

# Acquiring Korean *wh*-in-situ Constructions by Native English Speakers \*

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This study investigated the L2 grammars of native English speakers acquiring two possible interpretations of Korean *wh*-in-situ expressions, question vs. indefinite readings, to explore whether adult learners can reconfigure grammatical features from the way they are lexicalized in their L1. The results of translation and judgment tasks indicated that both intermediate and advanced L2 learners showed statistically better performance on the question reading than on the indefinite reading in morphological licensing environments. A theoretical approach that models the acquisition problem in terms of the reassembly of features in lexical items is invoked to best account for the data.

**Keywords:** interpretation of *wh*-lexical items, *wh*-in-situ constructions, Korean language acquisition, feature-reassembly approach, adult second language acquisition, generative approaches to SLA

## 1. Introduction

In generative L2 research, Chomsky's (1965, 1975, 1981) "Principles and Parameters Theory" has been widely adopted for examining L2 speakers' mental grammars. Chomsky (1975: 29) proposes that 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". 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 within generative approaches to second language acquisition (e.g., White 2003). Nonetheless, the availability to adult language acquirers of parameters or parameterized principles of UG

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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 L2 learners is different (e.g., Schwartz and Sprouse 1994, 1996; Schwartz 1998). 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" (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.<sup>1</sup> 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 resetting (Lardiere 2007, 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.<sup>2</sup> One of the core ideas in the parameter setting model is that when a

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<sup>1</sup> See Legate and Yang (2007) for a contrary view.

<sup>2</sup> A reviewer points out that the Fluctuation Model (Ionin 2003) can account for the optionality in

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: 257) and thus “a new parameter setting will represent an abrupt change in the I-language of the speakers” (Kemenade & Vincent 1997: 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). It has therefore 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 2007, 2008, 2009).

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 Section 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 sec-

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L2A within parameter-setting models, according to which second language learners fluctuate between the binary choices of a parameter until the relevant input tells the L2 learners that one of the binary values is appropriate for the L2. However, it is unclear whether the persistent co-existence of the opposite values of a parameter (despite ample evidence) can be explained under the fluctuation hypothesis.

ond 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, J-T 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.

The remaining part of the paper is organized as follows. An analysis and comparison of the distribution of *wh*-lexical items in Korean and English are discussed in Section 2. Relevant second language approaches involving the acquisition of *wh*-constructions are reviewed in Section 3. In Section 4, an experiment which tested English-speaking learners’ interpretation of Korean *wh*-in-situ expressions is described, and its findings are reported in Section 5. Lastly, a general discussion of the experimental results and conclusions in Section 6.

## 2. Properties of *wh*-lexical items in L2 Korean and L1 English

### 2.1. Movement Analysis of *wh*-lexical Items

In generative grammar, the difference in the position of a *wh*-phrase in Korean-type languages and English-type languages has been characterized in terms of the *Wh*-movement Parameter. In English, a *wh*-phrase is moved to the front of matrix clauses, as illustrated in (1a). The *wh*-phrase in embedded clauses like (1b) is overtly moved to the front of the embedded [Spec, CP].

- (1) a. What<sub>*i*</sub> did Mary buy *t<sub>i</sub>*?  
 b. Mary knows [<sub>CP</sub> what<sub>*i*</sub> [<sub>IP</sub> John bought *t<sub>i</sub>*]]

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), *wh*-phrases remain *in situ* in both matrix and embedded interrogatives. Thus, it is assumed that Korean,<sup>3</sup> like Chinese and Japanese, is a *wh-in-situ* language (Huang 1995).

- (2) a. meyli-ka        mwues-ul    sa-ss-ni?  
 Mary-Nom    WHAT-Acc    buy-Past-Q  
 'What did Mary buy?'  
 b. meyli-nun [<sub>CP</sub> [<sub>IP</sub> con-i            mwues-ul    sa-ss]-nunci]  
 Mary-Top        John-Nom        WHAT-Acc        buy-Past-Q  
 alko-iss-ta.  
 know-be-Decl<sup>4</sup>  
 'Mary knows what John bought.'

Within the minimalist program, the presence (or selection) of an uninterpretable *wh*/*Q* feature<sup>5</sup> 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). However, because Korean lacks a strong [-interpretable] *wh*/*Q* feature in the head of C, its *wh*-phrases do not move overtly to the Spec of CP (Chomsky 1995; Rizzi 1990; Adger 2003). Recently the *wh*-movement parameter has been modified by Chomsky (1998, 2001), 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

<sup>3</sup> Note that basic Korean word order is subject-object-verb (SOV).

<sup>4</sup> 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; Disj-Disjunctive; Past-Past tense marker.

<sup>5</sup> I am assuming here that, following one version of the Minimalist Program (Chomsky 2001, 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].

setting (Chomsky 2001). 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.<sup>6</sup>

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 (3), the same lexical item *mwues* in embedded clauses can be interpreted as an interrogative or as an indefinite. That is, *mwues* 'THING' in (3a) has an obligatory question reading, and the same form in (3b) has the indefinite pronoun reading.

- (3) a. con-un meyli-ka *mwues*-ul sa-ss-nunci alko-iss-ta.  
 John-Top Mary-Nom THING<sup>7</sup> -Acc buy-Past-Q know-be-Decl  
 'John knows *what* Mary bought.'
- b. con-un meyli-ka *mwues*-ul sa-ss-ta-ko  
 John-Top Mary-Nom THING -Acc buy-Past-Decl-C  
 alko-iss-ta.  
 know-be-Decl  
 'John knows (that) Mary bought *something*.'

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. Multiple Interpretations of the L2 *wh*-lexical Items

Let us closely look at the distribution of Korean *wh*-in-situ items. Korean variable expressions have at least three possible interpretations – question

<sup>6</sup> As pointed out by a reviewer, if we adopt Chomsky's Phase Impenetrability Condition (PIC), where "the domain of a head X of a phase XP is not accessible to operation outside XP; only X and its edge are accessible to such operation" (Chomsky 2001), the difference between *wh*-movement and *wh*-in-situ languages in terms of a *wh*-parameter appears to blur under the recent Chomsky's MP – given that successive cyclic movement is also possible in *wh*-in-situ languages like Korean (i.e., scrambling).

