphology (Halle & Marantz, 1993), which

42 This approach has been developed from the mapping problems between morphosyntactic features and their surface forms (e.g., Lardiere, 1998, 2000).
proposes an autonomous domain of morphology, which includes “a theory of features that determines when they must cluster in morphemes and when they may surface in separate terminal elements” (Halle & Marantz, 1993, p. 133). More specifically, Distributed Morphology notes that morphosyntactic feature bundles are hierarchically arranged by the syntax, and subsequently those bundles are adjusted to conform to language-specific requirements in the course of derivation at the Morphological component. Then the terminal nodes carrying the modified bundles of features are realized by inserting vocabulary items\(^\text{43}\) into them—the inserted vocabulary items are considered to be the ones that most closely match the terminal nodes. Thus it is assumed that spell-outs or overt morphological expressions of those assembled formal features appear only after the syntax operations (Embick & Noyer, 2001; Marantz, 1997; Halle & Marantz, 1993).

Recall that under parameter resetting models, a particular morphological expression is often claimed to represent a particular formal feature forming a corresponding functional category (e.g., Beck, 1998; Eubank et al., 1997; Hawkins, 2001a; Hawkins & Liszka, 2003). However, following the Distributed Morphology model, the feature-reassembly view holds that the assembled formal interpretable and uninterpretable features are distinguished from morphological expressions. That is, although the numeration consists of morphosyntactic features drawn from the lexicon, the vocabulary items that spell out those bundles of features are the result of a separate

\(^{43}\) In the Distributed Morphology (DM) proposal, vocabulary entries consist of morphosyntactic features and a set of phonological features. The vocabulary items, which are instructions for the pronunciation of formal feature bundles, are relatively underspecified in terms of morphosyntactic features (Halle & Marantz, 1993).
procedure that fills in the representations with phonological information after syntax. Thus a single morpheme can be shared by several morphosyntactic features. The implication is that the absence of a certain morpheme does not necessarily imply the absence of a particular formal feature (and its associated functional category).

Let us see how a formal feature is treated differently in the feature-reassembly view compared to parameter resetting models. Recent work of Lardiere (2005, 2007, 2009) illustrates a case in which adult L2 learning problems are derived from language-specific clusters of features. Lardiere (2007b), for example, examined the production data of a Chinese speaker, Patty, who was acquiring English plural number marking. According to the linguistic analysis of Aoun and Li (2003), the feature [+plural] in Chinese is very differently configured than it is in English, even though Patty’s L1 Chinese and L2 English share this feature and the category Number.

More specifically, according to Aoun and Li (2003), the number feature is realized by the nominal plural/collective marker –men in Chinese, which is located in the head of the Number category, as in (3.11):

(3.11) (Aoun & Li, 2003, p. 165)

```
(3.11)    DP      (Aoun & Li, 2003, p. 165)
           D          NumP
           [+def]     NumP
                   Num [+]pI
                   -men
                   Cl(assifier)P
                   CI
                   NP
                   xuesheng
```
Aoun and Li argue that in Chinese, when the classifier position is empty, a noun can move to the Number position to check the plural feature of –men. It can then move further to D, in which the raised noun receives the interpretation of definiteness:

(3.12) ta hui dai xuesheng-men hui jia
He will bring student-PL back home
(i) ‘He will bring the students back home’
(ii) **‘He will bring (some) students back home’

Thus, the noun cannot be overtly pluralized with the suffix –men when the classifier position is occupied, as in (3.13).

(3.13) a. * laoshi dui (zhe/na) ji-ge xuesheng-men tebie hao
teacher to this/that several-CL student-PL especially good
‘The teacher is especially nice to those several students’

b. lasoshi dui zhe/na-xie xuesheng-men tebie hao
teacher to these/those student-PL especially good
‘The teacher is especially nice to these/those students’
(Aoun & Li, 2003, p. 166; cited in Lardiere, 2008, p. 121)

Additionally, the use of the plural suffix –men is restricted to [+human] nouns, and moreover its obligatoriness is conditioned by what type the noun is; there is obligatory marking for personal pronouns (e.g., wo ‘I/me’) but optional marking for other kinds of human nouns (e.g., xuesheng ‘student(s)’). On the other hand, the English plural marking –s is obligatorily used for quantified contexts and has nothing to do with the definiteness reading. Thus, the Chinese affix –men appears to be the surface form of the assembled features of plurality and definiteness, but only when the noun is a human referent, while the English affix –s is the spell-out of the plural feature in the context of any count noun.
As observed in Table 3.5, Lardiere’s findings show that Patty exhibited variability in her production of the English plural marking.

Table 3.5. Plural Marking in Obligatory Quantified Expressions (Lardiere, 2008, p. 122)

<table>
<thead>
<tr>
<th>Recording</th>
<th>Suppliance/contexts</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2/23</td>
<td>08.70</td>
</tr>
<tr>
<td>2</td>
<td>24/51</td>
<td>47.06</td>
</tr>
<tr>
<td>3</td>
<td>14/24</td>
<td>58.33</td>
</tr>
</tbody>
</table>

In the first recording, Patty frequently (91.3% of the time) omitted the plural marking in obligatory contexts. After 8 years, her plural marking rates significantly increased, as shown in the second recording. However, there was still some residual variability—the accuracy rates were below 60%. Note that it is in these contexts—namely, quantified contexts requiring a classifier and/or bearing a non-human noun—that plural marking on the noun would be prohibited in Patty’s L1 Chinese, as seen in (3.14).

(3.14) Patty’s omission of plural marking (Lardiere, 2008, p. 123)
   a. *I have two cousin.
   b. *I borrow a lot of book from her
   c. *I hear it so many time.

These data suggest that Patty’s problem with the English plural marking on some occasions might involve re-clustering the relevant quantificational features required for the target grammar. That is, the Chinese speaker’s optional plural markings are not due to the unavailability of the [plural] feature, since both L1 and L2 exhibit this feature. Rather, Patty’s learning task involves detaching definiteness from the plural marking and extending the relatively restricted usage of this marking in the L1 to other [−human]
nouns for the L2. Accordingly, differently assembled features and conditioning factors in the L1 and the L2 are claimed by Lardiere (2007, 2008) to play at least a partial role in the nonnative-like plural marking in Patty’s grammar.

The representational deficit approach, in particular, has little to say about any possible learning problems, given that a new parametric feature is not involved. The Feature-Reassembly approach, however, suggests that learning requires reconstructing complex lexical entries for the L2, saying “the contexts in which [a certain form] can or cannot or must appear and restrictions on its use must all be painstakingly acquired and are part of the learner’s developing morphological competence” (Lardiere, 2008, p. 236). That is, in order to offer an account for such acquisition problems, the Feature-Reassembly approach posits that the following questions must be answered to acquire the morphological spell-outs of the features:

(a) 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?
(b) In which lexical items of the L2 are the selected features expressed, clustered in combination with other features?
(c) 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. 173)

In other words, acquiring L2 grammar is partly a matter of learners’ figuring out how features are bundled together into lexical items and under which language-specific conditions they are overtly realized in the L2. Therefore these learning problems are not easily captured by the metaphor of parameter resetting.
With respect to L1 influence in the feature-reassembly context, it is assumed that adult L2ers have access to the previous knowledge of the construction of lexical entries from their native language, which is compatible with the FT/FA proposal. In the feature-reassembly approach, in particular, L1 knowledge plays a role in assembling the lexical items of a target grammar. The previous morpholexical knowledge affecting the L2ers’ re-distribution or re-clustering of the features appears to be in a better position to account for L1 lingering effects than the accounts of L1 fixed parameters. Under the parameter resetting models, the presence in the L1 of a certain feature is argued to guarantee that all speakers of that language will have ease or difficulty with the relevant L2 target property, depending on whether the same feature is present or absent in the L2. Then we should not expect any persistent L1 effects within individual speakers.

*Feature-Reassembly: Application*

Returning to the learning issues in the interpretation of variable expressions by English speakers, the feature-reassembly approach predicts possible persistent difficulties due to differently clustered features and language-specific manifestations between the L1 and the L2. The acquisition of the interpretation of Korean variable expressions makes this point clearly. Acquiring the interpretation of the variable expressions requires the reconstruction of the relevant assembled (interpretable) features in the L1 for the L2—since there is no new feature involved, per se. As described in Chapter 2, both English and Korean select the relevant interpretable features of [wh] and [Q] for the wh-question constructions. However, the way in which the features are clustered and realized in the domain of the interrogative C in Korean is quite different from how they are in English,
intertwined with different phonological, morphological, and semantic conditions. That is, in English, the interpretable features [wh] and [Q] (=Q-operator), and [Variable] are conflated and morphologically realized as a single lexical item (e.g. the wh-question expression), which is associated with the DP domain. On the other hand, in the Korean DP domain, the [Variable] feature is realized as wh-lexical items that require a licensor to be interpreted. Bundles of syntactic [wh] and [Q] features, which generate the Q-operator, are separately spelled out in different ways in matrix and embedded C (see, e.g., Aoun & Li, 2003; Nishigauchi, 1990; Tsai, 1994; A-R. Kim, 2000).

Under this view, the learning problems confronting adult native speakers of English acquiring Korean involve teasing apart the relevant features from the way they are assembled in the L1 English, and re-distributing them as required by the L2. This means that the L2 speakers first need to de-link the Q-operator from the L1 wh-expressions. Then, the L2ers need to re-organize the [OP] and [VAR] in the terminal node of the CP and DP. Additionally, there is a more complex learning task awaiting them, namely discovering the language-specific requirements of the L2 Vocabulary insertion against the terminal node. In other words, the L2ers must figure out how the combined [wh] and [Q] features are realized depending on whether the CP is matrix or embedded in Korean. In the matrix CP domain, the [+Q, +wh] features are phonologically realized (by falling intonation) and for the embedded CP domain, the same features are morphologically realized (with the particle nunci, which is suffixed to the embedded verb). Therefore, the L2 speakers are required to learn how to manifest such features in each construction.
Taken together, compared to previous approaches in Principles-and-Parameters theory, the feature-reassembly approach offers a better account of persistent divergent L2 interlanguage grammars, especially for cases in which both languages exhibit the features in question. If English speakers exhibit variability in the interpretation of the Korean expressions, this account suggests that it is because they have trouble with remapping the features associated with interrogative C in the L1 onto several different elements in the target language. They can also struggle with figuring out the relevant contextual conditions for the manifestation of the reassembled features.

3.7. Summary

The goal of this chapter has been to present a critical discussion of the contribution of parameters and parameter setting theory to accounts of cross-linguistic variation and second language acquisition. In order to capture linguistic variation and language acquisition, different perspectives on parameters have been proposed, from micro-parameters to macro-parameters, and from the cartographic approach (a fixed set of functional categories) to the non-cartographic approach. These views have sparked considerable debate in theoretical and acquisition literature. Nevertheless, the recent trend in linguistic theory has been toward more richly articulated functional domains, such as the split CP (e.g., Rizzi, 1997, 2004), more parameters, and finer distinctions of formal features (e.g., interpretable versus uninterpretable).

Parameter theory has kept its popularity because the notion of parameters has been understood as offering a useful metaphor for L2 acquisition given the influence of
the L1. That is, in generative-oriented research in L2 acquisition, it has widely been assumed that parametric variation between L1 and L2 may be attributed to adult L2 learners’ non-targetlike performance. However, in this chapter, observed L2 morphological variability (as a typical area that diverges from the target grammar) provides a ground for reconsidering parameter resetting models, since parameter setting is assumed to be an all-or-nothing phenomenon. The parameter (re)setting models can be reexamined given the learning problems confronting adult native speakers of English acquiring the interpretation of Korean variable expressions. In the acquisition situation of the current study, relevant formal features and associated functional categories are present in both L1 and L2. However, those formal features are quite differently distributed in the two languages. This acquisition situation provides us with an excellent opportunity to evaluate recent parameter resetting models in generative SLA research. Thus, in subsequent chapters, we will explore the learning problems associated with assembling functional categories in adult SLA, particularly when the relevant features are selected by both the L1 and the L2. The findings of this study might open up perspectives on the role of differently clustering primitive features in SLA. I will especially concentrate on determining the nature of the relationship between the knowledge of primitive features and the language-specific realizations of these features.

In the next chapter, I describe an experiment conducted to test whether speakers of an overt wh-movement language are able to correctly interpret L2 Korean wh-lexical items according to their contextual conditions.
Chapter 4

Data and Methodology

This chapter describes an experimental study that tested the acquisition of the interpretation of Korean wh-lexical items by English-speaking Korean learners. The experimental study was carried out in an attempt to determine whether native English speakers are able to figure out how to remap relevant features of wh-question constructions into different formal configurations in the L2 Korean. In order to address the issue of whether the adult English speakers can make an interpretive distinction between indefinite and wh-question types of L2 variable expressions, two translation tasks (listening-and-translation task and reading-and-translation task) and one truth-value judgment task were administered to non-heritage adult learners of Korean at two different proficiency levels. Native speakers of Korean served as controls.

This chapter is organized as follows. Section 4.1 spells out four specific research questions in relation to the acquisition of the interpretation of the L2 Korean variable expressions. The details of the experimental method used with both learner groups are given in Section 4.2. Section 4.3 presents information about the subjects who participated in this study. Section 4.4 presents the procedures used for the experiment and the data analysis.
4.1. Research Questions

This study focuses on four central questions in the acquisition of the interpretation of Korean wh-lexical items:

(a) Do adult English speakers have difficulty correctly interpreting L2 Korean variable expressions according to intonation?

(b) Do adult English speakers have difficulty correctly interpreting L2 Korean variable expressions according to the contextual co-occurrence of sentential licensing particles?

(c) Are native English speakers more sensitive to prosodic patterns (falling and rising intonations) than to morphological particles (sentential particles) or vice versa when interpreting Korean variable expressions?

(d) If the native English speakers have trouble interpreting Korean variable expressions correctly, is the correct interpretation ultimately acquirable by advanced Korean learners?

4.2. Methodology

The purpose of the translation and judgment tasks was to investigate the interlanguage grammars of English speakers acquiring the differing interpretations of Korean variable expressions. The translation tasks consisted of a listening-translation task and a reading-translation task. The former tested the L2 speakers’ interpretations of variable expressions according to different intonation types (VAR-Falling versus VAR-Rising) and the latter tested their interpretations with different types of co-occurring sentential particles (ta [−Q] vs. nunci [+Q]). In addition, a truth value judgment task was carried out to detect the L2 speakers’ judgments of questions and declarative statements. This was done to corroborate the results of the translation task in relation to the licensing
environments of sentential particles. Details of the tasks used for this thesis are presented in the following section.

4.2.1. Materials

This section discusses the two types of translation tasks administered to adult English speaking Korean learners and then the truth-value judgment task.

Translation Task

The purpose of carrying out two types of translation tasks was to investigate whether the subjects who displayed target-like performance in the interpretation of the L2 variable expressions in the listening-and-translation task would display the same knowledge in the reading-and-translation task, in particular to see whether the L2 speakers’ behavior in relation to prosodic versus morphological licensing conditions was the same.

In the translation task, each subject was asked to translate Korean sentences containing wh-lexical items into English. The translation task was comprised of two types of materials, oral and written, for testing adult learners’ knowledge of the interpretation of L2 Korean variable expressions based on intonation (simple interrogatives) and sentential particles (embedded clauses), respectively. A total of 24 items including 12 distracters were utilized for each clause type. They were ordered randomly in the tests. The rationale for the translation task was that in the L2 speakers’ mother tongue, English, indefinite pronouns and wh-pronouns are distinct, and thus when
the subjects translated Korean sentences into English, their interpretations of the L2 variable expressions could be detected.

(a) Listening-and-translation Task:

A listening-and-translation task (see Appendix A) was designed to examine whether native speakers of English could provide appropriate interpretations of L2 Korean variable expressions in the presence of (sentential-final) rising versus falling intonation patterns. In the L2 simple interrogatives, the interpretation of the variable expressions depends on intonation. In these contexts, where [+wh] and [−wh] question particles share a morphological form, such as *ni*, prosody features play a role in determining whether a variable expression receives the indefinite pronoun reading or the question reading, as in (4.1-4.2):

(4.1) VAR-Falling constructions (n = 6)

John-i mwues-(ul) mek-ess-ni? 
John-Nom THING-Acc eat-Past-Q
‘What did John eat?’

(4.2) VAR-Rising construction (n = 6)

John-i mwues-(ul) mek-ess-ni? 
John-Nom THING-Acc eat-Past-Q
‘Did John eat *something*?’

When the VAR-expression receives stress and there is sentence-final falling intonation, it has the question reading, as in (4.1), versus when the sentence has a rising intonation, in which case the VAR-word obligatorily receives the indefinite reading *something*, as in (4.2). Each type of construction had six instances. It is expected that if a speaker has
acquired the interpretation of the variable expressions associated with intonation, then she should be able to provide English indefinite pronouns for the expressions in association with a sentence-final rising intonation (VAR-Rising construction) and question words for them in association with a sentence-final falling intonation (VAR-Falling construction). In order to ensure accurate realization of intonation patterns for simple interrogatives, several trials were administered and modified before testing the experimental groups.44

In addition to the target items, five simple yes/no questions and seven simple statement sentences, which did not have any ‘wh’-elements, served as distracters. For example:

(4.3) Declarative (n = 7):
Onul-un chinkwu-uy sayngil-i-ta.
Today-Top friend-Poss birthday-be-Decl
‘Today is my friend’s birthday’

(4.4) Yes/No question (n = 5):
Tongsayng-i hakkyo-ey ka-ss-ni?
Younger sibling-Nom school-Loc go-Past-Q
‘Did your younger sibling go to the school?’

All 24 items for the task were balanced for number of syllables (they had either three or four). Since the listening-and-translation task was designed to probe the L2 learners’ sensitivity to prosodic cues (rising versus falling intonation) for the interpretation of the

44 In order to minimize bias, I conducted some informal perception tests, presenting recordings and my own utterances to several native speakers of Korean. They confirmed that the utterances presented to them were accompanied by saliently realized intonation for the intended interpretation. The goal of designing the listening-and-translation task was to provide contexts that were as salient as possible to non-advanced speakers. Some native informants pointed out that the test sentences sounded a bit unnatural to them in terms of exaggerated intonation and slow speed. Nevertheless, several heritage speakers of Korean (who participated in a small pilot study) showed perfect accuracy with each type of Korean variable expressions associated with the corresponding intonation patterns.
L2 variable expressions, the task involved audio-recorded sentences (via MP3) in the speakers’ L2 (Korean) to be translated into their L1 (English) in a written form, similar to a class dictation.\footnote{Korean-English bilinguals also participated in the listening-and-translation task and they translated test items into their L2 (English).} Using the audio recording software Audacity, oral directions and test items were recorded,\footnote{Written directions were also given on the answer sheet on which participants were asked to write their translations.} edited and saved as an MP3 file. Before the test sentences were given, the oral directions were presented. The audio file was delivered via two audio-speakers in a classroom setting, again, similar to a class dictation setting. Each sentence was repeated twice and the length of each stimulus was approximately 2 seconds. The average period of time after the end of one stimulus to the presentation of the next stimulus was 32 seconds.\footnote{Even lower proficiency learners found this interval long enough.} During each pause, participants were encouraged to translate each Korean sentence into English in a written form. The duration for completing the task was 16.5 minutes.

(b) Reading-and-translation Task:

In order to test learners’ performance on the morphological conditions (in which sentential particles play a role in determining the reading of variable expressions), Korean complex sentences containing embedded variable expressions were presented to participants in a written form. In the written translation task (see Appendix B), the participants were asked to translate the L2 written complex sentences into English. As discussed in Chapter 2, the interpretation of embedded variable words in the L2 is determined by the co-occurring sentential morpheme, which is the morphological realization of the features of [±Wh] and [±Q] in the functional category C. Accordingly,
the reading-and-translation task makes it possible to examine the L2 learners’ acquisition of the language-specific licensing relationship between the L2 variable expressions and morphological licensors.

More specifically, the testing constructions involved variable expressions embedded by the matrix verb *kiekhata* ‘remember’, which takes either a declarative clause (marked by the declarative particle *ta*) or an interrogative clause (marked by the question particle *nunci*). In these contexts, the closest sentential particle disambiguates the interpretation of Korean embedded wh-words, as in (4.5-4.6).

(4.5) VAR-DECL Construction:

John-Top Mary-Nom PERSON-Acc like-Past-Decl-Sub remember-Decl
‘John remembers that Mary liked *somebody*’

(4.6) VAR-Q Construction:

John-un [Mary-ka *nwukwu*-lul cohahay-ss-*nunci*]
John-Top Mary-Nom PERSON-Acc like-Past-Q remember-Decl
‘John remembers *who* Mary liked’

When the indeterminate wh-element co-occurs with the declarative particle *ta*, which bears the features [−Q, −wh], it can only have the indefinite reading *somebody*, as in (4.5). However, when the variable expression co-occurs with the question particle *nunci*, which bears the features [+Q, +wh], it has the question interpretation, as in (4.6). We refer to

48 To some native speakers, it is more natural for the embedded clause to be marked by the object accusative –*lul*, as follows:

(i) John-un [Mary-ka *nwukwu*-lul cohahay-ss-*nunci*-(*lul*)] kiekhan-ta.
John-Top Mary-Nom PERSON-Acc like-Past-Q-Acc remember-Decl
‘John remembers *who* Mary liked’

However, the accusative marker was omitted in the test sentences to make sure that the sentential particle in the embedded CP, the relevant cue, was as salient as possible.
the former structure with the indefinite interpretation of variable elements as the VAR-DECL construction and to the structure with the wh-question interpretation as the VAR-Q construction. Thus, it is expected that if subjects have acquired the fact that the interpretation of Korean variable expressions is determined by the features \([\pm Q, \pm \text{wh}]\) of associated sentence-final particles, then they should provide English indefinite expressions for the variable elements in association with the declarative particle *ta* (VAR-DECL construction) and question expressions for them in association with the question particle *nunci* (VAR-Q construction). Seven simple declaratives, and two matrix interrogatives and two embedded interrogative served as distracters, as in (4.7).

(4.7) Distracters:
a. Na-nun tambay-lul an phiwun-ta. (n = 7)
   I-Top cigarette-Acc Neg smoke-Decl
   ‘I don’t smoke’

b. na-nun tongsayng-i yelsimhi kongpu ha-nunci kwungkumha-ta. (n = 2)
   I-Top sibling-Sub hard study do-Q wonder-Decl
   ‘I wonder if my little brother/sister studies hard’

c. aisukulim-ul ne-to cacwu mek-ni? (n = 2)
   Ice-cream-Acc you-also often eat-Q
   ‘Do you also eat ice-cream often?’

None of the distracters included variable expressions. A total of 24 testing items were mixed randomly and were provided in a written form.
Truth Value Judgment Task

A truth value judgment task (see Appendix C) was used to determine whether language acquirers were interpreting VAR-DECL and VAR-Q constructions distinctively given a fully described context. There were two grounds for using the judgment task. First, since the research question directly involved L2 learners’ interpretable features (in the C domain), the judgment task was an appropriate instrument to examine the L2 speakers’ interpretation of VAR-DECL and VAR-Q structures. Second, tests of the interpretation of variable words are not found in the acquisition literature, to my knowledge, so the present test is very much a first attempt at examining the variable interpretations of wh-lexical items. Therefore, it seems desirable to check whether the same subjects who show knowledge of constraints on the interpretations of the lexical items in a translation test also display the same knowledge in a judgment task. This allows us to corroborate the results of the reading-and-translation task for the morphological licensing environment. Nonetheless, the truth value judgment task was utilized for embedded clauses only. The Korean variable expressions in matrix clauses involve interrogatives, and the reading of the expressions is disambiguated by intonation. The written judgment task, hence, may not be appropriate for testing participants’ interpretation of variable expressions according to intonation.

In the contextualized judgment task, the participants were presented with a short story followed by four related sentences, two of which were distracters. The other two sentences provided either indefinite or question interpretations for an embedded variable
expression. In this way, the truth value judgment task made two possible readings of the L2 variable expressions available to the L2 speakers for each scenario.

The scenarios were carefully designed so the respondent would know as clearly as possible whether they corresponded to either the question or indefinite readings of the variable elements. Since the nature of the contexts was important for the participants’ judgments, these contexts were presented to the experimental groups in their L1 English rather than L2 Korean (following the rationale for a truth value judgment task used by Dekydtspotter et al., 1997, 2001). In this way, we could study the relevant knowledge of the interpretation of lower proficiency level learners who might not be able to deal with an entire context in the target language. For the Korean monolingual controls, the contexts were given in Korean. Therefore, we can ensure that the participants’ responses are not confounded by a misunderstanding of the given story.

Test stories consisted of two types, non-specific information and specific information scenarios (six contexts for each). The non-specific information scenario describes a situation in which a particular X in the question is not identified, which means that only the indefinite interpretation of Korean variable words is allowed (see Figure 4.1). Note that the stories never contain both variable expressions and indefinite pronouns. In Figure 4.1, the expected response is the declarative statement including the indefinite interpretation in (i). The question interpretation in (ii) is inconsistent with the given scenario.
John and Mary are close co-workers working in the financial division. One day John saw a large and beautiful flower basket delivered to Mary. Mary was not there at the time. John was so curious about it, and then opened a card attached to the flower basket. A love message was written on the card. But there was no name of the sender on the card.

(i) VAR-DECL structure:
John-Top PERSON-Nom Mary-Acc like-Decl-C know-Decl
[‘John knows that somebody likes Mary’]

True ☑ False ☐ Don’t Know ☐

(ii) VAR-Q structure:
John-Top PERSON-Nom Mary-Acc like-Q know-Decl
[‘John knows who likes Mary’]

True ☐ False ☑ Don’t Know ☐

(iii) Distracters:
John-un cikcang tongglyo han salam-i Mary-lul cohahan-ta-ko an-ta.
[‘John knows that one of his co-workers likes Mary’]

John-un Mary-ka ku-lul cohaha-nunci an-ta.
[‘John knows whether Mary likes him’]

Figure 4.1. Scenario for Non-specific Information

The other type is a specific information scenario that describes a situation in which a particular X is identified, supporting both question and indefinite interpretations of the L2 embedded variable expressions (see Figure 4.2). The two test sentences corresponding to the two interpretations of the expressions could both be an appropriate description of this specific information context. The expected response is the question interpretation in (i), but the indefinite interpretation in (ii) is also consistent with the given scenario since
existential expressions are semantically a superset of wh-phrase expressions (a detailed discussion follows).

Chelswu likes playing with his brother. He was looking for his brother to play with after he came back from school. But, he could not find him. He asked his mother about his brother. His mother told him that his brother was at Yenghi’s home. So, he went to Yenghi’s home to find him.

(i) VAR-DECL structure:
Chelswu-Top brother PLACE-Loc go-Past-Decl-C know-Decl
[‘Chelswu knows that his brother went somewhere’]

True ☑  False □  Don’t Know □

(ii) VAR-Q structure:
Chelswu-Top brother-Nom PLACE-Loc go-Past-Q know-Decl
[‘Chelswu knows where his brother went’]

True ☑  False □  Don’t Know □

Figure 4.2. Scenario for Specific Information

As Table 4.1 summarizes, the rationale for this task is that if L2ers have acquired the role of sentential particles, which are realized in C as the features [±Q] and [±Wh], in the interpretation of embedded L2 variable words, then they should accept the sentences containing the indefinite meaning of Korean variable expressions (VAR-DECL construction) in the non-specific context and reject the sentences with the question reading (VAR-Q construction), as seen in Figure 4.1.
Table 4.1. Prediction of Responses in Given Scenarios

<table>
<thead>
<tr>
<th></th>
<th>Non-specific Scenario</th>
<th>Specific Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>VAR-DECL (‘something’)</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>VAR-Q (‘what’)</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

On the other hand, the speaker should accept the question statement associated with the specific-information context (see Figure 4.2), and could also accept the declarative statement (VAR-DECL structure) in the same context, since the scope of the indefinite meaning is wider than the scope of the wh-question meaning. For instance, in Figure 4.2, if Chelswu knows where his brother went, then he also automatically knows that his brother went “somewhere”. Therefore, participants’ responses on the test constructions (paired with the specific-information context) might not play a key role in determining whether their interpretations of L2 variable expressions are correct. However, this task enables us to confirm whether the participants can comprehend the description of the two different types of stories (specific and non-specific contexts) and judge test sentences paired with them. This validates the prediction that when subjects accept or reject test structures, they would do so for the right reason (that is, because of targetlike knowledge of the relevant interpretive constraints).

The participants were informed that the four sentences following the story were grammatically correct, but that some sentences might not be true for the given story. One trial for this test was also presented to the participants. Participants were asked to indicate whether each sentence matched the given story by checking one of the boxes.
labeled ‘True’ or ‘False’, respectively. They could also respond ‘(I) don’t know’ if they could not understand a test sentence. Eight distracters were also included, designed to blend in with the rest of the task. In addition, to rule out response bias 49 (“Yes/True” response), distracters were designed to give the answer ‘False’ more often (33 answers versus 23 for ‘True’) as a counterbalance. As a result, the judgment task comprised 42 ‘True’ and 39 ‘False’ responses in total.

In short, if the L2 learners have acquired the interpretive contingency between the L2 embedded variable expressions and co-occurring morphological particles, they will distinguish the two test structures in the non-specific information context, but will not necessarily in the specific information context. That is, if L2ers’ grammars have target-like constraints on the interpretation of the variable expressions, they should consistently reject the VAR-Q sentences ( [+Q] reading) while accepting the VAR-DECL sentences ( [−Q] reading) in the non-specific information contexts. In relation to the specific information context, they would be likely to accept both sentences.

4.2.2. The Participants

In order to investigate the research questions discussed in the previous section, a total of 47 adult English speakers 50 learning Korean as a foreign language participated in the experiment, as well as twenty native speakers who served as controls. Table 4.2

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49 In first (and second) language acquisition, it is widely known that participants are likely to respond ‘Yes’ or ‘True’ if they don’t understand a test sentence in experimental studies.

50 A total of four subjects were excluded from analysis: two subjects did not finish one of tests and the other two provided both readings for the L2 variable expressions at the same time for each test sentence by providing two translations for each sentence. In addition, we excluded from consideration the tests of heritage Korean speakers.
summarizes the relevant backgrounds of the participants. Background information\textsuperscript{51} was collected from nonnative participants on their exposure to the L2 Korean and any other languages they had studied or acquired.

Table 4.2. Summary of Background Information of Subjects

<table>
<thead>
<tr>
<th>Group</th>
<th>High Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Female/Male)</td>
<td>2/22</td>
<td>0/23</td>
</tr>
<tr>
<td>Age (Range)</td>
<td>22.67 (19-29)</td>
<td>24.39 (21-59)</td>
</tr>
<tr>
<td>Age of first exposure to L2</td>
<td>19.46 (17-23)</td>
<td>19.1 (18-22)</td>
</tr>
<tr>
<td>Length of learning</td>
<td>3yrs (2.1-4.2yrs)</td>
<td>5.1yrs (2.3-40yrs)</td>
</tr>
<tr>
<td>Time in Korea\textsuperscript{52}</td>
<td>18mns (0-25)</td>
<td>30mns (0-180)</td>
</tr>
</tbody>
</table>

All the learners were late learners of Korean; on average, they started learning the language at age 19, ranging from 17 to 23. Most of the learners had received Korean instruction before going to Korea. Additionally, none of the learners had Korean-speaking parents. In other words, they were all non-heritage Korean learners. Their ages ranged from 19 to 59 years with the average age of 24. Among them, fourteen participants had experience learning other wh-in-situ languages such as Chinese and Japanese. With regard to residence in the L2-speaking country, most of the participants had been exposed to natural target-language environments in addition to formal settings. 20 out of 24 intermediate high proficiency learners had resided in the target-language speaking country for a mean average of 21 months, and 23 out of 24 advanced learners had for an average of 31 months.

\textsuperscript{51} The background data (See Appendix D) included age at first exposure to Korean, months of residence in a Korean-speaking country, number of years of Korean study, age at test time, whether their parents could speak Korean or not, and foreign languages they had learned other than Korean.  
\textsuperscript{52} One participant in the advanced group and four participants in the intermediate-high group had not resided in Korea.
In order to investigate the nature of the learning process of adult L2ers, the native English speakers (total = 47) were grouped into two different proficiency levels—high intermediate and advanced—on the basis of the results of the two translation-task distracter items. The distracter sentences (n = 12) of each translation task served as a kind of pre-test to classify the subjects’ proficiency levels. The cut-off for each translation task (listening-and-translation and reading-and-translation) was a score of 10 out of a maximum of 12. On the basis of this criterion, subjects (n = 24) whose scores ranged from a score of 5 to 9 for both tasks were identified as high intermediate and subjects (n = 23) whose scores ranged from 10 to 12 were identified as advanced. The terms ‘high intermediate’ and ‘advanced’ are meant to be interpreted in relation to one another.

4.3. Procedures for Experiment and Data Analysis

A total of three tasks were presented to the L2ers in the form of a paper booklet: a listening-and-translation task (answer sheet only), a reading-and-translation task, and a judgment test (in that order). The listening-and-translation task was accompanied by a translation sheet in which the L2ers were asked to translate Korean sentences (presented via two audio-speakers) into English. The translation tasks preceded the judgment task in order to minimize the subjects’ awareness of the focus of the experiment. It was made

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53 The participants were enrolled in courses beyond the intermediate level in the Korean language program, such as Korean history, third-year Korean conversation and Korean literature courses. The participants’ Korean teachers confirmed that they were advanced learners of Korean. Thus, according to their performance on distracters, they were classified more precisely into two different proficiency-level groups, referred as to the high-intermediate learners and the advanced learners.
clear to the subjects that the goal of the test was not to assess their level of grammar and that they should rely on their intuition. They were instructed not to go back to previous translated sentences or judgments. Before starting the judgment task, the subjects were asked to complete a questionnaire that asked information such as age of first exposure to Korean, length of residence in the target country and so on.

Testing took place in a classroom environment. Subjects participated in this experiment in a single session in groups. An experimenter administered each task by explaining the instructions before the test and by answering any questions the participants had regarding the procedures of the experiment. Once participants’ familiarity with the experimental tasks was established, they proceeded to the main experiment. The tests were not timed, except for the listening-and-translation task. Most participants completed the entire testing in one hour or less. Monolingual native speakers of Korean served as controls for the judgment task, while (native Korean-speaking) Korean-English bilinguals served as a control comparison group for the translation task.

