

WH-EXISTENTIAL WORDS: A COMPARATIVE STUDY OF
ENGLISH-CHINESE AND KOREAN-CHINESE INTERLANGUAGES

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ABSTRACT

This dissertation looks at native language (L1) influence on adult nonnative language (L2) lexical development, investigating, in particular, whether the syntactic and semantic properties underlying L1 words have effects on the acquisition of lexical equivalents in the L2. The investigation is motivated by the following crosslinguistic differences as instantiated in *wh*-words in Chinese, Korean and English with respect to the existential sense: In Chinese, *wh*-words (e.g., *shenme*) can be used as existentials (i.e., ‘something/anything’) as well as interrogatives (i.e., ‘what’) (Cheng, 1991; Huang, 1982). Chinese *wh*-existentials are confined to syntactico-semantic environments denoting nonveridicality (e.g., negatives, *yes/no* questions, conditionals) (Giannakidou, 2011); in Korean, *wh*-existentials are free of these restrictions (Gil & Marsden, 2013); and in English, *wh*-words can never function as existentials. A comparative Interlanguage study is conducted to examine *wh*-existentials in the L2 Chinese of adult L1-Korean and L1-English speakers. The exploration centers on two main predictions based on Sprouse’s (2006) Lexical Transfer Hypothesis: (i) In nonveridical constructions, lower proficiency L1-Korean L2 learners of Chinese will pattern like Chinese native speakers in allowing *wh*-existentials, whereas lower proficiency L1-English L2 learners will show inhibitions against them; (ii) in veridical constructions, lower proficiency L1-English L2 learners will perform like Chinese speakers in prohibiting nontarget *wh*-existentials, whereas lower proficiency L1-Korean L2 learners will be inclined to allow them.

Intermediate and advanced L1-English and L1-Korean L2 learners of Chinese (English intermediate, $n = 20$; English advanced, $n = 22$; Korean intermediate, $n = 21$; Korean advanced, $n = 20$) and native speakers of Chinese ($n = 30$) completed three experiments targeting the interpretations of *shenme* ‘THING’ in nonveridical negative sentences and veridical present progressive sentences (contextualized multiple-choice interpretation task), the existential use of *shenme* ‘THING’ and *shui* ‘PERSON’ in nonveridical negative sentences and veridical present progressive sentences (elicited production task), and the acceptability judgments of existential *shui* ‘PERSON’ in *yes/no* questions and conditionals (acceptability judgment task). The results of the three experiments generally support the Lexical Transfer Hypothesis, which suggests that a deep level of lexical transfer – transfer of the syntactic and semantic properties underlying L1 lexical items – indeed influences L2 lexical development.

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CHAPTER 1

INTRODUCTION

Second language (L2) researchers have long been trying to determine whether there is “a principled basis” for characterizing native language (L1) influence, or L1 transfer, in L2 acquisition (Schwartz & Eubank, 1996, p. 3). Decades of L2 research have not resulted in a consensus (Schwartz, 2013). This dissertation is an empirical endeavor in this regard, exploring the possibility that the key component of language, lexical items, functions as the basic packages of L1 transfer, which carry along with them the entirety of their underlying semantic and syntactic properties into the L2 initial state.

At the outset of the inquiry, it helps first to understand what needs to be learned in the lexicon. Traditionally, dating back to Saussurean structuralism, the lexicon was treated as a repertoire of indecomposable signs which arbitrarily associate form with meaning. Thus, there is nothing interesting about lexical learning – it is just a matter of rote memorization. This is perhaps best articulated in Pinker (1994):

The word *dog* does not look like a dog, walk like a dog, or woof like a dog, but it means ‘dog’ just the same. It does so because every English speaker has undergone an identical act of rote learning in childhood that links the sound to the meaning. For the price of this standardized memorization, the members of a language community receive an enormous benefit: the ability to convey a concept from mind to mind virtually instantaneously. (pp. 83-84)

The past two decades have seen dramatic changes in the understanding of the lexicon. Various linguistic phenomena, formerly thought of as syntactic, have now been seen as lexically driven (e.g., Bresnan, 2001; Hale & Keyser, 1993; Pollard & Sag, 1994). The current standard view of the lexicon is Levelt’s (1989) model, which holds that all

lexical entries contain four types of features: semantic, syntactic, morphological and phonological, as illustrated in Figure 1.1:¹

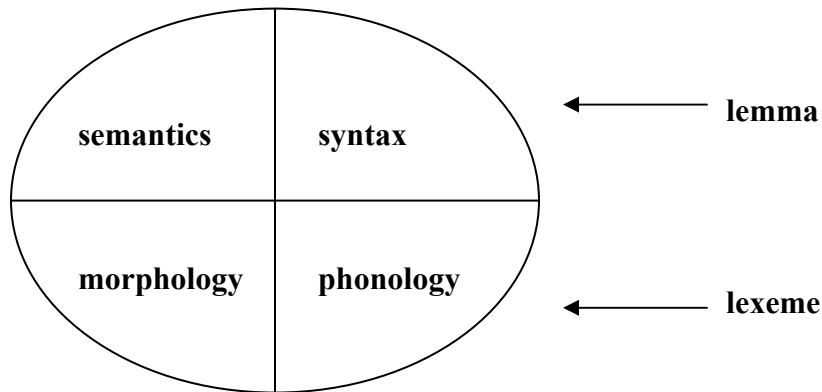


Figure 1.1. Internal Structure of a Lexical Item

(adapted from Levelt, 1989, p. 188)

According to Levelt, the semantic features of a lexical item specify the conceptual conditions in which the meaning of the item is selected. The syntactic specification contains information regarding the syntactic properties of the item (e.g., grammatical category, argument structure, and so forth). The morphological features encode, e.g., affixational information associated with the root item. And finally, the phonological features include information about the pronunciation of the item (e.g., phonological segments, segment structure, stress structure, etc.).

Following the proposal of Kempen and Huijbers (1983), Levelt suggests that the top two cells in Figure 1.1, the semantic and syntactic specifications, make up the lemma component of the lexical entry, which is claimed to be relevant for grammatical encoding, and the bottom two cells, the morphological and phonological specifications, form the

¹ Lexical entries, or lexical items, are often understood as words, but as Jackendoff (2002, pp. 152-182) emphasized, lexical entries and words are, in fact, not interchangeable notions, as some lexical entries are smaller than words (e.g., stems and affixes) and some are larger than words (e.g., idioms). The criterion that Jackendoff used for identifying a lexical entry is that it is a unit stored in long-term memory which cannot be “constructed online in working memory” (Jackendoff, 2002, p. 152).

lexeme component of the lexical entry, which is argued to be independent of grammatical encoding.²

In commenting on Levelt's model, Juffs (2009, p. 183) asserts: "It is worth repeating and emphasizing that a lexical entry is not a single, indivisible 'slot' or chunk in a list. Each of the four elements can be stored, manipulated, and learned separately."