<sup>7</sup> 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*.

words, indefinites and universal quantifiers – depending on their context, as in (4):

- (4) a. meyli-ka      mwues-(ul)    sa-ss-ni?  
 Mary-Nom    THING-Acc    buy-Past-Q<sub>wh</sub>  
 ‘What did Mary buy?’
- b. meyli -ka      mwues-(i)-nka<sup>8</sup>-(lul)    sa-ss-ta.  
 Mary-Nom    THING-∃-(Acc)      buy-Past-Decl  
 ‘Mary bought something.’
- c. meyli -ka      mwues-{(i) tunci/na} (lul)    mek-ess-ta.  
 Mary-Nom    THING-∀-(Acc)              eat-Past-Decl  
 ‘Mary ate everything.’
- d. con-i            mwues-ul            mek-ess-ta.  
 John-Nom    THING-Acc          eat-Past-Decl  
 ‘John ate something.’
- e. mwues-ul      mek-(e) la/ca!  
 THING -Acc    eat-Imp/Exh  
 ‘Eat something!’ / ‘Let’s eat something.’

In (4a-c), 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 (4a); the expression can be interpreted as an indefinite pronoun when bound by the existential licensing morpheme *-(i)nka* in (4b); and the *wh*-item *nwukwu* in (4c) has a universal quantifier reading associated with the universal licensing morpheme<sup>9</sup> *-(i)tunci* or *-na*.

<sup>8</sup> It has been proposed that Korean indefinite pronouns like *mwues-inka* ‘something’ are derived from indirect questions, where Q licenses the variable element (D-H Chung 1996; Y-J Jang & I-K Kim 1996; S-W Ha 2004):

(i) *mwues-i-n-ka*  
 THING-be-Present-Q      ‘something’

<sup>9</sup> *-na* and *-tunci* are argued to function as universal licensing morphemes located in C (C-S Suh 1990; C-M Suh 1987; D-H Chung 1996). Some possible evidence for the location of this element is as follows, from D-H Chung (1996):

(i) meyli-ka    nwukwu-lul      cohaha-tunci/na,    sangkwaneps-ta.  
 Mary-Nom    PERSON-Acc    like-Disj (∇)      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 (D-H Chung 1996, A-R Kim 2000, S-H Hong 2004).

Meanwhile, in (4d-e), 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.<sup>10</sup>

As 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 W Kim 1989, Y-J Jang 1999, D-H Chung 2000, A-R Kim 2000). Quantificational operators appear to be generated with (c)overt particles independently from variable expressions in Korean. As observed earlier, 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.

For this paper, we mainly focused on contextual environments for variable expressions in embedded clauses. As is well known, embedding verbs subcategorize for different types of clausal complements (e.g., Chomsky 1965; Huang 1982, 1995). Just as in English, the differences in grammaticality in the Korean complex sentences in (5-7) 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 (5). However, a verb like *sayngkakhata* ‘think’ takes only declarative complements, as in (6), and a verb like *kwungkumhata* ‘wonder’ only takes questions, as in (7).

(5) KNOW-type verb:

- a. meyli-nun [thom-i    *mwues-ul*    sa-ss-ta-ko]    an-ta.  
 Mary-Top    Tom-Nom    THING-Acc    buy-Past-Decl-C    know-Decl  
 ‘Mary knows that Tom bought something.’

<sup>10</sup> 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 *Existential Closure*. For example, in English, indefinites are variables requiring a quantificational force (e.g., Heim 1982), as in (i). Here the indefinite *a restaurant* receives a universal quantifier reading because it is bound by the adverb *always*, which bears a universal quantificational force.

- (i) a. If a restaurant is good, it is *always* expensive. (Heim 1982: 133)  
 b.  $\forall x$  [restaurant ( $x$ )  $\wedge$   $x$  is good] [ $x$  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.  $(\exists x, y)$  [ $x$  is a man  $\wedge$   $y$  is a llama  $\wedge$   $x$  owns  $y$ ] (Diesing 1992: 6)

- b. meyli-nun [thom-i *mwues*-ul sa-ss-*nunci*] an-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Q know-Decl  
 'Mary knows what Tom bought.'
- (6) THINK-type verb:
- a. meyli-nun [thom-i *mwues*-ul sa-ss-*ta-ko*] sayngkakh-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Sub think-Decl  
 'Mary thinks that Tom bought something.'
- b. \*meyli-nun [thom-i *mwues*-ul sa-ss-*nunci*] sayngkakh-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Q think-Decl  
 'Mary thinks what Tom bought.'
- (7) WONDER-type verb:
- a. \*meyli-nun [thom-i *mwues*-ul sa-ss-*ta-ko*]  
 Mary-Top Tom-Nom THING-Acc buy-Past-Decl-Sub  
 kwungkumha-ta.  
 wonder-Decl  
 'Mary wonders that Tom bought something.'
- b. meyli-nun [thom-i *mwues*-ul sa-ss-*nunci*] kwungkumha-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Q wonder-Decl  
 (i) 'Mary wonders what Tom bought.'  
 (ii) 'Mary wonders if Tom bought something.'

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 variable expression 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 (5a) and (6a). That is, the expression obligatorily has an indefinite interpretation when the declarative particle *ta* co-occurs. Recall the simple non-interrogative clause (4d), repeated here as in (8):

- (8) meyli-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 earlier, variable expressions receive an indefinite reading as their default reading when they appear in sentences lacking explicit quantifier particles. The presence of a declarative particle [-Q, -wh] might play a role in triggering the indefinite interpretation (non-question reading) of the embedded variable word in (5a) and (6a).