As far as the data analysis of the two translation tasks is concerned, each correct answer was given a score of 1, and each incorrect answer a score of 0. The participants’ responses on the translation tasks were then subjected to statistical analysis. The mean accuracy for each test construction (VAR-DECL and VAR-Q) involving prosodic and morphological conditions was calculated, as well as the standard deviations and the ranges for each group. The data analysis of the judgment task concentrated on the participants’ acceptance or rejection of each test sentence for a given story. Accordingly, each ‘True’ response was given +1 and each ‘False’ response was given −1. If the mean
judgment of a particular group was below 0 and close to −1, this would indicate that the subjects in the group were likely to judge that the test sentence did not match a given story. On the other hand, if the mean judgment was above 0 and close to +1, this would indicate that the subjects were likely to judge that the test sentence did match the given story. Group means were calculated for responses to each answer for the two test sentences in the judgment task.

The subjects’ responses were subjected to statistical analysis. Both descriptive and inferential statistics, using the SPSS statistical program, were used in the data analysis. More specifically, a one-way analysis of variance (ANOVA) was computed to find out whether there were significant differences among the three groups (two learners’ groups and the native control group) of participants. Since the ANOVA did not show which of the means from the three groups was significantly different, a post-hoc Tukey was carried out. Then a paired-sample t-test was used to find out whether each group showed a significant difference in learners’ performance between the two types of wh-lexical items. In addition, in order to examine the interaction effects between the interpretation of variable expressions and the different types of licensing environments, a repeated measures MANOVA was administered. The alpha level for all statistical tests was set at $p < .05$.

With the details of the methodology and procedure in place, we now turn to the results. For expository reasons, we start with the group data and subsequently examine the individual data of the translation tasks, which were collected first. Then the data from the judgment task will form the bulk of the next chapter.
Chapter 5

Data Analysis: Empirical Results

This chapter presents experimental data from English speakers acquiring Korean. As outlined in Chapter 1, this thesis attempts to answer the question of whether, broadly speaking, adult English-speaking learners can provide appropriate interpretations of the L2 wh-in-situ lexical items according to the contextual co-occurrence of language-specific licensing environments—intonation patterns for variable expressions in matrix questions versus sentential particles for embedded variable expressions in complex statements. In this chapter, this issue is addressed using translation and judgment tasks to determine whether the adult learners demonstrate knowledge of the interpretive constraints on the L2 variable expressions.

This chapter is organized as follows. Section 5.1 describes the group and individual data from the two types of translation tasks—a listening-and-translation task employed for testing L2 speakers’ interpretation according to intonation patterns, and a reading-and-translation task employed for testing their interpretation according to sentential particles. In this section, the average rate of target-like interpretations per group is calculated for each of the two prosodic and morphological conditions. The data will be analyzed in terms of the percentage of correct interpretation in each of the conditions. In addition, an analysis of the individual response patterns is presented. This section concludes with a comparison of the two types of licensing environments within
the learner groups. In Section 5.2, the results of the group and individual data obtained from the truth-value judgment task are reported. In Section 5.3, the results of a comparison between the translation and judgment tasks in relation to the interpretation of embedded variable expressions are presented. A summary follows in Section 5.4.

5.1. Results of the Translation Tasks

This section reports the results of the listening-and-translation task and the reading-and-translation task. We look at whether the English-speaking learners\(^{54}\) are able to make the interpretive distinction between question and indefinite readings of variable expressions depending on licensing environments, namely prosodic and morphological conditions. Recall that the rationale for carrying out (listening- and reading-) translation tasks is that since the L2 learners’ mother tongue English has distinct lexical items for wh-question words and existential (or indefinite pronoun) expressions, their interpretations of the L2 expressions can be detected via translation tasks. The group and individual results of the listening-and-translation task are presented first. Subsequently, the group and individual results of the reading-and-translation task are presented. Lastly, a comparison of the participants’ performance in the two conditions follows.

\(^{54}\) Recall that the L2 groups were divided into two proficiency groups—high intermediate and advanced—on the basis of their performance on control sentences, as discussed in Chapter 4.
5.1.1. A Listening-and-translation Task: Prosodic Conditioning

(a) Group Results of the Listening-and-translation Task

We now turn to the group results of the listening-and-translation task. Recall that the correct interpretation of Korean variable expressions in interrogative clauses depends on sentential intonation patterns, as in shown in (5.1-5.2):

(5.1) VAR-Falling constructions (n = 6)

John-i mwues-(ul) mek-ess-ni? ✷
John-Nom THING-Acc eat-Past-Q
‘What did John eat?’

(5.2) VAR-Rising construction (n = 6)

John-i mwues-(ul) mek-ess-ni? (IConfiguration)
John-Nom THING-Acc eat-Past-Q
‘Did John eat something?’

If English-speaking learners of Korean have acquired the correlation between the readings of variable expressions and intonation patterns, they would be expected to translate the L2 variable expression into an L1 English question word (e.g., *what*) when the sentence receives a falling intonation, as in (5.1). On the other hand, they should translate the same form into an L1 indefinite pronoun (e.g., *something*) when the sentence receives a rising intonation, as in (5.2). Whenever a subject gave the correct translation for a variable expression, one point was given.

The results from the listening-and-translation task are reported in Table 5.1, which shows the mean accuracy of the interpretation of matrix Korean wh-(in-situ) forms in association with the intonation patterns. The percentage of correct interpretations (of
the indefinite pronoun reading and the question reading) paired with each intonation pattern is reported. 47 learners completed the translation task, 24 in the high intermediate group and 23 in the advanced group.

Table 5.1. Mean Accuracy on Interpretations of Variable Expressions: Intonation Patterns

<table>
<thead>
<tr>
<th></th>
<th>VAR-Rising (&quot;something&quot;)</th>
<th>VAR-Falling (&quot;what&quot;)</th>
<th>Paired sample t-tests comparing indefinite vs. question readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>High Int.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 24)</td>
<td>6.94%</td>
<td>.23</td>
<td>96.74%</td>
</tr>
<tr>
<td></td>
<td>(12/140)</td>
<td></td>
<td>(127/131)</td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 23)</td>
<td>68.09%</td>
<td>.28</td>
<td>94.20%</td>
</tr>
<tr>
<td></td>
<td>(93/138)</td>
<td></td>
<td>(130/138)</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 10)</td>
<td>100%</td>
<td>.00</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(60/60)</td>
<td></td>
<td>(60/60)</td>
</tr>
</tbody>
</table>

Let us first consider the native controls. As expected, the results from the native control group reveal that native speakers of Korean made a clear distinction between the question and indefinite pronoun readings of variable expressions according to the two different types of intonation patterns. That is, question readings were provided only when associated with a falling intonation, while indefinite readings were provided only when associated with a rising intonation.

Both high intermediate and advanced groups exhibited very accurate performance on the question type—the overall mean of both learners’ groups was around 95%. However, their performance on the other interpretation of matrix variable expressions was relatively low in the obligatory contexts: 7% and 68% for the high intermediate
Comparing the learners’ groups and adult native controls, a significant difference is observed for the indefinite translations (ANOVA: $df = 2, F = 72.015, p < .001$) but not for the question translations (ANOVA: $df = 2, F = 1.315, p = .278$). Post-hoc analyses were carried out to determine within the three groups which groups differed from each other and/or from the native controls. The two learners’ groups and the native group were different from each other only when the variable expressions received the indefinite reading cued by the sentential-rising intonation pattern. These results indicate that both learner groups demonstrated native-like performance on question reading translations. On the other hand, with respect to the indefinite reading translations, the learners’ overall mean accuracy decreased considerably. In particular, the intermediate group ($M = 7\%$) very rarely supplied the $[-Q]$ translation for the variable expressions in matrix interrogatives paired with a rising intonation pattern. The advanced learners marginally, at the rate of 68%, correctly interpreted matrix interrogatives bearing a variable expression as yes/no questions (with a $[-Q]$ interpretation).

Figure 5.1 illustrates the performance accuracy on the indefinite reading (associated with a rising intonation) compared to the question reading (associated with a falling intonation)—as percentages of both learner groups and a control group.
As Table 5.1 and Figure 5.1 show, unlike Korean native speakers who have perfectly accurate results for both types of readings in the listening-and-translation task, participants from both learner groups displayed asymmetric accuracy in the translations of the two types of variable expressions. For the intermediate group, the translations of the question readings are in sharp contrast with those of indefinite readings: $M = 97\%$ for the question expressions versus $M = 7\%$ for the indefinite expressions. For the advanced group, the disparity between the two translations was smaller: $M = 94\%$ versus $M = 68\%$. Paired-sample $t$-tests confirmed that there was a statistical difference in the indefinite and question interpretations for each learner group, $t (23) = -14.647, p > .001$ for the
intermediate group, \( t (22) = -3.638, p = .001 \) for the advanced group. In particular, the lower proficiency level respondents provided almost entirely question interpretations for the variable expressions regardless of whether the simple interrogative had sentential-final rising intonation or not.

Taken together, the group results demonstrate that when intonation constituted the licensing environment for the interpretation of the variable expressions both learner groups performed significantly worse than the native controls in relation to indefinite (pronoun) interpretations, but displayed target-like performance on the question reading. Within each learner group, there was a significant discrepancy in translations between indefinite and question interpretations of variable expressions. This suggests that adult learners are likely to have more difficulty in interpreting variable words with an indefinite reading than those involving a question reading in the intonational licensing environment. Nonetheless, the indefinite interpretations significantly got better as their proficiency levels increased.

\[(b) \text{ Individual Results in the Listening-and-translation Task} \]

The previous section presented the average rates of mean accuracy for each learner group. It was noted that both proficiency level groups demonstrated target-like performance in obligatory question contexts, but non-target-like performance in the obligatory indefinite contexts.

This section considers individual subjects’ response patterns in order to determine the extent of the variation and overlap within each group in the listening-and-translation task. Individual subjects are categorized into three response classes: (1) The “incorrect”
response class, those who never provided appropriate interpretations of the L2 variable words; (2) the “optional” response class, those who provided correct interpretations optionally (over 0% and below 80% of the time); and (3) the “correct” response class, those who provided correct interpretations at above chance level (above 80%). Table 5.2 shows the distribution of these response patterns for each group. The cells containing the most subjects within each group are bolded. Observe the patterns provided in Table 5.2:

Table 5.2. Individual Data in the Translation Task (Prosodic Condition)

<table>
<thead>
<tr>
<th>Response Pattern</th>
<th>Incorrect (0%)</th>
<th>Optional</th>
<th>Correct (80%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VAR-Rising (“something”)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Int.</td>
<td><strong>21</strong> (88%)</td>
<td>2 (8%)</td>
<td>1 (4%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>1 (4%)</td>
<td>10 (44%)</td>
<td><strong>12</strong> (52%)</td>
</tr>
<tr>
<td><strong>VAR-Falling (“what”)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Int.</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
<td><strong>22</strong> (92%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
<td><strong>22</strong> (96%)</td>
</tr>
</tbody>
</table>

As shown in Table 5.2, in the obligatory question contexts, most of the L2 speakers from both learner groups fall into the “correct” class. Note that one advanced and two intermediate subjects showed optional response patterns. Interestingly, one of these optional subjects from each group demonstrated target-like performance (100% accuracy) on the indefinite translations. The other optional reader (from the intermediate group) showed variability in the interpretation of indefinite contexts also.
As far as the obligatory indefinite contexts are concerned, contrastive distribution between the different proficiency level groups was observed. In the lower proficiency group, we find that 21 out of 24 subjects always provided the incorrect question reading. Only one subject from the high intermediate group always provided the correct indefinite readings in the falling-intonation context. Meanwhile, around 52% of the advanced learners (12 out of 23) correctly interpreted the variable expressions as indefinite pronoun readings at an above chance level when wh-lexical items did not receive stress and there was sentential-final rising intonation. Nonetheless, the other half of the advanced learners (11/23) did not show target-like responses in the obligatory indefinite contexts—most of them instead showed optionality in their interpretations. Individual data confirm the asymmetry in performance between [−Q] and [+Q] readings. Moreover, the indefinite reading was still problematic for almost half of even the advanced learners.

Comparing responses for both intonation patterns, we find that 11 out of 23 advanced learners showed target-like interpretations on both types of interpretation; that is, they consistently provided appropriate wh-interpretations according to the corresponding licensors, which were realized phonologically and morphologically in simple interrogatives. The rest of the learners from both groups predominantly supplied only question readings for the L2 variable expressions regardless of the intonation pattern, except for one intermediate and one advanced speaker who provided the correct answers perfectly for the indefinite readings but optional interpretations for the obligatory question contexts.
To summarize the adult L2 data obtained from the listening-and-translation task, both group and individual data indicate that the L2 speakers performed better on the question reading than on the indefinite pronoun reading. This suggests that acquiring indefinite interpretations of the L2 variable expressions in the presence of the rising-intonation cues is not an easy task for adult English speakers learning Korean. Nonetheless, some of the advanced learners had progressed enough to master the licensing relationship between interpretations of variable words and the prosodic licensing environment.

5.1.2. A Reading-and-translation Task: Morphological Conditioning

Turning to the results obtained from the other written translation task, namely, the reading-and-translation task, the L2 speakers’ interpretations were examined for embedded variable expressions licensed by overtly realized sentential particles. As discussed in Chapter 2, when the embedding verb is a member of the KNOW/REMEMBER verb class, their embedded clauses are marked by either the declarative particle $ta\ [-Q, -wh]$ or the question particle $nunci\ [+Q, +wh]$. The embedded variable expression obligatorily receives the question reading in an embedded interrogative clause marked by the question particle, whereas it obligatorily receives the indefinite pronoun reading in an embedded declarative clause marked by the declarative particle. It was predicted that the English-speaking Korean learners would have a problem supplying the indefinite reading from the two possible readings of the L2
variable expressions when sentential particles constitute the licensing environment (the morphological condition).

(a) Group Results of the Reading-and-translation Task

The group results of adult learners are reported with respect to sentential particle licensing environments. Table 5.3 shows the average percentage of correct interpretations of embedded variable words when they were associated either with a declarative particle or a question particle.

Table 5.3. Mean Accuracy of Interpretations of Embedded Variable Expressions in Translation Production

<table>
<thead>
<tr>
<th></th>
<th>VAR-DECL (^{55}) (&quot;something&quot;)</th>
<th>VAR-Q (^{56}) (&quot;what&quot;)</th>
<th>Paired sample t-tests comparing indefinite vs. question readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>High Int. (n = 24)</td>
<td>14.24%</td>
<td>.21</td>
<td>85.42%</td>
</tr>
<tr>
<td></td>
<td>(20/144)</td>
<td></td>
<td>(112/131)</td>
</tr>
<tr>
<td>Advanced (n = 23)</td>
<td>60.14%</td>
<td>.36</td>
<td>84.06%</td>
</tr>
<tr>
<td></td>
<td>(82/137)</td>
<td></td>
<td>(116/138)</td>
</tr>
<tr>
<td>Control (n = 10)</td>
<td>100%</td>
<td>.00</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>(60/60 )</td>
<td></td>
<td>(60/60)</td>
</tr>
</tbody>
</table>

As expected, the native Korean-speaking controls were accurate in providing appropriate interpretations for embedded variable expressions with both types of embedded sentential

\(^{55}\) VAR-DECL [Indefinite reading] example:
John-ToP Mary-Nom PERSON-Acc like-Past-Decl-Quot remember-Decl
‘John remembers that Mary liked somebody’

\(^{56}\) VAR-Q [Question reading] example:
John-ToP Mary-Nom PERSON-Acc like-Past-Q remember-Decl
‘John remembers who Mary liked’
particles. However, both the high intermediate and advanced L2 speakers often failed to interpret the variable expressions that co-occurred with the declarative particle correctly with indefinite [−Q] readings: the overall accuracy was about 14% for the high-intermediate learners versus 60% for the advanced learners. On the other hand, the adult learners from both experimental groups correctly supplied question interpretations at an above chance level (around 85%) in the case where the embedded variable expressions were associated with the question particle.

Comparing the two learner groups and the native control group, there is a significant difference in relation to the declarative contexts ([VAR .... −Q]), ANOVA: $df = 2, F = 40.640, p < .001$. However, there is no significant difference between the native and the learner groups in relation to the (indirect) question contexts ([VAR .... +Q]), ANOVA: $df = 2, F = 2.366, p = .103$. According to post-hoc Tukey analyses, the three groups differ from one another only in the obligatory indefinite-reading contexts. This was also observed in the group data in the interpretation of matrix variable expressions. The results for the sample paired $t$-tests reported in the final column of Table 5.3 show that there were significant differences in the accuracy rate of both readings of variable expressions within each learner group: $t (23) = − 8.406, p < .001$ for the high intermediate group versus $t (22) = − 2.656, p < .05$ for the advanced group.
As we observed in the results in Table 5.3 and Figure 5.2 of the listening-and-translation task, learners from both proficiency groups translated the indefinite interpretation of variable expressions significantly more poorly than the question interpretation when the sentential particles, the [-Q] and [+Q] clause type markers, constituted the licensing condition. Nonetheless, the discrepancy between the learners’ performance on indefinite and question translations significantly decreased with increasing proficiency level.

In short, with respect to contextual co-occurring sentential particles, the adult English-speaking learners of Korean had difficulty in providing appropriate
interpretations of variable expressions in declarative contexts, whereas they achieved the target level in the question contexts. Although the advanced speakers were overall more accurate in indefinite interpretation translations than the intermediate learners, the patterns of performance were similar between the two groups—that is, both proficiency level learners showed a discrepancy in their interpretation of the indefinite and question types, in that the latter was interpreted native-like proficiency, whereas the former was not. This observation repeats the findings observed in the previous listening-and-translation task.

(b) Individual Results in the Reading-and-translation Task

The previous section presented the average rates of the reading-and-translation task for each group. The figures from the group data could potentially result from an averaging effect. Thus, this section explores the distribution of individual subjects’ response patterns within each group. The individual data are summarized below. Just as in the individual result section for the listening-and-translation task, individual subjects were classified into three response pattern categories: Incorrect (0% correct response rate), Optional (less than 80% correct response rate), and Correct (more than 80% correct response rate). Table 5.4 shows the distribution of these response patterns for each group in relation to their interpretations of embedded variable words associated with the closest sentential particles. The cells containing the most subjects in each group are bolded.
Table 5.4. Individual Data in the Translation Task: Morphological Condition

<table>
<thead>
<tr>
<th></th>
<th>Incorrect (0%)</th>
<th>Optional</th>
<th>Correct (80%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VAR-DECL (“something”)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intermediate</td>
<td>14</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(58%)</td>
<td>(42%)</td>
<td>(0%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>4</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>(17%)</td>
<td>(48%)</td>
<td>(35%)</td>
</tr>
<tr>
<td><strong>VAR-Q (“what”)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intermediate</td>
<td>0</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(42%)</td>
<td>(58%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>0</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(26%)</td>
<td>(74%)</td>
</tr>
</tbody>
</table>

As shown in Table 5.4, there is a different distribution of individual responses between the two learner groups in the case of the indefinite pronoun interpretation. In detail, in the lower proficiency group, 58% of the individual subjects (14 out of 24) incorrectly interpreted the L2 variable expressions in declarative contexts as question readings all the time. None of the high intermediate group always provided the correct indefinite reading in the declarative particle context. In the advanced group, about 35% of advanced subjects (8/23) exhibited target-like interpretations in the obligatory indefinite contexts. In other words, a majority of advanced speakers (65%) had not reached the target-like level of performance when the L2 variable expression co-occurred with the declarative particle. Almost half of the advanced learners fell into the optional response category.

Consider now the L2 individual subjects’ performance on the question interpretations of Korean variable words. The category containing the most L2 speakers from each learner group was the correct response category. An increased rate of correct
respondents was observed within both learner groups in the question contexts: native-like respondents increased 54% (from 0 to 14) within the intermediate group and 38% (from 8 to 17) within the advanced group. Moreover, the number of optional readers in the advanced group decreased by almost half in the obligatory question reading context.

Let us look more closely at these optional readers for each interpretation. 7 intermediate learners and 4 advanced learners provided indefinite and question interpretations optionally in both cases, those in which the embedded clause was marked by the declarative particle and those in which it was marked by the question particle. 3 intermediate and 7 advanced learners were optional readers only for the declarative context, and showed target-like interpretations in the question context. Meanwhile, 3 intermediate learners and 2 advanced learners were optional readers only for the question context. This indicates that there were more optional readers for the indefinite pronoun translations than for the question translations. Nevertheless, six advanced learners were native-like on both readings.

In sum, according to individual data obtained from the reading-and-translation task, more target-like respondents were found in the (indirect) question contexts than the declarative contexts, which is consistent with the group results. Although the indefinite reading was persistently problematic for some advanced learners, the accuracy on it improved with proficiency. In addition, half of intermediate learners and one third of advanced learners did not show target-like interpretations in obligatory question contexts.
5.1.3. Comparing Different Contextual Conditions in Translation Tasks

In this section, we report the results of a comparison of the two licensing conditions (intonation patterns versus sentential particles). In order to answer research question (3)—whether native English speakers are more sensitive to one condition over the other in relation to the interpretation of L2 variable expressions—the results from the two translation tasks (that listening-and-translation task and the reading-and-translation task) are compared with each other. By doing this, we can examine the extent to which different manifestations of relevant features (in matrix and embedded structures) play a role in the two proficiency level groups. Statistical comparisons between the two conditions are reported.

(a) Comparison of Group Results for Phonological and Morphological Conditions

Starting with a comparison between the prosodic condition and the morphological condition, Table 5.5 presents the group results of learners’ interpretations in both the prosodic and morphological conditions.

Table 5.5. Mean Accuracy of Interpretations of Variable Expressions according to Condition

<table>
<thead>
<tr>
<th>Group</th>
<th>Indefinite Reading</th>
<th>Question Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prosodic Condition</td>
<td>Morphological Condition</td>
</tr>
<tr>
<td>High Int.</td>
<td>6.94%</td>
<td>14.24%</td>
</tr>
<tr>
<td>Advanced</td>
<td>68.09%</td>
<td>60.13%</td>
</tr>
</tbody>
</table>
When participants’ performance in the different conditions is compared, as indicated by Table 5.5, the results for the question interpretation were lower under the morphological condition for both learner groups. That is, the mean accuracy rate of the question translations is around 85% in the morphological condition while the correct interpretation rate reaches the quite high percentage of nearly 95% for the prosodic condition. A statistically significant difference is observed between question translations associated with prosodic versus morphological conditions; \( t (23) = 2.411, p = .024 \) for the high intermediate group and \( t (22) = 2.366, p = .027 \) for the advanced group. Both learner groups performed significantly better in the case where the question reading was cued by falling intonation rather than cued by a question particle. Nonetheless, regardless of the type of licensing conditions, the overall performance for the question reading was native-like in both groups.

As far as the indefinite translations are concerned, the average rate of target-like interpretations in the morphological condition is nearly twice as high as the rate in the prosodic condition for the lower proficiency learner group: 14% versus 7%, respectively. The difference is nearly statistically significant, \( t (23) = -1.827, p = .081 \). Meanwhile, there is no such difference (between the different licensing conditions) for the advanced group: 60% under the morphological condition versus 68% under the phonological condition: \( t (22) = 0.967, p = .344 \).

Let us consider the conditioning effect for each reading of the variable expressions more closely. To investigate the interaction between the two factors (interpretation of wh-items vs. licensing condition), a repeated-measure ANOVA analysis
of the interpretations of each learner group was conducted. In this way, we can determine the significance of the effect of the two conditions. In Table 5.6, the interaction between the two factors is presented for each group.

Table 5.6. Effects of Conditions on Reading of Wh-forms: Results of Repeated Measures Analyses of Variance

<table>
<thead>
<tr>
<th></th>
<th>High Intermediate</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>f</td>
</tr>
<tr>
<td>Reading (Indefinite vs. Question)</td>
<td>23</td>
<td>172.78</td>
</tr>
<tr>
<td>Condition (Prosodic vs. Morphological)</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td>Reading x Condition</td>
<td>23</td>
<td>5.25</td>
</tr>
</tbody>
</table>

As we have observed in previous sections, both groups showed significant differences in performance between the two readings of variable expressions. What we are looking for here is whether there is a statistically significant interaction between types of interpretations and the licensing conditions within each group.

As far as the high intermediate group is concerned, there is a significant interaction effect between the two factors of reading (indefinite vs. question) and condition (intonation patterns vs. sentential particles). This shows that the two readings are significantly different depending on the types of conditions. That is, the divergent performance between indefinite and question translations got smaller in the morphological condition when compared to the prosodic condition, as illustrated in Figure 5.3.
This suggests that the lower proficiency learners were more cued by sentential particles than by the intonation patterns when interpreting the L2 variable expressions.

By contrast, there is no interaction effect between the two factors of conditions and readings for the advanced speakers. In Figure 5.4, a non-significant interaction is indicated by the two approximately parallel lines, which indicates that the advanced learners’ divergent performance between the two types of readings did not differ according to the licensing conditions.
In other words, the divergence in performance between the indefinite and question readings was the same in the two conditions. The advanced learners’ different performance on the two types of readings of variable expressions might not depend on types of licensing conditions. Meanwhile, for the advanced learners, there is a main effect of condition (as well as a main effect of reading). As illustrated in Figure 5.4, going from prosodic to morphological conditions leads to overall declining performance on both readings. In other words, for the advanced learners, their performance on the translation of both readings in the prosodic condition was better than in the morphological condition.
In short, in relation to the interpretation of the L2 variable expressions, an interaction effect between reading and condition is observed for the high intermediate group, but not for the advanced group. For the lower proficiency learners, the divergent performance between the indefinite pronoun and question types of the L2 variable expressions was significantly reduced in the presence of sentential particle licensors. For the advanced learners, overall accuracy in the interpretations of the L2 expressions improved in the presence of intonation pattern licensors compared to sentential particle licensors.

(b) Comparison of Individual Results in Phonological and Morphological Conditions

Let us turn now to individual data of each type of reading, comparing prosodic and morphological conditions. We first report the individual data of the indefinite pronoun reading under both conditions. The individual data of the question reading in both licensing environments is subsequently presented.

Table 5.7 presents the compared individual data obtained from the listening-and-translation and the reading-and-translation tasks with respect to the indefinite reading.

Table 5.7. Individual Data on the Indefinite Reading Translation: Comparing Both Conditions

<table>
<thead>
<tr>
<th>Group</th>
<th>Prosodic Condition</th>
<th></th>
<th>Morphological Condition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incorrect</td>
<td>Optional</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>High Int.</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td>(n = 24)</td>
<td>(83%)</td>
<td>(8%)</td>
<td>(4%)</td>
<td>(58%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>(n = 23)</td>
<td>(4%)</td>
<td>(44%)</td>
<td>(52%)</td>
<td>(17%)</td>
</tr>
</tbody>
</table>
As far as the indefinite readings are concerned in both conditions, the distribution of individual responses does not appear to be different from each other in the case of the high intermediate group. That is, for each condition, a high percentage of lower proficiency level learners falls into the incorrect response category. Nevertheless, there are some significant differences. For the high intermediate group, the number of optional readers who provided the correct indefinite interpretations optionally increased 34% in the morphological condition, compared to the prosodic condition. Meanwhile, the number of subjects who incorrectly provided a question reading at the rate of 100% decreased from 83% to 58% when going from the prosodic condition to the morphological condition. This might suggest that the lower proficiency learners are in the process of recognizing the licensing relationship between variable expressions and overt sentential particles. The intermediate learners’ individual data confirms the group result—that is, there was a significant interaction between readings of variable expressions and licensing conditions, indicating that the lower proficiency learners were more sensitive to the morphological condition than the prosodic condition.

For the advanced learners, there were four more subjects in the correct response class associated with the prosodic condition (12/23) than in the morphological condition (8/23). Meanwhile, the percentage of non-target readers in the advanced group increased in the morphological condition. Particularly, three more advanced learners provided 100% incorrect (question) translations for the variable expressions under the morphological condition compared to the prosodic condition. In addition, seven advanced learners showed target-like performance on such translations only in the
prosodic condition, whereas only three advanced learners did so only in the morphological condition.\textsuperscript{57} This suggests that advanced learners were generally likely to perform better on sentences associated with prosodic cues rather than those with sentential particle cues.

As far as the question reading is concerned, the L2ers from each group behaved in a similar way in both the phonological and morphological licensing environments. Table 5.8 presents individual data from the question translations comparing the two licensing conditions.

Table 5.8. Individual Data from the Question Reading Translation in Both Conditions

<table>
<thead>
<tr>
<th>Group</th>
<th>Prosodic Condition</th>
<th></th>
<th>Morphological Condition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incorrect</td>
<td>Optional</td>
<td>Correct</td>
<td>Incorrect</td>
</tr>
<tr>
<td>High Int.</td>
<td>0 (0%)</td>
<td>2 (8%)</td>
<td>22 (92%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>(n = 24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td>0 (0%)</td>
<td>1 (4%)</td>
<td>22 (96%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>(n = 23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Although a high percentage of both intermediate and advanced learners showed target-like performance in each condition, the number of correct respondents in both groups decreased in the morphological condition compared to the prosodic condition, which is consistent with the overall group results. More optional readers from both learner groups are found in the morphological condition. Once again, the relative distribution of individuals across response patterns in each of the groups is similar to group results on

\textsuperscript{57} Five out of twenty-three advanced learners demonstrated target-like performance in the indefinite translations for both of the conditions.
the question reading, when comparing the prosodic and the morphological conditions. That is, a comparison of the individual and group results in the two licensing conditions shows that L2 learners’ accuracy in interpreting the question type of variable expressions decreased in the morphological condition when compared to the prosodic condition.

5.2. Results of the Truth Value Judgment Task

The previous section has reported results obtained from the two translation tasks (listening- and reading-translation tasks). The lower proficiency learners were found to incorrectly interpret matrix and embedded variable words as questions very often, and in their interpretation behavior, they made no clear distinction between indefinite and question readings associated with the two types of licensing environments. In both the prosodic and morphological licensing environments, the higher proficiency L2 learners were found to perform better than the lower proficiency learners, showing a clear development in the translation tasks. Some of them demonstrated target-like knowledge of the interpretive constraints on the variable expressions.

In this section, we will turn to the results of the truth value judgment Task. The truth value judgment task was carried out with both the learners’ groups and the control, under both non-specific contexts and specific contexts. Recall that one of the main purposes of this task is to corroborate the results of the translation task in relation to embedded variable expressions. This task also tried to lessen possible processing loads on the L2 learners’ relevant interpretations by asking them to judge whether a test sentence matched a given context (which was provided with the participants’ native
language, English). Considering that the morphological licensing context for variable expressions involves complex sentences, the judgment task might help us to tap L2 speakers’ knowledge, in particular from lower proficiency level learners.

The judgment task here was employed to examine how learner groups interpret variable expressions in a given context. Note that although a truth value judgment task is typically designed such that the target-like reading of the test sentence is falsified by the experimental contexts (while the non-target-like reading is verified), this was not the case here. In this study, we were interested in L2 learners’ correct interpretations of a test sentence. Recall that if a learner has acquired the configuration involving the interpretation of Korean variable words, she would expected to answer ‘true’ for the VAR-DECL \([-Q]\) construction in the non-specific information scenario, while rejecting the VAR-Q \([+Q]\) construction. On the other hand, in the specific-information scenario, the learner is predicted to respond ‘true’ for the VAR-Q construction and could accept the VAR-DECL construction since the scope of the indefinite meaning contains the scope of the wh-phrase meaning. As discussed in Chapter 4, the specific contexts that verify the question reading of variable expressions also verify the indefinite reading.

The two different proficiency level learners’ groups were expected to show similar patterns in the judgment task as they did in the translation tasks—as learners’ proficiency increased, more target-like responses for the interpretation of the L2 variable expressions would appear. It is thus predicted that the judgments of the higher proficiency learners would be more likely to be target-like than those of the lower proficiency learners. In addition, if learners showed non-target-like response patterns in
the judgment task, it would be most likely to be with the indefinite interpretation of the variable words. Those who had not acquired the L2 constructions in question would incorrectly reject both declarative ([VAR … −Q]) and question ([VAR … +Q]) constructions (associated with non-specific contexts) since they would interpret an embedded variable expression as a question interpretation regardless of whether the embedded sentential particle marks. The results of a truth value judgment task are first presented for the group as a whole and subsequently for individual subjects.

(a) Group Results in the Judgment Task: Morphological Condition

Before reporting group data obtained from the judgment task, I will reiterate that the statistical analysis involved two methods of coding. One of them was used to investigate learners’ overall performance accuracy. Namely, whenever a subject correctly accepted or rejected a test item, one point was given. This was necessary to compare with the results of the reading-and-translation in the next section. The other method involved giving +1 point when a subject answered ‘true’, and –1 point when she responded ‘false’. Negative mean responses indicate learners’ tendency toward rejecting test sentences, and positive mean responses indicate their tendency toward accepting the test sentences (associated with either non-specific or specific information contexts). In this way, learners’ performance patterns could be examined more closely.

We will first present results obtained just on the basis of the correct ‘true’ answers for each context, in order to compare the results of the judgment task with those of the production task. It is predicted that if L2 speakers have acquired the interpretation of variable expressions associated with the contextual co-occurring sentential particles, they
should accept the declarative statements ([VAR ... −Q]) paired with the non-specific information contexts and the question statements ([VAR ...+Q]) paired with the specific information contexts.

Table 5.9 presents the average percentage of correct responses for the two learner groups (high intermediate and advanced) and the control group (Korean monolinguals) in the judgments of sentences containing embedded variable expressions in given contexts.