In fact, much empirical research has been devoted to how a certain aspect of lexical knowledge (e.g., meaning) develops (e.g., Bion, Borovsky, & Fernald, 2013; Bloom, 2000; Houston-Price, Caloghris, & Raviglione, 2010; Markman, 1990) or how different components are integrated in child language acquisition (e.g., Goldrick, Baker, Murphy, & Baese-Berk, 2011; Heisler, Goffman, & Younger, 2010; Pérez-Leroux, Pirvulescu, & Roberge, 2008).

In L2 lexical research, psycholinguists have typically focused on the extent to which forms and meanings of L1 words are activated in L2 lexical processing (e.g., Jiang, 2002; Kroll, Michael, Tokowicz, & Dufour, 2002; Kroll & Stewart, 1994; Sunderman & Kroll, 2006). This strand of research has largely been restricted to nouns and has generally stopped at the word level.

Generative L2 researchers concerned with the L2 lexicon have often directed attention to verbs, examining whether differences in lexicalization patterns – as instantiated in L1 verbs and target language (TL) verbs – influence argument structure in Interlanguage (e.g., Bley-Vroman & Joo, 2001; Inagaki, 2001; Juffs, 1996; Montrul, 1998; Zyzik, 2006).

Results from both lines of L2 research, by and large, have pointed towards transfer of L1 lexical knowledge, at least at early stages of L2 development. A generalization, however, still seems empirically unwarranted, given that they have targeted entirely different grammatical classes. Moreover, it is as yet unclear whether or not the entire set of grammatical information – the lemma component – associated with L1 lexical items influences L2 lexical development.

² In a subsequent elaboration on the lemma/lexeme distinction, Roelofs, Meyer and Levelt (1998) suggested that morphosyntactic diacritics which encode grammatical functions of lexical items (e.g., tense, person, number, gender) are found at the level of lemma, whereas their morpho-phonological specifications (e.g., concrete morphemes, segments) are found at the level of lexeme.

This dissertation is intended as a contribution to this issue by looking into an area that has received little attention in L2 lexical research: *wh*-existential words in Mandarin Chinese (henceforth, “Chinese”). This domain of lexical knowledge is uniquely intriguing as it crosses the boundaries of the two aforementioned areas of L2 lexical research in the sense that *wh*-existentials belong to the category of noun, but structural aspects are relevant to what senses³ they take on.

It has long been noted that the interpretations of Chinese *wh*-words vary with the linguistic environments in which they occur (Cheng, 1991, 1994, 1997; Huang, 1982; Lin, 1996; inter alia), as illustrated in (1) and (2) below:

- (1) Zhangsan zai xie **shenme**
 Zhangsan ASP write THING⁴
 a. ‘**What** is Zhangsan writing?’
 b. * ‘Zhangsan is writing **something**.’
- (2) Lisi *mei* zai xie **shenme**
 Lisi NEG ASP write THING
 a. ‘**What** isn’t Lisi writing?’
 b. ‘Lisi isn’t writing **anything**.’

When the *wh*-word *shenme* appears in an affirmative present progressive in (1), it is interpreted only as interrogative (Q) ‘what’ (i.e., (1a)); when *shenme* appears in a negative in (2), it is interpreted either as Q ‘what’ (i.e., (2a)) or as existential (\exists) ‘anything’ (i.e., (2b)). Clearly, the presence or absence of the \exists sense of *shenme* is sensitive to the semantico-syntactic differences of the two sentences, whereas the Q sense is not. As a first approximation, Chinese *wh*-words denoting the \exists sense (henceforth,

³ Following Klein and Murphy (2001), in this dissertation we make the distinction between *meaning* and *sense*, referring to polysemous words as having different *senses*, and referring to homonymous words as having different *meanings*. However, *meaning* is also used as a generic term for the semantic contents of lexical items. See Chapter 2 for fuller discussion.

⁴ To save space, the *wh*-word *shenme* ‘what/something/anything’ is glossed as ‘THING’; and the *wh*-word *shui* ‘who/someone/anyone’ is glossed as ‘PERSON’. The same glossary notations are also used for relevant data in other languages such as Korean, Japanese, etc.

“*wh*-existentials”) are structurally restricted, but those denoting the Q sense (henceforth, “*wh*-interrogatives”) are free. (We will return to this topic in Chapter 2 with detailed exposition and analyses.)

Somewhat parallel to Chinese, Korean *wh*-words can also be used as \exists , as evidenced by the Korean data in (3):

- (3) Mary-ka **mwues-ul** ssu-ko iss-ta
Mary-NOM THING-ACC write-PROG-DECL
‘Mary is writing **something**.’

(K.-S. Park, p.c., 19 Sept. 2012)

However, we see that the \exists sense is allowed in Korean as in (3), but prohibited in Chinese as in *(1b), suggesting that Korean *wh*-existentials are free from the constraints governing Chinese *wh*-existentials.

In contrast to Chinese and Korean, *wh*-words in English are never used as existentials.

Based on these crosslinguistic differences, we seek empirical data from adult L2 learners (L2ers) of Chinese, whose L1 is either Korean or English, to investigate whether the syntactic and semantic properties of the L1 *wh*-words will have consequences on the development of *wh*-existentials in L2 Chinese.

The theoretical framework we adopt for this investigation is Sprouse’s (2006) Lexical Transfer Hypothesis, which claims that the L1 lexicon (minus phonetic matrices) is fully transferred into the L2 initial state via the mental process of relexification. The idea of relexification was originally put forward in the field of creole research (Lefebvre, 1998; Muysken, 1981). Applying this to L2 acquisition, Sprouse proposes, in brief, that (adult) L2ers, in observing the partial semantic overlap between lexical entries in the L1 and the TL, create initial L2 lexical entries with phonological representations derived from the TL and with syntactic and semantic properties copied from their fully established L1 lexical entries.

Using Levelt's terminology in Figure 1.1, the initial L2 lexical representation envisioned by Sprouse is a lexical complex such that the lemma is borrowed in its entirety from the L1 and the lexeme comes from the TL.⁵

In light of this hypothesis, we investigate whether the initial L2 knowledge of Chinese *wh*-existentials by L1-Korean and L1-English speakers is bounded by semantic and syntactic properties of the corresponding *wh*-words in the L1.

Chapter 2 provides the linguistic background relevant to the study. As our target phenomenon involves lexical ambiguity, we introduce central issues involved in lexical ambiguity and outline previous empirical findings on how lexical ambiguity is represented in the grammar of native speakers. Against this background, we present data and analyses regarding the representation of *wh*-words in native Chinese, Korean and English, and provide theoretical motivation for the present study.

Chapter 3 reviews the very few previous studies which investigated the L1 or L2 acquisition of *wh*-indefinites (i.e., *wh*-existentials and *wh*-universals). All studies found that *wh*-indefinites were substantially delayed relative to *wh*-interrogatives, but the explanations given for this vary from study to study. We comment on these accounts and motivate the present study empirically.