When matrix verbs select question complements, the variable expression is not uniformly interpreted, as can be seen in (5b) and (7b). In (5b), the variable expression has a question reading when embedded by *alta* 'know'. In a case like (7b), 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<sup>11</sup>. Consider the following embedded interrogatives:

- (9) a. meyli-nun thom-i kapang-ul sa-ss-nunci kwungkumha-ta.  
 Mary-Top Tom-Nom bag-Acc buy-Past-Q wonder-Decl  
 'Mary wonders if/whether Tom bought a bag.'
- b. meyli-nun thom-i mwues-ul sa-ss-nunci kwungkumha-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Q wonder-Decl  
 (i) 'Mary wonders what Tom bought'  
 (ii) 'May wonders if Tom bought something.'
- (10) a. \*meyli-nun thom-i kapang-ul sa-ss-nunci an-ta.  
 Mary-Top Tom-Nom bag-Acc buy-Past-Q know-Decl  
 'Mary knows if Tom bought a bag.'
- b. meyli-nun thom-i mwues-ul sa-ss-nunci an-ta.  
 Mary-Top Tom-Nom THING-Acc buy-Past-Q know-Decl  
 (i) 'Mary knows what Tom bought.'  
 (ii) \* 'Mary knows if Tom bought something.'

The verb *kwungkumhata* 'wonder' takes a question complement regardless of whether a variable expression is present or not, as shown in (9). The well-

<sup>11</sup> 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: 109)

formed sentence (9a), 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 question particle *nunci* is employed for both types of interrogatives. However, the verb *alta* ‘know’ cannot select a question complement with a noun phrase, as shown in (10a).<sup>12</sup> 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. The ungrammaticality of (10a) and the grammaticality of (10b) require further division in relation to *wh*-question and yes/no question complements.

As proposed 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. Complements of verbs like *alta* ‘know’ 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). 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 (9b). This could be explained by 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].

<sup>12</sup> 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. meyli-nun thom-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. meyli-nun thom-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) 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.

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 (10b), 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 [ $\pm$ wh]. This is supported by the morphologically distinctive embedded Q-markers in the Kimhay dialect.

- (11) a. *nay-nun* [swunhi-ka chelswu-lul cohaha-*{na/\*nunkong}*]  
 I-Top Swunhi-Nom Chelswu-Acc like-Q[-wh]/Q[+wh]

*kwungkumha-ta.*  
 wonder-Decl

'I wonder if Swunhi likes Chelswu.'

- b. *nay-nun* [swunhi-ka *nwukwu*-lul cohaha-*{nunkong /\*na}*]  
 I-Top Swunhi-Nom who-Acc like-Q[+wh]/Q[-wh]

*kwungkumha-ta.*  
 wonder-Decl

'I wonder who Swunhi likes.' (H S Choe 1994: 279)

In (11a), the Q-marker *nunkong*, which carries a [+wh] feature, cannot co-occur with a non-question word. On the other hand, in (11b), the Q-marker *na*, which has a [-wh] feature, cannot co-occur with the question reading of *nwukwu* 'who'. It appears that 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.

The remainder of this study will focus on embedded clauses in KNOW type-verb construction 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.

### 2.3. Crosslinguistic wh-Constructions in English and Korean

Let's consider the properties of English wh-expressions and embedded clauses. In English complex sentences, embedded clauses are marked by par-

ticular lexical items: *that* for an embedded declarative and a *wh*-phrase for an embedded *wh*-question:

- (12) a. John knows [<sub>CP</sub> (*that*) Mary bought something].  
 b. John knows [<sub>CP</sub> *what*<sub>i</sub> [ $\emptyset$  [Mary bought *t*<sub>i</sub>]].

With regard to embedded *wh*-questions, as in (12b), 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 (wh-)Operator.

Table 1 summarizes the crosslinguistic differences<sup>13</sup> between English and Korean in relation to *wh*-question constructions.

**Table 1.** Selection and Assembly of Features of *Wh*-expressions in the C domain

Properties	Korean	English
<b>CP</b>		
[EPP] (or [ <sub>i</sub> <i>wh</i> *])	No	Yes
[Operator] (Spec/CP)	Null	Moved <i>wh</i> -word
[+Q, + <i>wh</i> ]	Overt	Null
<b>DP</b>		
[Q-operator]	No	Yes
[Variable]	<i>wh</i> -item ( <i>nwukwu</i> = [D, human])	Part of <i>wh</i> -item ( <i>who</i> = [ <i>wh</i> , D, human])

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 [ $\pm$ *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), H S Choe (1994), and A-R Kim (2000), I have as-

<sup>13</sup> As a reviewer suggests, one might characterize the differences between English and Korean (described in this section) in terms of parameters. The current notion of parameters is seemingly moving toward them being more idiosyncratic properties of lexical entries. However, this types of parameters (microparameters) have a tendency to proliferate the number of proposed parameters, which 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.

sumed 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 particle *nunci* for embedded interrogative clauses in Korean.

With respect to the DP domain, the interpretable [Q-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. 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 [ $\pm human$ ], 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.

### 3. Relevant Second Language Acquisition Approaches

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 L2 learners to reset an appropriate value for a certain parameter. At least three different approaches can be discerned. Among them, two hypotheses from parameter resetting models are relevant for our purposes because of their principled accounts of the relation between parameter resetting and learning problems during the course of L2 development (assuming L1 full transfer). Namely, the Representational Deficit Hypothesis (RDH) 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 (re)setting metaphor, and serves as an alternative approach for parameter resetting models.

#### 3.1. The Full Transfer/Full Access Hypothesis

According to Schwartz and Sprouse (1994, 1996, 2000), the initial assump-

tion of the previous knowledge of syntactic properties imposes L1 analyses on the L2 input (except for the phonetic matrices of lexical/morphological items). 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. 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) (Schwartz & Sprouse 1996). 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 2005). This suggests that there is no effect from the role of age whatsoever between child and adult L2 learners.

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 and Sprouse (1996: 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.

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.

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 L2 learners to rely only on their L1 English representations when interpreting Korean variable expressions. For example, as discussed in the previous section,

sentential particles are essential to type an embedded clause. When the embedded variable expression receives a question reading, the question particle is obligatorily required. Otherwise, the variable expression obligatorily receives an indefinite pronoun reading. 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.

With exposure of 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 the sentential particles. 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 – even if the configuration of the features that affect the interpretation of Korean variable expressions can be described in terms of parameters with the help of feature advanced theoretical analysis. 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 relevant input is evident present in the linguistic environment.