Table 5.9. Percentage of Correct Judgments in the Interpretation of Variable Expressions

<table>
<thead>
<tr>
<th></th>
<th>VAR-DECL / Non-specific context</th>
<th>VAR-Q / Specific context</th>
<th>Paired sample t-tests comparing indefinite vs. question readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (%)</td>
<td>SD</td>
<td>Mean (%)</td>
</tr>
<tr>
<td>High Int. (n = 24)</td>
<td>12.50</td>
<td>.198</td>
<td>93.06</td>
</tr>
<tr>
<td>Advanced (n = 23)</td>
<td>82.61</td>
<td>.254</td>
<td>86.96</td>
</tr>
<tr>
<td>Control (n = 10)</td>
<td>92.22</td>
<td>.107</td>
<td>95.56</td>
</tr>
</tbody>
</table>

As shown in Table 5.9, the mean accuracy of native Korean speakers was high for the declarative and the question statements: 92% for the VAR-DECL structures in the non-specific context and 96% for the VAR-Q structures in the specific context. Advanced learners were quite accurate in judging both test items, with an accuracy of 83% for the declarative statements versus 87% for the question statements. As with the natives, there is no statistical significance in their performance between the two contexts, $t$ (22) = $-0.699$, $p = .492$. In contrast, the lower proficiency learner group’s average rate for the declarative statement was very low ($M = 13\%$), while their mean accuracy on the
question statement was high, that is, $M = 93\%$. As predicted, a significant difference between the two statements is observed in the high intermediate group, $t (23) = -15.550$, $p < .001$. In other words, the intermediate learners were significantly less accurate in judging declarative statements than question statements.

As predicted, comparing the mean accuracy of the three groups on the declarative statements, the ANOVA analysis shows a significant performance difference, $F (2, 59) = 96.662$, $p < .0001$. Post-hoc Tukey tests demonstrate that the lower proficiency learners performed differently than the native speakers as well as the advanced learners. However, the advanced group was not divergent from the control group. On the other hand, for the question statement, there was no significant difference between the three groups, $F (2, 59) = 1.851$, $p = .166$.

We turn now to the L2 speakers’ judgment patterns (acceptance vs. rejection) of test constructions paired with specific and non-specific contexts within each group. Recall that the learners’ negative mean response indicates that they were likely to reject a test construction, while a positive mean response indicates a tendency toward acceptance.\(^{58}\) We report the results of the L2ers’ interpretations of embedded variable expressions in contexts involving non-specific information, and then the results of their interpretations in specific information contexts.

As mentioned earlier, if a speaker provided correct interpretations for the variable expressions, she should reject the VAR-Q sentences (question statements), while

\(^{58}\) For example, if a speaker rejected all test items ($n = 6$) involving the VAR-Q construction in the indefinite context, the mean score would be $-1$. If he accepted all the test items, the mean score would be $+1$.  

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accepting the VAR-DECL sentences (declarative statements) in the non-specific information context. Accordingly, within each group, there should be a significant statistical difference between the declarative and questions statements paired with the non-specific contexts when a paired-sample $t$-test is administered. Table 5.10 shows the mean judgments for the VAR-DECL and VAR-Q sentence types under the non-specific information contexts.

Table 5.10. Mean Judgments in the Interpretation of Variable Words: Non-specific Context

<table>
<thead>
<tr>
<th></th>
<th>Non-specific Information Context</th>
<th>Paired sample $t$-tests comparing indefinite vs. question readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VAR-DECL (“something”)</td>
<td>VAR-Q (“what”)</td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>High Int. (n = 24)</td>
<td>$-0.75$</td>
<td>.396</td>
</tr>
<tr>
<td>Advanced (n = 23)</td>
<td>$+0.65$</td>
<td>.507</td>
</tr>
<tr>
<td>Control (n = 15)</td>
<td>$+0.84$</td>
<td>.213</td>
</tr>
</tbody>
</table>

Looking at the results of the judgment task associated with the non-specific information contexts supporting the indefinite reading of embedded variable expressions (the counterpart of English ‘John knows Mary ate something’), all three groups of subjects are likely to correctly reject the question statements: $M$(ean) = $-0.61$ for the high intermediate learners, $M = -0.76$ for the advanced learners, and $M = -0.98$ for the native controls. However, unlike native Korean speakers and advanced learners who were likely to accept the VAR-DECL (declarative statement)—$M = +0.65$ and $M = +0.84,$
respectively—the lower proficiency level learners tended to incorrectly reject the declarative statements, $M = -0.75$. Notice that the lower proficiency learners also rejected question statements ([VAR … +Q]), $M = -0.61$. Interestingly, the high intermediate learners’ rejection of declarative statements was little higher than their rejection of question statements.

A single-factor ANOVA performed on the data as a whole shows that there are significant differences between groups (ANOVA: $df = 2, F = 96.662, p = .000$) for the declarative statements, as well as for the question statements (ANOVA: $df = 2, F = 3.402, p = .040$). According to post-hoc Tukey analyses, the high intermediate group differs from the control and the advanced groups in relation to the declarative statements. However, such a statistical difference is not observed between the control and the advanced groups. As far as the question statements are concerned (in the non-specific contexts), the high intermediate group significantly differs from the native group, but not from the advanced group. Again, no difference is found between the control and the advanced speakers. This suggests that learners’ correct rejection of the question statements becomes stronger as their proficiency level increases.

When we compare judgments of the different constructions within each group, there is a significant difference between the acceptance rates of the VAR-DECL and VAR-Q structures with regard to the non-specific contexts for the native controls, $t (14) = 33.085, p < .001$. As Table 5.10 and Figure 5.5 show, the results for the native control group reveal a pattern of asymmetry, indicating that the native Korean speakers strongly
preferred the declarative statements to the question statements in the non-specific contexts.

![Figure 5.5. Judgment Contrast under Non-specific Contexts](image)

These asymmetric judgments are also observed in the advanced group, \( t (22) = 10.309, p < .001 \), as Table 5.10. Like the native controls, the advanced learners display a target-like judgment pattern—they strongly rejected the question reading \( (M = -0.76) \) while accepting the indefinite reading \( (M = +0.65) \) of the embedded wh-elements. In contrast, the fact that the high intermediate group’s judgments were the same in the question and declarative statements suggests that the group treated them similarly, \( t (23) = -1.096, \)
That is, the high intermediate learners rejected both statements: $M = -0.75$ for the VAR-DECL and $M = -0.61$ for the VAR-Q structures, as seen Figure 5.5. Thus, the rejection rates of both test sentences can be attributed to the high intermediate subjects’ question interpretations of the variable expressions, regardless of the associated types of sentential particles.

Turning to the results of participants’ judgments of question and declarative statements for the specific information contexts, target-like responses involve accepting the question reading of variable words (in the question construction) and possibly also accepting the indefinite pronoun reading\(^{59}\) (in the declarative construction). Therefore, we should not necessarily expect a significant difference between the two test statements.

Table 5.11 presents the mean accuracy of judgments of each group paired with the specific information contexts.

Table 5.11. Mean Judgments in the Interpretation of Variable Expressions: Specific Context

<table>
<thead>
<tr>
<th>Specific Information Context</th>
<th>Paired sample t-tests comparing indefinite vs. question readings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>VAR-DECL (&quot;something&quot;)</td>
<td></td>
</tr>
<tr>
<td>High Int. (n = 24)</td>
<td>+ 0.63</td>
</tr>
<tr>
<td>Advanced (n = 23)</td>
<td>+ 0.75</td>
</tr>
<tr>
<td>Control (n = 15)</td>
<td>+ 0.73</td>
</tr>
<tr>
<td>VAR-Q (&quot;what&quot;)</td>
<td></td>
</tr>
</tbody>
</table>

\(^{59}\) Heim (1983, p. 164) characterizes the distinction between a definite and an indefinite as follows: “A definite is used to refer to something that is already familiar at the current stage of the conversation, whereas an indefinite is used to introduce a new referent.”
As expected, overall judgments of the control and experimental groups for each test statement are above + .50, indicating their acceptance of both statements paired with the specific information context. Comparing the two learner groups and the native group, no significant difference is observed for either statement in the specific information context: $F (2, 59) = 1.851, p = .166$ for the question statement versus $F (2, 59) = .728, p = .487$ for the declarative statement. In other words, the results of ANOVA reveal that the two learner groups and the native group do not significantly differ from one another. As illustrated in Table 5.11, all three groups were likely to accept both statements associated with the specific information context: high intermediate group, $M = + 0.63$ vs. $M = + 0.86$; advanced group, $M = + 0.75$ vs. $M = + 0.74$; control group $M = + 0.73$ vs. $M = + 0.91$ for the VAR-DECL and VAR-Q constructions, respectively.

As mentioned earlier, a significant difference in judgments between the two test statements is not found here. There is no statistical difference between question and declarative statements for either the native or the advanced groups. The difference between the two statements is only marginal, not reaching clear statistical significance in the high intermediate group, $t (23) = −2.245, p = 0.037$. Notice that the intermediate group tended to accept both statements in the specific contexts, but rejected the same statements in the non-specific contexts. This confirms that the intermediate proficiency learners predominantly provided question interpretations for the embedded variable expressions regardless of the types of co-occurring sentential particles.
Now consider participants’ judgments paired with given contexts. In order to investigate response patterns more closely, it is essential to look for an interaction effect between structures (VAR-DECL and VAR-Q structures) and contexts (non-specific and specific contexts). Table 5.12 presents the results of a repeated measures ANOVA.

Table 5.12. Interaction between Reading and Context in relation to Morphological Conditioning: Results of Repeated Measures Analyses of Variance

<table>
<thead>
<tr>
<th></th>
<th>High Intermediate</th>
<th>Advanced</th>
<th>Native</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>F</td>
<td>p</td>
</tr>
<tr>
<td>Structure (VAR-DECL vs. VAR-Q)</td>
<td>1</td>
<td>14.00</td>
<td>.001</td>
</tr>
<tr>
<td>Context (Non-specific vs. Specific)</td>
<td>1</td>
<td>187.08</td>
<td>.000</td>
</tr>
<tr>
<td>Structure x Context</td>
<td>1</td>
<td>0.23</td>
<td>.636</td>
</tr>
</tbody>
</table>

As shown in Table 5.12, in the case of the native Korean speakers, there is a significant interaction effect between the two main factors—structure (VAR-DECL vs. VAR-Q) and context (non-specific vs. specific information contexts). This suggests that the target language speakers distinguished between the declarative and question statements depending on whether specific or non-specific contexts were given. More specifically, as Figure 5.6 illustrates, they strongly preferred declarative statements paired with the non-specific contexts, even though they favored both readings paired with the specific information contexts.
The significant interaction between structure and context is also found in the advanced group. As Figures 5.6 and 5.7 illustrate, response patterns of native Korean speakers and advanced speakers are very similar. That is, the line indicating subjects’ judgments of the VAR-DECL constructions (indefinite readings) is parallel across contexts, while the line indicating their judgments of the VAR-Q constructions increases from the non-specific to the specific contexts.
As shown by these tables and graphs, the advanced speakers, like native Korean speakers, correctly rejected the question statements paired with non-specific contexts, while accepting such statements paired with specific contexts, even though the declarative statements bearing the indefinite interpretation of variable expressions were likely to be accepted in general across contexts. This indicates that the advanced learners reached a target-like level of judgment on the test statements.

On the other hand, in the case of the high intermediate group, there was no significant interaction between structures and contexts, suggesting that their judgments of the test constructions did not differ according to the given contexts. As Figure 5.8
illustrates, the lower proficiency learners judged both types of statements across both
types of contexts in a similar way.

![Graph showing mean response for Indefinite and Question across non-specific and specific contexts.]

Figure 5.8. High Intermediate Group: Context x Structure

In other words, the results of high intermediate learners’ judgments reveal a strikingly
different pattern compared to the native controls and the advanced learners. Figure 5.8
clearly shows that the lower proficiency learners’ interpretation of variable expressions is
less likely to be contingent upon co-occurring sentential particles.

Before considering relevant individual data, let us summarize the group results of
the judgment task. The native performance was highly accurate in distinguishing
between the two types of expressions in the judgment task. The advanced learners’ pattern was similar to the controls, displaying the relevant distinction between the test statements. But the lower proficiency learners were significantly divergent from native speakers in their judgments of both constructions, making no distinction between the VAR-DECL and the VAR-Q constructions.

(b) Individual Results of the Judgment Task: Morphological Condition

In this section, we report individual data from the judgment task. In order to be able to compare this with the individual data from the translation task in the next section, we mainly focus on the correct responses—that is, “true” answers for the declarative statements paired with non-specific contexts, and “true” answers for the question statements paired with specific contexts. Accordingly, we discuss the distribution of individual responses, in particular by presenting the individual rate of accuracy on the declarative statements versus the accuracy rate on the question statements. Table 5.13 presents the individual data, pairing structures and contexts.
Table 5.13. Individual Data in the Judgment Task: Morphological Condition

<table>
<thead>
<tr>
<th></th>
<th>Incorrect (0%)</th>
<th>Optional (42%)</th>
<th>Correct (80%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VAR-DECL + Non-Specific Context</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intermediate</td>
<td>14</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>(58%)</td>
<td>(42%)</td>
<td>(0%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>1</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>(4%)</td>
<td>(26%)</td>
<td>(70%)</td>
</tr>
<tr>
<td>Native</td>
<td>0</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(7%)</td>
<td>(93%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Incorrect (0%)</th>
<th>Optional (12%)</th>
<th>Correct (88%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VAR-Q + Specific Context</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Intermediate</td>
<td>0</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(12%)</td>
<td>(88%)</td>
</tr>
<tr>
<td>Advanced</td>
<td>0</td>
<td>4</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(17%)</td>
<td>(83%)</td>
</tr>
<tr>
<td>Native</td>
<td>0</td>
<td>1</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>(0%)</td>
<td>(7%)</td>
<td>(93%)</td>
</tr>
</tbody>
</table>

As observed in the group data, the results of the individual data show that a majority of both the intermediate and advanced learners achieved a target-like level of judgment on the question type of variable expressions: 88% and 83% of intermediate and advanced learners, respectively. In relation to the declarative statements ([–Q] reading) (paired with the non-specific contexts), 70% of advanced learners displayed target-like response patterns, 13% less than had target-like responses for the question statements. However, none of the lower proficiency learners showed such judgments, rather, all of the lower proficiency level learners demonstrated non-target-like judgments. A clearly different pattern between the high intermediate and advanced groups is thus found with the indefinite type.
Although many advanced learners displayed target-like judgments on the declarative statements, Table 5.13 shows asymmetrical distributions in their response patterns to the two types of test structures. That is, there are many more target-like respondents for the VAR-Q constructions than for the VAR-DECL constructions within each group. Similar patterns emerged in the group results of the judgment task, which contrasts with the distribution of native speakers.60

5.3. Cross-task Comparisons

This section compares the results of the truth value judgment task with those of the reading-and-translation task in order to see whether the learners’ interpretation of the target embedded variable words was different according to the types of tasks. Recall that the reading-and-translation task tested whether adult L2 speakers were able to correctly translate the L2 variable words in embedded declarative and interrogative clauses into their L1 English given two different sentential particle cues. The judgment task was designed to ascertain whether subjects could correctly judge statements according to the corresponding contexts.

(a) Comparison of Group Results on Translation and Judgment Tasks

The group results for the translation and the judgment tasks 61 testing the interpretation of embedded variable expressions are compared. The mean accuracy for

60 There was one native speaker of Korean with a marked response pattern, showing optional judgments for both test constructions. The native speaker’s response pattern is in stark contrast with the rest of the native respondents.
61 As mentioned earlier, to compare with the results of the translation task, only the data of participants’ correct answers associated with each context (non-specific versus specific contexts) in the judgment task were taken into account here.
both learner groups for both production and judgment tasks is repeated here in Table 5.14, with a view of establishing task effects.

Table 5.14. Group Results: Translation and Judgment Compared

<table>
<thead>
<tr>
<th></th>
<th>VAR-DECL (&quot;something&quot;)</th>
<th>Paired sample t-tests comparing two tasks</th>
<th>VAR-Q (&quot;what&quot;)</th>
<th>Paired sample t-tests comparing two tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Translation</td>
<td>Judgment</td>
<td>t</td>
<td>p</td>
</tr>
<tr>
<td>High Int.</td>
<td>14.24%</td>
<td>12.50%</td>
<td>0.281</td>
<td>.781</td>
</tr>
<tr>
<td>(n = 24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td>60.14%</td>
<td>82.61%</td>
<td>2.849</td>
<td>.009</td>
</tr>
<tr>
<td>(n = 23)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A paired sample t-test was performed on the mean accuracies of translation and judgment tasks for each group. In the case of the high intermediate group, there is no statistically significant difference in performance on both types of tasks with regard to the two readings of variable expressions. That is, in both tasks, the lower-proficiency learners’ performance for the indefinite type was very poor (at a rate of around 13%) while their performance on the question type was quite good (at a rate of around 89%). For the advanced group, however, there was a significant discrepancy between the translation and the judgment tasks in relation to the indefinite expression type in declarative contexts, 60% versus 83%, $t (22) = -2.849$, $p = .009$, but not with respect to the question type, 84% versus 87%, $t (22) = -0.749$, $p = .462$. In other words, the mean accuracy for the [-Q] type of expression was significantly higher in the judgment task than in the translation task for the advanced speakers. This indicates that there was an effect from the judgment task that increased advanced learners’ performance on the indefinite
reading. Recall that in the judgment task, two types of expressions were given at the same time (along with two distracter items). It appears that the advanced learners got some benefit by comparing both types of expressions. However, for the lower proficiency learners, this task effect did not play a role in their interpretations.

(b) Comparison of Individual Results on Translation and Judgment Tasks

The L2 speakers and native controls were tested in both experiments, that is, on the production task and on the judgment task. Group results suggest that there were no task effects, except for the advanced group on the indefinite interpretation. This section reports a comparison of individual data for both translation and judgment tasks. The individual distribution within each group is shown in Table 5.15 as the number and percentage of successful subjects in each condition.

Table 5.15. Individual Data: Translation and Judgment Compared

<table>
<thead>
<tr>
<th>VAR-DECL</th>
<th>Incorrect (0%)</th>
<th>Optional</th>
<th>Correct (80%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Translation</td>
<td>Judgment</td>
<td>Translation</td>
</tr>
<tr>
<td>High Int.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR-DECL</td>
<td>Incorrect (0%)</td>
<td>Optional</td>
<td>Correct (80%)</td>
</tr>
<tr>
<td></td>
<td>Translation</td>
<td>Judgment</td>
<td>Translation</td>
</tr>
<tr>
<td>High Int.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR-Q</td>
<td>Incorrect (0%)</td>
<td>Optional</td>
<td>Correct (80%)</td>
</tr>
<tr>
<td></td>
<td>Translation</td>
<td>Judgment</td>
<td>Translation</td>
</tr>
</tbody>
</table>
Recall that individual subjects were categorized according to whether they never provided a correct answer (indicated with “incorrect”), optionally provided the correct answers (“optional”) or provided target-like answers over 80% of the time (“correct”). The cell containing the most subjects in each proficiency level is bolded. As observed in the group results comparing the translation and the judgment tasks, among the advanced learners there are twice as many target-like respondents in the judgment task than in the translation task for the VAR-DECL construction ([−Q] reading)—16 versus 8 individual subjects. Also among the advanced learners, one and nine subjects exhibited correct response patterns only for the translation or only for the judgment task, respectively, and seven subjects displayed target-like response patterns for both tasks. As far as the individual data obtained from the high intermediate group is concerned, there was no such big difference according to type of task. With respect to the question contexts, the same relative distribution is observed in both learner groups. That is, a majority of learners from both experimental groups fall into the target-like response pattern category for both translation and judgment tasks. Nonetheless, in the case of the intermediate group, there are more optional and less target-like respondents found in the translation task compared to the judgment task.

To summarize, the results of the individual data corroborate the group data comparing the judgment task with the translation task. As observed in the group results, the advanced learners were likely to perform well in the judgment task (compared to the

\[\text{Note that the criterion for the correct response category is around 80% accuracy on each interpretation. The criterion was set according to the native controls’ lowest score (observed in the judgment task). Therefore, a subject had to have five correct answers out of six sentences in order to be counted as having demonstrated target-like knowledge of the interpretation of Korean variable expressions.}\]
translation task) with respect to the indefinite interpretations of variable expressions in declarative contexts—there were 35% more correct respondents in the judgment task. Such a task effect was not found in the high intermediate group.

5.4. Summary

In this chapter, I reported the results of an experimental study investigating the second language acquisition of the interpretation of Korean variable expressions. This chapter presented the two translation tasks and one truth value judgment task that examined the interlanguage grammars of two different proficiency level groups of adult native speakers of English learning Korean. The group and individual data obtained from both a listening-and-translation task and a reading-and-translation task were evaluated within groups and between groups.

We have observed in this experimental study that the English-speaking learners of Korean had difficulty interpreting the L2 variable expressions in both licensing environments—intonation (falling vs. rising) and morphological licensors (declarative vs. question particles). That is, although they had target-like interpretations in obligatory question contexts, the adult second language acquirers from both high intermediate and advanced learner groups were far from achieving target-like performance in the [−Q] type of the L2 variable expressions in obligatory contexts. Between-group comparisons reveal significant differences in the indefinite interpretation, indicating an increase in target-like responses with increasing proficiency. In addition, individual data of the translation tasks show that about half of the advanced learners were competent in recognizing appropriate licensors for the variable expressions.
In the judgment tasks, the advanced learners made a clear distinction between declarative and question statements in given scenarios. On this task, the higher proficiency subjects also displayed knowledge of the language-specific licensing relationship between variable expressions and corresponding licensors, like the native controls. However, the lower proficiency learners incorrectly treated both statements as being the same. According to relevant individual data, even some of the advanced learners and most of lower proficiency learners failed to provide consistently correct interpretations for the obligatory indefinite contexts.

In following chapters, these results will be analyzed in light of the general and specific hypotheses of the study, and some implications of the findings will be discussed.
Chapter 6

Data Analysis: Interpretation and Discussion

In this chapter the major findings observed in Chapter 5 will be recapitulated, and then discussed in relation to the two licensing conditions (intonation and sentential particles) that govern the interpretation of Korean variable expressions. The main purpose of this study is to assess the interpretations of adult English-speaking learners of Korean in relation to the L2 (indeterminate) wh-in-situ elements. We will interpret the results based on research questions and offer possible explanations for them. The experiment reported on here tests the predictions of the Feature-Reassembly Approach by examining the interpretation of native English speakers more specifically. The results obtained from the translation and judgment tasks will be thoroughly analyzed in terms of different configurations of wh-constructions between the L1, English, and the target grammar, Korean.

The present study tested an underlying assumption in SLA, in which the acquisition of wh-in-situ languages by speakers of overt-movement languages is not thought to be as difficult as it is for speakers of wh-in-situ languages learning languages in which there is overt wh-movement. This assumption is falsified by the finding that non-targetlike interpretations in obligatory indefinite contexts are persistently observed in the grammars of native English speakers acquiring Korean wh-in-situ constructions, though their performance on the [−Q] interpretation improved with proficiency levels. I
will attempt to develop an analysis of the data in the same theoretical spirit as my previous analysis of sentential-level licensors determining the interpretation of Korean variable expressions. Possible sources for native English speakers’ interpretive patterns are discussed in terms of the L1 assembled features and the misanalysis of corresponding licensors for variable expressions. This chapter is organized as follows. First, I will summarize the major findings regarding the prosodic factor and offer an explanation for the non-targetlike interpretations in terms of the configuration of relevant features and the interaction between question markers and prosodic realization. Then I will summarize the major findings regarding the morphological factor and account for the adult speakers’ nonnative interpretations in terms of the reassembly of features and the misanalysis of the embedded sentential particles. Lastly, I will discuss the roles of different licensing environments in the interpretation of variable expressions according to the different proficiency levels of the learners.

6.1. Prosodic Factors for the Interpretation of Matrix Variable Expressions

One of the research questions we attempted to answer in this experiment was whether adult L2 speakers were able to figure out the language-specific licensing relationships between the L2 Korean variable elements and the morphosyntactic features \([+Q, +\text{wh}]\) and \([+Q, -\text{wh}]\) in C, which are expressed phonologically \(^{63}\) (and morphologically) in matrix interrogatives. Since standard Korean wh-and yes/no-

\(^{63}\) It has been widely noted in the literature that Korean wh-lexical items are determined by prosodic features. The prosodic features are described in terms of pitch accent (Chang, 1973; Choe, 1985), boundary tones (Martin, 1951; Lee, 1990), or high versus low pitch (Cho, 1990).
question markers share the same surface form, it has been assumed that prosodic factors play a key role in determining the interpretation of variable expressions in interrogative clauses. That is, when a question particle bearing the Q-operator feature licenses a variable (that is, a variable expression), a (primary) stress is assigned to the wh-lexical item, which is construed as a question; otherwise, the variable element is construed as the indefinite pronoun. Note that all test items involved a variable element and the question particle *ni*, however they differed as to whether an operator was present in the C domain or not. Accordingly, a listening test can only provide reliable data on L2 speakers’ interpretations of the Korean variable expressions in simple interrogatives.

The results obtained from the listening-and-translation task were evaluated within groups and between groups in order to see whether adult English-speaking learners of Korean were able to interpret L2 variable expressions in interrogatives paired with two different types of intonation patterns. The group results suggest that adult learners were more likely to have difficulty in interpreting variable words involving the [−Q] interpretation than those involving the [+Q] interpretation. More specifically, in the case of the sentential-falling intonation condition in which a variable expression (in matrix interrogative clauses) receives a question reading, there was no significant difference between learner groups and a control group. However, in relation to the sentential-rising intonation condition in which a variable expression obligatorily receives an indefinite pronoun reading, there were significant differences between groups. The performance of both learner groups differed from the native controls. The advanced learners performed significantly better than the high intermediate learners, showing an improvement in their
ability to get cues from intonation patterns for interpreting variable expressions in interrogative clauses that correlated with increasing proficiency levels. Within each learner group, there was a significant difference between translations of the two readings of variable expressions in question clauses. That is, both high intermediate and advanced groups were significantly less accurate in interpreting the indefinite reading than in interpreting the question reading: 7% vs. 97% for the high intermediate group, 68% vs. 94% for the advanced group. In short, unlike native controls, learners from both groups displayed low accuracy in their translations of the indefinite type compared to the question type of variable expressions.

The relevant individual data confirmed the asymmetry in performance between the indefinite pronoun and question readings for learners in each proficiency level. Most of individual subjects performed very well with the question reading. On the other hand, 96% of the high intermediate learners and 48% of the advanced learners failed to reach the target level of interpretation with the indefinite type. Nonetheless, around half of the advanced learners apparently managed to map the interpretable [±wh] and [±Q] features of C onto their corresponding forms. 52% of advanced learners were able to provide appropriate interpretations for variable expressions in simple questions depending on the types of intonation patterns, which do not play a key role in determining the reading of wh-lexical items in their primary language. Thus the acquisition of the differing interpretations of L2 variable expressions depending on their association with intonation patterns is possible, although the indefinite reading was still problematic for several advanced learners.
One might wonder why the English native speakers had a problem with the $[-Q]$ interpretation of Korean variable expressions in simple matrix interrogatives—especially considering the fact that the relevant features are present in the English speakers’ L1 and L2. It is evident that both languages select the formal features $[\pm \text{wh}]$ and $[\pm Q]$, indicating that there is no difference between the L2 Korean and the L1 English in terms of their relevant featural inventories. In addition, intonation patterns are associated with both types of interrogatives (wh and yes/no questions) in both English and Korean. In other words, as we have observed, prosody features are manifestations of abstract features distinguishing wh-questions from yes-no questions$^{64}$ in both languages: falling intonation $[+Q, +\text{wh}]$ vs. rising intonation $[+Q, −\text{wh}]$. Since the acquisition of questions does not involve (re)selecting new features required for the L2 and interpretability across languages is presumed to be uniform in the semantic component (Chomsky, 2001, p. 4), we should not expect substantial learning problems in English-speaking learners’ acquisition of the interpretation the Korean variable expressions in the prosodic licensing environments. But this is not the case. Before getting into the main issue of the interpretation of Korean variable expressions, I will briefly discuss the acquisition of the weak (uninterpretable) wh-feature of Korean by native speakers of English.

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$^{64}$ There are several types of questions, such as yes/no questions, wh-questions, alternative questions, tag questions, and intonation questions. I concentrate on wh(information)-questions versus yes/no questions since I am interested in the interpretation of variable wh-elements licensed by prosodic features.
6.1.1. Acquiring a [−Strong] Uninterpretable Feature

The selection of the feature value of the uninterpretable (wh-)feature\(^{65}\) associated with C\[Q\] (Adger, 2003; Hawkins, 2005) is assumed to be a parametric point of cross-linguistic variation between Korean-type and English-type wh-constructions. Possible parameter resetting models such as the FT/FA predict that the English speakers’ L1 strong ([−interpretable]) feature value of the C head would be transferred to the learners’ interlanguage as an initial analysis of the L2 input. After initial stages, L2ers would restructure their interlanguage grammars on the basis of positive evidence indicating that the L2 Korean wh-lexical items remain in situ. In terms of wh-parameters, it is predicted that the L2 speakers would successfully reset their C head from a strong feature value to a weak feature value in the target language. As pointed out by White (2003b, p. 126), the RDH approach might predict that “English-speaking learners of languages without syntactic wh-movement, such as Chinese, Japanese or Korean, will mistakenly assume wh-movement to be possible”. Therefore, if the weak value of the wh-feature needs to be selected from a universal inventory (as does its strong feature value), then under the RDH view, English-type speakers are expected to maintain their L1 strong \([uwh]\) feature in C. Consequently, it might be predicted that the English-type learners should stick with their

\(^{65}\) Note that there is no consensus in the generative literature about the identity of the (un)interpretable features that are argued to trigger the movement of question words in English-type languages in wh-question constructions. For instance, for Chomsky (1998), Hagstrom (1998), and Miyagawa (2001), a wh-feature is an uninterpretable feature on a wh-phrase while the [Q] feature is an interpretable feature on C. According to Pesetsky & Torrego (2004), the [Q] feature on the wh-phrase is uninterpretable, while the \([wh]\) feature on the wh-phrase and the [Q] feature on C are interpretable. For Adger (2003), there is a strong uninterpretable wh-feature (\(= [uwh^*]\)) in the interrogative C. Hawkins and his colleagues who accept the RDH proposal mainly follow Adger’s analysis. Therefore, in discussing parameter resetting views, in particular the RDH view, I will assume that English has a strong uninterpretable (wh-)feature associated with the interrogative C, yielding wh-movement, and that Korean lacks such a feature, yielding wh-in-situ constructions.
L1’s analysis even in advanced stages of the L2, rejecting wh-in-situ words in Korean-type wh-question constructions. However, the RDH’s prediction doesn’t seem to be supported by the fact that the English speakers did not refuse to provide the correct interpretation of the TL variable expressions in this present study.

Although there is little relevant research examining the reverse acquisition situation, in which wh-movement language speakers are acquiring wh-in-situ constructions like Korean in SLA, Kim’s study (2003) could provide supporting evidence for native English speakers’ successful switching from the strong feature value to the weak one required for the TL. More specifically, Kim tested whether adult English-speaking learners at early stages were able to assign the wh-feature a new feature strength, namely \([-\text{strong}]\), in simple wh-questions in the L2 Korean. The English-speaking learners were asked to produce wh-questions using all the vocabulary items provided to them via elicited written production tasks. His findings reveal that native speakers of English have no problem with producing the target wh-in-situ question sentences in quite early stages of L2 development—the majority (77%) of the TL wh-questions produced by the English-speaking learners were wh-in-situ, as illustrated in Table 6.1:

<table>
<thead>
<tr>
<th>Structure</th>
<th>No. of sentence (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wh-Subject-Verb</td>
<td>129 (16.95)</td>
</tr>
<tr>
<td><strong>Subject-Wh-Verb</strong></td>
<td><strong>586 (77)</strong></td>
</tr>
<tr>
<td>Others</td>
<td>46 (6.04)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>761 (100)</strong></td>
</tr>
</tbody>
</table>
Therefore, we can safely assume that the native English speakers in the present study would have successfully acquired the relevant uninterpretable feature, since they were beyond intermediate proficiency levels of Korean.

6.1.2. The Incorrect [+Q] Reading of Variable Expressions in Yes/No Contexts

Turning back to the acquisition of the interpretation of the Korean variable expressions, the adult speakers’ nontarget interpretations are not attributable to the parametrically different feature values (strong versus weak) of the interrogative C. Then why did majority of native speakers of English fail to provide the appropriate interpretation of variable expressions that co-occurred with a rising intonation, despite the fact that the learners’ mother tongue requires the relevant interpretable features for yes/no and wh-questions?

We might attribute the L2 learners’ poor performance in the obligatory indefinite contexts to their failure to learn non-question meanings of Korean variable expressions. In other words, given that the intermediate learner group’s mean accuracy is very low (7%) for the case in which variable expressions do not receive any stress and appear in a sentential-rising intonation, it can be argued that the L2 speakers had not acquired or encountered the [−Q] interpretation type in the TL. However, this might not be the case. For the morphological licensing condition in which the declarative particle triggers the indefinite reading, the same intermediate proficiency level learners’ performance statistically increased in obligatory indefinite contexts, from 7% to 14%. Relevant individual data also indicate that optional readers (those who supplied at least one
indefinite reading) in the intermediate group increased from 17% to 42% in comparable intonation and sentential particle conditions. The lower proficiency level learners’ improved performance with the indefinite type when it is associated with the declarative particle will be discussed intensively in the next section.

In order to clarify the issue of whether the lower proficiency learners of Korean did not learn the fact that Korean variable expressions can be interpreted as non-question elements, a small pilot study was conducted with low intermediate learners of Korean by employing a reading-and-translation task. The pilot group consisted of five adult English-speaking learners of Korean who were finishing their 1.5 year of Korean in an American university setting at the time of testing. A written-translation task was comprised of six simple statements involving a variable expression and twelve control items. For example, consider (6.1):

(6.1) Mary-ka eti-lo ka-ss-ta.
     Mary-Nom PLACE-Loc go-Past-Decl
(i) ‘Mary went somewhere’ / (ii) *‘Where did Mary go?’

Note that this structure might not be overtly taught in classroom settings, although it could be encountered in informal written and colloquial contexts. Table 6.2 shows the individuals’ accuracy in the obligatory indefinite contexts. As can be seen in Table 6.2, most of the low intermediate learners (four out of five) provided more than one incidence of the indefinite type in contexts lacking a question trigger.

66 The native English speakers acquiring Korean had taken a Korean class 75 minutes a week.
Table 6.2. Indefinite Pronoun Interpretation in Obligatory Declarative Contexts

<table>
<thead>
<tr>
<th>Subject #</th>
<th>Correct answer/Contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5/6</td>
</tr>
<tr>
<td>2</td>
<td>0/6</td>
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<tr>
<td>3</td>
<td>4/6</td>
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<tr>
<td>4</td>
<td>4/4</td>
</tr>
<tr>
<td>5</td>
<td>2/5</td>
</tr>
</tbody>
</table>

This result leads us to assume that English-speaking learners of Korean might have acquired the fact that Korean variable expressions have two readings in earlier stages than we might expect. Accordingly the L2 speakers’ poor accuracy rates for the rising intonation contexts may not be due merely to the indefinite type not having been acquired.