Chapter 4 reports on the research methodology of the present study. We first establish the premise that the overlapped Q sense of *wh*-words forms the basis of L1-TL lexical associations. We then present details regarding the overall experimental design, data collection procedures, L2 Chinese proficiency measures, and the background information of the participants.

Chapters 5, 6, and 7 are devoted to the three experimental studies conducted: the contextualized multiple-choice interpretation task, the elicited production task, and the acceptability judgment task, respectively. The experimental specifics, data analysis, and results of the three experiments are presented.

⁵ Jiang's (2000) model of L2 lexical development also hypothesizes that the L1 lemma information is copied to the L2 lexical representations, but this model postulates that this occurs at a later stage, with the L2 initial lexical entries containing only lexemes derived from TL but no lemmas. According to Jiang, at the L2 initial stage, L2ers may make use of explicit grammatical rules about L2 words, but such information is not integrated into the mental lexicon and is stored in general memory.

Chapter 8 concludes the dissertation by summarizing the main findings of the study, discussing implications and outstanding issues, and suggesting directions for future research.

CHAPTER 2

LINGUISTIC BACKGROUND

This chapter sets the stage for the study by discussing issues regarding the mental representations of *wh*-words in native Chinese, Korean and English. This domain of knowledge is intriguingly complex in that (i) besides the universally attested interrogative (Q) sense, *wh*-words in a subset of languages are also used as existential (\exists) (and/or as universal (\forall)); and (ii) the distributions of *wh*-existentials are crosslinguistically different, i.e., in some languages, they are used in a wide range of constructions, whereas they are structurally restricted in other languages.

For the purpose of our study, these crosslinguistic differences come down to two basic observations. First, *wh*-existentials are allowed in Chinese and Korean, but prohibited in English. Second, *wh*-existentials in Chinese are limited to a smaller number of constructions than in Korean. The broad question we set out to answer is whether the representations of *wh*-words in the L2 Chinese of L1-Korean and L1-English speakers are influenced by the L1 lexical representations.

It is thus essential to understand how *wh*-words are represented in Chinese, Korean and English. Tackling this issue necessitates an understanding of two theoretically relevant questions. First, when a lexical item contains multiple meanings, how are these meanings represented in the lexicon? Second, when structural aspects are relevant to the meaning differences of a lexical item, where are these differences located? Section 2.1 introduces relevant literature which addresses these two issues. Against this background, Section 2.2 presents data and analyses with respect to the representation of *wh*-words in Chinese, Korean and English. Section 2.3 wraps up this chapter and motivates the present study.

2.1 The Representation of Lexical Ambiguity

2.1.1 Several Key Notions

Lexical ambiguity is prevalent in natural languages. A quick look at any dictionary in any language will show that a great majority of words have more than one meaning. Depending on whether the different meanings are related or not, lexical ambiguity is divided into two categories: homonymy and polysemy.

Homonyms are words that have two or more unrelated meanings. For example, *bark* can refer either to the sound of a dog or to the skin of a tree, and it is hard to see any connection between these two meanings. The emergence of homonyms is usually attributed to arbitrary historical coincidence, where two distinct meanings converge on a single form (Klein & Murphy, 2001).

Polysemous words, on the other hand, have 2+ senses that are related to one another in some way. An oft-cited example is *paper*, which can refer to a thin material made of cellulose pulp, a publication that is printed on this material, or a short piece of writing that is written on this material, etc. Clearly, the latter two senses were extended from the material sense. The sense which links all alternative senses of a polysemous word together is commonly referred to as the prototype, or the core sense.

It has been suggested that there exist certain systematic relations between different senses of polysemous words (Nunberg, 1979), including, for example, animal/meat (e.g., *My fish is darting erratically/These fish sticks are really nice*), material/product (e.g., *The most common crystals are made of glass/Give me a glass of water*), object/substance (e.g., *an oak tree/an oak bookcase*), body part/object part (e.g., *The little girl broke her leg/The legs of the table are sturdy*), place/institution (e.g., *His parents live in Beijing/Beijing is taking an emergency action*), space/time (e.g., *There is a long way to drive/Many people fell asleep in that long meeting*), etc. These semantic relations are often taken as lexical rules or conceptual structures which “permit the meanings of known words to shift along polysemous relations and that further allow these relations to generalize to novel words” (Srinivasana & Snedeker, 2011, p. 246). For instance, Klein and Murphy (2001, p. 260) coined a novel word *delgar* as the name for a hypothesized plant, and they argued that the presence of the object/substance semantic relation allows language users to produce and understand the alternative meanings of

delgar in sentences like “There is a *delgar* growing in my yard” (individual plant) and “This pen is made out of *delgar*” (the substance derived from that plant).

2.1.2 Lexical Ambiguity in Psycholinguistic Research

The central question that lexical ambiguity poses is how different meanings are represented in the lexicon, i.e., whether there is a separate representation for each meaning or whether the different meanings share a single representation.

Psycholinguistic studies in this area have focused mainly on nouns, comparing the processing of different meanings of ambiguous words vis-à-vis the processing of unambiguous words. Although there is a general consensus that homonyms are stored in memory as separate lexical entries, there have been controversies regarding the representation of polysemes (e.g., Klein & Murphy, 2001; Klepousniotou, Titone, & Romero, 2008; Pylkkänen, Llinás, & Murphy, 2006; Simpson, 1994).

In an early eye-tracking study, Frazier and Rayner (1990) recorded participants’ fixation times for homonymous words (e.g., *record* in (1)) and polysemous words (e.g., *newspaper* in (2)) when the disambiguating subordinate contexts either preceded the target words (e.g., (1a-b) and (2a-b)) or followed them (e.g., (1c-d) and (2c-d)):

(1) Homonymy

- a. After they were scratched, the *records* were carefully guarded.
- b. After the political takeover, the *records* were carefully guarded.
- c. The *records* were carefully guarded after they were scratched.
- d. The *records* were carefully guarded after the political takeover.

(2) Polysemy

- a. Lying in the rain, the *newspaper* was destroyed.
- b. Managing advertising so poorly, the *newspaper* was destroyed.
- c. Unfortunately the *newspaper* was destroyed, lying in the rain.
- d. Unfortunately the *newspaper* was destroyed, managing advertising so poorly.

Two main results were obtained. First, when the disambiguating contexts preceded the target words, reaction times (RTs) were marginally longer for polysemous words and were significantly longer for homonymous words, as compared to unambiguous controls (e.g., *door*, *window*); in the post-critical region, RTs were significantly longer only for homonymous words. Second, when the disambiguating contexts followed the target words, RTs were significantly longer for homonymous words than for polysemous words.