### 3.2. 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.

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. 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: 271) speculate that a possible reason why only uninterpretable features are affected by a maturational effect is “functional usefulness”. That is, since 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 [ $\mathcal{U}\gamma$ ] also present in the L2 will fully acquire target representations involving the feature [ $\mathcal{U}\gamma$ ]. But speakers of an L1 (or L1s) lacking [ $\mathcal{U}\gamma$ ] who are exposed to an L2 beyond some point of early development will no longer have that feature available, and will construct representations for the relevant L2 structures with alternative resources made available by UG. (Hawkins & Hattori 2006: 295)

Note that this model maintains that nonnative grammars observed in adult L2 learners are attributed to their inability to reselect (or reset) formal features, but says little about their inability to reassemble the features into lexical items.

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<sup>14</sup> (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

<sup>14</sup> A reviewer raises an interesting question about whether interpretability should be defined in the semantic component only. It might be unfair for the RDH model to be evaluated because interpretability of formal features itself has been controversial. I agree that it seems odd that interpretability of features is limited to LF. Nonetheless, in order to test the RDH' view, I follow its notion of interpretability (Hawkins & Hattori 2006, Tsimpli & Dimitrakopoulou 2007). Given that what counts as uninterpretable features requires refinement, addressing the acquisition issues in SLA solely in terms of the interpretability of features (like the RDH model) leads us nowhere.

variable expressions. Rather, knowledge of the interpretable features [wh] 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 relevant interpretable features.

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. More recently, proponents of the proposal (Hawkins & Hattori 2006, Tsimpli & Dimitrakopoulou 2007) explicitly suggest that interpretable features continue to be available throughout life, even when the L1s do not select those interpretable features. Since the relevant interpretable features 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 shared interpretable features are concerned, the RDH and the FT/FA hypotheses share the view that the L2 learners should not have problems as long as they have valid L2 input.

### 3.3. An Alternative Account: The Feature-Reassembly Approach

For this study, we examine an alternative approach, the Feature-Reassembly Approach (Lardiere 2007, 2008), which attempts to account for L2 speakers' divergent performance in terms of feature-reassembly, rather than parameter switching. This approach is based within the framework of Distributed Morphology (Halle & Marantz 1993, Embick & Noyer 2001), which 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: 133). The Feature-Reassembly approach 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: 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, clus-

tered 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: 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 L2 learners 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 L2 learners' 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.

Regarding 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 Section 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 licenser to be interpreted. Bundles

of syntactic [wh] and [Q] features, which generate the Q-operator, are separately spelled out in C.

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 L2 learners 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 L2 learners must figure out how the combined [wh] and [Q] features are morphologically realized.

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. In order to test the predictions, the following research questions are formulated:

(13) Research Questions:

- a. Do adult English speakers have difficulty correctly interpreting L2 Korean variable expressions according to the contextual co-occurrence of sentential licensing particles?
- b. If the native English speakers have trouble interpreting Korean variable expressions correctly, is the correct interpretation ultimately acquirable by advanced Korean learners?

## 4. Experimental Study

### 4.1. Materials

A reading-and-translation task and a truth-value judgment task were administered to investigate whether non-heritage English-speaking learners of Korean are able to make an interpretive distinction between indefinite and wh-question types of L2 variable expressions.

In the translation task, each subject was asked to translate Korean sentences containing wh-lexical items into English. The translation task was comprised

of written materials, for testing adult learners' knowledge of the interpretation of L2 Korean variable expressions based on and sentential particles (embedded clauses). The rationale for the translation tasks 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. As discussed in Section 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  $[\pm\text{Wh}]$  and  $[\pm\text{Q}]$  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 *alta* 'know' / *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 (14-15).

(14) VAR-DECL Construction (n = 6):

con-un [meyli-ka *mwukwu*-lul cohahay-ss-*ta*-ko] kiekhan-ta.  
 John-Top Mary-Nom PERSON-Acc like-Past-Decl-Sub remember-Decl  
 'John remembers that Mary liked *somebody*.'

(15) VAR-Q Construction (n = 6):

con-un [meyli-ka *mwukwu*-lul cohahay-ss-*nunci*<sup>15</sup>] kiekhan-ta.  
 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  $[-\text{Q}, -\text{wh}]$ , it can only have the indefinite reading *somebody*, as in (14). However, when the variable expression co-occurs with the question particle *nunci*, which bears the features  $[\text{+Q}, \text{+wh}]$ , it has the question interpretation, as in (15). We refer to the former structure with the indefinite interpretation of variable elements as the VAR-DECL construction and to the

<sup>15</sup> To some native speakers, it is more natural for the embedded clause to be marked by the object accusative *-lul*, as follows:

- (i) con-un [meyli-ka *mwukwu*-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.

structure with the *wh*-question interpretation as the VAR-Q construction. It is expected that if subjects have acquired the fact that the interpretation of Korean variable expressions is determined by the features [ $\pm Q$ ,  $\pm wh$ ] 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). Eight simple declaratives, and two matrix interrogatives and two embedded interrogative served as distracters, as in (16).

(16) Distracters:

- a. na-nun    tambay-lul    an    phiwun-ta. (n = 8)  
 I-Top    cigarette-Acc    Neg    smoke-Decl  
 'I don't smoke.'
- b. na-nun    tongsayng-i    yelsimhi    kongpu    ha-nunci    kwungkumha-ta.  
 I-Top    sibling-Sub    hard    study    do-Q    wonder-Decl  
 (n = 2)  
 '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?'

A truth value judgment task was designed to determine whether language acquirers were interpreting VAR-DECL and VAR-Q constructions distinctively given a fully described context. This allows us to corroborate the results of the reading-and-translation task for the morphological licensing environment. 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. 1999). 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 monolin-

gual 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<sup>16</sup> (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 1). Note that the stories never contain both variable expressions and indefinite pronouns. In Figure 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:

con-un [nwu(kwu)-ka meyli-lul cohahan-ta-ko] an-ta.<sup>17</sup>  
 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:

con-un [nwu(kwu)-ka meyli-lul cohaha-nunci] an-ta.  
 John-Top PERSON-Nom Mary-Acc like-Q know-Decl  
 ['John knows *who* likes Mary.']  
 True  False  Don't Know

(iii) Distracters:

con-un cikcangtonglyo han salam-i meyli-lul cohahan-ta-ko an-ta.  
 ['John knows that one of his co-workers likes Mary.']  
 True  False  Don't Know

<sup>16</sup> Only the non-specific scenario responses are reported in this paper because these are the only kind for which the question reading can reliably be ruled out as 'False'. In the specific information scenarios that describes a situation in which a particular X is identified, both the question and indefinite readings could conceivably be 'True', since, for example, knowing 'who likes Mary' entails knowing that 'someone likes Mary'.