Rather, a promising source for the predominance of the question interpretation for many L2 learners lies in a different configuration. Wh-lexical items in the L1 English and the L2 Korean differ in terms of feature composition. That is, a wh-lexical item is a combination of the question operator\(^{67}\) ([OP]) and variable ([VAR]) features in the L1 while it is variable independent of the question operator in the target grammar. It is reasonable to assume that for adult L2ers who have yet to master the correct assembly of features in the TL, the L1-type set of features is copied to the L2 surface wh-forms. Namely, [OP] and [VAR] are separately configured in the target language in the domains CP and DP, respectively. If the feature matrices of the L1 surface, then the L2 speakers would construe L2 variable expressions as questions regardless of what intonation pattern

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\(^{67}\) Following Aoun & Li (1993), I assume that the Q(uestion)-operator occurs in the Spec position of the projection whose head is composed of the features [+Q, +wh].
they are associated with. This prediction is supported. According to data from the high intermediate group, they rarely supplied the indefinite type (7% of the time), while they frequently (97% of the time) supplied the question type in the obligatory context. There is reason to believe that in lower proficiency learners’ grammars, a majority of them had a hard time teasing apart the clustered features in their primary language: 19 out of 24 intermediate learners only provided question readings for both contexts.

Let’s examine in more detail the case in which wh-lexical items have the (Q-) operator and [VAR] features together. Although the uninterpretable wh-feature in the head of C lacks a strong feature value, the bundles of relevant interpretable features associated with a wh-lexical item have not been reconfigured as required for the TL. (6.2b) and (6.3b) show the corresponding fuller representations of each structure under this eventuality.

(6.2) Yes/No Interrogative:

Swumi-ka mwues-(ul) mek-ess-ni?  
Swumi-Nom THING-Acc eat-Past-Q [−wh]

‘Did Swumi eat something?’
[∃x [Swumi THING(x)-Acc ate]-QY/N]

a. Target grammar: C [+Q, −wh]∃x …. DP [VAR(x)]
*b. IL grammar: C [+Q] …. DP [OP + VAR]

68 According to Hong (1995, p. 104), the yes/no question has the following syntactic representation, where the Q-morpheme, which is focus-sensitive, is co-indexed with the polarity focus:

(i) Q, [Swumi ate WHAT [FACT]F]
The sentence will be interpreted as ∃x [thing (x) ^ ate (j, x)]
The Q-morpheme will take all the alternative values of the verum-focus and gives us the yes/no question denotation.
(6.3) Wh-questions:

Swumi-ka mwues-(ul) mek-ess-ni? /swagger
Swumi-Nom THING-Acc eat-Past-Q [+wh]

‘What did Swumi eat?’

[OPx [Swumi-ka THING(\(\chi\))\(\text{-Acc}\) mekess\(\text{-Q}_{\text{WH}}\)]

a. Target grammar: C [+Q, +wh] OPx … DP [VAR(\(\chi\))]

*b. IL grammar: C [+Q] … DP [OP + VAR]

For contexts like (6.2) and (6.3), intermediate learners might find it difficult to retrieve the L2-type wh-lexical items ([VAR]) since both cases carry the overt interrogative marker. In this case, the intermediate learners might ignore prosodic cues expressing formal features specified in the head of Comp that interpret matrix variable expressions. Note that in English, which lacks overt (matrix) question markers, the presence of wh-lexical items becomes the primary means of determining what type an interrogative is. Accordingly, the L2 speakers appear to heavily rely on the wh-lexical items (L1-type assembly of features [OP + VAR]) themselves to provide interpretations for the L2 variable expressions.

Nonetheless, the L2 speakers could make a distinction between raising and falling intonations based on their L1 experience. The two types of prosodic features are present in their L1 grammar—despite that fact English and Korean phonological structures are not exactly the same (cf. Jun & Oh, 2000 for details). That is, English-speaking learners might have linguistic knowledge of the contingent relationship between intonation patterns (sentential-final rising vs. sentential-final falling) and information and yes/no question types. In many languages, yes/no questions are reported to have a final rise, while wh-questions typically are associated with a final fall. For example, Horvath (1986,
p. 118) explicitly posits that focus is a universal syntactic feature that is assigned to non-echo wh-phrases, resulting in sentential-falling intonation. A rising tone at the end of a sentence is used to mark yes/no questions by expressing the truth polarity\(^69\) of the proposition (e.g., Krifka, 2001). It is not, therefore, the absence of prosodic features that causes the adult learners to have difficulty in interpreting variable expressions in question clauses, in particular in the indefinite readings. Nevertheless, in English, it appears that intonation patterns do not mark two interrogative types directly, but merely reinforce the encoding provided by the syntax. Instead, fronted wh-words or fronted auxiliary lexical items syntactically mark sentences as wh-questions or yes/no questions, respectively. In other words, the rising and falling intonation patterns do not play a crucial role in determining the meaning of English wh-lexical items, though they do contribute to discourse meanings such as tag questions in the sentential level in English. Meanwhile, in Korean simple interrogatives, intonation is a major factor used to distinguish the presence or absence of a Q-operator in the question C-domain and thus to determine the interpretation of variable expressions. In other words, prosody is needed to differentiate the [+Q] interpretation from the [−Q] reading in the TL variable expressions.

A question interpretation for variable words in interlanguage grammars (especially for the lower proficiency level learners) can be partly a consequence of a question operator feature being conflated into the wh-lexical items, the lingering effect of the abstract ([OP + VAR]) of the L1 English entering into the L2 lexicon. If the features of Operator and VAR are bundled in the numeration, the interpretation of the bundle will

\(^{69}\) According to Hamblin’s (1973) analysis, a yes/no question denotes set of two propositions that represent the possible answers to the question, where one is an affirmative sentence and the other is its negation.
be an interrogative regardless of whether a question particle carries a Q-operator or not. A speaker in this case likely has no motivation for looking for a licensor. However, even when a speaker correctly selects the target-like set of features for wh-lexical items, it does not necessarily mean that the speaker can provide an appropriate interpretation. This is because s/he needs to recognize the corresponding licensors that assign semantic features to the variable expressions. Hence another source of non-target performance in questions can come from the language-specific realization of licensing environments.

Recall that both types of features $[+Q, +\text{wh}]$ and $[+Q, −\text{wh}]$ in the CP domain are morphologically and phonologically realized in Korean, as represented in (6.4-6.5). In (6.4), the focused yes/no question morpheme (lacking the question operator) indicates the truth-polarity of the proposition: it is true that Mary ate something, or it is not true that Mary ate something. Here, the question denotes a set of two propositions, where one is an affirmative sentence and the other is its negation (Hamblin, 1973). In (6.5), the wh-question morpheme co-occurring with the Q-operator assigns the phonological feature (focus) to the wh-element and denotes a set of propositions based on the things that Mary ate.

(6.4) Rising intonation (Indefinite Reading):

Mary-ka $mwues$-ul mek-ess-[ni]$F$?
Mary-Nom THING-Acc eat-Past-Q
C $[+Q, −\text{wh}] \exists x$ … DP $\text{VAR}(x)$
‘Did Mary eat something?’

(6.5) Falling intonation (Question reading):

Mary-ka $[mwues$-ul]$F$ mek-ess-ni?
C $[+Q, +\text{wh}] \text{OP}x$ …. DP $\text{VAR}(x)$
‘What did Mary eat?’
In other words, another formidable task confronting the L2 speakers is to learn how licensing environments are language-specifically manifested in simple interrogatives, which is part of morphological competence according to Lardiere (2007).

Given the fact that yes/no and wh-question particles share the morphological expression *ni*, it might not be straightforward for L2 acquirers to determine what the appropriate licensors are. That is, the Q-sentential particle *ni* with a rising intonation encodes interrogative force and might incorrectly trigger non-target question interpretations in interlanguage grammars. In other words, overlapping cues of a question marker and a rising intonation appear to provide some of the conditioning for the question type of expressions, given that a wh-question word universally occurs in the question body. More concretely, the properties of the TL yes/no interrogatives overlap with those of the L1 echo questions\(^{70}\) in terms of a rising intonation and an in-situ wh-element. According to Sobin (2004, p. 506), English echo-questions are characterized by four key features:

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\(^{70}\) As far as Korean echo-questions are concerned, Noh (1995) notes that they are one realization of indirect speech without a verb of saying: the quotative particle *ko* ‘(saying) that’ is employed in both contexts.

(i) a. **ku-nun [tangcang ttena-la]-**ko malhay-ssta.
   *He-Top at-once leave-IMP-Quot say-Past-Decl*
   ‘He told (someone) to leave at once’

   b. **[tangcang ttena-la]-**ko?
   *At-once leave-IMP-Quot*
   ‘leave at once?’ (Noh, 1995, p. 136)

   According to my intuition, although yes/no questions and echo-questions are often realized with High boundary tones (Jun & Oh, 2000), a wh-element with stress becomes a question word and a wh-element without stress is an indefinite pronoun.

(ii) a. **Mary-ka MWUES-ul mek-ess-ta-ko?**
   *Mary-Nom THING-ACC eat-Past-Decl-Quot*
   ‘Mary ate WHAT?’

   b. **Mary-ka mwues-ul mek-ess-ta-KO?**
   ‘Mary ate something?’
(6.6) Properties of Syntactic Echo Question:
a. Surprise intonation (↑)
b. COMP freezing- an exact copy of the LF (/post-spellout) CP structure of the utterance being echoed.
c. Unselective binding\(^{71}\) in LF of the EQ-introduced (D-linked and in-situ) wh-phrases (Pesetsky, 1987)
d. A ‘copy’, possible loose, of the non-CP elements of the utterance being echoed.

The properties of Korean yes-no questions bearing a wh-word appear to be similar to those of English echo-questions in that both types have final rising intonation and (unselective) binding of the in-situ wh-word. In English, rising intonation in a wh-question is utilized when the echoer did not hear properly or when she wants to express surprise/incredulity.

In information interrogatives, it might be the moved wh-phrase that conveys the illocutionary force of (information) questioning. Here, the interrogative head features of C (ForceP for Rizzi) would seem to require an interrogative phrase in Spec, C to meet the wh-criterion. However, echo questions do not display the typical syntactic properties of interrogatives such as inverted word order or wh-fronting in English. For example, as in (6.7), a higher question-binder is introduced and binds an in-situ wh-word, according to Sobin’s analysis (2004, p. 505). Note that an operator-variable relation is thereby set up, as we also observe in Korean wh-constructions.

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71 Following Baker’s analysis, Pesetsky (1987) proposes that Discourse-linked wh-phrases (which N) do not undergo movement and is bound by the operator via ‘unselective binding’. Thus, unlike non-D-linked wh-phrases, D-linked wh-phrases do not obey movement constraints such as Superiority:

(i) a. *What did you persuade who to read ti?
(6.7) a. Mary dated who? ↑ (a syntactic echo-question)
   b. \([\text{CP } Q_i [\text{CP } \emptyset [\text{IP } \text{Mary dated who}_i]]]]\) (under the classic CP analysis)

In the interlanguage representation, a pseudo-echo question like (6.8c) might emerge:

(6.8) a. Mary-ka nwukwu-lul mana-ni?
   Mary-Nom PERSON-Acc meet-Q
   ‘Does Mary see someone?’

b. TL: \([\text{CP } [+Q, -wh] \exists x \ldots \text{DP} [\text{VAR}(x)]\) (Indefinite Reading)

c. IL: *\([\text{CP } Q_i [\text{CP } \emptyset \ldots \text{DP} [\text{VAR} + \text{OP}]]\) (Question Reading)

However, this doesn’t mean that the L2 speakers perceived the L2 yes/no questions involving a wh-item as L1 echo-questions. In fact, there was no incident of the L2 speakers translating yes-no question types as echo-questions. Rather, in the (incorrect) translated sentences, the wh-word was fronted, with the learners incorrectly construing the variable expressions as questions associated with a rising intonation: *What did Mary eat? versus Mary ate what?*. Instead, in the L2 wh-construction with rising intonation, the L2ers might be positing some sort of L1 echo representation where a question operator, which might be in a higher position than FocP, binds the in-situ wh-element and checks against the in-situ wh-word bearing the operator feature like (6.8c). The combination of a wh-lexical item and rising intonation (associated with the question particle) appears to lead the L2ers to construct a pseudo-echo representation, rendering the expressions with question readings. Accordingly, for L2 speakers who failed to acquire the prosodic realizations of specified features in the matrix interrogative C, a non-target-like interpretation of the TL variable expressions in the DP domain would result.
For the L2 speakers, acquiring a correct representation of the relationship between variable expressions and intonation patterns must be a challenging task.

6.1.3. Variability in the L2 Learners’ Interpretation: Prosodic Condition

Let’s now turn to variability in the interpretation of L2 wh-lexical items in simple interrogatives. Interpretation variability is generally observed in advanced learners’ grammars in relation to the obligatory indefinite contexts. For the advanced learners (but not for the intermediate learners), there were substantially more optional readers\(^{72}\) (44% (10/23) versus to 4% (1/23)) for the obligatory indefinite contexts than for the obligatory question contexts. Also, none provided optional readings in both obligatory indefinite and question contexts. Rather, they exhibited variability in interpretation only for the obligatory indefinite contexts (asymmetric variability).

It appears that the coexistence of L1-type and L2-type sets of assembled features is a main source for the optional interpretations provided by the advanced speakers. There might be co-existing lexical items in relation to wh-words in interlanguage lexical entries (e.g., Robertson & Sorace, 1999).

(6.9) Optional Readers’ IL Representations:

a. Yes-No question contexts: \[ C [+Q, −wh]\exists x \quad \ldots \quad [\text{OP + VAR}] \text{ or } [\text{VAR}(x)] \]  
b. Wh-question contexts: \[ C [+Q, +wh]\text{OP}x \quad \ldots \quad [\text{OP + VAR}] \text{ or } [\text{VAR}(x)] \]  

\(^{72}\) As for optional readers, I mean those who sometimes provided correct indefinite pronoun readings and sometimes provided incorrect question readings for rising-intonation contexts.
This suggests that in the case of yes-no interrogative contexts, the question reading occurs when the L1-type set of wh-lexical items is retrieved, and the indefinite reading occurs when the L2-type set of wh-lexical items is retrieved and correctly licensed by the existential operator in the advanced learners’ grammars. On the other hand, when the question operator (in the CP) is present, the correct question readings are provided regardless of whether they select the L1 or the L2 bundles of features of the wh-lexical items. That’s why optional readings appear mostly for the contexts in which there is no Q-operator feature. This analysis is based on the observation that interpretive asymmetry exists between the obligatory indefinite and question contexts.

On the other hand, a majority of the lower proficient learners did not show variability in interpretation and instead provided incorrect question readings in the yes/no question contexts, presumably either because they were not sensitive to the spell-out of the Spec of the TL CP or because they misanalyzed it. For the lower proficient learners, the question force marked by the question particle and intonation triggers the retrieval of the L1-type wh-lexical items, supplying the question readings in almost all cases for both obligatory indefinite and question contexts.

To sum up, the prevalence of the question readings for the lower proficiency learners regardless of intonation pattern suggests non-target combinations of features. As the L2 speakers become more proficient in the L2, the L1-based featural bundles are re-configured. The advanced learners become more proficient at discriminating the various phonological and morphological manifestations of licensors.
6.2. Morphological Factors in the Interpretation of Embedded Variable Expressions

Korean embedded wh-lexical items appear to be closely related to their English counterparts in terms of the class of predicates they subcategorize for. However, as discussed in Chapter 2, this parallel might be deceptive. Unlike their English counterparts, the Korean variable expressions can have two different readings: an interpretation that corresponds to the English indefinite pronouns, and another that corresponds to the (wh)-question phrases. The difference is in the way in which the relevant features are bundled in the functional categories DP and CP and realized in embedded clauses.

I examined whether adult English-speaking acquirers of Korean were able to provide appropriate interpretations for in-situ variable expressions licensed by overtly realized sentential particles, the declarative particle ta ([−Q, −wh]) and the question particle nunci ([+Q, +wh]). As mentioned in Chapter 2, this study focused on the interpretation of variable expressions embedded by KNOW/REMEMBER-type verbs. Korean KNOW-type verbs identify their embedded clause as declarative or interrogative by employment of these particles. Their declarative and interrogative complements are introduced by the declarative particle ta and the question particle nunci, respectively.73 In the test constructions, interpretations of Korean embedded variable expressions are contingent upon the closest sentential particles. A variable expression must be interpreted as an indefinite pronoun when it is bound by a declarative particle, as in

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73 Note that the question particle is assumed to have a wh-feature when the Q-morpheme is selected by KNOW-type verbs (as the propositional-predicate verb class) in Korean. As discussed in Chapter 2, I have observed that KNOW-type verbs are unable to select a yes/no question complement. I thus assume that the question particle selected by the KNOW-type class bears a wh-operator feature.
(6.10). When a variable expression is bound by the question particle *nunci*, which bears [+wh] and [+Q] features, it must be construed as a question, as in (6.11):

(6.10) Indefinite Pronoun Interpretation:

   John-Top Mary-Nom THING-Acc buy-Past-Decl-(C) remember-Decl
   ‘John remembers that Mary bought *something’

b. John-Top [∃x [Mary-Nom THING(x)-Acc bought]-Decl ] remember-Decl

(6.11) Question Interpretation:

   John-Top Mary-Nom THING-Acc buy-Past-Q remember-Decl
   ‘John remembers what Mary bought’

b. Jon-Top [OPx [Mary-ka THING(x)-Acc bought]-QWH ] remember-Decl

Again, linear order in syntax does not play a key role in determining the interpretations of embedded variable expressions in Korean, as was also observed in simple interrogatives containing variable expressions. Wh-lexical items in the L2 Korean are in syntactic positions that can be filled by other noun phrases. This indicates that the surface position of wh-lexical items in Korean does not contribute to the distinction between different

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74 The particle *ko* serves basically the same function as a quotative marker in such sentences. Moreover, the bracketed CPs stand alone as perfect root clauses and have a form of reproduced root clauses in the embedded context without any syntactic or semantic change. The main function of the morpheme *ko* in such a context is to set off the reproduced direct statements from the matrix clause (Jung, 1995). Note that the quotative marker does not play any role in determining the reading of a variable expression. Rather, clause-type markers such as interrogative and declarative do.

(i) a. Chelswu-nun Mary-ka nwukwu-lul man-(a)ss-nya-ko mul-(e)ss-ta.
   Chelswu-Top Mary-Nom PERSON-Acc meet-Past-Q-Quot ask-Past-Decl
   ‘Chelswu asked **who** Mary met’

   Chelswu-Top Mary-Nom PERSON-Acc meet-Past-Decl-Quot tell-Past-Decl
   ‘Chelswu told that Mary met **somebody**’

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types of clauses such as declaratives and indirect wh-interrogatives. Additionally, intonation, which is a crucial cue for determining the interpretation of variable words in matrix interrogatives, does not play a role in determining the interpretation of variable expressions in embedded clauses. In order to provide the appropriate interpretations of embedded wh-lexical items, instead, adult learners must acquire knowledge of the licensing relationships between the lexical items and sentential particles in the same embedded clause.

I am particularly interested in English native speakers’ acquisition of indefinite interpretations of variable expressions in embedded declarative clauses. Note that regardless of what type the embedding verb is, the variable expression obligatorily receives a \([-Q]\) indefinite interpretation in the absence of a question particle. More specifically, in the case in which a variable expression is licensed by the overt realization of the features \([-Q, \neg \text{wh}]\)—the declarative particle \(ta\)—speakers cannot interpret the variable expression as anything other than a non-question interpretation. In other words, the presence of the declarative particle in the embedded clause plays a key role in activating the indefinite interpretation among the possible readings of variable expressions.
6.2.1. The Incorrect [+] Reading of Variable Expressions in Declarative Contexts

By utilizing both translation and comprehension tasks (a reading-and-translation task and a judgment task), L2 speakers’ interpretations were examined.\(^{75}\) Let’s begin with the second research question: “Do adult English speakers have difficulty in interpreting L2 Korean variable expression correctly depending on the contextual co-occurrence of sentential licensing particles? If they do, which reading of L2 variable expressions is more difficult than the other?” In general, the answer is YES. The English-speaking learners had problems with the indefinite type of the L2 expressions (the one associated with the [−Q] sentential particle). That is, according to the group data obtained from the reading-and-translation task, although the adult learners from both experimental groups demonstrated target-like interpretations when variable expressions were associated with the question particle, both groups displayed relatively poor performance in the case where the declarative particle signaled an indefinite interpretation of the variable expression: 14% and 60% accuracy rates for the high intermediate and advanced groups, respectively. Individual data also indicate that the percentage of target-like respondents within each group varied depending on the types of interpretations: none of intermediate learners and 35% (8/23) of advanced learners displayed target-like performance for indefinite readings, whereas 58% (14/24) of intermediate learners and 74% (17/23) of advanced learners did for the question readings.

Again, one might claim that the L2 speakers’ significantly better performance in the question contexts (versus the declarative contexts) is attributable to the possibility that

\(^{75}\) Note that I used two different verbs as matrix verbs: kiekhata ‘remember’ for the translation task and alta ‘know’ for the judgment task.
they did not encounter any occurrences in which the L2 variable expressions receive a non-question interpretation. However, this cannot account for the individual data, which show that 42% of the lower proficiency learners and 83% of the advanced learners correctly provided the indefinite reading more than once when a variable expression co-occurred with a declarative particle. This suggests that the native English speakers had discovered that, unlike their L1 counterparts, the L2 wh-lexical items could be interpreted as being \([-Q]\).

An obvious question to ask is whether my analysis can be extended from root variable expressions to embedded variable expressions. As proposed in the previous section, a possible account, then, could be that non-target-like interpretations in obligatory indefinite contexts are due to a non-target-like assembly of relevant features in wh-lexical items. In other words, the L2ers might not have completed the construction of a lexical entry for the TL. Thus we can say that the L2 speakers could be in transitional stages from the L1 lexical entry to the L2 lexical entry. As a result, the L2 speakers often fail to delink the OP feature from their L1-type cluster of relevant features as required for the L2 wh-lexical items, yielding the (non-targetlike) set of features \([\text{OP} + \text{VAR}]\) for the L2 lexical items in interlanguage grammars. If the L2 speakers have established a new lexical entry for the target language, we should not expect the asymmetry in the learners’ performance between obligatory indefinite (which had non-target performance) and question (which had target-like performance) contexts.

Notice that in the obligatory indefinite contexts, there is no element encoding interrogative force. Hence, the learners who have succeeded in re-assembling
interpretable features for the L2 wh-lexical elements are not predicted to construe variable expressions in declarative contexts as questions. The high rates of the L2ers who hadn’t reached the target interpretation (86% of the intermediate group and 40% of the advanced group) suggest that the L1-type set of feature assembly remains in the L2 speakers’ grammars.

Since the grammar of the English speakers regarding the interpretation of embedded variable expressions is divergent only in the (embedded) declarative contexts, an obvious suggestion to make is that the declarative contexts somehow trigger the nontarget interpretation (the question type). But how? Now the following specific question arises: how can the L1-type set of features [OP + VAR] be selected in declarative contexts in learners’ grammars, given that question wh-words require interrogative force in the head C? The declarative particle *ta* is the lexical realization of [−Q, −wh] in C, hence it is not compatible with the question reading of a wh-lexical item because this would result in a sort of derivation clash: [−Q, −wh] in C versus [+Q, +wh.] in DP. That is, a syntactic wh-question construction is a type of interrogative that conflicts with non-interrogative force. Hence, its requirement for the question type of variable expressions is violated with the appearance of the declarative particle. But this analysis becomes feasible if the L2 speakers’ initial hypothesis about *ta* is that it is a default sentential particle—that is, if the head of C in which *ta* appears is analyzed as carrying the unspecified features [αQ, αwh] rather than [−Q, −wh] in interlanguage

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76 The wh-criterion formulated by Rizzi (1997) requires featural agreement between (question) wh-words and the head C. Question formation must respect the Wh-criterion formulated by Rizzi (1991): (i) A Wh-operator must be in a Spec-head configuration with a [+wh] X, and (ii) a [+wh] X must be in a Spec-head configuration with a wh-operator. Although Rizzi’s Wh-criterion is specifically formulated to regulate wh-movement in English, it is in line with the agreement between a question wh-word and an interrogative C.
grammars. This leads us to assume that *ta* is misanalyzed as a default sentential particle by the L2 speakers who provided incorrect question readings for the variable expressions in declarative contexts.

In more detail, following the assumption of Distributed Morphology that lexical items can be underspecified in the lexicon (Halle & Marantz, 1993; Harris, 1991), co-occurring variable expressions with the (underspecified) particle *ta* could be interpreted as question readings. This account can be supported by the fact that the basic forms of verbs in Korean has the morpheme *ta* attached to each verb stem—e.g., *ka-ta* ‘to go’, *ca-ta* ‘to sleep’. Korean verb stems cannot stand alone without the morpheme *ta*. Notice that the same form is used to mark a declarative clause by appearing as a suffix on the verb77 (Verb + affix). In addition, the declarative particle *ta* is deeply embedded by the quotative marker *ko*,78 which is assumed to be a neutral subordinator marker (Bhatt & Yoon, 1991), in declarative contexts. The position of the quotative marker might hinder the L2 learners from recognizing the force marker *ta*. As a result, when wh-lexical items appear in embedded declarative contexts, the English speakers appear to have difficulty in noticing that the sentential morpheme *ta* marks the feature [−Q, −wh], as exemplified in (6.12). The embedded declarative particle often appears to be regarded as a default

77 As an agglutinating language, all roots of verbs must be marked by a sentential particle such as declarative, interrogative, or imperative. In matrix clauses, speech style markers like *e* and *yo* function as default sentential particles, appearing across declarative, interrogative and imperative clauses. However, note that in embedded clauses, the declarative particle *ta* is obligatory and is not replaced by other speech style markers.

78 Young-Key Kim-Renaud (p.c.) points out that there is variation in the use of *ko*. The quotative marker *ko* can appear in matrix clauses in colloquial (informal) contexts, as in (i):

(i) A: mwues-ul ha-ni? ↓
    THING-Acc do-Q ‘what are you doing’?
B: kongpu-han-ta-ko.
    Study-do-Decl-Quot
    ‘I am studying’
marker bearing unvalued C features in learners’ representations, as in (6.13b) in contrast to the target representation in (6.13a):

(6.12) Declarative statement (Indefinite Reading):
Mary-nun Swunhi-ka mwues-ul mek-ess-ta-ko kiekhan-ta
Mary-Top Swunhi-Nom THING-Acc eat-past-Decl-Quot remember-Decl
‘Mary remembers that Swunhi ate something’

(6.13) Representation:

a. TL: Mary remembers [embedded CP [¬Q, ¬wh] ∃x … [VAR(x)]]
b. IL: Mary remembers *[embedded CP [αQ, αwh] … [OP + VAR]]

The unspecified C features would make it possible for the L2 learners to have access to the L1-type feature combination for wh-lexical items. This yields the incorrect question interpretation in declarative contexts.

This account can be supported by the observation that in embedded questions the question wh-word and the COMP that frequently co-occur in some dialects of English and co-occurred in older stages of English (and Dutch, French and German). The moved wh-phrase immediately precedes the complementizer that. In Standard American English indirect interrogatives, the C head must be null when its specifier is occupied by a wh-phrase (the Doubly-Filled COMP Filter, or DFCF) as in (6.14), however, the DFCF does not hold in Belfast English, as reported by Henry (2005), or Middle English, as in (6.15-6.16).
(6.14) Modern Standard English:
I wonder [which dish Ø they picked]

(6.15) Belfast English (Henry, 1995, p. 118)
a. I wonder [which dish that they picked].
b. I don’t know [when that he is going].

(6.16) Middle English:
men shal wel knowe [who that I am]
‘one shall well know who I am’ (Bayer, 2002, p. 2)

Note that the only difference between Standard English and Belfast or Middle English is the presence of that co-occurring with the moved question wh-word. A theoretical analysis of this pattern is put forward by Radford (1997) and Baltin (2005). In the examples like (6.15-6.16), the COMP that is assumed to be a neutral morpheme occupying the head of FinP within the framework of Rizzi (1997). In other words, the morpheme that lacks illocutionary force (declarative [−Q, −wh]) but is instead a featural neutral morpheme of subordination. Thus, according to Radford (1997, p. 283), the strong Q feature is checked by merger of the complementizer that (or movement of an auxiliary), together with the movement of the wh-phrase to the SPEC of CP in Belfast English. Since that in Belfast English does not bear illocutionary force (as it simply occupies a position in the finite-clause comp), it can occur in both indirect interrogative and non-interrogative clauses.

In Standard English and Korean, the overt complementizer (that and ta, respectively) is an inherently non-interrogative complementizer specified as [−Q, −wh].

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79 There is an additional difference between Belfast and Standard English, namely, Subject-Aux inversion in embedded wh-questions. Unlike Standard English, the inversion is allowed in indirect questions in Belfast English.
Thus the overt declarative expressions *that* and *ta* denote declarative illocutionary force, occupying the head of Force within the framework of Rizzi (1997). However, it seems that in the learners’ grammar, the declarative particle *ta* is misanalyzed as a neutral complementizer that possibly occupies the functional head Fin, based on the Rizzi’s split CP\(^80\), as represented in (6.17):

   Mary-Nom John-Nom THING-Acc eat-Past-Dec-Quot know-Decl
   ‘Mary knows that John ate something’

   b. IL: Mary knows [\textit{ForceP} \textit{WHAT}_i \textit{Force}_0 [\textit{FocP} \textit{Foc}_0 [\textit{FinP} \textit{TA} \textit{IP} John ate t_i ]]]
   ‘*Mary knows what John ate’

If adult L2 speakers have problems with (re)mapping between the spell-outs and abstract morphosyntactic features of C, they will be more likely to (incorrectly) supply the [+Q] type of variable expressions due to their previous knowledge of wh-lexical items.

Nonetheless, the declarative particle *ta* is not always treated as an unspecified particle in the learners’ interlanguage lexicon. When the suffix *ta* is correctly specified as [−Q, −wh], playing a role as a licensor of variable expressions, the expressions are accurately construed as indefinite. The adult speakers’ target-like performance on the indefinite readings in the judgment task confirms that the advanced speakers’ depressed performance in the declarative contexts came neither from an impairment in their representation nor an inability to reassemble the relevant features. In the judgment task,

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\(^80\) Rizzi’s (1997) now well-known elaborated analysis of the CP shell is shown in (i):

(i) [ For [ Top [Foc] Top [Fin] ... ]

The CP shell is divided into what Rizzi calls a high ‘Force’ layer and a low ‘Finiteness’ layer. Sandwiched in between these layers are possible topic and focus positions. The declarative complementizer *that* is high, in Force (p. 301). However, its non-phonetic counterpart (null *that*) is a null finite head in Fin (p. 312).
the data from the advanced group indicate statistically better performance than in the translation task. Additionally, according to individual data, twice as many target-like respondents were found for the indefinite readings in the judgment task than in the translation task: there was a significant jump in correct interpretations, with a 35% more correct respondents in the judgment task compared with those in the translation task: 16/23 vs. 8/23 individual subjects, respectively. Nine advanced subjects displayed correct response patterns only for the judgment task, while one advanced learner did only for the translation task. Accordingly we can safely say that many advanced learners (around 70%) were able to recognize the ta complementizer as the declarative particle, carrying the features [−Q, −wh] and introducing indefinite readings (in the more salient task environment).

6.2.2. L2 Learners’ Performance on the Different Experimental Tasks

Let’s briefly examine the asymmetry of the advanced learners’ performance in the translation and judgment tasks of the indefinite type. Note that the two tasks (translation and judgment tasks) employed for testing the L2 speakers’ interpretations of embedded variable expressions differed in the following way. For the translation task, the learners had to construct a syntactic representation to provide an interpretation for the L2 variable expression. There was no motivation for them to revise the syntactic representation. Meanwhile, for the judgment task, the situation was slightly different. Test sentences

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81 Seven advanced learners demonstrated target-like response patterns in both translation and judgment tasks for the declarative contexts.
displayed a contrast between declarative and question constructions (in addition to distracter items). Hence the L2 speakers could compare two different constructions\(^{82}\) and could revise their initial syntactic representations. That is, in the salient testing condition, the advanced learners might cancel the non-target combination of features of the wh-lexical items and reselect wh-lexical items with the feature [VAR] from the lexicon. In other words, by directly comparing the difference between question particles and declarative particles, they became more sensitive to licensing environments, which appeared to facilitate the advanced speakers’ remapping of the L2 overt forms (e.g. \textit{nwukwu}) onto the L2 set of features ([VAR] or [some \(x\), \(x\) is a person]). As a consequence, question interpretations became suppressed. It is conceivable that the different sentential particles in the embedded clauses were more visible in the judgment task than in the translation task. This seems to play a role in the advanced learners’ increasing sensitivity to licensors, which resulted in improving accuracy regarding the indefinite readings.

This suggests that the advanced learners have acquired knowledge of the licensing relationships between wh-lexical items and their licensors. However, without evident cues such as explicit contrasts, more than half of the advanced learners somehow overlooked the licensing environments and copied the L1-based assembled features to the overt wh-lexical items in some occasions. This finding provides the basis for an analysis in which adult L2 speakers go through a learning process to acquire the morphological realization of syntactic features and their licensing relationships even when the relevant

\(^{82}\) There was evidence for this. Among advanced learners, there are some cases where several subjects circled the embedded sentential particles contrasting the two test sentences and revised their answers.
features are primitive formal features shared by learners’ L1 and L2. Computational complexity contributes to the learners’ lesser sensitivity in the translation task. As far as the lower proficiency learners are concerned, such a task effect is not observed in their interpretations in general. Regardless of which task was involved (translation vs. judgment), the lower proficiency learners rarely provided correct interpretations of the variable expressions in declarative contexts. That is, in most cases, they supplied the question type of expressions in both declarative and interrogative contexts. For those lower proficiency level learners who have not completed the acquisition of the embedded particle licensors, the task condition contrasting the declarative particle to the question particle is not helpful. As proficiency level increased, the L2 learners’ ability to recognize the licensors appears to become enhanced. Putting it differently, the learners are in the process of re-assembling the relevant features and learning language-specific spell-outs of those features.