Frazier and Rayner argued in favor of the Minimal Semantic Commitment Hypothesis, which claims that the human parser makes semantic decisions only when this becomes necessary. For homonymous words, the parser has no choice but to make immediate semantic decisions because the two distinct meanings are represented separately in the lexicon, and this resulted in the lengthened RTs in the study. For polysemous words, by contrast, the different senses share a core representation, with distinguishing semantic features unspecified, and the selection between the two related senses is delayed until context or discourse makes it indispensable. On this view, the different senses of a polysemous word share a single abstract underspecified representation in the lexicon, and the semantic differences are computed on the fly in sentential or pragmatic contexts.

This hypothesis, however, was challenged by Klein and Murphy's (2001) study, which examined in a series of experiments whether sense (in)consistency will have effects on the retrieval of different senses of polysemous words. The logic of this study is that if polysemous words have a separate representation for each sense, participants' performance should be better if the word is used in the same sense than if it is used in a different sense; if, on the other hand, the different senses share one representation, no such difference should be found, as the same representation will be accessed every time this word is encountered. In the crucial experiment (Experiment 3), Klein and Murphy compared the priming effects of sense (in)consistency on polysemous words, e.g., (3), with those on homonymous words, e.g., (4).

(3) Polysemy

Prime: wrapping paper

Target: shredded paper (consistent condition)

daily paper (inconsistent condition)

(4) Homonymy

Prime: savings bank

Target: commercial bank (consistent condition)

creek bank (inconsistent condition)

Participants were presented with prime phrases, followed by target phrases where the nouns were used either in the same sense (consistent condition) or in a different sense (inconsistent condition). The participants' task was to judge whether each phrase makes sense or not. Results show that judgments were significantly faster and significantly more accurate in the consistent condition than in the inconsistent condition, and there was no difference between polysemous words and homonymous words. Klein and Murphy thus concluded that polysemous words have separate representations for each sense just like homonymous words.

In a more recent study, employing magnetoencephalographic (MEG) techniques, Pylkkänen, Llinás and Murphy (2006) compared the processing of polysemous and homonymous words by investigating whether activation of one meaning will prime the other meaning. The main MEG dependent measure was the M350, a response component generated in the left hemisphere at 300-400 ms after stimulus onset. The M350 component is sensitive to semantic integration processes. Related meanings are expected to elicit earlier peak latencies of the M350 as opposed to unrelated ones. The stimuli included three types, as shown in (5):

(5)	<u>Related Prime</u>	<u>Unrelated Prime</u>	<u>Target</u>
Homonymous:	river bank	salty fish	savings bank
Polysemous:	lined paper	military post	liberal paper
Semantic:	lined paper	clock tick	monthly magazine

Results show that homonymous targets had significantly later M350 latencies than the unrelated primes, indicating inhibition of identical forms with different meanings, whereas the polysemous targets elicited priming, with the M350 peaking earlier for related primes than for unrelated primes. Based on these results, Pykkänen et al. argued that “the representation of polysemy involves both representational identity and difference: Related senses connect to [the] same abstract lexical representation, but are distinctly listed within that representation” (p. 97).

Note that what Pykkänen et al. envisioned for polysemy is a representational complex, with one identical abstract representation but distinct sub-representations for each sense. In other words, the semantic relatedness and semantic differences associated with polysemous words are both encoded in the lexicon. This is clearly different from the underspecified representation that Frazier and Rayner’s (1990) proposed.

While the debate regarding the representation of polysemy continues, much empirical evidence obtained so far has pointed towards single-representation (e.g., Azuma & Van Orden, 1997; Beretta, Fiorentino, & Poeppel, 2005; Frazier & Rayner, 1990; Klepousniotou & Bauma, 2007; Klepousniotou et al., 2008; Williams, 1992), though nuanced technical details often vary from one another.

2.1.3 The Representation of Polysemous Verbs

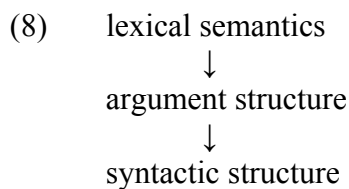
Things get trickier when it comes to polysemy in verbs, as subtle semantic differences are often tied to the syntactic constructions in which they occur. For example, it has long been observed that the meanings of a class of verbs, commonly known as locative alternation verbs, vary with the sentences in which they occur (Anderson, 1971; Fillmore, 1968; cited in Goldberg, 1995, p. 2):

- (6) a. Bees are swarming in the garden.
b. The garden is swarming with bees.

- (7) a. I loaded the hay onto the truck.
b. I loaded the truck with the hay.

According to Goldberg, (6b) implies that the whole garden is full of bees, whereas (6a) could mean that only a part of the garden has bees. Similarly, (7b) suggests that the entire truck is filled with hay, whereas (7a) does not entail such an implication.

The issue that arises here is: How are such syntactically relevant meanings represented in the mind? One line of thinking is that these differences have their roots in the verbs and the syntactic differences are the consequence of distinctions in lexical semantics (e.g., Bresnan, 1995, 2001; Levin, 1985; Levin & Rapoport, 1988; Pinker, 1989). The basic idea is that meanings of verbs determine how many and what types of arguments that they take, which, in turn, leads to differences in syntactic structure. This is schematized in Bresnan (1995, p. 1) as in (8):



Consider the alternative senses of *bark* in (9):

- (9)
- a. The dog barked. (activity)
 - b. The dog barked the neighbors awake. (accomplishment)

The activity of *bark* involves only one participant, so the argument structure encoded in the activity sense is $\text{BARK}_{\text{activity}} \langle \text{external argument} \rangle$, and this is reflected in the syntax as: NP BARK, as in (9a). By contrast, the accomplishment sense of *bark* entails a sub-event, where another participant is put in a certain state. This gives rise to the argument structure $\text{BARK}_{\text{accomplishment}} \langle \text{external argument, internal argument} \rangle$, and it is realized in the syntax as: NP₁ BARK NP₂ AdjP as in (9b).

Crucially, the verb's argument structure is conceptualized as a lexical syntactic construct, which serves to mediate mapping semantic structures onto syntactic structures. The primary goal for this approach is to work out lexical rules which operate on argument structures so that changes of verb senses can be used to predict changes in overt syntax.

For example, Pinker (1989, pp. 110-111) identified a sub-class of verbs of ‘giving’ (e.g., *feed, give, hand, lend, loan, pass, pay, sell, serve, trade*) which can alternate between the prepositional construction (e.g., (10a)) and the double object construction (e.g., (10b)):

- (10) a. John gave some books to the student.
b. John gave the student some books.

He argued that there were two ways to conceptualize a giving event, namely, (i) ‘X causing Y to go to Z’ and (ii) ‘X causing Z to have Y’, and a lexical rule can take a verb with the first semantic structure as input and produce the second semantic structure. Open arguments of the converted semantic structure are mapped onto the syntactic structure of the double object construction by canonical linking rules.