<sup>17</sup> Note that I used two different verbs as matrix verbs: *kiekhata* 'remember' for the translation task and *alta* 'know' for the judgment task.

con-un meyli-ka ku-lul cohaha-nunci an-ta.  
 ['John knows whether Mary likes him.']  
 True                       False                       Don't Know

**Figure 1.** Scenario for Non-specific Information

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<sup>18</sup> ("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.

#### 4.2. Participants

A total of 103 adult English speakers learning Korean as a foreign language participated in the experiment. They were divided into two proficiency levels: intermediate and advanced levels of L2 Korean (as determined by their performance on control items).<sup>19</sup> As shown in Table 2, adult L2 learners were late learners of Korean; on average, they started learning the second language at age 20, ranging from 17 to 39.

**Table 2.** Summary of (Mean) Background Information of Subjects

Subjects	Age	Length of study	Age of first exposure to L2
Intermediate (n=79)	23 (18-40)	0.9 yr	21.97 (17-39)
Advanced (n=24)	24 (21-59)	5.1 yrs	19.56 (18-30)

<sup>18</sup> 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.

<sup>19</sup> In order to investigate the nature of the learning process of adult L2ers, the native English speakers (total=103) were grouped into two different proficiency levels—intermediate and advanced—on the basis of the results of the translation task distracter items. The distracter sentences (n=12) of the translation task served as a kind of pre-test to classify the subjects' proficiency levels. The cut-off for the reading-and-translation task was a score of 10 out of a maximum of 12. On the basis of this criterion, subjects (n=79) whose scores ranged from a score of 4 to 8 for both tasks were identified as intermediate and subjects (n=24) whose scores ranged from 10 to 12 were identified as advanced (by an experimenter). The terms 'intermediate' and 'advanced' are meant to be interpreted in relation to one another.

Only eight intermediate learners had lived in Korea at the average of around 1.7 years while 23 advanced learners (except for one learner) had resided in a target-language country at the average of 2.8 years. All of them were in United States when they were tested. Additionally, none of the learners had Korean-speaking parents. In other words, they were all non-heritage Korean learners. Fifteen monolingual native speakers of Korean served as controls for the truth-value judgment task, while ten (native Korean-speaking) Korean-English bilinguals served as a control comparison group for the translation task.

### 4.3. Procedure

A total of two tasks were presented to the L2 learners in the form of a paper booklet: a reading-and-translation task and a judgment test (in that order). The translation task preceded the judgment task in order to minimize the subjects' awareness of the focus of the experiment. 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. While the tests were not timed, most participants completed the entire testing in one hour or less.

As far as the data analysis of the translation task 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 task were then subjected to statistical analysis. 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 translation and judgment tasks. 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. 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. The alpha level for all statistical tests was set at  $p < .05$ .

## 5. Results

### 5.1. Results of the Reading-and-translation Task

The group results of adult learners are reported with respect to sentential particle licensing environments. Table 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 3.** Mean Accuracy of Interpretations of Embedded Variable Expressions in Translation Production

	VAR-DECL ("something")		VAR-Q ("what")		Paired sample <i>t</i> -tests comparing indefinite vs. question readings	
	Mean	SD	Mean	SD	<i>t</i>	Significance
Intermediate (n = 79)	31.28% (133/428)	.30	76.71% (338/439)	.29	-7.21	<.0001
Advanced (n = 24)	54.86% (75/137)	.37	84.72% (117/138)	.21	-3.21	<.005
Control (n = 10)	100% (60/60)	.00	100% (60/60)	.00		

As expected, the native Korean-speaking controls were accurate in providing appropriate interpretations for embedded variable expressions with both types of embedded sentential particles. However, both the 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 31% for the intermediate learners versus 55% for the advanced learners.<sup>20</sup> On the other hand, the adult learners from both experimental groups correctly supplied question interpretations at an above chance level (70%) in the case where the embedded variable expressions were associated with the question particle.

Comparing the two learners' groups and the native control group, there is a significant difference in relation to the declarative contexts ([VAR ...-Q]), ANOVA: *df* = 2, *F* = 25, *p* < .0001. *Tukey* comparisons indicate that two learners' groups and the native group were different from each other when the variable expressions have the indefinite reading. Meanwhile, there is marginally significant difference between the native and both learner groups in relation to

<sup>20</sup> In other words, the incorrect question readings were provided at the rates of 69% and 45% for the intermediate and the advanced groups, respectively. Those responses in which the participants did not provide (mostly in the intermediate group) were not taken into account for the analysis.

the (indirect) question contexts ([VAR ... +Q]), ANOVA:  $df = 2, F = 3.9, p = .02$ . According to post-hoc Tukey analyses, a significant difference is observed only between the intermediate group and the native control group.

The results for the sample paired *t*-tests reported in the final column of Table 3 show that there were significant differences in the accuracy rate of both readings of variable expressions within each learner group:  $t(78) = -7.21, p < .0001$  for the intermediate group versus  $t(23) = -3.21, p < .005$  for the advanced group.

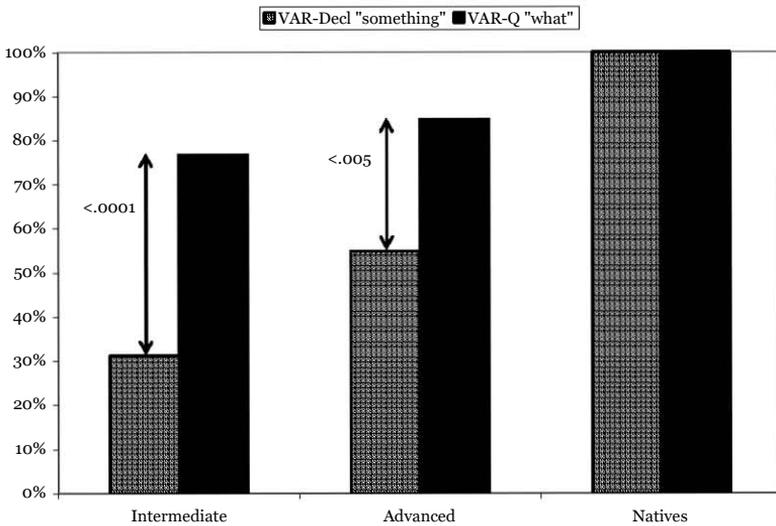


Figure 2. Translation Results

As Table 3 and Figure 2 show, unlike Korean native speakers who have perfectly accurate results for both types of readings in the translation task, participants from both learner groups displayed asymmetric accuracy in the translations of the two types of variable expressions. That is, the L2 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.