6.2.3. Variability in the L2 Learners’ Interpretation: Morphological Condition

Let’s consider optional readers more closely in the embedded contexts. In the sentential particle licensing contexts, there are three types of optional readers found in the individual data: (a) optional readers both for obligatory indefinite and question contexts, (b) optional readers only for declarative contexts, (c) optional readers only for question contexts. As for the first case, 4/23 advanced learners and 7/24 intermediate learners showed variability in their interpretations in both interrogative and declarative contexts. These optional readers appear to select two different sets of combinational features from
their interlanguage lexicon optionally, regardless of whether the closest sentential particles are interrogative or declarative ([VAR] versus [VAR + OP]). For the case in which they select the L1-type set of features, the licensors do not matter for the L2 speakers’ interpretations of the variable expressions in the embedded clauses; presumably the L2 overt expressions of the associated C features are treated either as default features or as [+Q, +wh] features. This is the case that most of optional readers from the intermediate group fall into. They were in the process of reconstructing their vocabulary entry for the L2.

As far as optional readers only for the declarative contexts are concerned, \(^{83}\) 7 advanced and 3 intermediate learners showed target-like interpretations in the question contexts but variable interpretations in the declarative contexts. This indicates that they had acquired the fact that wh-lexical items receive a question reading when they co-occur with a question particle [+Q, +wh]. In other words, they were sensitive to the question operator. However, in the declarative contexts, they optionally treated the declarative particle as a default marker, allowing the L1 set of features for wh-lexical items to be inserted. A majority of optional readers in this case were from the advanced group.

Lastly, in relation to the case optional readers only for question contexts, 2 advanced learner and 3 intermediate learners were observed to be such. This is an exceptional case for both proficiency level learners. In addition, the different proficiency level learners in this category behaved differently in the declarative contexts. That is, the two advanced learners displayed the target-like reading in declarative contexts. For them,

\(^{83}\) 3 advanced and 11 intermediate learners provided question responses only in both contexts.
the embedded variable words incorrectly entered a licensing relationship with the matrix declarative particle in some occasions. On the other hand, the three intermediate learners incorrectly provided only question readings in obligatory indefinite contexts. In these learners’ grammars, the embedded question operator particle was wrongly treated as either bundles of $[+Q, -\text{wh}]$ or $[-Q, +\text{wh}]$ features, while the declarative particle was not recognized. This issue will be more thoroughly discussed in Chapter 7.2.2.

Findings from the advanced group (in particular from the judgment task), nonetheless, provide evidence that the delinking of L1 bundles of features and the reassembly of those features is possible. In the translation task, 6 advanced learners demonstrated the successful acquisition of the interpretation of the L2 variable expressions according to corresponding sentential particles. They distinguished the declarative complementizer particle 
unci from the interrogative complementizer particle 
ta, suggesting that the advanced learners mastered reconfigurations of the relevant lexical items.

6.3. The Role of Licensor Types

Let us now turn to research question (3). Regarding the role of licensor types, the third research question that arose was the extent to which the L2ers’ interpretations of Korean variable expressions differ depending on either prosodic or morphological cues. The results of this study indicate that different proficiency level learners were more affected by one than by the other.
6.3.1. The L2 Learners’ Sensitivity to Different Cues

As far as the lower proficiency level group is concerned, a significant improvement was observed in the morphological condition. The intermediate learners performed almost twice as well in relation to the indefinite interpretations when the variable expressions were cued by overt declarative particles than when they were cued by a rising intonation, although their interpretations were still often incorrect. A statistically significant interaction effect between the intermediate learners’ interpretations and the two types of licensing environments confirmed the lower proficiency learners’ greater sensitivity to sentential particles than to intonation patterns regarding the [−Q] interpretation for the L2 expressions: the learners exhibited increased performance in the indefinite reading type and decreased performance in the question readings type when going from prosodic contexts to sentential particle contexts.\(^{84}\) Note that the decreased accuracy in the question type associated with a question particle (compared to the matrix falling contexts) is also found in the advanced group. However, the increasing accuracy in the [−Q] interpretation associated with declarative contexts is observed for the intermediate group only.

This finding suggests that distinguishing interrogative clauses from non-interrogative clauses (marked by overt sentential particles) appears to be an easier task than differentiating wh-question and yes/no question types (marked by intonation patterns) for lower proficiency learners. As discussed in the previous section, with regard

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\(^{84}\) Individual data obtained from the intermediate group also show some developments in relation to the morphological cues. With regard to obligatory indefinite contexts, the number of optional readers increased while the number of (completely) incorrect respondents decreased when morphological and prosodic cues were compared.
to the morphological licensing environments, the absence of a question marker in declarative contexts contributes to the learners’ increasing accuracy in the [−Q] interpretation. In more detail, if they select a variable expression bearing the feature [VAR], then its interpretation depends on its licensing environment. Accordingly, comparing the prosodic licensing environment with the particle licensing environment, the lack of question markers in complex sentences may play a crucial role in the more frequent triggering of the indefinite type in the grammars of the lower proficiency learners. Consider the structure [[VAR … Decl ] Decl]: we postulate that the presence of two declarative particles, one in both the embedded and the matrix clauses, encourages the L2 speakers to select the L2 wh-lexical items carrying the [VAR] feature, thus giving rise to the L2 speakers’ non-question readings. Notice that the indefinite reading can be introduced in a simple declarative clause like (6.18):

(6.18) Mary-ka eti-lo ka-ss-ta.
       Mary-Nom PLACE-Loc go-Past-Decl
‘Mary went somewhere’

This might suggest that the lower proficiency learners were acquiring the language-specific licensing relationship between a variable expression and its corresponding licensor based on the positive evidence of an overt (matrix) declarative particle. Regarding the prosodic condition, the very low rate at which the lower proficiency learners supplied indefinite interpretations is perhaps attributable to the fact that the yes-no question and the wh-question particles share a morphological form. That both types
of questions share a question feature blocks the learners from supplying non-question interpretations for the variable expressions in simple interrogatives.

As far as the role of licensing type in the advanced speakers’ grammar is concerned, it has been observed that overall performance on both readings of variable expressions was better in the prosodic condition than in the morphological condition. One potential account would be that it is tied to the fact that the prosodic patterns that determine the interpretation of the L2 variable expressions in interrogatives are also present in the L1. With respect to the prosodic cues, it seems evident that the advanced speakers are looking for licensors for the interpretations of variable expressions. After managing to construct a lexical entry with the correct assembly of features, the L2 speakers might have some advantage in the prior knowledge of the correct contextual environments for the interpretation of wh-lexical items in the target language. However, for the lower proficiency learners who have not established the relevant lexical entries, the falling versus rising intonation patterns apparently did not serve as licensors.

6.3.2. Why the [−Q] Interpretation of Variable Expressions in the Question Contexts?

Regarding the comparison between prosodic and morphologic conditions, another interesting finding is that the overall accuracy of the question interpretation translations showed a statistically significant decrease when comparing the morphological condition to the prosodic condition for both learners’ groups, from 95% to 85%. This is consistent with the relevant individual data, according to which the number of target-like respondents decreased significantly within each group: from 92% (prosodic condition) to
58% (morphological condition) for the intermediate group and from 96% (prosodic condition) to 74% (morphological condition) for the advanced group. There were also around five times as many optional readers within each learner’s group in the sentential-particle environment than in the prosodic licensing environment. This result can be taken as evidence for the assumption that even lower proficiency level learners are able to delink the OP feature from their L1 wh-lexical items. That is, if the L2 speakers were stuck with the L1-based combination of the features [VAR] and [OP] for the lexical items, then we would not expect the L2 speakers’ nontarget [−Q] interpretations of variable expressions in the obligatory question contexts. Additionally, we would not expect their performance in interpreting L2 wh-items with sentential particles to differ from that with prosodic cues. However, this is not the case.

Based on the assumption that both L1-based and L2-based featural combinations co-exist in interlanguage grammars, one might wonder why both proficiency level learner groups incorrectly provided indefinite readings for embedded variable expressions more often than they did for matrix variable expressions in obligatory question contexts. In contrast to the simple interrogative contexts in which a question marker occurs at the end of the sentence, it appears that indirect question markers are not as obvious to learners, particularly the lower proficiency learners. Note that the indirect interrogatives are embedded by a declarative sentence. This means that two possible licensors, the sentential particles in the embedded and the matrix clauses, are available for the variable expressions in complex sentences. The multiple candidates for licensor can be responsible for errors in translations. That is to say, when the English speakers select the
target-type wh-lexical items ([VAR]) from the lexicon, there are two potential candidates for licensors: a question particle in the embedded clause and a declarative particle in the matrix clause, as in (6.19).

(6.19) Question contexts:

(a) \([\text{VAR} \ldots \ nunci [+Q, +wh] \ldots \text{ta} [-Q, -wh]]\)

(b) \([\text{VAR}(x) \quad \text{OP} x [+Q, +wh] \quad \exists x [-Q, -wh]]\)

If a variable expression is correctly bound by the embedded question particle, it receives the question reading. However, if it is incorrectly bound by the declarative particle of the matrix clause, it receives the indefinite reading. This account raises the question of how it is possible for an embedded wh-item to be bound by the matrix declarative particle while obeying the locality constraint\(^{85}\) (e.g., Rizzi, 1990; Chomsky 1995, 2001) in (6.19b). (6.19b) represents an embedded question in which the head of the CP is filled with an overt question particle. In this case, the embedded question particle appears to be (incorrectly) regarded in the L2 grammars as a simple nominalizer marker lacking a question force, rather than as a question particle. Notice that the Korean embedded question marker behaves similarly to noun phrases: an accusative case marker can be immediately attached to it, as in (6.20b). However, the accusative marker cannot be attached to the embedded declarative particle, as in (6.20c).

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\(^{85}\) The Minimal Link Condition, for instance, is the main locality constraint for syntactic movement operations (Chomsky, 1995, 1998, 2001). Chomsky (1995, p. 295) interprets “the Minimal Link Condition (MLC) as requiring that at a given stage of a derivation, a longer link from \(\alpha\) to \(K\) cannot be formed if there is a shorter legitimate link from \(\beta\) to \(K\).”
   Mary-nom apple-Acc eat-Past-Decl
   ‘Mary ate an apple’

      John-Top Mary-Nom THING-Acc eat-Past-Q-Acc know-Decl
      ‘John knows what Mary ate’

      John-Top Mary-Nom THING-Acc eat-Past-Q-Acc/Quot know-Decl
      ‘John knows that Mary ate something’

Accordingly, increasing variability in interpretation is observed in embedded question contexts presumably because the L2 speakers might construe the embedded variable expressions as sometimes being licensed by the declarative particle and sometimes being licensed by the question particle, as can be seen in the examples in (6.21):

(6.21) Variability in Obligatory Question Contexts:
   b.*I remember that my friend liked someone.

Intermediate subject #14: a. I remember what was inside the box.
   b.*I remember someone avoided my cat.

In addition to the non-target-like licensing relationship, one could find another explanation for the non-target indefinite readings in question contexts in terms of a misanalysis of the embedded (wh-)question particle as a yes/no question particle like if or whether. Recall that the Korean embedded (wh-) question particle shares its surface form

86 Several Korean syntacticians (e.g., N.–K. Kim, 1990; Nam, 2001) have proposed that the question maker nunci projects an NP dominating VP and thus is referred to as a ‘question nominalizer’. For the testing items in the current study, the accusative case marker was not attached to the embedded question markers in order to give the participants a more visible cue for the embedded question marker.
with the yes/no embedded question particle\textsuperscript{87} (the counterpart of the English \textit{if/whether}).

For this study, I have assumed that Korean KNOW-type verbs select only a wh-question morpheme, while inherent question type verbs like \textit{mwutta} ‘ask’ and \textit{kwungkumhata} ‘wonder’ take both yes/no and wh-question morphemes.

The indefinite reading of variable expressions in question contexts possibly appears when the L2ers misconceive the embedded question particle as a yes/no question particle, rather than a wh-question particle carrying a question-operator, as represented in (6.22):

(6.22) Indirect question statement (Question Reading)

\begin{itemize}
  \item a. \([C \langle +Q\text{wh} \rangle \text{OP}_{x} \ldots \text{DP} \langle \text{VAR}(\alpha) \rangle]\]
  \item b. *\([C \langle +Q\text{yes/no} \rangle \exists_{x} \ldots \text{DP} \langle \text{VAR}(\alpha) \rangle]\]
\end{itemize}

This error is observed in very few L2 speakers, only three intermediate learners and six incidents from those learners\textsuperscript{88} (6/19 (32\%)), such as the one illustrated in (6.23):

(6.23) Intermediate Group:

\begin{itemize}
  \item a. I remember \textbf{whether someone} was from my hometown.
  \item b. I remember \textbf{whether} my friend liked \textbf{whose} younger sister.
\end{itemize}

Interestingly, the three intermediate learners did not supply any \textit{[−Q]} readings in the obligatory indefinite contexts, while they did provide incorrect \textit{[−Q]} readings in

\textsuperscript{87} Recall that the Korean KNOW-type verbs take wh-question complements as well as the declarative complements, but not yes/no question complements. As in (i), when the embedded yes/no interrogative is embedded by the KNOW-type verb, the sentence becomes ungrammatical:

(i) *Mary-nun Swumi-ka sakwa-lul mek-ess-nunci(aninci) an-ta.
\begin{flushright}
Mary-Top Swumi-Nom apple-Acc eat-Past-Q (or not) know-Decl
\end{flushright}

‘Mary knows whether Swumi ate an apple (or not)’

\textsuperscript{88} One incident from the intermediate group is related to a misanalysis of the question particle as a relative pronoun type bearing only a \textit{[−Q]} operator.
obligatory question contexts. That they correctly supplied the indefinite type in these cases partially contributes to the relatively low rate of target-like respondents in the lower proficiency group.\textsuperscript{89} On the other hand, this type of error is very rare in the advanced group. The two incidents come from the two advanced learners.\textsuperscript{90}

A previous study (Choi & Lardiere, 2006) reported a similar case of errors in terms of the analysis of a [\textit{+wh}] question particle. From data from the low and mid-intermediate learners’ interpretations, we found that the question particle \textit{nunci} was incorrectly analyzed as a negative marker in low intermediate learners’ grammars: there were 27 incidents of this (27/226: 12\%) produced by 12 low intermediate learners. This yields incorrect responses, namely translating the main verb in the matrix clause as negated, and thus the mean accuracy of the low intermediate group in the obligatory question context was 65\%. In more detail, 12 (out of 41) low intermediate learners wrongly interpreted the [\textit{+wh}] question particle \textit{nunci} as the Korean negative linking marker –\textit{ci ani}– (\textit{ci} + the negation marker ‘not’), yielding negated complex sentences with indirect \textit{wh}-questions instead of positive complex sentences with indirect \textit{wh}-questions, as in (6.24):

\textsuperscript{89} Nonetheless, according to the individual data from the intermediate group, there were more accurate respondents in the judgment task than in the translation task in the obligatory question contexts. Performance on the question readings improved in the judgment task. That is, as for the high intermediate group, there were more target-like respondents and fewer optional readers for the judgment task: target-like respondents 58\% (14/24) vs. 88\% (21/24) and optional respondents 42\% (10/24) vs. 8\% (2/24) for the translation and the judgment tasks, respectively.

\textsuperscript{90} There were two advanced learners who misconstrued the embedded question particle as a yes/no embedded question marker: (i) Subject #21: “I can remember \textbf{if} my friend liked \textit{someone’s} younger sister” Unlike the three intermediate learners, the advanced learners provided correct indefinite readings for the variable expressions associated with the declarative particle and target-like question readings (five correct responses out of six) except for this case.
6.24 Low Intermediate Learners’ Translations:

Subject #98: I didn’t remember that my friend disliked what ate.
#94: I don’t remember who avoids cat.
#103: I don’t remember where my dog went.
#56: I don’t remember what there was at that box.

These instances demonstrate that some low intermediate learners did not interpret the Korean variable expressions as being bound by the Q-operator associated with the [+Q, +wh] features of the sentential particle nunci; that is, they treated the wh-lexical items and the particle nunci independently. Note that in the present study, there is no incident of this type of error, namely treating nunci as the negation marker –(ha)ci. This sheds light on the acquisition of the overt expressions of L2 feature matrices of the C functional category. That is, L2 speakers might go through several stages of mapping the morphological expression nunci onto the [+Q, +wh] features of C in Korean.

6.4. Summary

The present study describes the different configurations of the relevant features of wh-items in Korean and the difficulties in acquiring them that confront adult English speakers. The findings suggest that the divergent performance on both types of the L2 wh-lexical items can be mostly captured by two factors: (1) when [OP] and [VAR] features are conflated into wh-lexical items in the L2ers’ grammars due to L1 influence; and (2) when corresponding licensors for variable expressions in root and embedded clauses are misanalyzed by the L2ers. It seems evident that the source of variability in interpretation can be located in the assembly of features (rather than the selection part of syntax) and its language-specific manifestations. The reason why the L2 adult speakers
did not supply uniform interpretation patterns is that they did not fully implement the
target grammar—not in the sense of reselection a feature but in the sense of re-
assembling features. The difference between wh-in-situ and wh-movement languages
and the implication for its acquisition has in the past been cast in terms of different
choices of parameter settings. However, the observed persistent non-target-like
interpretations of native English speakers suggest that the acquisition situation is more
complex in relation to wh-in-situ constructions. Interpretation patterns from native
English speakers show that the reassembly of features is involved in the acquisition of the
interpretation of Korean variable expressions and a learning process is required to master
the morphological realizations of relevant features.
Chapter 7

Theoretical Implication: SLA Language Problem

In this concluding chapter, I apply two main proposals of parameter setting models and an alternative approach, the feature-reassembly approach, to the findings obtained from adult native English speakers acquiring the interpretation of Korean variable expressions. The previous chapter explored how the different assemblies of features of L1 English and L2 Korean play a role in adult speakers’ non-target interpretations of the target variable words. Full Transfer/Full Access as a possible-parameter resetting view and the Representational Deficit Hypothesis as a no-parameter resetting view are revisited and discussed to see whether either proposal correctly predicts the featural assembly problems that arise for the Korean learners. I offer arguments that accounts of parameter resetting in terms of full access to UG or failure in the selection of a new feature are not sufficient to account for the data of this study. Instead, the data can be better accounted for under Lardiere’s Feature Reassembly approach (2005, 2008, 2009) with reference to L1 influence, variability, and gradual development.

The chapter is organized as follows. In the first section, the major findings of this study are discussed in light of the Full Transfer/Full Access Hypothesis and the Representational Deficit Hypothesis. In the next section, I examine why the Feature-Reassembly approach is in a better position to account for the acquisition problems
confronting native English speakers acquiring the interpretation of variable expressions in Korean in terms of shared interpretable features and the co-existence of L1 and L2-type lexical items in a learner’s mind. The last section presents a summary of the major findings of the dissertation, along with implications for future research.

7.1. Parameter Resetting Approaches: FT/FA versus RDH

7.1.1. FT/FA View: Non-target Grammars with Non-Poverty of Stimulus

The FT/FA (Full Transfer/Full Access) hypothesizes that the initial state of interlanguage grammars, which starts off with learners’ L1 properties and feature values, goes through restructuring and converges toward the properties and feature values of the target language on the basis of positive evidence. Under the “Full Access” part, it is predicted that the subsequent stages of L2 grammars, including the final outcome, will be constrained by UG, and that parametric properties are acquirable. Restructuring of grammar is presumed to be forced mainly by a mismatch between a learner’s L1 representation and the target input. Putting it differently, without (positive) evidence from the input suggesting that the L1-based representation does not accommodate the target language in question, the relevant L1 syntactic properties are expected to be unrevised in interlanguage representation. This seems to be the primary reason why L2 speakers are stuck with some L1 properties. However, it is unclear how the full access view is able to account for L2 divergent grammars in non-initial stages of L2 development when primary linguistic data (PLD) are available.
Possible Parameter Setting in the Acquisition of the Interpretation of Variable Words?

We are now in a position to apply the FT/FA view to the findings obtained from the native English speakers acquiring Korean wh-in-situ constructions. Revision of the learners’ initial hypothesis about wh-constructions is expected to arise since there is a discrepancy between what the native English speakers have in mind given their previous knowledge (wh-movement constructions in English) and what they hear in the L2 environment (wh-in-situ constructions in Korean). As the FT/FA proposal predicts, in terms of the wh-parameter, the adult native English speakers appear to be successful in resetting their strong L1 (uninterpretable) wh-feature to the L2 weak (uninterpretable) wh-feature. Since the L2 speakers provided translations for wh-in-situ constructions, we can assume that the English-speaking learners accepted the target wh-in-situ constructions, showing that they had acquired the [-strong] wh-feature in the interrogative C. This supports the Full Access part of the FT/FA hypothesis.

Nonetheless, there is the more important question of whether the FT/FA model is sufficient to explain the acquisition of the interpretation of variable expressions. That is, the switching from one feature value ([+strong]) to another feature value ([−strong]) associated with the C functional category does not seem to be very helpful in dealing with learning issues related to the interpretation of variable words. Under models in which parameter setting is feature selection, since English and Korean select the same primitive features for generating wh-words—namely, [+Q], [+wh] and [VAR], a native English speaker acquiring Korean would presumably have no need to reset this parameter. Analyzing English- and Korean-type languages merely in terms of parametric selection
of the strong [+wh] feature may not tell us much about learning problems of the native English speakers.

One might say that there should be something other than the feature value of the uninterpretable [wh] feature involved that captures variation across languages in the interpretation of wh-lexical items. In fact, Huang (1995) acknowledges that the distribution of wh-lexical items—variable uses of wh-in-situ lexical items in Chinese-type languages versus only question uses of wh-lexical items in English—might be of deeper significance in the cross-linguistic differences between wh-movement and wh-in-situ languages:

A final issue of variation has to do with the very fact that languages vary in whether or not they exhibit (overt) wh-movement. The theory of LF states this variation in terms of where wh-movement takes place in grammar, but deeper questions concerning this typology have not been addressed. For example, why is it that in Chinese and Japanese, but not in English, wh-phrases move only in LF? […] One plausible answer to the first question may be derived from Nishigauchi’s (1990) and Li’s (1992) recent studies concerning the various uses of wh-phrases. It is well known that wh-words in Chinese and Japanese, in addition to their uses as question words, may also be used as existential or universal quantifiers, though in English they are used as question words only. (Huang, 1995, p. 171)

For example, Cheng (1991, 1997) proposes a theory of Clausal Typing to account for the variation in wh-questions across languages, according to which there are two options to mark a wh-question type within the CP domain—by moving a wh-phrase to the Spec of CP or by inserting a question particle in the head of C. The issue of the presence versus the absence of movement of wh-phrases might be derived from different configurations of operator-variable relationships of wh-elements. That is, in English-type languages, the
moved wh-word and its trace establish an operator-variable relation. In Korean-type languages, on the other hand, the overt question marker and the in-situ wh-element establish such a relationship, since wh-lexical items in Chinese and Korean-type languages remain in situ because they must be in the domain of an appropriate binder to be interpreted. However, as noted by Tsai (1994) and Cole and Herman (1998) there is no stark parametric variation in grammatical principles between languages of wh-movement and wh-in-situ; rather, there is certain lexical variation within and across languages regarding the features of [OP] and [VAR].

Target Input and Non-target Grammars

Let us examine closely the issue of whether learners’ divergence from the target interpretation of variable words can be accounted for in terms of impoverished L2 input. Schwartz and Sprouse (1994, 1996) argue that there are two possible sources for L2 non-target grammars in subsequent stages (including the final stage) of L2 development. One source is the absence of positive data indicating that the target grammar differs from the L1. The other is the quality of positive evidence, that is, obscurity of the target input, when it is ‘very complex and/or rare’ (Schwartz & Sprouse, 1996, p. 42):

In brief, given that the starting point is not simply open (or set to learning-theoretically delearnable ‘defaults’), it may be that the L2 acquirer (L2er) will never be able to arrive at the TL grammar: either the data needed to force restructuring simply do not exist […] or the positive data needed are highly obscure, being very complex and/or rare. This view can then account for (aspects of) fossilization in the L2 acquisition.

Note that under this view, the L2 speakers’ initial hypothesis based on their primary knowledge of parameters cannot be revised due to the absence or rarity of PLD. In other
words, the L2 non-target grammars are attributed to the lack of relevant L2 input data despite adult learners’ full access to UG. Thus, FT/FA proponents might argue that the English speakers’ nonnative interpretation of the Korean variable expressions is a consequence of the absence or rarity of the relevant distribution of its indefinite interpretation type. We need to know whether the incidence of the [−Q] reading type in the target input is in fact rare, and thus that the lack of the relevant data could lead the adult L2 speakers’ grammars to hang onto relevant L1 properties.

*Korean Input and Corpus Data*

Acquiring a second language requires exposure to L2 input. In this case, is the relevant input robust enough to prompt native English speakers to change their initial grammars toward the target grammar in regard to the interpretation of variable expressions in matrix and embedded clauses? For the matrix interrogatives, the prosodic systems of intonation and pitch indicate whether the Q-operator is present in CP. The obligatory correlation between intonation and certain features of C is also present in the native grammar. Korean input will provide evidence that interrogatives bearing a variable word always have a final-rising intonation when the operator is absent. As for embedded clauses, the presence or absence of the operator is obligatorily realized as embedded sentential particles, *ta* [−Q, −wh] vs. *nunci* [+Q, +wh]), which license a variable expression within their domain. Since the embedded sentential particles are not optional, the presence of a declarative particle is robust evidence indicating that there is no question force.
In particular, the distribution of the variable expression together with the declarative particle in a simple declarative sentence like the example in (7.1) provides positive evidence that the variable expression is interpreted with the \([-Q]\) indefinite reading in the absence of a question particle.

(7.1) \texttt{nwu(kwu)-ka} \hspace{1cm} \texttt{wa-ess-ta}  
\texttt{PERSON-Nom} \hspace{1cm} \texttt{come-Past-Decl}  
(\textit{Yoon, 2005, p. 460})

‘Somebody came’

The variable expression in simple declarative clauses should provide speakers with direct evidence indicating that TL variable expressions can be construed as indefinites across various clause types. This type of positive evidence indicates to the L2 learners that, unlike English, wh-lexical items in the target grammar co-occur with the declarative particle specified with the \([-Q, \text{–wh}]\) features. The L2 speakers presumably have attended to evidence from main clauses and discovered the relationship between licensors and the interpretation of embedded variable words in declarative contexts. Learners will notice that clauses are marked by sentential particles that follow verbs, which fix the interpretation of variable words. Similar to agreement relations between a question word and the \([+Q, +\text{wh}]\) feature in C, the declarative clause type marker will signal that a variable element receives the \([-Q]\) reading. Therefore, it is expected that learners should be able to acquire the knowledge of the relationship between variable wh-elements and their licensors.

Let us turn to the frequency of the relevant Korean input that English-speaking learners might encounter. What matters in the learning situations might be the relative
frequency of the \([-Q]\) type compared with the \([+Q]\) type of variable expressions. The FT/FA model might claim that the relatively low frequency is responsible for the adult L2 speakers’ non-target grammars. One can also note the fact that Korean has other lexical items for the indefinite readings of nouns, that is, indefinite pronouns such as *nwukwu-inka/mwues-inka*, the counterparts of English *someone* and *something*.

It is worthwhile to look into the relative frequency of both readings of the Korean variable expressions. In order to get an estimate of their relative frequency, a search was performed on the Sejong corpus\(^91\) collected by the 21\(^{st}\) Century Sejong Project.\(^92\) Additionally, we can test frequency effects in language use. The present study used a core corpus of 292,043 words made up of informal and formal written contexts such as diaries, essays, stories, and academic writing. The search was based on three types of bare variable expressions (*nwukwu* ‘PERSON’, *mwues* ‘THING’ and *eti* ‘PLACE’) in questions. These examples were then checked by hand to find true examples of the interpretation of variable expressions.

In the approximately three hundred thousand words searched, a total of 516 tokens of the three types of variable words together occurred in this corpus. The results of the corpus-based analysis are presented in Table 7.1, where we show the frequency with

\(^{91}\) From the primary corpus of Modern Korean of The 21\(^{st}\) Century Sejong Project, the following eight files were analyzed under the education theme section:  
Written/Educate/1/Bgxx0033.txt.tag; Written/Educate/1/Ac000008.txt.tag;  
Written/Educate/1/Bb94z005.txt.tag;Written/Educate/1/Bb94z007.txt.tag;  
Written/Educate/1/Bb94z008.txt.tag; Written/Educate/1/Bgxx0031.txt.tag;  
Written/Educate/1/Bgxx0032.txt.tag; Written/Educate/1/Ac000007.txt.tag

\(^{92}\) The 21st Century Sejong Project, as known as the Korean Language Information-Oriented Project, has been collecting Korean language corpora from various sources. See [http://www.sejong.or.kr/](http://www.sejong.or.kr/) for information about the composition of the corpus and conditions for access.
which the indefinite type of each variable expression, and the question type, appears in the possible input. Figure 7.1 presents the same data graphically.

Table 7.1. Frequency Difference between Both Readings of Variable Elements: Distribution (N and %) of VAR-interpretations

<table>
<thead>
<tr>
<th></th>
<th>[−Q] Reading (e.g., “something”)</th>
<th>[+Q] Reading (e.g. “what”)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>nwukwu ‘PERSON’ (n = 3)</td>
<td>110 (65%)</td>
<td>58 (35%)</td>
<td>168</td>
</tr>
<tr>
<td>mwues ‘THING’ (n = 2)</td>
<td>131 (42%)</td>
<td>183 (58%)</td>
<td>314</td>
</tr>
<tr>
<td>eti ‘PLACE’ (n = 1)</td>
<td>10 (31%)</td>
<td>22 (69%)</td>
<td>32</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>251 (49%)</strong></td>
<td><strong>263 (51%)</strong></td>
<td><strong>514</strong></td>
</tr>
</tbody>
</table>

93 According to a small corpus of data which I have collected from a TV documentary show (20 episodes of “Human Theater” which aired on KBS from June 2008 to February 2009 with around 40 hours of spontaneous conversation), the results do not differ from those of the written corpus data as seen in Table 1 in a significant way. That is, the indefinite type of Korean wh-elements is not rare (it occurs around 40% of the time). In addition, a similar contrasting distribution is observed in the oral data. Twice as many indefinite type readings are found with PERSON words, and the twice as many of the question type are found with THING and PLACE words.

Table 1. Frequency Difference between Both Readings of Variable Expressions in Oral Corpus Data: Distribution (N and %) of VAR-interpretations

<table>
<thead>
<tr>
<th></th>
<th>[−Q] Indefinite Reading (e.g., “something”)</th>
<th>[+Q] question Reading (e.g. “what”)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>nwukwu ‘PERSON’</td>
<td>33 (72%)</td>
<td>13 (28%)</td>
<td>46</td>
</tr>
<tr>
<td>mwues ‘THING’</td>
<td>49 (33%)</td>
<td>99 (67%)</td>
<td>148</td>
</tr>
<tr>
<td>eti ‘PLACE’</td>
<td>23 (37%)</td>
<td>61 (73%)</td>
<td>84</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105 (38%)</strong></td>
<td><strong>173 (62%)</strong></td>
<td></td>
</tr>
</tbody>
</table>

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As can be seen in Table 7.1 and Figure 7.1, the indefinite reading types of variable expressions are in fact not rare in the natural data of the target language. Statistical counts demonstrate that around half of the variable expressions in question are indeed the indefinite type. There is no significant difference between the indefinite and question types, $X^2 = 0.24, p = .624$. Nonetheless, significant differences between the two readings are found within each type of variable expression—that is, a contradicting distribution is observed. Twice as many indefinite type readings are found with the PERSON words (nwukwu-ka; nwukwu-lul; nwukwu-uy), and twice as many of the question type are found with the PLACE word (eti). More specifically, with respect to nwukwu ‘PERSON’, the
indefinite reading significantly outnumbered that of the question type, $X^2 = 15.48$, $p < .0001$. On the other hand, for *eti* ‘PLACE’, the question type occurred statistically more frequently than the indefinite type, $X^2 = 8.28$, $p = .004$. A marginal significance is observed with respect to the expression *mwues* ‘THING’, with the question reading outnumbering the indefinite one, $X^2 = 3.78$, $p = .0519$. The corpus results therefore show that the frequency of the two reading types does not diverge, although relevant divergent frequencies exist depending on the types of variable words involved (with a more frequent use of the indefinite type for the PERSON words versus the more frequent use of the question type for the PLACE word).

Turning to the distribution of the indefinite pronouns versus the indefinite type of variable expressions in Korean, the following frequencies are found in the same corpus.

<table>
<thead>
<tr>
<th>Indefinite Reading</th>
<th>Variable Word (e.g., <em>nwukwu</em>)</th>
<th>Indefinite Pronouns (e.g., <em>nwukwu-(i)ina</em>)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘someone’</td>
<td>110 (57%)</td>
<td>84 (43%)</td>
<td>194</td>
</tr>
<tr>
<td>‘something’</td>
<td>131 (68%)</td>
<td>61 (32%)</td>
<td>192</td>
</tr>
<tr>
<td>‘somewhere’</td>
<td>10 (91%)</td>
<td>1 (9%)</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>251 (63%)</td>
<td>146 (37%)</td>
<td>397</td>
</tr>
</tbody>
</table>

As observed in Table 7.2, the three Korean variable expressions are used more often than the indefinite pronouns (which are suffixed with the existential morpheme: *-inka*) in order to denote indefinite expressions. Two hundred fifty one (63%) and one hundred forty six (37%) instances are found of the indefinite type of variable expressions and indefinite
pronouns, respectively, in the corpus. According to the corpus data, in order to express an entity that is not specified, variable expressions are more likely to be used than indefinite pronouns. Data from different register contexts demonstrate that the probabilistic distribution of the indefinite type of variable expressions in the input is not an idiosyncrasy of the target language.