A second approach to syntactically relevant polysemy is a family of theories known as Construction Grammar, which treats constructions as the basic form-meaning mapping units (e.g., Fillmore, 1985; Fillmore, Kay, & O’Connor, 1988; Lakoff, 1987; Michaelis & Lambrecht, 1996). Goldberg’s (1995) work on argument structure has been particularly influential, as it has broadened our perspectives on form-meaning mapping in several aspects.

First, constructions are conceptualized as declaratively represented entities which map form with meaning independent of the verbs that participate in them. For example, the double object construction pairs the form [Subj V Obj₁ Obj₂] with the meaning ‘X causing Y to receive Z’ (e.g., *Pat faxed Bill the letter*); the resultative construction pairs the form [Subj V Obj Xcomp]⁶ with the meaning ‘X causing Y to become Z’ (e.g., *She kissed him unconscious*).

Second, when a verb is integrated with a certain construction, it retains its inherent semantic representation. For sentences like *He sneezed the napkin off the table*, one does not have to postulate in an *ad hoc* fashion that the verb *sneeze* is polysemous between its basic sense and the additional sense of ‘X causing Y to move by sneezing’.

⁶ “Xcomp” stands for an AdjP or an open clausal complement of a VP, which is always nonfinite.

The original meaning of *sneeze* is kept intact; the caused-motion meaning is attributed to the syntactic construction [Sub V Obj Obl].

Third, polysemy is posited to occur in constructions in the same way as in lexical items. Specifically, general polysemy links which capture the semantic relation between a prototypical sense and the extended senses of a lexical item also apply to constructions, which allow them to take on a family of related senses. For example, Goldberg listed the following pattern of polysemy associated with the double object construction:

- (11) a. ‘X causes Y to receive Z’ (central sense)
Joe gave Sally the ball.
- b. Conditions of satisfaction imply ‘X causing Y to receive Z’
Joe promised Bob a car.
- c. ‘X enables Y to receive Z’
Joe permitted Chris an apple.
- d. ‘X causes Y not to receive Z’
Joe refused Bob a cookie.
- e. ‘X intends to cause Y to receive Z’
Joe baked Bob a cake.
- f. ‘X acts to cause Y to receive Z at some future point in time’
Joe bequeathed Bob a fortune.

(Goldberg, 1995, p. 75)

This brief introduction to the representation of polysemy is intended to pave the way for our discussion of the representation of *wh*-words in Chinese, Korean and English, to which we now turn in the next section.

2.2 The Representation of *Wh*-words in Chinese, English and Korean

2.2.1 Preliminaries

It is claimed that all languages have interrogative substitutes for nouns and some adverb-like expressions denoting location, temporality, purpose, manner, etc. (Ulan,

1978). This group of words, represented by the English *what, who, which, where, when, why* and *how*, are commonly referred to as *wh*-words.

Two well-known observations characterize crosslinguistic differences associated with *wh*-words. In terms of syntax, in some languages (e.g., English), *wh*-words have to occur in clause-initial position in mono-clausal *wh*-questions as in (12), whereas in other languages (e.g., Chinese), *wh*-words stay in their base-generated positions as in (13):

(12) **What**_i are you doing t_i?

(13) Ni zai zuo **shenme**?
you ASP do THING
'What are you doing?'

In terms of semantics, in some languages, *wh*-words may also be used as indefinite pronouns, with senses on a par with existential quantifiers (e.g., 'some', 'any') or universal quantifiers (e.g., 'every', 'all') (e.g., Cheng, 1991; Huang, 1982; Kim, 1989; Lin, 1996; Nishigauchi, 1990; Shin, 2005), as in (14), whereas the indefinite senses are ruled out in other languages:

(14) a. Wo *mei* chi **shenme**. (existential)
I NEG eat THING
'I didn't eat **anything**.'

b. Wo **shenme** *dou* chi. (universal)
I THING all eat
'I eat **everything**.'

Wh-based indefinites are widespread typologically. In his 100-language sample, Haspelmath (1997, p. 174) found 31 languages whose indefinites were formally identical to bare interrogatives (i.e., without morphological marking). A typical example is Chinese (e.g., (14)). He also found 33 languages whose indefinites were derived from

interrogatives by attaching an affix to the interrogative root, as can be seen in the Japanese examples in (15):

(15)	<u>interrogative</u>	<u>existential</u>	<u>universal</u>
	nani ‘what’	nani-ka ‘something’	nani-mo ‘everything’
	dare ‘who’	dare-ka ‘someone’	dare-mo ‘everyone’

(Haspelmath, 1997, p. 165: (362))

Putting aside the morphologically marked *wh*-indefinites, the typological fact that interrogatives and indefinites converge on identical forms in nearly a third of Haspelmath’s sample suggests that “we are dealing with systematic polysemy rather than with accidental homonymy” (Haspelmath, 1997, p. 174).

2.2.2 The Representation of *Wh*-words in Chinese

2.2.2.1 Basic Data

Chinese *wh*-words are polysemous with three senses: interrogative (Q), existential (\exists) and universal (\forall). *Wh*-interrogatives can occur freely as long as there is no subcategorization violation, whereas *wh*-existentials and *wh*-universals are restricted in distribution. For the purpose of the present study, we focus on the *wh*-existentials.

Constructions in Chinese which sanction *wh*-existentials include negatives (16), *yes/no* questions (17), conditionals (18), A-not-A questions,⁷ complements of non-factive

⁷ A-not-A questions are a type of disjunctive question formed by combining the affirmative and negative sentences together with redundant elements deleted. An A-not-A question is shown in (i):

(i) Zhangsan **jiang bu jiang** yingyu?
 Zhangsan speak NEG speak English
 ‘Does Zhangsan speak English or not?’

verbs,⁸ imperatives, constructions involving adverbs of uncertainty,⁹ constructions involving inference *-le*,¹⁰ and uncertain modalities, etc., the first three of which are illustrated below (see Lin, 1996, Chapter 4, for extensive data):

⁸ Factive verbs presuppose that the proposition they introduce is true. Verbs such as *know*, *learn*, *regret*, etc. are typical factive verbs (e.g., from the truth of *John knew/learned/regretted that dinosaurs are extinct*, we can infer that dinosaurs actually died out). Non-factive verbs, by contrast, do not make commitments to the truth of the embedded proposition. The truth of the sentence *John believed/suggested/thought that dinosaurs are extinct*, for example, does not entail the truth of ‘dinosaurs are extinct’, so verbs such as *believe*, *suggest* and *think* are non-factive. The following is an example of existential *shenme* licensed by the non-factive verb *yiwei* ‘think’:

- (ii) Zhangsan *yiwei* Lisi tingdao-le **shenme**.
 Zhangsan think Lisi hear-ASP THING
 ‘Zhangsan thought that Lisi heard **something**.’

⁹ A typical adverb of uncertainty is *keneng* ‘probably’. It does not make a commitment to the truth of the proposition it introduces (e.g., from *John has probably finished his homework*, we cannot tell for sure whether John actually completed his homework). The following is an example of existential *shenme* licensed by *keneng* ‘probably’:

- (iii) Zhangsan *keneng* shuo-le **shenme**.
 Zhangsan probably say-ASP THING
 ‘Zhangsan probably said **something**.’