*Individual Results in the Translation Task*

This section considers individual subjects' response patterns in order to determine the extent of the variation and overlap within each group in the 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%)<sup>21</sup>. Table 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 4.** Individual Data in the Translation Task

	Response Pattern		
	Incorrect (0%)	Optional	Correct (80%)
VAR-DECL (“ <i>something</i> ”)			
Intermediate (n=79)	26 (33%)	<b>45 (57%)</b>	8 (10%)
Advanced (n=24)	5 (21%)	<b>11 (46%)</b>	8 (33%)
VAR-Q (“ <i>what</i> ”)			
Intermediate (n=79)	3 (4%)	25 (31%)	<b>51 (65%)</b>
Advanced (n=24)	0 (0%)	6 (25%)	<b>18 (75%)</b>

As shown in Table 4, there is a similar distribution of individual responses between the two learners’ groups in general. That is, the most learners from each group fall into the optional response category for the indefinite translations and fall into the correct response category for the question translations. An increased rate of correct respondents was observed within both learner groups in the question contexts: native-like respondents increased 55% (from 8 to 51) within the intermediate group and 42% (from 8 to 18) within the advanced group. Nonetheless, there are subtle differences between both groups. Regarding the indefinite type, the second most subjects (33%) from the intermediate group were those who incorrectly interpreted the L2 variable expression in declarative contexts as question readings all the time. On the other hand, those (33%) from the advanced group exhibited target-like interpretations in the obligatory indefinite contexts. With respect to the question type reading, around 35% of intermediate learners (28/79) had not reached the target-like level of performance when the L2 variable expression co-occurred with the question particle. Meanwhile, only 25% of advanced learners failed to the target-like interpretations in interrogative contexts. Individual data confirm

<sup>21</sup> 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.

that asymmetry in performance between [-Q] and [+Q] readings. Moreover, the indefinite reading was still problematic for more than half of the advanced learners.

When comparing responses for both sentential particles, 6 advanced learners were native-like on both readings, showing that the acquisition of Korean variable expressions is ultimately possible. On the other hand, 25 (32%) intermediate learners and 3 (13%) advanced learners predominantly provided only question readings for the variable expression regardless of the types of sentential particles. 3 intermediate learners only construed variable expressions as indefinite readings for both declarative and question contexts. As far as optional readers are concerned, 18 (23%) intermediate learners and 4 (17%) 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. 21 (27%) intermediate and 7 (29%) advanced learners were optional readers only for the declarative context, and showed target-like interpretations in the question context. On the other hand, 5 (6%) intermediate and 2 (8%) 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.

5.2. Results of the Truth Value Judgment Task

We turn now to the L2 speakers’ judgment patterns (acceptance vs. rejection) of test constructions paired with non-specific scenarios 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. Table 5 shows the mean judgments for the VAR-DECL and VAR-Q sentence types under the non-specific information contexts.

**Table 5.** Mean Judgments in the Interpretation of Variable Words: Non-specific Contexts

	Non-specific Information Context				Paired sample <i>t</i> -tests comparing indefinite vs. question readings	
	VAR-DECL (“something”)		VAR-Q (“what”)			
	Mean	SD	Mean	SD	<i>t</i>	Significance
Intermediate (n = 79)	-0.34	.603	-0.10	.622	-2.5	.015
Advanced (n = 24)	+0.58	.599	-0.78	.336	+9.41	<.0001
Control (n = 15)	+0.84	.213	-0.98	.086	+33.085	<.0001

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*’), the advanced group and the control group are likely to correctly reject the question statements:  $M = -0.78$  for the advanced learners, and  $M = -0.98$  for the native controls. In contrast, the intermediate learner’ group shows a much lower rate on the rejection of the question statements,  $M(\text{ean}) = -0.10$ . As far as the judgments on the declarative statements are concerned, unlike native Korean speakers and advanced learners who were likely to accept the VAR-DECL (declarative statement) –  $M = +0.58$  and  $M = +0.84$ , respectively—the lower proficiency level learners tended to incorrectly reject the declarative statements,  $M = -0.34$ .

A single-factor ANOVA performed on the data as a whole shows that there is a significant difference between the two experimental groups and the control group for both types of statements—the declarative statements, ANOVA:  $df = 2, F = 42.71, p < .0001$  and for the question statements, ANOVA:  $df = 2, F = 26.71, p < .0001$ . According to post-hoc Tukey analyses, the intermediate group differs from the control and the advanced groups in relation to both declarative and question statements. However, such a statistical difference is not observed between the control and the advanced groups. This suggests that the interpretation of Korean variable expressions is acquirable by adult L2 speakers.

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 and Figure 3 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.

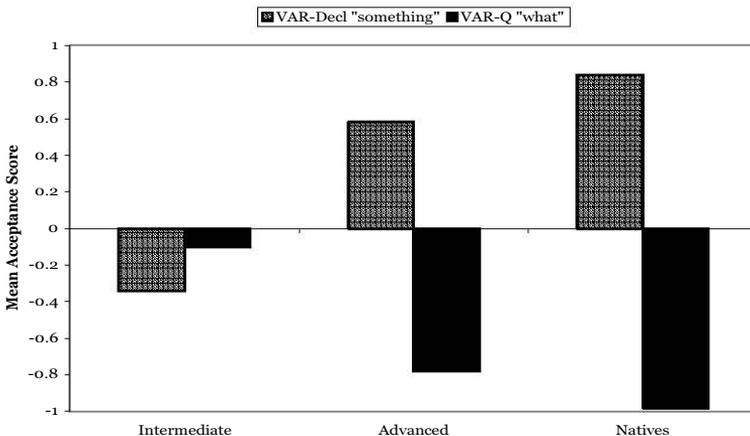


Figure 3. Judgment Contrast Under Non-specific Story

These asymmetric judgments are also observed in the advanced group,  $t(23) = 9.41$ ,  $p < .0001$ . Like the native controls, the advanced learners display a target-like judgment pattern – they strongly rejected the question reading ( $M = -0.78$ ) while accepting the indefinite reading ( $M = +0.58$ ) of the embedded variable expressions. However, the intermediate learners behaved in almost the opposite manner. As Figure 3 illustrates, unlike the native and advanced speakers, the lower proficiency learners more strongly incorrectly rejected the declarative statements than they did for the question statements,  $t(78) = -2.5$ ,  $p = .015$ . This shows that the intermediate learners were incorrectly likely to construe the L2 variable expressions in the declarative construction as question readings.