Although empirically investigating what data L2 speakers have been exposed to during their learning of the language is a difficult task, we now have a rough idea of the target input\textsuperscript{94} the English-speaking learners of Korean might have encountered. The corpus results demonstrate that the \([-Q]\) indefinite type in the input the L2 speakers have been hearing is not sparse. Lightfoot (1997, p. 265) set the critical input rate at 30\% for changing from one value to the other for certain parametric properties. According to Lightfoot’s statistical analyses, a 30\% input rate of the German target word order (X-Verb-Subject) is sufficient to activate the setting of the linked parameter (V2-parameter). If Lightfoot is right, the relevant positive evidence of the Korean indefinite type seems to be sufficient to force a reorganizing of the learners’ interlanguage representations. Since each type of variable expression appears with an indefinite reading at least 30\% of the time, the native English speakers should depart from their initial hypothesis in which the question-operator and variable features are combined into wh-words in their effort to mirror the target linguistic environment. Note that under the FT/FA view there is no

\textsuperscript{94} In natural spoken data, I have observed that question readings of variable expressions are predominantly used between adults and children. It seems more likely that in the classroom setting or/and learning environments, the question readings might be dominantly employed via the interaction between native speakers and learners. It could play a role in learners’ poor performance on the indefinite reading of variable expressions. However, note that most of the participants in the present study had been exposed to the target-speaking environment for around 24 months. In addition, the non-target interpretation in the indefinite contexts was often observed in advanced speakers’ performance.
difference between child and adult L2 learners in terms of sensitivity to input as long as they share a primary language.\textsuperscript{95} Accordingly, there is nothing to prevent adult L2 speakers from changing from the L1-type feature assembly ([OP +VAR]) to the L2 feature assembly ([VAR]) of wh-lexical items.

Consider now the relationship between relative frequency in the corpus and the L2 learners’ performance in two written translation tasks (of listening and reading). According to the observed corpus data, the indefinite type of \textit{nwukwu} ‘PERSON’ occurred at a higher frequency than the question type, and at a higher rate in comparison with the other variable expressions in the target language environment. Thus, if L2 speakers are sensitive to frequency, it is expected that they would correctly interpret the PERSON words as indefinites more often than the others. In other words, the native English speakers should have acquired the indefinite interpretation from the PERSON words and later extended to the rest of the variable words. The development order of the indefinite type should be \textit{nwukwu} ‘PERSON’ > \textit{mwues} ‘THING’ > \textit{eti} ‘PLACE’ according to frequency effects observed in Table 7.1.

Table 7.3 illustrates the results of the native English speakers’ performance on the indefinite reading across variable words with respect to morphological and intonational licensing environments. There are no statistical differences\textsuperscript{96} between types of variable

\textsuperscript{95} Schwartz’s more recent view holds that “in the realm of syntax, child L2 acquisition is more like adult L2 acquisition, but that in the realm of inflectional morphology, child L2 acquisition is more like L1 acquisition” (2003, p. 47).

\textsuperscript{96} As for intonation condition, no significant difference between the three types of variable expressions was found for either group, ANOVA: \textit{df} (2) = .093, \textit{p} = .911 for the intermediate group and ANOVA: \textit{df} (2) = 1.948, \textit{p} = .151 for the advanced group. With respect to the morphological condition, the advanced group’s performance did not significantly differ according to types of expressions in declarative contexts, ANOVA \textit{df} (2) = .2.912, \textit{p} = .061.
expressions in relation to learners’ accuracy in obligatory indefinite contexts, except for one case.

Table 7.3. Performance on the Indefinite Interpretation according to Types of Variable Elements

<table>
<thead>
<tr>
<th>Group</th>
<th>Prosodic condition</th>
<th>Morphological condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PERSON  THING PLACE</td>
<td>PERSON  THING PLACE</td>
</tr>
<tr>
<td>High Int.</td>
<td>10%   7%  8%</td>
<td>19%  13%  0%</td>
</tr>
<tr>
<td>Advanced</td>
<td>72%  56% 78%</td>
<td>70%  48%  40%</td>
</tr>
</tbody>
</table>

The frequency effect on learners’ interpretation is observed only in the intermediate group with respect to declarative contexts (not the prosodic contexts), ANOVA $df (2) = 4.220, p = .019$. The intermediate learners correctly provided indefinite interpretations for the rest types of the variable elements at the average of 16%, but did not in even one case for the PLACE word. Note that although their performance on the indefinite type licensed by a sentential particle is generally better than that licensed by intonation, there is no incidence of correct interpretation for the PLACE expression. Nevertheless, there is a tendency for L2 learners to perform better on the indefinite reading of the PERSON words than on that of the other types, in particular with the PLACE word. In other words, the development patterns seem to advance from the PERSON word to the PLACE word, especially in the morphological condition. It could be that the L2 speakers’ analysis begins by acquiring the indefinite reading of PERSON words bound by an overt licenser and then extends to other types. The results show that the acquisition of the indefinite type progresses step by step.
This gradual progress is also observed in Schwartz and Sprouse’s (1994, 1996) study, in which they found an asymmetric development between sentences with pronominal and non-pronominal subjects. That is, Cevdet, a native Turkish speaker, produced the target word order (V2) associated with pronominal subjects more frequently compared with non-pronominal subjects, as shown in Table 7.4.

Table 7.4. Cevdet’s Production Data Regarding Post-verbal Subjects (modified table from Schwartz & Sprouse, 1994, p. 44)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Pronominal subjects</th>
<th>Nonpronominal subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*XSV…</td>
<td>XVS…</td>
</tr>
<tr>
<td>1(1;0 to 1;4)</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2(1;8 to 2;7)</td>
<td>38</td>
<td>69</td>
</tr>
<tr>
<td>3(2;10)</td>
<td>2</td>
<td>67</td>
</tr>
</tbody>
</table>

As can be seen in Table 7.4, sentences with the target word order involving a pronominal subject were produced more frequently—at three or four times the rate—than sentences involving a non-pronominal subject in the Turkish speaking learner’s grammar across the L2 development stages. As pointed out in Lardiere (2007), this could imply that the language acquirer had heard pronominal subject sentences much more frequently than nonpronominal subject sentences in the target environment. It might not be merely accidental that his target-like word order was found most often in the most frequently produced sentences (that is, sentences with pronominal subjects). As discussed by Lardiere (2007b), it is therefore not necessary to consider the asymmetry between pronominal and nonpronominal subjects in the Turkish speaker’s production data as
evidence of a poverty-of-the stimulus problem. Rather, the reorganization of the relevant
L2 features is evidently underway in a stepwise fashion.

For the present study, we have observed that the English-speaking learners of
Korean acquire the correct structures gradually, extending their revised analysis from a
subset of variable expressions (in embedded clauses), which turns out to be the most
frequently occurring incidence of the indefinite type (the PERSON words), to other
variable expressions. Although Schwartz and Sprouse’s (1994) study and the present
study appear to address different acquisition issues in terms of parametric properties and
non-parametric properties, learners from both studies show steady progress in L2 target
grammars—extending their analysis from the most frequent input set to the less frequent
one.

**Full Access and Divergent Grammar**

Let us revisit the “Full Access” part of the FT/FA hypothesis in the context of the
acquisition of the interpretation of variable expressions. In the current study, we have
observed non-target interpretations from both the intermediate and advanced learner
groups—they provided incorrect question readings in obligatory indefinite contexts.
According to Schwartz and Sprouse, the divergent outcomes are attributed to the adult
speakers’ grammatical representation determined by the L1. That is, because the L2
speakers’ initial state comes from the L1’s full set of specified parameters, it is claimed
that the L2ers’ grammars will never arrive at the target without L2 positive input forcing
the revision of their grammars. Note that the FT/FA shares to some extent the RDH view
that the parameterized properties of the native grammar serve as an inhibition against
adult speakers converging on nativelike outcomes, although the issue of perception of input differs between the two positions. From the FT/FA perspective, it is the impoverished input that leads to the survival of certain L1 parametric properties. From the RDH perspective, regardless of whether the L2 input is sufficient or not, it is perceived as “noise” by adult speakers (Brown, 2000, p. 19).

One can wonder whether the unavailability of positive evidence can play a role in the incorrect question interpretation predominately produced by the native English speakers. As observed earlier, this is hardly the case. The obligatory intonation patterns distinguish the indefinite type from the question type of the variable expression in matrix interrogatives. In embedded clauses, the obligatorily co-occurring sentential particles (declarative vs. interrogative) determine the interpretation of the variable expressions. Its non-interrogative interpretation across clause types (matrix and embedded) should provide the L2 learners with evidence indicating that unlike their L1 wh-lexical items, the target language counterparts can be interpreted as [−Q]. Also, the corpus data clearly suggest that the target environment—in which the adult Korean L2 speakers encounter non-interrogative types—is frequent enough to force the English native speakers to amend their initial analysis in which wh-lexical items are bundled with features [OP + VAR], as in the L1. But one participant in the advanced group, who had lived in the target country for more than 20 years, still displayed divergent grammar in relation to the declarative contexts. Meanwhile, for this highly advanced speaker, targetlike interpretation was observed in the appropriate prosodic licensing environments. The asymmetric performance suggests different sensitivity to different types of licensors in
one speaker’s mental grammar. This confirms that there is no reason to think that in this case the input is the locus of the L2 learners’ non-target interpretations. Thus the factor ‘L2-initial state’ in terms of the lack of positive evidence can be removed from the picture of the acquisition issue in question. Despite rich and robust positive evidence, reconfiguration of the relevant lexical entries required for the target grammar seems to be quite difficult to acquire.

Our next question is whether adult native English speakers’ divergent grammars can be explained by Full Access. Note that the Full Access part of the FT/FA model posits that functional categories and associated features that are not instantiated in the primary language are still available to late language acquirers. The Full Access view seems to hypothesize that parameter (re)setting can occur after some minimal exposure to relevant L2 parametric properties. That is, in a learning environment where they have been exposed to limited amounts of the target language, both L1 and L2 language acquirers should be able to manifest grammatical knowledge that goes beyond the input.

However, UG access to unselected features and/or associated values is not required in the acquisition context of the interpretation of variable words by native English speakers. For constructing wh-words, the relevant formal features (wh-operator, [Q]) appear in both the L1 and L2. Consequently, there is no poverty-of-the-stimulus problem, and thus no need for invoking UG in reassembling relevant features that generate wh-constructions. It is evident that under the Full Access view, there is no apparent obstacle to L2 native English speakers being able to easily interpret the variable
expressions appropriately; therefore, it is not clear why restructuring takes so long to accomplish and in some cases may never be accomplished.

Notice also that since rising and falling intonations associated with both types of interrogatives are instantiated in both languages, learning this in the L2 does not require the acquisition of new prosodic features. On the Schwartz and Sprouse account, it might be expected that English native speakers’ performance would be better in the intonation condition than in the morphological condition, due to the availability in the L1 of this intonation difference between yes/no and wh-question interrogatives. On the other hand, with respect to the morphological condition, the embedded declarative particle is not obligatory and the embedded question particle is null in the L1. Thus Schwartz and Sprouse might predict that it would be easier for the lower proficient L2 speakers to detect prosodic cues than sentential particle cues when interpreting the L2 variable expressions. However, this was not the case. The results of the present study indicate that there was significant improvement in the intermediate learners’ performance on the indefinite readings licensed by a declarative particle (compared to the prosodic environment). This suggests that it takes some time to establish the relationship between variable expressions and their licensors even when the licensing environments in question are shared by learners’ L1s.

Another problematic point in relation to the Full Access account is the fact that two types of lexical items co-vary in some English speakers. The individual data show that they provided the opposing [+Q] and [−Q] interpretations interchangeably in obligatory indefinite and question contexts. The co-existence of opposite values of a
parameter involving word order (V2 and non-V2 constraints) were also observed (associated with nonpronominal subjects) in the Turkish speaker of Schwartz and Sprouse’s study. This variability is not expected under the parameter-setting-based models since one value of a parameter should mutually exclude the other value. The underlying implication of parameter setting models is that mutually exclusive grammars should not be expected to co-vary in a persistent manner.

Why is it the case that adult L2 speakers often show persistent non-target errors despite ample evidence, failing to fix a parametric value to that required by the L2? How can we explain that adult learner grammars are constrained by UG but do not necessarily conform to a target grammar under the Full Access part of FT/FA? If the full-UG-access account, driven by a poverty-of-stimulus argument, is indeed necessary as Schwartz and Sprouse have suggested, then adult speakers should be able to acquire elements of a target grammar in the target environment characterized by the little evidence that is available to the adult L2 speakers. It is thus especially unclear what prevents adult learners from acquiring L2 grammatical knowledge when its input is overtly evident and not infrequent. Consider learning situations such as the acquisition of Korean variable expressions that involve the same subsets of interpretable features (such as [Q], [Wh], [VAR], and [±human]). In spite of L2 input and the availability of the relevant features, many native English speakers fail to achieve a target-like interpretation. For learning situations in which there is non-improvised target input and the learners’ grammar has relevant features activated by previous acquisition experience, the FT/FA (in form of the poverty-of-stimulus argument) tells us nothing about non-target grammars. This type of
learning problem requires an alternative approach. It is different from the poverty-of-stimulus problem (or ‘Plato’s problem’), and in addressing it we will add a piece of the puzzle to a complete understanding of adult language acquisition.

**Orwell’s Problem in SLA**

In adult second language acquisition, a central question is why we know so little, given so much evidence, referred to as Orwell’s problem\(^7\) (e.g., Hale, 1996; Lardiere, 1998, 2007b, 2008). Specifically, Orwell’s problem here refers to the observation that non-targetlike performance is persistent in adult L2 grammars even though the relevant grammatical properties are nonetheless evident in the linguistic environment. More recent adult L2 research shows many examples of such cases (e.g., Lardiere, 1998, 2000, 2005, 2007b; Prevost & White, 2000; Hawkins & Chan, 1997; Hawkins, 2005; Hawkins & Hattori, 2006; Robertson & Sorace, 1999; Sorace, 2000, 2003). Lardiere (2007b), for instance, extensively documented the fact that, despite there being abundant evidence in the L2 input, variability in the production of functional elements such as tense and agreement markings has been observed in the case of Patty mentioned earlier.

With respect to (at least) adult L2 acquisition, Orwell’s problem turns out to be the other side of the same coin as Plato’s problem (Chomsky, 1986) or the problem of “the poverty of the stimulus”, namely, why do people know so much even when the evidence available to us is so sparse? One type of knowledge does not require learning

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\(^7\) Chomsky (1993, p. 29) writes “let us understand Plato’s Problem to be the question of how we come to know and understand so much, given that we have so little evidence; and Orwell’s Problem to be the question of why we know and understand so little, given that the evidence before us is so rich. There is no contradiction, since the problem arise in different domains, Orwell’s being restricted to societies and their workings; in the most interesting case, to features of our own society.” However, as noted by Hale (1988), some type of Orwell’s problem is necessary to account for adult second language acquisition.
because it is part of the biological endowment that makes up the language faculty, while
the other type of knowledge does require learning because it is related to language-
specific properties as a result of interaction with other domains. Thus, learning issues in
the study of second language acquisition must make reference to the connection between

How can we explore areas that are not easily acquired and where a rather
painstaking and tedious learning process is needed? A distinction must be made between
the general language acquisition device and Universal Grammar (though UG is part of
LAD). The confusion of the status of UG in second language acquisition has been
among others. For instance, Borer (1996, p. 719) writes that:

[the discussion in L2 generative research] reveals a profound
misunderstanding of the term Universal Grammar as it has been utilized in
linguistic theory and in acquisition models based on it. […] It is perfectly
possible for an output grammar to be constrained by UG, although the
process of acquisition is informed by an independent acquisition device.

Bickerton (1996) also notes that it is the language faculty that “embraces any
aspects of the organisms that helps make language possible” (p. 716), while the role of
UG is limited to the core syntax. In other words, UG does not function by itself as a
learning mechanism that analyses input, identifies triggers and transfers input information
to representation systems (e.g., Haider, 1993; Jackendoff, 1997, 2002; Carroll, 2000). It
appears that a substantial part of Orwell’s problem is reflected in the well-known
tendency of adults to fall short of complete targetlike convergence, and its study can
contribute to our understanding of the nature of LAD.
Given the Korean corpus data and obligatory conditions determining the interpretation of variable words, we can safely say that the L2 positive data regarding the distribution of variable expressions is not underdetermined. In the case of the learning problems observed in the current study, the FT/FA position tells us little. Clearly the investigation of poverty-of-the stimulus problems, while important, alone is far from sufficient. To see the other side of language acquisition, we need to discover factors that hinder target-like achievement. By examining this case, we should get some clues as to why certain learning situations are so easy, but other learning situations are so hard.

7.1.2. RDH View: L1-determined Set of Uninterpretable Features

As discussed earlier in ch. 3.7.2, following recent Chomskian syntactic theory, the Representational Deficit view (Hawkins, 2005; Hawkins & Hattori, 2006; Tsimpli, 2003; Tsimpli & Dimitrakopoulou, 2007) holds that cross-linguistic parametric variation arises due to different selections of morphosyntactic features from a hypothesized universal inventory:

The inventory of linguistic features contains more features than any specific language makes use of in the assembly of lexical items. Languages differ in the selections they make from this inventory, and this is a major aspect of cross-linguistic variation. (Hawkins, 2005, p. 124)

That is, the RDH predicts that certain formal features that are present in the target language but are not in a learner’s L1 are unacquirable beyond a hypothesized critical period. Like the FT/FA hypothesis, this view heavily privileges the role of native-language properties in adult SLA. To test this prediction, a typical experimental strategy
employed by proponents of this proposal is to test grammars of later L2 learners acquiring new features of a target language. Notice that these studies mainly focus on the acquisition of a certain individual feature argued to determine parametric differences between languages in terms of selection or parameter setting. The RDH specifically proposes for adult speakers a permanent loss of uninterpretable features that have not been instantiated in the L1. In Rizzi’s (2005) terms, the unselected features or options prior to a critical period are discarded or forgotten. On the other hand, in the case of interpretable features, they are not subject to maturational effects and thus interpretable features are always accessible regardless of whether they are selected for by a speaker’s L1 or not.

*Unavailability of New Features and L2 Learners’ Non-target Interpretations*

As mentioned earlier in ch. 3.7, the RDH account appears to have no specific predictions regarding English speakers’ divergent performance on the acquisition of Korean variable expressions. On this account, only the uninterpretable type of formal features in the target language is a candidate for the source of later L2 acquirers’ divergent grammars. In relation to the acquisition of the interpretation of Korean variable expressions, knowledge of interpretable features is required and more importantly, the relevant interpretable features are selected by both the L1 and L2. Therefore, from the perspective of RDH proponents, there are no parametric differences involved except for the feature strength of the uninterpretable wh-feature in the L1 English and L2 Korean (Hawkins, 2005; Adger, 2003): the feature strength associated with the [Q] C is weak in
the L2 and thus wh-lexical items remain in situ, while the counterpart feature is strong in
the L1, resulting in wh-movement to the edge of the clause.

Since there is no direct involvement of parameterized uninterpretable features
with respect to the interpretation of (individual) variable expressions, the RDH position
might predict that supplying the appropriate interpretations would not be hard for native
English speakers. However, that prediction was not supported. Concentrating on the
interpretation of Korean variable expressions by the adult L2 learners, we have observed
the following major patterns. The native English speakers show a significant discrepancy
in how they supply the question type versus the indefinite type, in that the former is used
with target-like accuracy, whereas the latter is far from being target-like in the data from
all the L2 speakers. Individual data demonstrate that the acquisition of indefinite types is
difficult even for some advanced L2 English speakers. As reported earlier in the Results
section, only 52% and 35% of advanced learners reached target-like levels of
interpretation when the variable expression received the indefinite \([-Q]\) readings
associated with a rising intonation or with the declarative particle, respectively. This
indicates that their performance on the same type is not uniform according to types of
licensing environments (intonation versus sentential particle). This asymmetry is also
observed in the advanced group’s data with respect to types of experimental tasks. The
advanced learners’ accuracy was better in the judgment task than in the translation task.
If a parameterized [wh] feature is involved, such discrepancies should not be observed.
That is, because adult speakers’ grammar is argued to be permanently impaired, the
learners’ performance should not differ depending on the type of licensing environment
or experimental task. Clearly, it is not parametric feature selection that is responsible for the L2 learners’ differential accuracy according to the licensing contexts.

To sum up, under the RDH account, because of adult speakers’ inability to access new uninterpretable (but not interpretable features), the second language learners’ grammar could not converge to the target grammar. However, this view offers no explanation for the learning problems of native English speakers acquiring knowledge of semantic constraints on variable expressions.

*Intonation and the Interpretation of Variable Expressions*

Although the RDH account does not make a specific prediction about the perception of intonation patterns, Brown (1997, 2000) and Larson-Hall (2004) do make an explicit proposal, namely, the featural model (FM), regarding phonological properties from an RDH perspective. According to the FM, adult L2 speakers’ inaccuracies in their perception of L2 phonological input are due to the ‘blocking effects’ of L1 features, leading to the learners’ inability to acquire phonological properties involving new features. Following assumptions similar to those of the RDH, Brown and Larson-Hall assume for L2 phonology acquisition that languages vary in terms of their phoneme inventories and the set of phonological features they manipulate, but the organization of every language does not differ. On this view, adult learners’ speech perception is permanently constrained by the phonological system of their native language and new phonological features cannot be added to their existing phonological system. In other words, the phonological structure of the L1 serves as a “filter that funnels acoustically distinct stimuli into a single phonemic category” (Brown, 2000, p. 16). The main claim
is that the L1 determines speakers’ perceptual sensitivity to certain target contrasts. It is, accordingly, predicted that, if the L1 phonology system lacks certain features required for an L2 phonological contrast, the adult learner would be unable to perceive the contrast. On other hand, if the feature appears in the L1, the learner is predicted to identify the contrast. Under this position, the existing inventory of segments is the only source that guides learners’ speech perception of the L2 input and consequently determines the acquisition of relevant sound contrasts. To provide an example, Brown (1997, 1998) argues that native Japanese speakers acquiring English had difficulty distinguishing the English phonemes /l/ and /r/ in their interlanguage grammars because the feature [coronal]98 is not part of their L1 segmental inventory.

In relation to the prosodic features and the interpretation of the L2 variable expressions in simple interrogatives, different types of intonation patterns appear in both L1 and L2. According to Brown (1998, 2000) and Larson-Hall (2004), the native grammar of the English speakers facilitates perception of prosodic contrasts since the native phonological system guides the distinct acoustic signals into the linguistic processing system throughout the learners’ development. Consequently, it might be predicted that acquiring the interpretation of variable words associated with intonation should not be problematic for the L2 speakers. Putting it slightly differently, since the native English speakers are able to detect two different intonation patterns in the TL, the reading of variable expressions determined by the intonation pattern should be easily acquired. However, this was not the case.

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98 According to Brown (1997), the [coronal] feature is required to differentiate /r/ from /l/ in English.
It appears that the L2 native English speakers’ poor performance in the interpretation of variable expressions can be attributed to difficulty in mapping between syntactico-semantic features and their realizations, rather than the absence of relevant formal and phonological features. This position can be supported by the relevant production data in a study conducted by Jun and Oh (2000). They investigated four English-speaking learners’ realization of intonation patterns in simple interrogatives involving the question type of variable words. According to Jun and Oh’s (1996, 2000) phonological analysis, Korean yes/no questions and wh-questions are distinguished by intonational phrasings. That is, for the yes/no interrogatives, an accentual phrase (AP) boundary is placed after the variable word (with the indefinite [−Q] interpretation) and for the wh-interrogatives, there is no AP boundary after the variable word (with the question interpretation), because the focused variable word forms one phonological phrase together with the following word (Cho, 1990; Lee, 1990). Their results demonstrate that the more advanced English-speaking learner of Korean produced more appropriate accentual phrasings for wh-question sentences than the lower proficiency learners (one beginner and two intermediate learners), who often failed to make the pitch accent on the variable word the highest compared to the following words in the sentence. This suggests that with increasing proficiency, L2 speakers’ intonation of TL wh-interrogatives become more target-like. Nevertheless, just as we observed in the speech of some advanced speakers in the present study, their advanced speaker did not achieve a

99 The difference between English and Korean is more specifically analyzed from a perspective of phonology in terms of intonational structures. That is, the English intonational phrase (IP) is in general determined by pitch accent, and the location of pitch accents (and boundary tones) contributes to meaning of a sentence. The Korean intonational phrase is determined by a sequence of accentual phrases (AP) and the location of the phrase boundary (AP or IP) contributes to the meaning.
target-like level of proficiency in producing information interrogatives—the advanced speaker’s accuracy rate was only 63%. As pointed out by Jun and Oh (2000), acquiring the intonational patterns that are related to semantic properties requires complex learning processes. The present study and the study of Jun and Oh suggest that the native English speakers’ difficulty is not due to an absolute loss of perceptual abilities caused by the absence of a certain feature, but to the incorrect mapping of L2 syntactic properties onto prosodic properties.

*The Acquisition of [±Interpretable] Features in Adult SLA*

Let us address the status of (un)interpretable features and its implications for SLA. The RDH makes the claim that the unavailability of individual uninterpretable features is a primary cause of non-targetlike grammars of adult language learners, following Chomsky’s hypothesized distinction between interpretable and uninterpretable features. It is expected that properties of grammar involving new uninterpretable features should be unacquirable while those involving new interpretable features should be acquirable.

Late learners are rather forced to utilize (un)interpretable features instantiated in the L1 and possibly interpretable features from the L2 to accommodate the L2 input involving new uninterpretable features (Tsimpli, 2003; Tsimpli & Dimitrakopoulou, 2007; Tsimpli & Mastropavlou, 2008). In other words, interpretable features and L1-determined uninterpretable features are used to reconstruct the L2 representation. Accordingly, it is argued that adult L2 speakers’ grammar cannot be reconstructed in a target-like fashion. This leads to variability in the use of overt morphology or in movement due to a deficient or incomplete set of features in adult L2 grammars.
Interpretable features, on the other hand, remain accessible throughout life, rendering them unproblematic for late starters even when they are not activated in their L1. This is because the LF-related status of interpretable features (but not uninterpretable features) ensures their mapping onto conceptual representations (Tsimpli & Mastropavlou, 2008, p. 151):

Interpretable features provide cues to the learner on the basis of their direct (or indirect) mapping with categories relevant to conceptual representations (which are arguably nonmodular, at least not in the Fodorian sense). On the other hand, uninterpretable features are represented in the language module and necessary for linguistic computations exclusively. The crucial distinction is drawn from the modular nature of “narrow syntax” as opposed to the nonmodular nature of the LF-interface (the “syntax-discourse interface”; Platzack, 1999; Sorace, 2000; Tsimpli et al., in press).

It appears that because interpretable features are not limited to purely syntactic properties, unselected interpretable features are accessible even when a target grammar differs from the native language in question. It is further argued that interpretable features are utilized as a useful source for reinterpreting the unselected uninterpretable features (e.g., Tsimpli & Dimitrakopoulou, 2007; Tsimpli & Mastropavlou, 2008).

Aside from the pressing question of why uninterpretable features are subject to maturational constraints, it is not clear whether there is in fact a stark discrepancy in the difficulty of acquiring the two types of features. Nanousi, Masterson, Druks, and Atkinson (2006) offer a counter-argument against proponents of the RDH. Nanousi and his colleagues report an interesting finding that interpretable features were more impaired than uninterpretable features in the grammars of Specific Language Impairment (SLI) speakers. Their study investigated six agrammatic Broca’s aphasic patients’ production
and judgment data regarding L1 Greek interpretable features (Tense and Aspect) and uninterpretable features (phi agreement features) on the functional category T(ense)P(hrase). The results show that the performance with the uninterpretable agreement features was better than that involving the interpretable tense and aspect features. This finding does not accord with the RDH view, according to which there are different biological constraints between uninterpretable and interpretable features. Note that it is assumed that uninterpretable features (compared to interpretable ones) are problematic for adult L2 speakers due to critical period effects, and for SLI subjects due to genetic deficiencies (Tsimpli, 2001; Tsimpli & Mastropavlou, 2008). This unexpected finding is, instead, argued to be due to distinct mechanisms responsible for phonologically valuing formal features (Nanousi et al., 2006, p. 235)—a syntactic operation of Agree for uninterpretable features versus a sub-process of the Spell-out operation required for interpretable features to be morphologically realized. Accordingly, the sub-process of Spell-out after syntax is claimed to be more subject to the impairment than the narrow syntax. This is in a similar line with the argument that in adult L2 acquisition syntactic knowledge is intact but not morphological knowledge (Lardiere, 2005; Prevost & White, 2000; White, 2003a, b). Nanousi and his colleagues’ study casts doubt on the susceptibility of uninterpretable features to some biological factors.

It is also uncertain that we can assume that unselected individual uninterpretable features that are part of collocations of morphosyntactic properties with a functional head disappear after a critical period. For example, according to Hawkins’s analysis (following Adger, 2003), wh-in-situ interrogatives (like those in Korean and Japanese)
and wh-movement languages (like English) share an uninterpretable wh-feature in the domain of the interrogative complementizer. The difference between wh-movement and wh-in-situ languages lies in the feature value of the \( [\iota \text{wh}] \) feature. That is, that English-type wh-feature is strong, referred to as an asterisked \( [\iota \text{wh}^*] \) while Korean-type wh-feature is weak, \( ([\iota \text{wh}]) \). One might argue that the feature strength is all that matters in terms of the selection of the wh-parameter. However, considering that the feature value is linked to the shared uninterpretable wh-feature by both English and Korean-type languages, it is unclear how it could be separately inaccessible to wh-in-situ language speakers.

The present study straightforwardly challenges the claim that uninterpretable as opposed to interpretable features pose a problem to late L2 learners, and sheds light on the status of interpretable features in adult second language acquisition by investigating the interpretation of variable expressions in L2 Korean (so-called) wh-in-situ constructions. Recall that the RDH predicts L1-determined failure in relation to properties only involving the uninterpretable functional features. Its underlying implication is that, although acquiring the new uninterpretable wh-feature coupled with a strong value poses a substantial problem to adult language acquirers, acquiring the relevant interpretable features should not. The RDH view, further, claims that the developing learners’ grammars should make use of interpretable features, which are hypothesized to be available independent of the relevant uninterpretable features. This consequently should improve their performance on in-situ wh-constructions. However, it is not necessarily true that interpretable features are non-problematic compared to
uninterpretable features in adult second language acquisition. Contrary to the RDH, the fact is that interpretable features that are shared between both the L1 and L2 do not appear to ease the learning burden confronting the adult native English speakers acquiring mastery of the L2 appropriate interpretation for indeterminate wh-elements.

In short, it is doubtful that interpretable features serve as a sort of stepping stone for adult L2ers acquiring properties involving new uninterpretable features with a purely syntactic function. The challenge to the RDH view is to account for observed divergent grammars in relation to the acquisition of interpretable features. It appears that addressing the acquisition issues in adult SLA solely in terms of the interpretability of features leads us nowhere. Extracting the issue of the acquisition of interpretable features and/or combinations of uninterpretable features from SLA misses out on important parts of the picture.

To sum up, the essential claim made by the RDH is that adult L2ers’ representations are defective due to unavailability to new uninterpretable features. Meanwhile, interpretable features are available to adult speakers and are predicted to be non-problematic. The data of the present study testing the acquisition of interpretable features relating to wh-in-situ constructions suggest that the predictions of the RDH are not upheld. Under the RDH view, there appears to be no principled way to account for why the [−Q] interpretation is more problematic for the native English speakers than the [+Q] interpretation, and why the accuracy of the learners’ interpretations differs according to licensing environments.
7.2. A Feature-reassembly Approach

The feature-reassembly approach is motivated to account for persistent (morphological) variability often observed in adult L2 grammars. Variable performance such as inconsistency in supplying inflectional morphemes challenges the L2 generative models based on parameter setting frameworks. Because parameter setting is known as an all-or-nothing phenomenon (e.g., van Kemenade & Vincent, 1997), the L2ers’ persistent variability is not predicted to be present in interlanguage grammar—that is, it is assumed that the changing of a parameter from a negative value to a positive value involves an abrupt change in the relevant properties (see, e.g., Haznedar & Schwartz, 1997). Unlike parameter resetting models, according to which divergent L2 grammars are attributed to a failure in resetting or reselecting a single feature or feature value that is argued to determine cross-linguistic variation, the reassembly approach argues that the learning problems come from configurations of features in lexical items that differ between languages. This view underscores the more complex learning issues involved in figuring out “how to reconfigure or remap features into new or different formal configurations in the L2” (Lardiere, 2008, p. 107). This is because features are assembled and distributed across each functional category in language-specific ways, and thus adult acquisition involves determining how to assemble the lexical items of the TL.

Unlike the previous two parameter resetting proposals, the re-assembly of features approach predicts that adult L2 speakers should have difficulty in interpreting variable expressions due to different configurations of the relevant features. It is obvious that errors or non-targetlike interpretations regarding variable expressions in the target
grammar are not attributed to L2ers’ unselected features or to an impaired syntactic representation. The learning problem facing English-speaking acquirers of Korean is predicted to involve teasing apart the assembled relevant features in the L1 and recombining the relevant features as required by the target grammar. In terms of the theoretical predictions made for adult native English speakers [+Q] and [−Q] interpretations of Korean variable expressions, the data overall support the feature-reassembly approach.

Let’s review the evidence in summary form, particularly as it relates to the preference for the question reading over the indefinite pronoun reading:

a. Native English-speaking learners from both proficiency level groups showed statistically better performance on the question reading than on the indefinite reading in both prosodic and morphological licensing environments. This suggests that the overgeneralization of the question type is due to the influence of the L1 grammar via its assembly of features.

b. Nonetheless, the rate at which the learners supplied the indefinite type statistically increased in sentential marker licensing environments. This suggests that a certain licensing environment makes the acquisition of one type easier than the other type.

c. The incorrect question interpretation declines as development proceeds, but the non-target interpretations persist among several advanced learners. This result is consistent with the learning process required to reassemble the relevant features in variable expressions in Korean.

Based on these findings, the following specific questions can be asked in terms of the feature-reassembly approach: (a) Why was English-speaking learners’ performance better on the question reading than on the indefinite reading?; (b) Why did the intermediate learners (but not the advanced learners) perform better on the embedded variable expression (bound by the [−Q] licensor) than on the matrix variable expressions
(bound by rising intonation) with the indefinite type?; (c) Why did the L2 speakers of both learner groups show worse performance on embedded variable expressions with the question reading?