¹⁰ Inference *-le* functions to indicate that the proposition it introduces is inferred rather than derived from an episodic fact. Consider the sentence in (iv):

- (iv) Lisi qu duanlian shentie **le**.
 Lisi go exercise body inference particle
 ‘Lisi may have gone exercising.’

The presence of *-le* suggests that this statement was made by inference. An example of existential *shenme* licensed by inference *-le* is given in (v):

- (v) Zhangsan kandao **shenme le**.
 Zhangsan see THING inference particle
 ‘Zhangsan may have seen **something**.’

Negatives¹¹

- (16) a. Zhangsan *mei* mai **shenme**
Zhangsan NEG buy THING
(i) ‘**What** didn’t Zhangsan buy?’
(ii) ‘Zhangsan didn’t buy **anything**.’
- b. Zhangsan *mei* jian Lisi mai **shenme**
Zhangsan NEG see Lisi buy THING
(i) ‘**What** didn’t Zhangsan see Lisi buy?’
(ii) ‘Zhangsan didn’t see Lisi buy **anything**.’
- c. **Shenme** *mei* you fuzuoyong
THING NEG have side effects
(i) ‘**What** doesn’t have side effects?’
(ii) * ‘**Something** doesn’t have side effects.’

All three sentences in (16) are negatives. When the *wh*-word *shenme* occurs in the direct object position of a monoclausal negative sentence (16a) or in the embedded clause of sentence with negation in the higher clause (16b), *shenme* is interpreted as either Q (i) or \exists (ii); when *shenme* occurs in the subject position of a monoclausal negative sentence (i.e., higher than negation) as in (16c), the \exists interpretation is banned (i.e., *(ii)). This indicates that *wh*-existentials have to be lower than negation and that there is no clause-mate constraint on existential licensing for negation.

¹¹ There are two negative markers in Chinese: *bu* and *mei*(*you*). According to Li and Thompson (1981, p. 421), *bu* provides neutral negation, whereas *mei*(*you*) negates the completion of an event. This is illustrated in (via) and (vib), respectively:

- (vi) a. Zhangsan **bu** he jiu.
Zhangsan NEG drink wine
‘Zhangsan doesn’t drink wine.’
- b. Zhangsan **mei**(**you**) he jiu.
Zhangsan NEG drink wine
‘Zhangsan didn’t drink wine.’

Yes/No Questions

- (17) a. Zhangsan mai-le **shenme** *ma*?
Zhangsan buy-ASP THING $Q_{yes/no}$
(i) ‘Did Zhangsan buy **something/anything**?’
(ii) * ‘**What** did Zhangsan buy?’
- b. **Shenme** chucuo-le *ma*?
THING go-wrong-ASP $Q_{yes/no}$
(i) ‘Did **something/anything** go wrong?’
(ii) * ‘**What** went wrong?’

The sentence final particle *-ma* is a question marker exclusively for *yes/no* questions, so *wh*-interrogatives cannot co-occur with it; this is why the *shenme* cannot be interpreted as Q in the two questions in (17) (i.e., *(ii)). In terms of syntax, we can see that *shenme* is interpreted as \exists no matter whether it occurs in direct object position (17a) or in subject position (17b).

Conditionals¹²

As we can see in (18) below, when the *wh*-word *shui* occurs in the protasis, whether as subject (18a) or direct object (18b), it is interpreted only as \exists (i.e., (18ai/bi)); the Q interpretation is prohibited (i.e., *(18aii/bii)). By contrast, when *shui* appears in the apodosis such as in (18c), it is only interpreted as Q (i.e., (18cii)); the \exists reading is ruled out (i.e., *(18ci)).

¹² There are two conditional markers in Chinese: *ruguo* and *yaoshi*, each of which has a colloquial variant, i.e., *ruguo...de hua*, *yaoshi...de hua*, with the clausal-final particle *-de hua* indicating an afterthought (Paul, to appear).

- (18) a. *Ruguo shui* jiandao Zhangsan *de hua*, ta hui gaosu Lisi
 If PERSON see Zhangsan he would tell Lisi
 (i) ‘If **someone/anyone** saw Zhangsan, he would tell Lisi.’
 (ii) * ‘If **who** saw Zhangsan, he would tell Lisi?’
- b. *Ruguo* Zhangsan jiandao **shui** *de hua*, ta hui gaosu Lisi
 If Zhangsan see PERSON he would tell Lisi
 (i) ‘If Zhangsan saw **someone/anyone**, he would tell Lisi.’
 (ii) * ‘If Zhangsan saw **who**, he would tell Lisi?’
- c. *Ruguo* Zhangsan jiandao Lisi *de hua*, ta hui gaosu **shui**
 If Zhangsan see Lisi he would tell PERSON
 (i) * ‘If Zhangsan saw Lisi, he would tell **someone/anyone**.’
 (ii) ‘If Zhangsan saw Lisi, **who** would he tell?’

Table 2.1 presents a brief summary of what we have discussed so far.

Table 2.1. Distributions of *Wh*-existentials in Chinese

Syntactic Position of <i>Wh</i>	Negatives	Yes/No Questions	Conditionals
Subject	X	√	√
Object	√	√	√

NB: (i) √ = *wh*-existentials allowed; X = *wh*-existentials prohibited

(ii) *wh*-existentials allowed within the protasis, but not in the apodosis

Constructions which Prohibit *Wh*-existentials

Constructions which strictly repel *wh*-existentials are affirmative sentences in the episodic past, e.g., (19a), or in the present progressive, e.g., (19b):

- (19) a. Zhangsan mai-le **shenme**
 Zhangsan buy-ASP THING
 (i) ‘**What** did Zhangsan buy?’
 (ii) * ‘Zhangsan bought **something**.’
- b. Lisi zai chi **shenme**
 Lisi ASP eat THING
 (i) ‘**What** is Lisi eating?’
 (ii) * ‘Lisi is eating **something**.’

Both sentences are ill-formed on the \exists reading of *shenme* (i.e., *(ii)), but become fine on the Q reading (i.e., (i)).

2.2.2.2 Generalizations

Semantic Constraints

We have seen that Chinese *wh*-existentials are allowed in a variety of constructions (e.g., negatives, *yes/no* questions, conditionals), which do not seem to relate to each other in obvious ways.

Huang (1982, p. 168) made an important contribution by proposing that Chinese *wh*-existentials are negative polarity items (NPIs), and therefore must be licensed by ‘affective’ contexts, a term borrowed from Klima (1964). Klima coined this term to unify negatives, questions, conditionals, etc. as a syntactico-semantic feature that licenses NPIs.¹³ This generalization, however, is only a terminological one since we are still left without knowing what exactly it is that characterizes negatives, questions, conditionals, etc. as a group, and why these contexts should be associated with NPIs.