#### *Individual Results of the Judgment Task*

We report individual data from the judgment task. We mainly focus on the correct responses – that is, “true” answers for the declarative statements and “false” answers for the question statements associated with the non-specific stories. Table 6 presents the individual data of the judgment task.

**Table 6.** Individual Data in the Judgment Task.

	Response Pattern		
	Incorrect (0%)	Optional	Correct (80%)
<b>VAR-DECL (“something”)</b>			
Intermediate (n=79)	14 (18%)	<b>56 (71%)</b>	9 (11%)
Advanced (n=24)	1 (4%)	6 (26%)	<b>16 (70%)</b>
Natives (n = 15)	0 (0%)	1 (7%)	<b>14 (93%)</b>
<b>VAR-Q (“what”)</b>			
Intermediate (n=79)	5 (6%)	<b>52 (66%)</b>	22 (28%)
Advanced (n=24)	0 (0%)	3 (12%)	<b>21 (88%)</b>
Natives (n=15)	0 (0%)	0 (0%)	<b>15 (100%)</b>

As observed in the group data, the results of the individual data show that a majority of the advanced learners achieved a target-like level of judgments on both indefinite pronoun and question types of variable expressions, 70% and 88%, respectively. On the other hand, a majority of intermediate learners’ judgments were optional for both types of variable expressions, indicating that the lower proficiency learners were not sensitive to different types of sentential particles as licensors for the L2 variable expressions. Although many advanced learners displayed target-like judgments overall, Table 6 shows the L2 learners’ asymmetrical distributions in their responses 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 pat-

terns emerged in the group results of the judgment task.

To sum up, we have observed in this experimental study that the English-speaking learners of Korean had difficulty interpreting the L2 variable expressions in a morphological licensing environments – declarative vs. question particles. In particular, the adult second language acquirers from both intermediate and advanced learner groups were far from achieving target-like performance in the [-Q] type of the L2 variable expressions in obligatory contexts. Nevertheless, between-group comparisons reveal significant differences in the indefinite interpretation, indicating an increase in target-like responses with increasing proficiency. In the judgment tasks, the advanced learners made a clear distinction between declarative and question statements in given scenarios. On this task, the advanced learners 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 on some occasions. 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.

## 6. Discussion

The present study tested an underlying assumption in L2 generative models based on parameter setting frameworks, in which the acquisition of *wh*-in-situ languages by speakers of overt-movement languages may not be difficult because a parameterized strong *wh*-feature is not involved. 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.

One 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 relatively low (31%) for the indefinite type, it can be argued that the L2 speakers had not learned or encountered the [-Q] interpretation type in the target language. However, this might not be the case. Relevant individual data indicate that three intermediate learners construed variable expressions only as indefinite reading regardless of whether the closest sentential particles are interrogative or declarative. This shows that the English-speaking learners of Korean might have acquired the fact that Korean *wh*-lexical items could have a non-question interpretation.<sup>22</sup> In addition, relevant target input does not appear to be impoverished. As argued by Schwartz and

Sprouse (1994, 1996), one might assume that the English speakers' nonnative interpretation of the Korean variable expressions can be a consequence of the absence or rarity of the relevant distribution of its indefinite interpretation type.

To test Schwartz and Sprouse's assumption that 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, a search was performed on the Sejong corpus<sup>23</sup> collected by the 21<sup>st</sup> Century Sejong Project. 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. In the approximately three hundred thousand words searched<sup>24</sup>, 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, where we show the frequency with which the indefinite type of each variable expression, and the question type, appears in the possible input.

**Table 7.** Frequency Difference between both Readings of Variable Elements: Distribution (N and %) of VAR-interpretations

	[-Q] Reading ("something")	[+Q] Reading ("what")	Total
<i>nwukwu</i> 'PERSON' (n = 3)	110 (65%)	58 (35%)	168
<i>mwues</i> 'THING' (n = 2)	131 (42%)	183 (58%)	314
<i>eti</i> 'PLACE' (n = 1)	10 (31%)	22 (69%)	32
Total	<b>251 (49%)</b>	<b>263 (51%)</b>	514

As can be seen in Table 7, the indefinite reading types of variable expres-

<sup>22</sup> As suggested by reviewers, 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 readings. However, note that most of the advanced learners had been exposed to the target-speaking environment for around 24 months. The non-target interpretation in the indefinite contexts was often observed in the advanced speakers' performance.

<sup>23</sup> 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/> for information about the composition of the corpus and conditions for access. From the primary corpus of Modern Korean of The 21<sup>st</sup> 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

<sup>24</sup> These examples were then checked by hand to find true examples of the interpretation of variable expressions.

sions 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 *nwukwu* ‘PERSON’ words ( $X^2 = 15.48$ ,  $p < .0001$ ), and twice as many of the question type are found with the *eti* ‘PLACE’ word ( $X^2 = 8.28$ ,  $p = .004$ ). A marginal significance is observed with respect to the expression *nwues* ‘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.

According to Lightfoot’s (1997) 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. Consequently, there is no poverty-of-the-stimulus problem, and thus no need for invoking UG in re-assembling relevant features that generate wh-constructions. It is evident that under the Full Access part of the FT/FA hypothesis, 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.