7.2.1. Defining the Role of L1 Knowledge

There is consensus that a learner’s native grammar plays a role in constructing a new representation of a second language. Accordingly, throughout five decades of generative SLA research, researchers have attempted to discover to what extent the role of L1 knowledge is involved in the adult acquisition of a second language, ranging from the Contrastive Analysis approach based on the work of Lado (1957) to modern parameter resetting models such as Sprouse and Schwartz’s (1994, 1996, 2000) Full Transfer/Full Access model. Specifically, the notion of L1 transfer has been well established and documented under the FT/FA hypothesis, according to which the initial stage of the L2 grammar consists entirely of L1 functional categories and their associated features and feature values.

Although generative second language researchers generally agree that the L2 learner’s existing linguistic knowledge exerts some influence on the acquisition process, there is considerable debate as to precisely what role the native language plays, in particular in relation to developing L2 grammars. The main issue is how much of the non-target grammar and the course of development is determined by the learner’s existing knowledge. This issue involves consideration of to what extent differences or/and similarities between the L1 and L2 affect the role of the native language.
As discussed earlier, parameter resetting views of the role of the L1 in adult SLA assume or argue that the interlanguage representation starts off with L1-based functional categories and associated features, and learning has been articulated in terms of the resetting of parametric values from those of the L1 to those of the L2. The parameter resetting models are rooted in the underlying assumption that a speaker is endowed with a universal inventory of features from which a subset of features that make up each language is drawn. Thus it is in general an individual feature (associated with one or more lexical items in a functional projection) that constitutes the basic component for comparing formal properties of the L1 and the L2 (Lardiere, 2009). As discussed in previous sections, there are different positions within the parameter resetting models in relation to the previous knowledge of a language. One, the RDH, claims that the L1 role in L2 acquisition is deterministic, in that L2 acquisition is constrained entirely by the parametric properties of the L1. That is, uninterpretable features not instantiated in the L1 are not available after a critical period and thus its acquisition is expected to be impossible. Another position, the FT/FA model, posits a possibly more temporary role of the primary language, in that L1 parameter settings persist only when the L2 input data are so impoverished that restructuring cannot occur. Although different positions within the parameter resetting models do not agree on the issue of the availability of new features, they share the view that L1 influence is mainly limited to the parameterized selection of features. In other words, since the 1980s, the differences between L1 and the L2 have primarily been described in terms of parameters. Under parameter resetting accounts, adult L2 speakers are more likely to have difficulty in acquiring a target
grammar if they cannot reset a parameter from the L1 value to that of the L2, in cases where these differ.

However, the parametric-based accounts of the role of the L1 do not tell us much about the issue of how L1 influence plays a role in the target grammar when the relevant features the L2 speakers are acquiring indeed appear in the speakers’ native grammar. Although much generative acquisition literature describes cross-linguistic variation in terms of ‘parametric differences between languages’, the selection of a set of parameters is not sufficient to capture the variation observed between Korean and English in terms of interpretable features.

The feature-reassembly approach provides an alternative account of persistent L1 influence by addressing this issue in terms of the organization of relevant features. This approach is compatible with the two previous proposals based on principles and parameters frameworks with respect to the influence of L1 knowledge in SLA, insofar as it acknowledges the assumption that the learner’s previous knowledge (of functional categories) is transferred to her initial representation of a target grammar. However, this approach differs from the parameter resetting proposals in the way it frames the continuing role of L1 influence in intermediate stages of development. Under the parameter resetting models, the central point of the comparison between the L1 and the L2 is parameters. The absence or presence of a particular feature comparing the L1 and the L2 functional categories is claimed to characterize the interlanguage grammar. On the other hand, from the reassembly view, the differently assembled lexical items constitute the basis of comparison between the L1 and the L2. From this perspective,
adult speakers come to the SLA tasks with “a fully developed system of assembled lexical items and functional categories” (Lardiere, 2009, p. 183). Hence, L1 knowledge is defined in terms of the pre-defined feature matrices of functional categories.

Turning to the acquisition of Korean wh-in-situ constructions, there appears to be no particular parameter setting required for the interpretation of the target variable expressions from the point of view of the parameter resetting models—particularly in terms of the selection of new features. Both the native and target languages of native English speakers have [wh] and [Q] features and furthermore the relevant (interpretable) features seem to be primitive features that are universally present across languages. The difference between the native and the target grammars resides in their configurations of the relevant features that determine the interpretation of variable expressions. With regard to L1 influence, the findings of the present study demonstrate that the way the relevant features are assembled in the L1 persistently surfaces in the native English speakers’ interlanguage grammars. Both intermediate and advanced learners performed significantly more poorly in providing appropriate readings in obligatory [−Q] contexts—they incorrectly provided the [+Q] reading for variable expressions associated with non-question operators. To provide appropriate interpretations for the TL variable expressions, a question operator must be delinked from the wh-lexical items in the learners’ previous knowledge. However, the native English speakers’ existing knowledge in assembling lexical items of the L1, namely, [OP + VAR], appears to contribute to their non-target-like interpretations.
More specifically, building on the full transfer part of the FT/FA proposal, the Feature-Reassembly approach predicts that native English speakers acquiring L2 Korean initially transfer “lexically stipulated correspondences” (Carroll, 2000, p. 83) from their first language vocabulary to their interlanguage lexicon (Carroll, 2000; Lardiere, 2008, 2009). It is thus predicted that overgeneralization of the L1 configuration type should occur in the interlanguage grammar. In the case of a learning situation where a speaker whose L1 has an operator feature as part of her wh-lexical items is acquiring L2 wh-lexical items lacking a operator feature, the approach predicts that the learner would initially map the [OP + VAR] features of the L1 wh-words onto the forms expressing the same concept in the L2. The L2 speakers are assumed to transfer the content of their lexical entries and associated operations (such as the optional or obligatory spell-outs) to the initial L2 representation. This is the locus of where the learners’ knowledge of the native language affects their knowledge of the target grammar. In other words, under the feature-reassembly approach, one’s previous knowledge of how the relevant lexical entries are constructed plays a role in constructing a target grammar. It is assumed that L2 learners will search for the morpho-lexical correspondences between the target and native grammars regarding semantic meaning or grammatical relations (Lardiere, 2009). From the perspective of the native English speaker, the question wh-word in the L1 appears to be the item best matched to the L2 variable words. It is therefore expected that the native English speakers should initially provide a question interpretation for all Korean variable words. In addition, we might say that the English speakers are more sensitive to the question contexts than the non-question contexts in attempting to learn
Korean configurations of wh-lexical items. This phenomenon is predicted to be stronger for the learner group at lower proficiency levels.

These predictions are borne out. We have observed that the combined OP and VAR features of the L1 wh-lexical items surface in the interlanguage grammars. In particular, the L1 configuration of wh-lexical items ([Q-operator + VAR]) is evident in the L2 speakers’ incorrect question readings in embedded declarative contexts. Note that here the statement complement lacks interrogative force per se. The L2ers appear to ignore or filter out licensors (namely, the declarative particle) relevant to the interpretation of the target variable expressions. Before the operator and variable features are disentangled in learners’ grammars, the L2ers apparently do not pay much attention to licensor environments—because operator-combined lexical items (English-type wh-words) do not require a corresponding licensor. Hence, the difficulty of reassembling the features of the L2 that partially overlap the L1 lexical items is the cause of the learners’ asymmetric performance in the interpretation of the TL variable expressions.

The findings of this study display different effects of the L1 role according to different contextual environments and L2 proficiency levels. If we assume that a non-target interpretation is due to the influence of the L1, it is expected that the incidence of the non-target question reading in obligatory indefinite contexts would be greater at lower levels of proficiency. This is the case. Note that the L1 role under the RDH view is hypothesized to have the same influence in every condition and in every proficiency level because the absence of a certain feature is argued to result in the inability to acquire constructions involving that feature.
However, in addition to the performance with the $[-Q]$ reading type getting better with increasing proficiency level, the data in the present study suggest that the (incorrect) question reading is more dominant in intonation contexts than in sentential particle licensing contexts—that is, the question readings are frequently supplied regardless of whether the sentential-final intonation is rising or falling. It seems likely that the L2 learners were sensitive to L1-specific conditionings for the insertion of the L1-type lexical items (that is question wh-words) (Carroll, 2000, p. 82). As discussed in the previous chapter, in the intonation contexts, the two enhancing cues of the rising intonation and the question marker may have induced the learners to supply the question reading. On the other hand, the sentential particle contexts lacking a rising intonation and a salient embedded question marker (with embedding by a matrix declarative particle) hold back the emergence of the copied L1 assembly of features. This indicates that the L1 influence of the question reading is more susceptible to the prosodic environment, supporting the possibility that the L1 plays a role depending on different licensing contexts. Assuming that the incorrect question reading is a consequence of L1 configurations of relevant features, this approach attributes the overall prevailing question readings (associated with the intonation licensors) to the contextual conditions triggering the selection of the L1-type lexical item. This suggests that “one of the greatest sources of difficulty [for language learners] may be the transfer of the representations of how the same features are assembled in lexical items in the L1” (Lardiere, 2009, p. 185).
In sum, the reassembly model sheds light on the extent of L1 influence in developmental stages of L2 acquisition. The English-speaking learners’ prior knowledge is one source of why many L2 learners’ exhibited an asymmetric performance on the indefinite and question readings of variable expressions—they largely supplied question interpretations across licensing contexts. That is, the native English speakers showed inaccurate interpretations in the obligatory indefinite contexts and accurate interpretations in the obligatory question contexts regardless of whether the licensing environments were phonologically or morphologically conditioned. The observed L1 influence in the acquisition of the interpretation of Korean variable expressions can hardly be explained under the parameter resetting models, according to which the nature of L1 influence is mainly accounted for in terms of parameterized feature selection. If the role of L1 influence is limited to a particular parametric feature set of the L1, then the L1’s influence should not differ depending on licensing environments (or different proficiency levels for the RDH view). In the feature-reassembly approach, on the other hand, the role of the L1 is described in terms of lexical items (or vocabulary entries) constructed in the previous language. That is, according to Lardiere (2008, 2009), learning problems are posed by the language-specific assembly of features and their conditioning factors when they differ between the L1 and L2. Therefore, the persistent and different L1 influence effects can be modeled in the reassembly approach. In the next section, the persistent non-target interpretations are discussed in more detail.
7.2.2. Divergent Grammars and Variability under Feature-reassembly

As far as convergence on native-like competence is concerned, it has been a common observation that adult native speakers often find it hard to achieve a target-like level of performance. Much generative adult L2 research has observed that a majority of second language learners at advanced proficiency levels fail to produce or judge grammatical properties categorically in obligatory contexts (e.g., Hawkins & Hattori, 2006; Lardiere, 1998, 2007b; Robertson & Sorace, 1999; Sorace, 2003; White, 2003a). Nonetheless, accounts of variability in the L2 data are far from reaching agreement. That is, in the model in which parameter setting is argued to be possible (the FT/FA), it is argued that in the absence of robust L2 input, speakers’ L1 behavior should be persistent. In the model in which parameter setting is argued to be impossible (the RDH), divergent grammars are said to be due to the speakers’ inability to reselect new features. Although both parameter resetting models are different in what they claim the source of L2 divergent grammars to be (the absence of positive evidence versus the unavailability of new features), both proposals follow the standard parameter view according to which the values of parameters are binary in general and the two values of a parameter are mutually exclusive. Note that in the Chomskian view of parameter setting, variability is prohibited. For instance, there is no optionality of wh-movement in grammar, since elements move only when they are required to (Chomsky, 1995, 1998). Chomsky postulates that language is like a complex network with switch boxes (having a limited number of switches) in which switching ‘on’ or ‘off’ has an effect on a speaker’s entire linguistic system (Chomsky, 1999, p. 49)—in other words, a parameter is an all-or-nothing
phenomenon. This switching metaphor provides an important ground under which we can understand children’s ability to acquire any language they encounter, seemingly with ease.

From the perspective of the reassembly view, the source of the divergence of an interlanguage grammar from a target grammar is located in a speaker’s morphological competence, involving different formal configurations and realizations of bundles of features between her L1 and TL (Lardiere, 2005, 2008). This perspective claims that even for the same subset of formal features in question, learners still have to figure out their language-specific configurations. This is one of the most likely sources of an adult learner’s difficulty in representing the L2 grammar. Under the reassembly approach as an alternative account of variability, we can find possible explanations for the nature and extent of variability in the data of native speakers of English acquiring Korean. That is, the L2 speakers failed to supply the indefinite type of variable expressions categorically in obligatory contexts, showing the co-existence of L1-type and L2-type lexical items in their mental grammars.

Consider individual learners’ variable interpretation more closely. Overall, the individual data indicate that more optional readers (who provided correct interpretation over 0% and below 80% of the time, as defined in the result section) were found from the group of more proficient learners. Table 7.5 shows the advanced learners’ individual data obtained from the two translation tasks (optional response is marked by bold font).

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100 Note that the individual data were presented with respect to the subjects’ distribution of response patterns in the result section. For this chapter, the individual data are presented with respect to each subject’s response patterns across contextual environments.
Table 7.5. Individual Data of the Advanced Group

<table>
<thead>
<tr>
<th>Advanced Group</th>
<th>Prosodic Licensor</th>
<th>Particle Licensor</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Indefinite (%)</td>
<td>Question (%)</td>
</tr>
<tr>
<td>1</td>
<td>100</td>
<td>100</td>
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<tr>
<td>2</td>
<td>50</td>
<td>100</td>
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<tr>
<td>3</td>
<td>67</td>
<td>100</td>
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<tr>
<td>4</td>
<td>50</td>
<td>100</td>
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<tr>
<td>5</td>
<td>67</td>
<td>100</td>
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<tr>
<td>6</td>
<td>67</td>
<td>100</td>
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<td>7</td>
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<td>9</td>
<td>83</td>
<td>80</td>
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<td>10</td>
<td>83</td>
<td>100</td>
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<td>11</td>
<td>100</td>
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<tr>
<td>12</td>
<td>83</td>
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<td>13</td>
<td>67</td>
<td>83</td>
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<td>17</td>
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<td>23</td>
<td>17</td>
<td>100</td>
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</tbody>
</table>

For the advanced group, there were more optional readers in the obligatory indefinite contexts than in the obligatory question contexts in general—an average of 46% of them supplied indefinite and question types optionally in the obligatory indefinite contexts. Although the number of optional readers in the contexts associated with the question sentential particle was higher, twice as many optional readers were observed for the declarative contexts in the same licensing environment.
Let me focus on the performance of the optional readers in the advanced group in the obligatory indefinite contexts. Five advanced learners provided optional readings in both types of indefinite contexts (those associated with rising intonation and those associated with the declarative particle). Six advanced learners did so only for sentences associated with a declarative particle. Five advanced learners did so only for the intonation contexts. In each environment licensing the \([-Q]\) interpretation of variable words, non-question operators were misanalyzed on some occasions. That is, in matrix interrogative contexts, the rising intonation was regarded as an operator encoding an interrogative force and in embedded contexts, the declarative particle was analyzed as a default force marker. And there were some individual differences among advanced learners in their perception of the two types of non-Q operators: some speakers were more sensitive to sentential particles than intonation licensors and the others vice versa for the indefinite readings. Meanwhile, the advanced speakers appeared to be more attendant to a question operator entering a relationship with the in-situ variable words.

Now consider the individual data from the intermediate learners in Table 7.6. Their optional readings are different from those of advanced learners. The optional readers from the intermediate group were observed most frequently in the morphological licensing condition.
Table 7.6. Individual Data of the Intermediate Group

<table>
<thead>
<tr>
<th>Intermediate Group</th>
<th>Prosodic Licensor</th>
<th>Particle Licensor</th>
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<tbody>
<tr>
<td></td>
<td>Indefinite (%)</td>
<td>Question (%)</td>
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<tr>
<td>1</td>
<td>0</td>
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<tr>
<td>2</td>
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<td>67</td>
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<td>4</td>
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<tr>
<td>24</td>
<td>0</td>
<td>100</td>
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</table>

More specifically, for optional respondents in the intermediate learner group, there was a sharp contrast between prosodic and sentential particle licensing environments. An average of 40% of the intermediate learners provided optional interpretations for wh-words in both obligatory indefinite and question contexts when in the sentential particle licensing contexts. In the mean time, variability in interpretation associated with prosodic licensors was very rare: there were only four incidents from three subjects.
Instead, question readings were predominantly supplied in both obligatory indefinite and question contexts.

Focusing on the sentential particle licensing environment, seven intermediate learners provided variable interpretations in both contexts regardless of whether the co-occurring particle was a question particle or not. In each individual context there were three intermediate learners who supplied optional interpretations in that context. The three readers who provided optional interpretations only in the obligatory indefinite context are similar to those from the advanced group. That is, they exhibited target-like performance on the question type but non-target-like performance on the indefinite type. On the other hand the three intermediate readers who gave optional responses only for the question type gave only incorrect question readings in the obligatory indefinite context. These data suggest that a majority of the optional readers in the intermediate group have difficulty in perceiving not only the non-question operator but also the question operator. For the question reading, the intermediate speakers rely on the presence of a question force (default [Q]) itself, rather than a [+wh] Q feature. That’s why the intermediate learners displayed prevailing question readings in matrix interrogatives and fewer question readings in complex declarative contexts. In other words, the fact that the intermediate learners’ variability in interpretation is mainly associated with the particle licensors suggests that the problem resides in mismatched operator-variable relationships between the matrix declarative particles and the embedded variable expressions. The absence of a question force ([+Q]) in matrix clauses might enable the lower-proficiency learners to select the L2-type configuration for the embedded variable words.
Consequently, they were more sensitive to the declarative particle than prosodic licensors for providing the indefinite readings.

To sum up, there are two different types of optional readers according to their proficiency levels. For intermediate learners, whether or not question force is present in the root clause plays a role in their interpretations (in root clauses). The advanced learners were more sensitive to the presence of question-operators but were not to the presence of non-question operators. This suggests that the licensing relation between the manifestations of C-features and the interpretation of the target variable expressions is further subject to certain language-specific lexical restrictions and exceptions, which undoubtedly compounds the problems for the language learners. When they have difficulty in retrieving the L2-type wh-lexical items, they do not pay any attention to their licensors. Since the L1-type wh-lexical items do not require licensors to be interpreted, the variable expressions have a question reading. On the other hand, when the L2-type wh-lexical item is selected, appropriate licensors matter for assigning the correct interpretation in learners’ grammars. Accordingly, there is a greater probability for question readings to be induced. This leads to less variable interpretation in obligatory question contexts and more variable interpretation in obligatory indefinite contexts in general.

The Co-existence of L1 and L2 wh-lexical Items

The patterns of variability observed among both proficiency level learner groups illustrates that two types of lexical configuration co-exist: the L1 configuration of lexical entries and the L2 configuration of lexical entries. The organization of formal features is
not taken as a parametric property under the traditional parameter views,\textsuperscript{101} according to which selection of features is mainly responsible for cross-linguistic variation. For instance, when a strong feature value is set, variability in phrase movement is predicted to come to an end. Thus if the learner has determined that a feature value is strong, the raising of a phrase is obligatory: otherwise, there should be no movement. Even if the configuration of features that affect the interpretation of Korean variable expressions can be described in terms of parameters with the help of future advanced theoretical analysis, we would not expect the interpretations of indeterminate wh-elements in Korean to be persistently variable. It is assumed that variability ceases when the learner has determined that one of the feature values associated with a functional category (e.g., a [+strong] feature in C) is fixed, after which it becomes obligatory. There is no way to represent an intermediate value in the strength of a feature in this framework. In other words, according to the parameter setting views, the co-existence of opposite values of a particular parameter is prohibited.

On the other hand, cross-linguistic variation between English and Korean in terms of assemblies of features can coexist in the English-speaking learners’ mental grammars because mutually exclusive parametric values are not involved. Under the assumption that abstract features and morphological expressions are distinct, the wh-constructions in interlanguage grammars could have two different configurations: [OP … VAR] and [OP + VAR]. Learners have a choice as to which type of feature combination is inserted into

\textsuperscript{101} If we adopt the lexical parameter view of grammar, in which all parametric variations are accounted for in terms of variation in the lexicon, there would appear to be no basis for making a principled distinction between those aspects of the L1 that can transfer and those that cannot. In addition, as discussed Chapter 3, this view increases the number of parameters, and is therefore not compatible with the classical notion of a very small number of parameters.
the numeration. This can be one source of the L2 speakers’ variability in interpretation. According to the reassembly approach, L2 lexical construction is initially incomplete, and thus L1-type wh-lexical items prevail in the early grammars of L2 speakers and later yield non-categorical performance in obligatory contexts requiring the indefinite type of variable expressions. That is, the optional readings in obligatory contexts indicate the co-existence of different configurations.

Robertson and Sorace (1999) provide a similar explanation for the optional occurrence of *V2 word orders in the interlanguage grammars of native German speakers learning English. They make the claim that the source of the residual optionality (*V2 effects) in several advanced German-speaking learners’ grammars lies in the interlanguage lexical entries, saying that “abstract functional features in the L1 lexicon are available to the second language learners as templates from which a copy may be made to form a new lexical item in the L2 lexicon” (Robertson & Sorace, 1999, p. 352). This indicates that the previous knowledge of the feature value [+strong] associated with the functional category C is constantly available. It is postulated that the L1 strong C feature value can co-exist with the L2 English weak feature on C in the learner’s lexicon as abstract lexical entries. The non-target grammar is a consequence of a choice exercised at the point of lexical insertion. The point of lexical insertion is claimed to depend on “the message which the learner wants to communicate as well as language-specific factors” (p. 352). Their study suggests that the variability results from the

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102 The sources of variability can be at the level of competence (i.e., optionality in the grammar), performance (i.e., slips of the tongue or pen), and experimental error (i.e., variability due to factors in the design of the materials or the circumstances of the experiment that induce variable judgment behavior in the subject.) (Robertson & Sorace, 1999, p. 344).
inappropriate selection of a lexical item from lexical entries. Since they argue that the 
source of divergent grammar is located in the interlanguage lexical entries, the optional 
word orders might be result from a breakdown in a computation process of retrieving the 
right (abstract) lexical items.

The two types of variability (optional interpretation and optional movement) 
observed in the present study and the study of Robertson and Sorace (1999) derive from 
lexical entries in terms of the co-existence of L1 and L2 types of featural values and 
configurations. Making the proper choice from co-existing lexical items requires a 
learning process. The question of variability then becomes a question about the possible 
collocations of morphosyntactic features of lexical items. This captures the fact that the 
incorrect question reading can co-occur with the indefinite type. On the reassembly 
approach, the cause of the L2 speakers’ variation is reduced to lexical choice. The choice 
depends on the types of licensing environments when both lexical items are in 
competition to be in the same numeration. Therefore a gradual learning process is 
required so that the newly constructed lexical items can win a selection in the numeration.

The possibility of the co-existence of L1 and L2 type grammars (in terms of the 
opposite feature values) in the interlanguage grammar is not compatible with parameter-
based views. In particular, for the RDH position, because relevant L2 input fails to be 
analyzed in a target-like way due to the unavailability of new uninterpretable features, 
variability in the use of the relevant items is expected to appear in adult L2 speakers’ 
grammars (e.g., Tsimpli & Mastropavlou, 2008). This account, however, is rarely 
applied to optionality in the interpretation of variable expressions mainly because new
uninterpretable features are not required to analyze the relevant input. In addition, if Robertson and Sorace’s assumption turns out to be right, not only is a new feature (the [weak] feature value of the non-interrogative C in English) reselected, but also different subsets of C-features (of both L1 and L2) are stored in an adult L2 acquirer’s lexicon. Moreover, within parameter resetting models, individual differences in this respect are not expected. Since the RDH model, in particular, is determined by a speaker’s prior knowledge, no variability is expected between subjects having the same L1.

*Competition between L1 and L2-type Lexical Items*

Assuming that there is a co-existence of L1 ([OP + VAR]) and L2 lexical items ([VAR]) for wh-elements in learners’ grammars, they will be competing for the same ‘slot’ under specific circumstances. That is, for the same phonological material (wh-lexical items), the two lexical items are in competition with each other to compute the proper realization of the target sentence. The individual data observed in Table 7.5 and Table 7.6 show that the target lexical items often failed to be chosen over the nontarget lexical items in certain environments. When the learners have not yet mastered L2 configurations, the L1 configuration would be the apparent preference for the variable expressions. This supports the notion that persistent variability lies in vocabulary items competing for insertion. Although the choice can be influenced by various factors such as ease of lexical access or processing, this section more closely explores the question of under what specific conditions the L1 lexical item incorrectly wins over the L2 lexical item. That is, in addition to performance factors, a possible account resides in the
learners’ morphological competence in the TL, which may well be influenced by their knowledge of wh-expressions in English.

In more detail, the non-target interpretation is not entirely random. Recall that the native English speakers did not supply one of the possible readings across all the contexts. Rather, divergent interpretations mainly occurred in the obligatory indefinite contexts. In addition, the distribution of variable readings differed according to the speakers’ L2 proficiency levels: intermediate learners provided variable readings in the sentential particle contexts while advanced learners provided them in contexts where the indefinite interpretation was obligatory, no matter what the licensor was.

A difficult task confronting the native English speakers in question involves figuring out how licensors are specifically realized in the TL, which still needs to be done even after the L2 speakers have managed to successfully construct the wh-lexical items for the TL lexical entry by stripping away the OP feature from the combination of features of the L1 wh-lexical items. Misanalysis or insensitivity to licensors enables the learners to select the L1 configuration. Regarding the interpretation of variable expressions, it appears that acquiring Korean type wh-lexical items is more complex than acquiring English-type wh-lexical items. English has distinctive lexical differences between wh-question words and other quantificational words such as something, everything, and anything. Accordingly, acquiring the relevant expressions in English does not require figuring out their morphological contextual environments (except for negative polarity), since English quantificational expressions all consist of both an operator and a variable.
Note that the bundles of features are realized as morphological expressions through a separate procedure that fills in the representations with phonological information after syntax. Dissociation between (morphophonological) forms and features allows us to account for the adult learners’ misanalysis of the licensors (ni, nunci, and ta) in the interpretation of variable expressions. The learners must figure out how the different licensors are manifested according to whether clauses are roots or complements. As observed in the data, the learners are having difficulty in figuring out how the features of C are morphologically realized. A possible source for this difficulty can be found in the overt realizations of these features and their language specific licensing relationship.

For the direct (yes/no and wh-)interrogatives bearing the shared question marker ni, the distinction between the two interrogative types is made by prosodic features: rising versus falling sentential intonations. The prosodic properties are redundant features in determining interrogative type in the L1, so the less proficient learners appear to rely on the question marker or rising intonation encoding interrogative force. The question force yields the incorrect question readings in the yes-no contexts. It appears that the native English speakers construct, to some extent, the L1 pseudo echo representation for the TL yes/no interrogative context, as in (7.2).

(7.2) a. Mary-ka nwukwu-lul mana-ni? ↑
   Mary-Nom PERSON-Acc meet-Q
   ‘Does Mary see someone?’

   b. Learner’ Grammar: *[CP Qx [CP Ø … DP [WH(x)]] (Question Reading)
Even for the more proficient learners, it takes a while for them to become sensitive to intonation patterns distinguishing the [+Q, +wh] features from the [+Q, −wh] features of the matrix C.

As far as embedded clauses are concerned, the interpretation of Korean variable expressions is determined by the contextual co-occurrence of either [+Q] or [−Q] morphological particles, *nunci* and *ta*, respectively. In learners’ grammars, the declarative particle is mistakenly treated as a default marker rather than as a sentential particle encoding [−Q, −wh] features. The fact that the Korean declarative particle is preceded by the quotative marker might mislead the native English speakers into perceiving it as an unspecified marker. This means that the L1 lexical item wins over the TL lexical item.

(7.3) Declarative statement (Indefinite Reading):

   John-Top Mary-Nom THING-Acc buy-Past-Decl-(Quot) know-Decl
   ‘John knows that Mary bought something’

b. John knows * [embedded CP [αwh, αQ] … [OP + VAR]] (Interlanguage grammar)

Although we might reasonably expect that THAT, the non-interrogative C head, is similar in both languages, it is not identical in terms of the conditions under which it is expressed. Namely, English THAT is optionally spelled out. When it is not expressed, it functions as a neutral force marker (a finite marker). When it is overtly expressed, it is specified with [−Q, −wh] features (e.g., Rizzi, 1997). There may be space for more
cross-linguistic discrepancies involving the features of non-interrogative C. This issue will be discussed further in the following section.

*Gradual Development and Acquirability*

Since acquiring the interpretation of Korean variable expressions is not assumed to involve the setting of a parameter, we would expect development in providing appropriate interpretations for the L2 expressions. We have evidence that points to gradual progress in supplying correct interpretations of the TL variable expressions, challenging the syntactic deficit view. It has been observed the English-speaking learners’ performance gradually improves. Under the feature-reassembly approach, it is predicted that the learner may go through a long learning period during which she will separate the operator feature from the wh-lexical items and figure out how its licensors are realized. That is, as development progresses, correct interpretations of TL variable expressions with an indefinite reading improved in both contextual environments. Conversely, within a framework of the P & P theory, it may take some time (sort of a trial period) for language acquirers to determine whether a strong feature is present or not in the target language they are acquiring. Nonetheless, the developmental processes are not expected to be gradual because, as previously mentioned, the setting of a parameter is assumed to be abrupt (Jackendoff, 1997; van Kemenade & Vincent, 1997; Haznedar, 1997; Lightfoot, 1991).

The assumption that the acquisition of the composition of features is gradual is supported by Hegarty’s (2005) observations of first language acquisition, as discussed by Lardiere (2009). After re-examining longitudinal data of three children obtained from the
CHILDES data base, Hegarty notes that some errors in early child grammars are derived from non-adultlike bundles of features. He found the following examples from Radford’s data of wh-questions by young children:

(7.4) a. Where Daddy go?  
   b. What kitty doing?  
   c. What say?  
   d. Where put?

Hegarty assumes that the children are simply projecting a [WH] feature without [Q] (either because the [Q] feature had not yet been acquired or due to some performance factors), resulting in wh-fronting without subject-aux inversion. In this case, the functional category being projected is simply “[WH]”, as shown in (7.5).

(7.5) [WH where, [VP Daddy go i]]

Hegarty’s perspective on child grammars argues that the construction of language-specific feature matrices is developed step by step, indicating that there are no pre-fixed matrices of formal features. If his analysis turns out to be right, then it is expected that in adult grammars, functional categories would be assembled piece by piece as well, and thus development would be gradual. Additionally, given the fact that adult speakers have previous knowledge of a language-specific construction of the relevant lexical entries, reconstruction would be an even more challenging task for the L2 learners.

The non-target interpretation progresses toward the target form. This shows that the acquisition of Korean variable expressions is ultimately possible. Four advanced speakers had reached a target-like level of interpretation across contextual environments.
It is clear that the advanced native English speakers had acquired the knowledge that Korean variable wh-elements can be interpreted as [−Q] elements licensed by non-question operators, expressed by intonation in matrix clauses and the sentential particle in interrogative clauses. This suggests that the adult English speakers have successfully recomposed the relevant features.

In sum, this section questions whether variability could be explained by the parametric selection of features. The conclusion is that, where we find variability, it is not the case that an entire language L has simply not selected the features in question. It seems evident that the source of variability in interpretation can be located in an assembly of features (rather than the selection part of syntax) and its manifestations conforming to the language-specific requirements. The nature of the assembly of relevant features in wh-construction contexts in the L2 obviously differs from those of the L1. The source of variability could be the morphological domain, which controls how grammatical features are combined and morphologically realized in language-specific contexts. The combination of OP and VAR from the L1 might take precedent over VAR alone if learners haven’t completed the construction of L2 lexical entries. That is, the existence of L1-type bundles of features blocks the counterpart L2-type lexical items. However, it is predicted that the target lexical item will eventually outcompete the L1 lexical items. The acquirers need to learn what constitutes the licensing environments for each construction (matrix versus embedded constructions). How grammatical features are combined and spelled-out is one of the main issues in adult SLA.
**Feature-assembly View**

To summarize, the feature assembly view holds that features are grouped together into functional categories on a language-specific basis in response to categories encountered by a learner (Hegarty, 2005; Lardiere, 2008, 2009). Thus the stock of functional categories can vary even for different constructions within the same language. That is, regardless of how an articulated syntactic structure is developed and how fine-grained feature systems are identified, it seems evident that the features in each terminal node of the functional categories are assembled and mapped onto language-specific lexical items. In this way syntactic variations arise across languages despite a small, finite set of innate primitive features. Accordingly, the task of the language learner involves detecting particular configurations of features from vocabulary items in the target input (Lardiere, 2009, p. 214).

It is assumed that a particular language may not use all the features provided by UG. However, the selection of underlying features is possibly slightly different from language to language presumably because the each linguistic (geometry) system has its core properties supplied by UG (e.g., Cowper, 2005; Harley & Ritter, 2002). Meanwhile, the way features are assembled and spelled out is the main source for variation:

Once \([F]_L\) has been established for each language \(L\), it remains to be determined how the features are gathered into lexical items (LIs) on the one hand, and spelled out by vocabulary items (VIs) on the other. I assume that LIs consist only of (formal) features, while VIs also carry phonological and semantic information not relevant to the narrow syntax. It is to be expected that language might differ from each other quite significantly in their inventories of vocabulary items, while the set of LIs might be expected to vary somewhat less from language to language, since VIs, but not LIs, are directly observable by the learner. (Cowper, 2005, p. 19)
This is compatible with the Distributed Morphology proposal (e.g., Harley, 2006; Harley & Noyer, 2000) in which the major loci of cross-linguistic variation lie in two different areas: feature bundles (= abstract representations of the syntactic primitives of (un)interpretable features) and vocabulary items (language-particular morphological operations). Accordingly, under the assembly view, crosslinguistic variation arises from the different features chosen by each language and from the ways in which each language assembles its features into lexical items and how the assumed features are spelled out by vocabulary items.

On the basis of the feature-assembly approach, the central claim made by Lardiere (2007, 2008, 2009) is that second language acquisition involves the reconstruction of the mapping among the underlying features, lexical items and vocabulary items from the L1 mapping. It is pointed out that because adult L2 learners have previous knowledge of the mapping among vocabulary items, lexical items, and abstract features, re-establishing new mapping relationships is more complicated for them. The L2 learners are expected to begin analyzing the L2 vocabulary items they encounter with the knowledge of the assembled feature sets and morphology of the L1. Since the vocabulary items are generally underspecified with respect to the bundles of features they spell out, it is expected to be a complicated process for the L2 speakers to figure out what features comprise relevant vocabulary items—even when relevant features are exhibited in both the native and the target grammars.