Li (1992) contended that the constructions which sanction Chinese *wh*-existentials actually go beyond the common NPI contexts (i.e., negatives, questions, conditionals).

¹³ A typical example of an NPI is *anything* in English, which is well-formed under negation (viiia), in *yes/no* questions (viiib), or in the protases of conditionals (viiic), but is ill-formed in positive assertions (*(viiid)):

- (vii) a. John didn’t buy **anything**.
 b. Did John buy **anything**?
 c. If John buys **anything**, keep a record of it.
 d. * John bought **anything**.

Two such extensions are non-factive verbs (see fn. 8) and elements indicating tentativeness and uncertainty such as adverbs of uncertainty (see fn. 9) and inference *-le* (see fn. 10). Note that in these environments, common NPIs are banned (e.g., **I think John bought anything*; **John probably bought anything*).

Li proposed that these constructions share one common semantic property, namely, the truth value of the propositions contained therein is not asserted. In the cases of questions, non-factive verb complements and sentences with elements denoting uncertainty, the truth value is undetermined. For example, the truth of *Does John like cats?* does not entail or imply the truth of *John likes cats*. In the case of negatives, the truth value is reversed: If *John doesn't like cats* is true, then *John likes cats* must be false.

In her seminal work on polarity, Giannakidou (2011) introduced the term 'veridicality' from philosophy and proposed that polarity items are excluded from veridical sentences but are allowed in nonveridical ones. Giannakidou (2011, pp. 1674-1675) defined (non)veridicality as follows:

Veridicality is a property of sentence embedding functions: such a function F is veridical if Fp entails or presupposes the truth of p . If inference to the truth of p under F is not possible, F is nonveridical. More specifically, veridical operators express certainty and an individual's commitment to the truth of a proposition, but nonveridical expressions express uncertainty and lack of commitment.

Giannakidou further argued that polarity items are lexically deficient in the sense that they contain a non-deictic variable that makes them unable to refer. In veridical contexts such as the affirmative episodic past, polarity items are forced to refer, but they cannot (e.g., **John saw anything*). This explains why polarity items are restricted to nonveridical environments, where there is no such pressure for reference (e.g., *John didn't see anything*).

We follow Giannakidou's generalization, taking nonveridicality as the underlying semantic property that licenses polarity in general, and Chinese *wh*-existentials in particular.

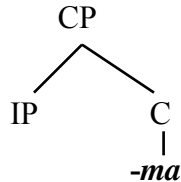
Syntactic Constraints

Following Progovac's (1988) binding approach to NPI licensing, Li (1992) suggested that the syntactic relation between a *wh*-existential licenser and licensee is that of structural c-command. According to Li's analysis of Chinese, negation adjoins to the VP containing V and its complements, having a phrase structure shown in (20):

(20) [IP NP1 [VP **NEG** [VP V NP2]]]

We can see that negation c-commands NP2 (i.e., the direct object), but not NP1 (i.e., the subject). In other words, for monoclausal negative sentences, *wh*-words appearing in the direct object position can be interpreted as \exists , whereas those appearing in the subject position cannot.

To account for the absence of a subject-object asymmetry in *yes/no* questions, Li proposed that the *yes/no*-question marker *-ma* is merged in the C position (CP is claimed to be head final in Chinese), with a structure shown in (21):

(21) 

Since *-ma* c-commands the entire IP, it follows that the \exists interpretation is available when a *wh*-word occurs in either subject position or object position.

As for conditionals, it is clear that the conditional marker *ruguo*, *yaoshi* 'if' c-commands the protasis but not the apodosis. It follows that *wh*-existentials are allowed only within the clause boundary of the protasis.

Li also included syntactic analyses for constructions involving inference *-le*, non-factive verbs and A-not-A, all of which provide empirical support for her generalization that *wh*-existentials require c-commanding licensers in overt syntax.

To sum up, while *wh*-interrogatives in Chinese are syntactically free, *wh*-existentials are subject to semantico-syntactic licensing. Semantically, they must

occur in nonveridical contexts where the truth value of the proposition is not asserted; syntactically, they must be c-commanded by nonveridical licensors. This constraint is manifested as a limited distribution of *wh*-existentials, typically, in the scope of negative markers (i.e., *mei*, *bu*), the *yes/no*-question marker *-ma*, and conditional protasis, etc.

2.2.2.3 The Representation

This section discusses issues regarding how the Q sense and the \exists sense of *wh*-words are represented in native Chinese. Clearly, the phenomenon we are faced with constitutes a special case of polysemy. Although *wh*-arguments such as *shenme* ‘THING’ and *shui* ‘PERSON’ belong to the noun class, structural aspects determine what senses they take on, which is, in a way, similar to polysemy associated with verbs.

The initial question that concerns us is whether the Q sense and the \exists sense of a given *wh*-word share a single representation or have separate representations. To our knowledge, no empirical work has been done to address this issue directly, so we have to make reference to empirical studies which investigated common polysemous nouns.

As discussed in Section 2.1.2, with only the exception of the Klein and Murphy (2001) study, much psycholinguistic research on the representation of polysemy (e.g., Azuma & Van Orden, 1997; Frazier & Rayner, 1990; Klepousniotou & Bauma, 2007; Klepousniotou et al., 2008; Pylkkänen et al., 2006) has provided evidence showing that different senses of a polysemous noun share a single representation.

If we assume that the Q and \exists senses of a *wh*-word are unified under a shared lexical representation, we need to specify how this is implemented, especially since the \exists sense is subject to semantico-syntactic licensing.

Let us see whether we can gain insights from Goldberg’s (1995) constructionist approach to polysemy associated with verbs. The central idea behind Goldberg’s proposal is that the semantics of a verb is constant; the polysemy observed in a verbal construction results from fusion of the meaning of the verb and the meaning of the relevant construction.

To adopt this approach to account for polysemy associated with Chinese *wh*-words, one would have to argue that the core sense of a *wh*-word – presumably the Q sense – is constant, and the \exists sense is the consequence of incorporating the Q sense with

the sense of nonveridicality conveyed by a number of constructions (as reviewed above). Such semantic analyses are difficult to come by.

Pinker's (1989) lexical rule approach, in its strict sense, is not very helpful either. Recall that Pinker claims that the related senses of a verb are each explicitly represented under one lexical entry. Lexical rules operate on semantic structures, converting the prototypical sense into the extended sense, and this newly converted sense brings about a different argument structure, which, in turn, gives rise to differences in syntax. Crucially, argument structure plays a central role in form-meaning mapping. For our phenomenon, we do not have argument structure to resort to, as *wh*-arguments are nominal in nature.

Then how are the set of related senses (i.e., Q, \forall, \exists) of Chinese *wh*-words represented? Building on Heim's (1982) theory on indefinites, Cheng (1991) argued that *wh*-words in Chinese are variables without quantificational force, and their quantificational force is determined by other elements which have inherent quantificational force.