Rather, a promising source for the predominance of the incorrect question interpretation for many L2 learners lies in a different configuration. Non-target-like interpretations in obligatory indefinite contexts are due to a non-target-like assembly of relevant features in wh-lexical items and the misanalysis of corresponding licensors for variable expressions. In other words, the L2 learners might not have completed the construction of a lexical entry for the target grammar. 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 ([OP]) and variable ([VAR]) features in the L1 while it is variable independent of the question operator in the target grammar. 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 licenser of the *wh*-variables.

Let's examine the L2 speakers' interlanguage grammars in detail. 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. Since the grammar of the English speakers regarding the interpretation of embedded variable expressions is divergent mainly 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 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 [ $\alpha$ Q,  $\alpha$ *wh*] rather than [-Q, -*wh*] in interlanguage 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, as exemplified in (17c) in contrast to the target representation in (17b):

(17) Declarative statement (Indefinite Reading):

- a. *meyli-nun swunhi-ka mwues-ul mek-ess-ta-ko*  
 Mary-Top Swunhi-Nom THING-Acc eat-past-Decl-Sub

*kiekhan-ta.*

remember-Decl

'Mary remembers that Swunhi ate something.'

- b. Target Grammar:

Mary remembers [<sub>embedded CP</sub> [-Q, -*wh*]  $\exists x$  ... [VAR(*x*)]]

- c. IL Grammar:

Mary remembers \* [<sub>embedded CP</sub> [ $\alpha$ Q,  $\alpha$ *wh*] ... [OP + VAR]]

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'. Ko-

rean 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 verb (Verb + affix). In addition, the declarative particle *ta* is deeply embedded by the subordinate marker *ko*, which is assumed to be a neutral subordinator marker (Bhatt & Yoon 1991), in declarative contexts. The position of the subordinator marker might hinder the L2 learners from recognizing the force marker *ta*. The appearance of the unspecified marker in embedded questions is not unusual even in English-type languages. In some dialects of English and co-occurred in older stages of English (and Dutch, French and German), the question *wh*-word and the COMP *that* frequently co-occur. For example, unlike Standard American English indirect interrogatives, the Doubly-Filled Comp Filter (DFCF) does not hold in Belfast English, as reported by Henry (1995), as in (18).

- (18) Belfast English (Henry 1995: 118):  
 a. I wonder [*which dish that* they picked].  
 b. I don't know [*when that* he is going].

In the examples like (18), the COMP *that* is assumed to be a featural neutral morpheme occupying the head of FinP within the framework of Rizzi (1997).

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 licenser 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, 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. 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 displayed a contrast between declarative and question constructions (in addition to distracter items). Hence the L2 speakers could compare two different constructions<sup>25</sup> and could revise their initial syntactic

<sup>25</sup> There was evidence for this. Among advanced learners, there are some cases where several sub-

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., *nwukwu*) onto the L2 set of features ([VAR] or [some *x*, *x* is a person]). As a consequence, question interpretations became suppressed. This seems to play a role in the advanced learners' increasing sensitivity to licensors, which resulted in improving accuracy regarding the indefinite readings. 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. As far as the lower proficiency learners are concerned, such a task effect is not observed in their interpretations in general. As proficiency level increased, the L2 learners' ability to recognize the licensors appears to become enhanced.

There was a similar case of errors in terms of the analysis of an appropriate licensor, a [+*wh*] question particle. From data from the intermediate learners' interpretations, we found that the question particle *nunci* was incorrectly analyzed as a negative marker in intermediate learners' grammars: there were 27 incidents of this produced by 12 out of 79 intermediate learners. This yields incorrect responses, namely translating the main verb in the matrix clause as negated. In more detail, the twelve intermediate learners wrongly interpreted the [+*wh*] question particle *nunci* as the Korean negative linking marker *-ci ani-* (*ci* + the negation marker 'not'), yielding negated complex sentences with indirect *wh*-questions instead of positive complex sentences with indirect *wh*-questions, as in (19):

(19) Intermediate Learners' Translations:

- Subject #98: I *didn't* remember that my friend disliked *what* ate.  
 #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 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 there is no incident of this type of error, namely treating *nunci* as the negation marker –

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jects circled the embedded sentential particles contrasting the two test sentences and revised their answers.

(*ha*)*ci* among advanced learners' grammars. 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.

Another possible source of non-target performance in questions can come from the language-specific licensing relationship. Our findings suggest that the L2 learners need to recognize the corresponding licensors that assign features to the variable expressions when a speaker correctly selects the target-like set of features for wh-lexical items. For instance, according to the individual data, there were optional respondents even for the question type of variable expressions as illustrated in (20):

(20) Variability in Obligatory Question Contexts:

Advanced subject #22:

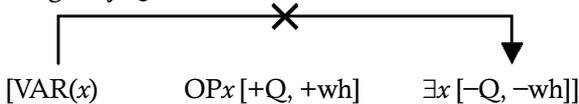
- a. I remember *what* my friend disliked to eat.
- b. \*I remember that my friend liked *someone*.

Intermediate subject #35:

- a. I remember *what* my friend does not like eating.
- b. \*I remember the my dog went *somewhere*.

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. 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 (21).

(21) Obligatory Question contexts:



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. 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.<sup>26</sup>

<sup>26</sup> Notice that the Korean embedded question marker behaves similarly to noun phrases: an accusative case marker can be immediately attached to it, as in (ib). However, the accusative marker cannot be attached to the embedded declarative particle, as in (ic).

In short, 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 L2 learners' grammars due to L1 influence; and (2) when corresponding licensors for variable expressions in embedded clauses are misanalyzed by the L2 learners. 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 reassembling 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. This study implements a Feature-Reassembly approach (Lardiere 2008) to best account for the L2 acquisition data.

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- (i) a. meyli-ka sakwa-lul mek-ess-ta.  
 Mary-nom apple-Acc eat-Past-Decl 'Mary ate an apple'
- b. con-un meyli-ka [mwues-ul mek-ess-nunci]-lul an-ta.  
 John-Top Mary-Nom THING-Acc eat-Past-Q-Acc know-Decl  
 'John knows what Mary ate'
- c. con-un meyli-ka [mwues-ul mek-ess-ta]-\*lul/ko an-ta  
 John-Top Mary-Nom THING-Acc eat-Past-Q-Acc/Quot know-Decl  
 'John knows that Mary ate something'

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