We have assumed that the native English speakers come to the acquisition task with an assembled set of L1 grammatical categories and morphological knowledge. The
reassembly approach holds that learners initially perceive the vocabulary items in the TL in terms of the featural composition of their “morpholexical equivalents of assembled lexical items (= vocabulary items) in the L1” (Lardiere, 2009, p. 211). In L2 Korean, variable expressions are initially perceived as their English counterparts, that is, [OP + VAR] in the interlanguage grammars of the native English speakers. However, the L2 input tells the native English speakers that the Korean wh-lexical items do not move and need to be bound to be interpreted within their domain. The process of reconfiguration of the wh-lexical items appears to start off by separating the operator feature from the expressions. After they successfully tease apart the question operator feature from the wh-lexical items, the L2ers must learn how the C-features in the target grammar are overtly expressed, in order to identify the licensor of the wh-variables. That is, the L2 speakers figure out how to organize the morphosyntactic categories of the TL into vocabulary items.

In more detail, consider the set of vocabulary items attached to Korean verbs that spell out the features of the C:

i) \([−Q, −wh]\) \(\leftrightarrow\) \(−ta\{/V\}\)

ii) \([+Q, −wh]\) \(\leftrightarrow\) \(-nunci (aninci) /\{V\}\)

iii) \([+Q, +wh]\) \(\leftrightarrow\) \(-nunci /\{V\}\)

The \([−Q, −wh]\) features are obligatorily realized as \(ta\) in both root and embedded clauses. The question features share an overt expression in root clauses but are differentiated in embedded clauses: \(nunci(aninci)\) for the yes/no question particle and \(nunci\) for the wh-question question particle. In English, the morphological equivalents of the L2 Korean
sentential particles specifying the C-features of $[-Q, -wh]$, $[+Q, -wh]$ and $[+Q, +wh]$ are, respectively $that$, $if/whether$, and a null morpheme, as in Table 7.7:

Table 7.7. Feature Organization and Spell-outs for Clause-typing Features (Table 2.2 repeated here)

<table>
<thead>
<tr>
<th></th>
<th>Matrix Clause</th>
<th>Embedded Clause</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English</td>
<td>Korean</td>
</tr>
<tr>
<td>$[-Q, -wh]$</td>
<td>Ø</td>
<td>$ta$</td>
</tr>
<tr>
<td>$[+Q, -wh]$</td>
<td>Ø</td>
<td>$ni$ (+rising)</td>
</tr>
<tr>
<td>$[+Q, +wh]$</td>
<td>Ø</td>
<td>$ni$ (+falling)</td>
</tr>
</tbody>
</table>

Consider first the Korean declarative particle. The same declarative particle is utilized in Korean for both subordinate and matrix clauses. One possible candidate form corresponding to the Korean declarative particle is $that$. But is $that$ truly equivalent to the Korean particle? Aside from the issue of whether the $[-Q, -wh]$ features are optional or obligatory, the declarative markers in Korean and English differ in that the Korean declarative marker is followed by another lexical item in C, the quotative element $ko$, which is also referred to as a neutral subordinate marker (a featurally neutral morpheme of subordination). Note that Korean has a separate marker of subordinate clauses independent of clause type markers such as the declarative marker $ta$ and the question marker $nya$. As noted by Bhatt and Yoon (1991), the selectional requirement of the matrix verb is satisfied by clause-type (or mood) markers but not by the quotative marker (neutral C), as in (7.6-7.7). Here, the quotative marker can appear in embedded clauses by both THINK and ASK-type verbs.
(7.6) a. Bill-un [John-i wa-ass-**ta-ko**\textsuperscript{103}] sayngkakhan-ta
Bill-Top John-Nom come-Past-Decl-Quot think-Decl
‘Bill thinks *John came’

b. *Bill-un [John-i wa-ass-\textbf{ko}] sayngkakhan-ta
Bill-Top John-Nom come-Past-Sub/Quot think-Decl

(7.7) Bill-un [John-i wa-ass-*(\textit{nya}-ko)] mwul-(e)ss-ta
Bill-Top John-Nom come-Past-Q-Quot ask-Past-Decl
‘Bill asked whether John came’ (Bhatt & Yoon, 1991, p. 42)

It appears that English *that* is a combined expression of [−Q, −wh] with a subordinator feature, but Korean *ta* is an independent declarative particle and its subordinate feature is expressed separately in the quotative item. If this analysis is on the right track, it suggests that the left-peripheral syntax of simple *ta* is substantially different from that of complex *that*. We can say that the quotative suffix marks the highest layer of structure (or it could be a marker of subordination) in an embedded clause which is selected by a verb of speaking (Bhatt & Yoon, 1991). As far as the relevant acquisition issues are concerned, this environment could mislead the L2ers in their attempt to determine whether *ta* marks non-interrogative force in C or merely a finite C. Thus we would expect developmental undersuppliance of the indefinite type when it is required by the presence of *ta*, particularly since the declarative particle is deeply embedded by a subordinate marker (or quotative marker).

Meanwhile the interrogative embedded C does not have a clear picture. Under the view according to which an interrogative clause in language X is represented as an

\textsuperscript{103} Note that the quotative marker *ko* is not obligatory. Nonetheless, its marking is typically preferred.
interrogative in language Y, it would be said that the Korean embedded question particle *nunci* has a silently realized counterpart in English.

Let’s consider the properties of the Korean embedded question particle *nunci*. The question particle cannot co-occur with the quotative marker *ko* (contrary to the declarative particle), as in (7.8):

\[(7.8)\]  
\[
\text{Bill-un [John-i mwues-ul] po-ass-nunci (*ko) alko-iss-ta.}
\]
 Bill-Top John-Nom THING-Acc see-Past-Q know-Past-Decl
‘Bill knows what John saw’

This suggests that *nunci* is a realization of the complex features of [+Q, +wh] and a subordinator morpheme. Both question and subordinator functions are lexicalized as a single vocabulary item in Korean. Note that the quotative marker’s co-occurrence with a special question marker (*nya*) is restricted to embedding verbs, that is, ASK-type verbs. WONDER and KNOW-type verbs take the embedded question particle *nunci* only. The embedded marker *nunci* can appear across all types of embedding verbs.

In English, the wh-question marker is not expressed in C, unlike the yes/no question marker. Instead wh-question words are the overt expressions of [+Q, +wh] and a subordinator morpheme. Here, movement of a wh-element is triggered by a clause-typing feature (cf. Craenenbroeck, 2006, which is similar to Cheng’s (1991) analysis). In this analysis, both root and embedded wh-phrases check a [+Q] feature against the head of this clause typing projection. There is no doubt that English wh-expressions have the
question feature. We can also assume that the English wh-expression comprises the feature of subordination.¹⁰⁴

Now we are in a better position to analyze the embedded question C-system in English and Korean. The question and the neutral C (subordinator) features are joined together in the English wh-expressions. The relevant features are also combined in the Korean embedded question particle nunci. The difference between English and Korean lies in the variable feature—this is lexicalized as a wh-word in Korean but is fused into the wh-word in English. It appears that the Korean question particle nunci in the head of C is not equivalent to the counterpart null morpheme in English. Meanwhile, the embedded yes/no question contexts have the most properties shared between English and Korean. They both have a lexical item for the question marker. Note that unlike the [+wh] question feature, which is fused into the wh-expression itself, the yes-no question feature is separately lexicalized in English. Its presence is obligatory in both languages and the neutral C is not followed by the question marker in either language, as in (7.9):

(7.9) a. Tom wonders if/whether Mary bought a bag.

   b. Tom-un Mary-ka kapang-ul sa-ss-nunci(aninci) kwungkumha-ta
       Tom-Top Mary-Nom bag-Acc buy-Past-Q wonder-Decl

Their previous knowledge of the conditions under which the yes/no question marker is inserted appears to play a role in the lower proficiency learners’ perception of the target

¹⁰⁴ Note that there are distinct lexical items for the feature of subordination and the question feature in the interrogative embedded C-system in Belfast English, as in (i). Here, the neutral C that can appear with the wh-question expression, but the question morpheme if cannot co-occur with the wh-expression:

(i) a. I wonder [which dish that] they picked. [Belfast English]
    b. *I wonder [which dish if] they picked. (Henry, 1995, p. 107)
embedded question particle. Recall that three intermediate learners gave if or whether as a translation for the embedded question clauses embedded by the KNOW-type verbs. This renders the [−Q] reading for the variable expressions. Meanwhile, the same learners failed to give the appropriate [−Q] reading in declarative contexts. The fact that English embedded yes-no questions are obligatorily marked plays a role in the lower proficiency learners’ nontarget interpretation: they sometimes interpreted the wh-question particle as the yes/no question particle. An additional complexity is that the question particle interacts with the lexical-semantic meaning of its predicates in a subtle but significant way. In relation to the embedded clauses, the lexical semantics of the verb determine the specific way in which verbs introduce embedded questions subcategorized for the interrogative. The verbal requirements are listed in the verbs’ lexical entries. The selectional properties of verbs in Korean affect the C-features of their embedded clauses. As we have observed Chapter 2, Korean subcategorization of embedding verbs differs from that of English. English WONDER and KNOW-type verbs take both types of interrogative complements. However, Korean WONDER type verbs take both [+wh] Q and [−wh] Q complements, but KNOW type verbs takes only the [+wh] Q complements. We could say that a small number of L2 speakers did not master the language-specific selectional requirements.

In short, we have observed that variation in the PF-realization of the CP-system can be traced back to variation in the feature structure of lexical items. The question then is how these features are realized combined with another feature. After the L2 learners successfully disjoin the Q-operator from the wh-lexical items, they still need to figure out
whether the neutral C feature can be incorporated into the force marker, which varies according to clause type. The composition of the C-system and its lexicalization suggests that the composition of a system is not uniformly constructed across and within languages—in particular the embedded C-systems are differently configured in the native and target grammars. Although the relevant features of the C-system are present across languages, their combination with a subordination feature or a clause type feature varies. There is a tendency for Korean to distribute the relevant features of C over the different positions, compared to the learners’ L1 English, which tends to fuse C-features. The different compositions of the C-system provide an opportunity for L2 speakers acquiring the appropriate licensing environments for indeterminate wh-interpretation to make errors. This is not a simple matter of parametric choice in terms of feature selection or a different selection of functional categories from the universal syntactic inventory. Indeed, it does not appear that languages even have a fixed template of functional categories with the same group of features.

7.2.3. Summary

In the above sections I have more closely examined the feature-reassembly approach and how it illuminates the nature of the learning problem facing native English speakers acquiring the interpretation of L2 Korean wh-in-situ constructions. The acquisition of the interpretation of Korean variable expressions by native speakers of English demonstrates that learning problems in adult L2 acquisition can be due to differently-assembled features and their expression in lexical items, rather than
differently selected features. Acquiring the interpretation of Korean variable expressions requires the reconstruction of the relevant assembled features from the L1 in the L2. Both Korean and English select the set of features ([Q], [wh], [VAR]) for generating wh-expressions. However, the relevant features are scattered across functional categories and separately morphologically realized in Korean: wh-lexical items are variables and the rest of the features are independently realized in sentential particles. Thus, the lexical items receive a question reading only when they co-occur with a question operator, without movement to Spec, CP. In the absence of the question operator, they are obligatorily interpreted as indefinites. Meanwhile, those features are conflated into wh-lexical items in English. English wh-lexical items obligatorily receive the question reading since the Operator and Variable are combined into the wh-expression, which forces its movement to Spec, CP. It appears that the idea that the acquisition of Korean wh-in-situ constructions by English-type language speakers merely involves switching the [+strong] feature to a [−strong] feature value is oversimplified. Rather, the learning problems confronting adult native speakers of English acquiring Korean involves teasing apart the relevant features from how they are assembled in the L1 English and reorganizing them in response to the target input. The L2ers must figure out how the combined [wh] and [Q] features are realized depending on the types of clauses in the L2 Korean—that is, matrix CP versus embedded CP. The fact that both L1 and L2 grammars select the relevant features hardly eases the difficulty for the native English speakers.
The research envisioned by the feature-reassembly approach encompasses a great many aspects of the theory of grammar. The current study demands a reassessment of the parameter resetting models to reflect this complexity.

7.3. Conclusion and Implications

The current study of the interpretation of Korean variable expressions (by English speakers) provides a case of L2 acquisition that illustrates how the feature-reassembly approach goes beyond the parameter setting metaphor in order to shed greater light on the nature of adult L2 learning problems. The learning problems confronting the adult L2 speakers come from language-specific feature matrices associated with particular configurations. Note that (at least) the interpretable features associated with wh-expressions are present in both L1 English and L2 Korean. Therefore, the issue of whether parameterized features can be selected or not by adult speakers does not affect this acquisition situation. Rather, the acquisition of the varied interpretation of the wh-lexical items requires an alternative account. These data could provide a window on aspects of learning situations faced by adult second language learners involving the nature of the remapping problem rather than the selection of features.

We have examined a variety of perspectives on parameters and parameter settings in regard to the nature of grammatical representation and adult second language acquisition in general. It is clear that the issue of what constitutes a parameter needs to be elaborated. The feature-reassembly approach points out that primitive features are organized and distributed differently across languages. As Jackendoff (2002) postulates,
a speaker is born with a toolkit for assembling a grammar system. However, the way the features are bundled and spelled out is language specific. Accordingly, L2 speakers need to reorganize the morphological expression of each formal feature from how they are realized in their native language. Variability in how they supply certain interpretations cannot be explained only by differences in parametrically-selected features from the featural inventory. But by assuming that primitive semantic features are in place in any speaker’s mental representation, the learning problems can be explained by reference to the incompleteness of the configuration of L2 relevant lexical entries.

We need to look at how relevant features are configured. This seems to be a more promising way for us to understand the nature of interlanguage representations. Applying the notion of parameters, when they are taken to be biological entities, to SLA does not seem to offer much explanation for adult learners’ divergent grammars: Linguistic variation is not limited to different parameter settings. Rather, I have investigated, following Lardiere (2005, 2008, 2009), a problem in SLA that involves more closely examining language-specific configurations of features associated with morphological knowledge.

Future Research

I have taken a closer look at the nature of adult interlanguage grammar and attempted to provide an explanation for a particular sequence that we found in the interlanguage development of English-speaking learners of Korean. This study poses questions about how we examine cross-linguistic variation and charts a potential course for further research within the generative framework.
This study is a first attempt at examining variable interpretations of ‘wh’-in-situ items. One of the next challenges for experimental research in SLA will be to develop a more sophisticated design to tap learners’ subtle interpretive differences. Note that there are ambiguous readings of wh-lexical items and differing judgments of subjacency effects depending on prosodic factors. In order to determine the generalisability of the findings of this thesis, more studies comparing L2 speakers from different L1 backgrounds are needed. Future research will be needed to establish whether the observed findings can be applied to the acquisition of other wh-in-situ languages and whether L2 speakers who have variable interpretations of wh-lexical items in their L1s, such as Chinese, also have problems with assigning proper readings according to licensing environments. It would also be interesting to see whether English-type speakers who are highly proficient in Korean get some benefit when they are acquiring another wh-in-situ language. Another possible avenue of inquiry would be to test children’s acquisition of the interpretation of variable wh-elements. Further studies could investigate the acquisition of different phenomena and different L1s and L1/TL combinations.

A series of studies should be carried out to examine how differently assembled features are configured and mapped onto language-specific phonological forms across languages within various structural constructions and discourse contexts and how such differences between L1 and L2 affect adult second language acquisition. The present study will hopefully serve as a foundation for future research in this domain. Future
studies about the reconfiguration of existing lexical entries will provide us with further insight into adult second language acquisition.
Appendices
Appendix A – Listening-and-Translation Task

Direction: Korean sentences will be presented to you via audio-speakers. Each sentence will be repeated twice. Please listen to each sentence carefully and translate it into English.

1. WHO
   a. 집 안에 누가 있니? (Who is there inside home?)
   b. 집 밖에 누가 왔니? (Is there somebody outside home?)

2. WHOSE
   a. 오늘 누구(의) 결혼식이니? (Today, whose wedding is it?)
   b. 오늘 누구(의) 생일이니? (Today, is it someone’s birthday?)

3. WHOM
   a. 철수가 누구를 좋아하니? (Who does Chelswu like?)
   b. 수미가 누구를 만나니? (Is Swumi seeing somebody?)

4. WHAT (Subject)
   a. 지금 무엇이 떨어졌니? (What has fallen down now?)
   b. 밖에 무엇이 보이니? (Can you see something outside?)

5. WHAT (Object)
   a. 너는 무엇을 (뭐) 먹었니? (What did you eat?)
   b. 너는 무엇을 (뭐) 마셨니? (Did you drink something?)

6. WHERE
   a. 수미가 어디로 여행갔니? (Where did Swumi make a trip to?)
   b. 영희가 어디에 갔니? (Did Yeonghi go somewhere?)

7. Distracters:
   a. 나는 영화를 좋아한다. (I like Yenghi.)
   b. 바지가 비싸다. (The pants are expensive.)
   c. 미국에서 왔니? (Are you from America?)
   d. 너는 노래 잘하니? (Can you sing well?)
   e. 나는 한국말 공부한다. (I am studying Korean.)
   f. 수미는 배를 먹었다. (Swumi ate a pear.)
   g. 동생이 학교에 갔니? (Did your sister go to the school?)
   h. 아버지의 구두 샀니? (Did you buy your father’s shoes?)
   i. 오늘은 친구의 생일이다. (Today is my friend’s birthday.)
   j. 너는 점심 먹었니? (Did you have lunch?)
   k. 영희가 의자에 앉아 있다. (Yenghi is sitting on the chair.)
   l. 언니한테 편지를 보냈다. (I sent a letter to my older sister.)
Appendix B – Reading-and-Translation Task

Instruction: please translate Korean sentences into English. You cannot go back to any sentence after translating it.

1. VAR-DECL Constructions (Indefinite Pronoun Reading)
   a. 나는 누가 나의 빵을 먹었다고 기억한다.
      (I remember that someone ate my bread)
   b. 나는 나의 동생이 누구를 때렸다고 기억한다.
      (I remember my sister hit somebody)
   c. 나는 내 친구가 누구의 자전거를 훔쳤다고 기억한다.
      (I remember that my friend stole someone’s bicycle)
   d. 나는 뭐( 무엇)가 지나갔다고 기억한다.
      (I remember that something passed by me)
   e. 나는 목격자가 무엇을 보았다고 기억한다.
      (I remember that a witness saw something)
   f. 나는 지난 주에 내 여자 친구가 어디로 갔었다고 기억한다.
      (I remember that my girlfriend went somewhere last week)

2. VAR-Q Constructions (Question Reading)
   a. 나는 누가 나의 고양이를 피했는지 기억한다.
      (I remember who avoided my cat)
   b. 나는 내 여자 친구가 누구를 좋아했는지 기억한다.
      (I remember whom my girlfriend liked)
   c. 나는 친구가 누구의 여동생을 좋아했는지 기억한다.
      (I remember whose sister my friend liked)
   d. 나는 그 상자에 무엇이 있었는지 기억한다.
      (I remember what was inside the box)
   e. 나는 내 친구가 무엇을 먹기 싫어 했는지 기억한다.
      (I remember what my friend hate eating)
   f. 나는 내 개가 어디로 갔는지 기억한다.
      (I remember where my dog went)

3. Distracters
   a. 나는 우주선을 보았다고 기억하니?
      (Do you remember seeing spaceship?)
   b. 공부합시다!
      (Let’s study!)
   c. 꽃병이 깨져 있었다.
      (The flower vase has shattered)
d. 나는 동생이 열심히 공부 하는지 궁금하다.
   (I wonder whether my sister studies hard)
e. 나는 아기에게 우유를 먹이었다.
   (I fed the baby with milk)
f. 아이스크림을 너도 자주 먹나?
   (Do you have ice cream often?)
g. 나는 선물을 사지 않았다.
   (I did not buy a gift)
h. 나는 여자친구에게 꽃을 주었다.
   (I gave flowers to my girlfriend)
i. 나는 담배를 안 피운다.
   (I don`ts smoke)
j. 나는 향이 꽃을 좋아할지 의심스럽다.
   (I doubt whether my older brother likes flowers)
k. 동생이 공에 맞았다.
   (My younger sister was hit by a ball)
l. 나는 내 친구가 영희를 사랑했다고 기억하고 있다.
   (I remember that my friend loved Yenghi)
Appendix C – Truth Value Judgment Task (Translated Version)

Instruction: Please read each short story and the following four sentences. The four sentences beneath each story are grammatically correct; however, some of them might not match the given story. And, it is also possible that all four sentences (or none of them) might match the given story. You will be asked to judge whether each sentence matches the given story and indicate your judgment by checking one of boxes marked ‘True’, ‘False’, and ‘Don’t know’.

[Type 1: Non-Specific Information Context]

1) Tomorrow is Valentine’s Day. John is passing by the chocolate store. He can see Mary buying a heart-shaped box of chocolates and a card. He wonders if it is for him.

   a. 잔은 메리가 누구를 좋아하다고 안다.  
      (John knows that Mary likes somebody)
   b. 잔은 메리가 누구를 좋아하는지 안다.  
      (John knows who Mary likes)
   c. 잔은 메리가 그를 좋아한다고 안다.  
      (John knows that Mary likes him)
   d. 잔은 메리가 초콜릿을 샀다고 안다.  
      (John knows that Mary bought some chocolates)

2) Chelswu’s father loves fishing. On Sunday Chelswu realizes that his father is not at home. His father’s fishing gear is not in place, so he knows that his father went fishing. He is wondering if he went to the Potomac River or Atlantic Ocean to fish.

   a. 철수는 아버지가 어디로 낚시갔다고 안다.  
      (Chelswu knows that his father went fishing somewhere)
   b. 철수는 아버지가 어디로 낚시갔는지 안다.  
      (Chelswu knows where his father went fishing)
   c. 철수는 아버지가 낚시를 좋아한다고 안다.  
      (Chelswu knows that his father loves fishing)
   d. 철수는 아버지가 생선을 좋아하는지 아닌지 안다.  
      (Chelswu knows whether his father loves eating fish or not)
3) Yeongho and Namhee are close co-workers working in the financial division. One day Yeongho saw a large and beautiful flower basket delivered to Namhee. Namhee was not there at the time. Yeongho was so curious about it, and then opened a card attached to the flower basket. A love message was written on the card. But there was no name of the sender on the card.

a. 영호는 누가 남희를 좋아한다고 안다.
   (Yeongho knows that somebody cares for Namhee)
b. 영호는 누가 남희를 좋아하는지 안다.
   (Yeongho knows who cares for Namhee)
c. 영호는 직장동료가 남희를 좋아한다고 안다.
   (Yeongho knows that a co-worker cares for Namhee)
d. 영호는 남희가 그를 좋아한다고 안다.
   (Yeongho knows that Namhee cares for him)

4) Sunhee is a Yenghi’s roommate. Sunhee saw Yenghi coming out of a department store. Yenghi was holding a heavy shopping bag. Sunhee was wondering how much Yenghi spent on her shopping.

a. 순희는 영희가 무엇을 샀다고 안다.
   (Sunhee knows that Yenghi bought something)
b. 순희는 영희가 무엇을 샀는지 안다.
   (Sunhee knows what Yenghi bought)
c. 순희는 영희가 백화점에서 쇼핑했는지 안다.
   (Sunhee knows whether Yenghi went to the department store)
d. 순희는 영희가 쇼핑에 많은 돈을 안 썼다고 안다.
   (Sunhee knows that Yenghi didn’t spend much money on her shopping)

5) Chelswu and Yenghi are classmates. Chelswu and Yenghi go into an empty classroom to have a chat. They find a bar of chocolate on a desk in the classroom. As soon as Chelswu sees the chocolate, he grabs it because he is a chocolate addict. Yenghi feels sorry for the person who left this chocolate.

a. 영희는 철수가 누구의 초콜릿을 먹을려고 하는지 안다.
   (Yenghi knows whose chocolate Chelswu is going to eat)
b. 영희는 철수가 누구의 초콜릿을 먹을려고 한다고 안다.
   (Yenghi knows that Chelswu is going to eat somebody’s chocolate)
c. 영희는 철수가 수업 들으러 간다고 안다.
   (Yenghi knows that Chelswu is going to attend a class)
d. 영희는 철수가 초콜릿을 좋아한다고 안다.
   (Yenghi knows that Chelswu likes chocolate)
6) Chilsu arrived at a bus stop to go to school. At the bus stop he found an unattended bag. Nobody was there. Chelswu picked the bag up. He felt the bag was very heavy. He decided to report it to the Police without checking inside the bag.

a. 철수는 가방 속에 무엇이 있다고 안다.
   (Chilsu knows that something is inside the bag)
b. 철수는 가방 속에 무엇이 있는지 안다
   (Chilsu knows what is inside the bag)
c. 철수는 가방의 주인이 경찰관이라고 안다.
   (Chilsu knows that the owner of the bag is a policeman)
d. 철수는 가방의 주인이 여자라고 안다.
   (Chilsu knows that the owner of the bag is female)

[Type 2: Specific Information Context]

1) Chelswu likes playing with his brother. He was looking for his brother to play with after he came back from school. But, he could not find him. He asked his mother about his brother. His mother told him that his brother was at Yenghi’s home. So, he went to Yenghi’s home to find him.

a. 철수는 동생이 어디로 갔다고 안다.
   (Chelswu knows that his brother went somewhere)
b. 철수는 동생이 어디로 갔는지 안다.
   (Chelswu knows where his brother went)
c. 철수는 동생이 집에 없다고 안다.
   (Chelswu knows that his brother is not at home)
d. 철수는 동생이 집에 있다고 안다.
   (Chelswu knows that his brother is at home)

2) Swunhi has to pass the park on the way to her school. Whenever she passes the park, Swunhi can see Chelswu receiving money from some people and giving drugs to them. Swunhi wishes that Chelswu would quit doing that.

a. 순희는 철수가 무엇을 판다고 안다.
   (Sunhee knows that Chelswu sells something)
b. 순희는 철수가 무엇을 파는지 안다.
   (Sunhee knows what Chelswu sells)
c. 순희는 철수가 자주 공원에 갈다고 안다
   (Sunhee knows that Chelswu often goes to the park)
d. 순희는 철수가 공원에서 축구한다고 안다.
   (Sunhee knows that Chelswu plays football)
3) Chelswu’s parents left home to travel. So, Chelswu was alone at home. That night, Chelswu’s dog barked a lot. He went out to see why his dog was barking. Then he found out that his girlfriend, Yenghi was there.

a. 밖에 나가 살펴본 후, 철수는 누가 집 밖에 있다고 안다.
   (After checking on the dog, Chelswu knew that somebody was outside his home)

b. 밖에 나가 살펴본 후, 철수는 부모님이 왔다고 안다.
   (After checking on the dog, Chelswu knew that his parents came back from their travel)

c. 밖에 나가 살펴본 후, 철수는 아무도 집 밖에 없다고 안다.
   (After checking on the dog, Chelswu knew that nobody was outside the home)

d. 밖에 나가 살펴본 후, 철수는 누가 집 밖에 있는지 안다.
   (After checking on the dog, Chelswu knew who was outside the home)

4) Swunhi’s sister tells Sunhee that she is going to invite Yenghi for Swunhi’s birthday. Swunhi is not happy about the idea because Swunhi dislikes Yenghi. Sunhee tells her sister that she would rather invite Chelswu.

a. 순희의 언니는 순희가 누구를 싫어한다고 안다.
   (Swunhi’s sister knows that Sunhee dislikes somebody)

b. 순희의 언니는 순희가 누구를 싫어하는지 안다.
   (Swunhi’s sister knows who Sunhee dislikes)

c. 순희는 언니가 철수를 싫어한다고 안다.
   (Swunhi knows that her sister dislikes Chelswu)

d. 순희의 언니는 순희가 철수를 좋아한다고 안다.
   (Swunhi’s sister knows that Sunhee likes Chelswu)

5) Swunhi has a blind date tomorrow evening. Swunhi told Yenghi that she was worried by the fact that she doesn’t have a beautiful dress for the blind date. Yenghi came back to Swunhi with good news that Heesuk has a beautiful dress that she does not need to wear that evening. Swunhi becomes very excited about the news.

a. 영희는 순희가 누구의 옷을 빌리기로 원한다고 안다.
   (Yenghi knows that Sunhee wants to borrow somebody’s dress)

b. 영희는 누구의 옷을 빌리기로 원하는지 안다.
   (Yenghi knows whose dress Sunhee wants to borrow)

c. 영희는 순희가 소개팅이 있다고 안다.
   (Yenghi knows that Sunhee has a blind date)

d. 영희는 순희가 옷에 대해 걱정한다고 안다.
   (Yenghi knows that Sunhee worries about a dress)
6) Today is Valentine’s Day. Yenghi’s boyfriend gives her a long and narrow box. When Yenghi receives the box from her boyfriend, she can smell roses, which she loves. She is so satisfied with the gift.
   a. 영희는 선물 상자 안에 무엇이 있다고 안다.
   (Yenghi knows what is inside the gift box)
   b. 영희는 선물 상자 안에 무엇이 있는지 안다.
   (Yenghi knows that something is inside the gift box)
   c. 영희남자친구가 오늘이 발렌타인 데이라고 안다.
   (Yenghi’s boyfriend knows that today is Valentine’s Day)
   d. 영희 남자친구는 영희가 다이아몬드를 좋아한다고 안다.
   (Yenghi’s boyfriend knows that Yenghi loves diamond)

[Distracters]

1) Yesterday Junho and Heeyeong moved into an apartment building for married students. They like it because it doesn’t cost very much and it is near the campus. They noticed that there were a lot of children playing behind the building. It was very noisy.
   a. 준호와 희영의 결혼한 사이이다.
   b. 준호와 희영은 친구 사이이다.
   c. 준호와 희영의 새아파트는 학교와 가깝다.
   d. 준호와 희영의 새아파트는 조용하지 않다.

2) Minsik lives at home with his parents in the country, but he is in town today. He has come with his pickup truck to help Chelswu move. Last year Chelswu lived in a small room near campus. It was dark, cold in the winter, and very noisy.
   a. 민식은 철수가 이사 간다고 한다.
   b. 철수는 작년에 학교와 먼 곳에 살았다.
   c. 철수는 작년에 아주 큰 집에 살았다.
   d. 민식은 도시에 산다.

3) Mary is a good student, but her parents have very little money. She does not have to pay tuition because she has a scholarship. But she needs money for necessities such as rent, food, and books. She is going to work as a work-study student in the chemistry laboratory to earn money.
   a. 메리는 돈을 벌어야 한다고 생각한다.
   b. 메리의 부모님은 부자시다.
   c. 메리는 화학 실험실에서 일을 할 것이다.
   c. 메리는 성실한 학생이 아니다.
4) Miyeong had a headache, a sore throat, and a bad cough. She had been sick for five days. Finally, her husband, Yeongchel, convinced her to go to the university Health Clinic. She didn’t have an appointment, so she knew would have to wait.

a. 미영은 병원에 가지 않을려고 했다.
b. 영철은 미영이 많이 아프다고 생각한다.
c. 미영은 병원에 가지 위해 예약을 하지 않았다.
d. 미영은 일주일 동안 아팠다.

5) It was a Saturday morning. Chelswu and Junwon were in the dormitory getting ready for a canoe trip on the lake. They were putting a picnic lunch, extra sweaters, and water to drink. It was a beautiful day. It was a perfect day for a canoe trip.

a. 철수와 준원은 토요일 저녁에 카누하러 갔다.
b. 철수와 준원은 기숙사에 산다.
c. 철수와 준원은 여분의 바지를 가지고 카누하러 갔다.
d. 철수와 준원은 카누하러 가길 싫어했다.

6) Chelswu and Junwon decided to give a party in their dorm room. They planned to invite between ten friends over on a Friday evening. Because they both had very little spending money left in their bank accounts, they wanted to be very careful to save money on beer, soft drinks, and snacks for the party.

a. 철수와 준원은 돈이 많다.
b. 철수와 준원은 금요일 아침에 파티를 열기로 했다.
c. 철수와 준원은 15 명의 친구들을 초대하기로 했다.
d. 철수와 준원은 파티에 돈을 조금 쓸 것이다.

7) Junwon planned to take his older sister to a restaurant for her birthday. Because of the special occasion, he selected an excellent restaurant. He asked her to dress up for dinner as she does for church on Sundays.

a. 준원은 누나의 생일을 기억하고 있다.
b. 준원은 누나의 생일을 위해 좋은 식당을 선택했다.
c. 준원의 누나는 그녀의 생일에 청바지를 입을 것이다.
d. 준원의 누나의 생일은 일요일이다.
8) **Heesuk and Yeongchel were talking in a coffeehouse on a chilly afternoon in early November. Heesuk, who was a freshman, was asking Yeongchel about the winter weather in Greenville. He recommended that she start thinking about getting some winter clothes.**

a. 영철이는 희숙에게 겨울옷을 준비할 필요가 없다고 말했다.
b. 희숙이와 영철이는 추운 오후 학교 식당에 앉아 있었다.
c. 희숙이는 영철이에게 그린빌의 여름 날씨에 대해 물어 보았다.
d. 희숙이와 영철이는 커피를 무척 좋아한다.

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Appendix D – Language Background Information Survey

1) Gender: Male (       ); Female (       )

2) Age:

3) How old were you when you started studying Korean?

4) How long have you been studying Korean? (       ) years (       ) months

5) Can either of your parents speak Korean? Yes (       ), No (       )
   If “Yes”, answer the following question:
   a) Did either of your parents speak to you in Korean? Yes (       ), No (       )
   b) How often did he/she speak to you in Korean?
      Almost always (       ), Fairly often (       ), Sometimes (       ), Barely (       )
   c) What language did you respond in? (       )

6) Have you studied any other languages besides Korean? Yes (       ), No (       )
   If “Yes” please list the languages you have studied and the length of time you studied them:
   Language: period of study: (       ) years (       ) months
   Language: period of study: (       ) years (       ) months

7) Have you visited or stayed in Korea? Yes (       ), No (       )
   If “Yes”, please indicate the length of time you stayed.
   Period of stay: (       ) years (       ) months

8) What is your education level (highest diploma or degree)?
   High school (       ), Bachelor (       ), Master (       ), Doctor (       )

9) What is your level of Korean?
   Low intermediate (       ), High intermediate (       ), Advanced (       ), Superior (       )
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