In Heim's theory, indefinite NPs are variables, and they get their quantificational force in one of the two ways: (i) by being bound by adverbs of quantification; (ii) by being bound by a non-overt operator via the rule of existential closure.¹⁴ For example, in (22a), the adverb of quantification *always* acts as an unselective binder, contributing the universal quantificational force to both indefinite NPs in the sentence (i.e., *a man* and *a donkey*); in (22b), the adverb of quantification *sometimes* binds the indefinite NP *a cat*, giving its existential interpretation; in (22c), the rule of existential closure introduces a non-overt quantifier, which binds the indefinite NP *a cat* and determines its existential interpretation.

¹⁴ Heim (1982) proposed that quantified sentences have the tripartite logical structure of (viii):

(viii) quantifier restrictive clause nuclear scope

For a quantified sentence such as (ixa), it has the tripartite logical structure shown in (ixb). In the absence of an adverb of quantification, the indefinite NP, *a case*, gets its \exists interpretation via the rule of existential closure, which applies to the nuclear scope. The output of this operation is given in (ixc):

- (ix) a. Every private investigator solves a case.
 b. quantifier restrictive clause nuclear scope
 every (x) x is a private investigator a case (y) \wedge x solves y
 c. every (x) x is a private investigator \exists (y) (case (y)) \wedge x solves y

We see that existential closure applies at the level of VP. Heim further argued that existential closure may also apply to the entire text (for detailed discussion, see Heim, 1982).

- (22) a. If a man owns a donkey, he always beats it.
 b. Sometimes, if a cat falls from the fifth floor, it survives.
 c. Every man saw a cat.

(Heim, 1982, p. 82: (1) and (3); p. 89: (5))

Applying this line of reasoning to Chinese, Cheng argued that *wh*-words in Chinese are variables and they get their quantificational force in the following ways:

(i) When bound by an interrogative operator, which spells out either as the overt *wh*-question particle *-ne* or as null, the *wh*-word is interpreted as Q; when bound by a universal operator, which spells out as the adverb of quantification *dou* ‘all’, the *wh*-word is interpreted as \forall .¹⁵

As for the \exists interpretation, Cheng argued that the rule of existential closure alone is not sufficient. For example, in (23a), the indefinite NP *yiben wuxia-xiaoshuo* ‘a Kungfu-novel’ is interpreted as \exists by means of existential closure, whereas in (23b), the *wh*-word *shenme* ‘THING’, occurring in the same environment, can never be interpreted as \exists :

- (23) a. Botong kan-wan-le yi-ben wuxiao-xiaoshuo.
 Botong read-finish-ASP one-CL Kungfu-novel
 ‘Botong finished reading a Kungfu novel.’
- b. * Botong kan-wan-le **shenme**.
 Botong read-finish-ASP THING
 ‘Botong finished reading **something**.’

(Cheng, 1991, p. 124: (25))

Cheng contended that Chinese *wh*-existentials differ from ordinary indefinites in that they are polarity items, which dictates that they not only need to be bound by existential

¹⁵ The universal use of *wh*-words in Chinese is illustrated in (x):

- (x) Botong **shenme** *dou* chi.
 Botong THING all eat
 ‘As for Botong, he eats **everything**.’

(Cheng, 1991, p. 116: (11))

closure but also need to have polarity triggers (e.g., negatives, *yes/no*-question marker, etc.). In other words, the \exists quantificational force of a Chinese *wh*-word is derived from existential closure as a binder and a polarity licenser as a trigger. Cheng (1991) suggested that “Mandarin Chinese *wh*-words do not have an existential reading which is separated from the polarity reading” (p. 125).

Bringing Cheng’s (1991) work on Chinese *wh*-words and Giannakidou’s (2011) work on polarity together, Gil and Marsden (2013) suggested that when functioning as existentials, Chinese *wh*-words bear an uninterpretable nonveridical feature, which is checked and deleted by a nonveridical operator. This nonveridical operator feature, according to Gil and Marsden, is hosted by lexical items that Cheng dubbed polarity triggers (e.g., negators *mei(you)* ‘not’ or *bu* ‘not’, *yes/no*-question particle *-ma*, conditional markers *ruguo* ‘if’, *yaoshi* ‘if’, etc.). We should bear in mind that Chinese *wh*-existentials are polarity sensitive and their quantificational force is dependent upon an operator which is associated with polarity items, namely, the nonveridical operator. We will come back to this important point when we discuss the differences between Korean *wh*-existentials and Chinese *wh*-existentials in the next section.

Now let us summarize this section. The polysemy we have observed with Chinese *wh*-words is the result of variable binding mechanisms. Lexically, these words are variables and do not have inherent quantificational force. This variable status requires that they be bound by quantificational operators. Three types of quantificational operators may serve as the potential binders in Chinese, i.e., interrogative, universal, and nonveridical, which gives rise to, respectively, the interrogative, universal and existential/polarity readings of Chinese *wh*-words. The schematic representation of the three different senses of the Chinese *wh*-word *shenme* ‘THING’, for example, is something like (24). Here Q, \forall and NV stand for interrogative, universal and nonveridical operators, respectively; SHENME stands for the variable, i.e., the underspecified lexical representation, which presumably contains information such as the entry’s categorical feature (i.e., [+N]), core semantics (i.e., [–HUMAN]), etc.; and the binding relation between the operator and the variable is indicated by subscript.

- (24) a. $Q_{(x)}...$ SHENME_(x) → *shenme* ‘what’ (interrogative reading)
 b. $\forall_{(x)}...$ SHENME_(x) → *shenme* ‘everything’ (universal reading)
 c. $NV_{(x)}...$ SHENME_(x) → *shenme* ‘something/anything’
 (existential/polarity reading)

Note that the quantificational operators are manifested as distinct lexical items in Chinese. Specifically, the Q operator is realized as the overt *wh*-question particle *-ne* or as null; the \forall operator is realized as the adverb of quantification *dou* ‘all’; and the nonveridical operator is realized as negators *mei(you)* ‘not’ or *bu* ‘not’, *yes/no*-question particle *-ma*, conditional markers *ruguo* ‘if’, *yaoshi* ‘if’, etc. The binding relation between the operator and the variable demands that these quantificational elements c-command the relevant *wh*-words in overt syntax. This explains why Chinese *wh*-existentials, for instance, have to occur in the scope of their licensors, as was discussed in Section 2.2.2.2.

2.2.3 The Representation of *Wh*-words in Korean

2.2.3.1 Basic Data

Bare *wh*-words in Korean are polysemous between Q and \exists interpretations (Kim, 1989; Shin, 2005).¹⁶ We now present data to illustrate the distribution of Korean bare *wh*-existentials vis-à-vis that of Chinese *wh*-existentials.

¹⁶ Shin (2005) observed another type of *wh*-existential and *wh*-universal in Korean, which are derived by attaching an existential particle (i.e., *-(i)nka* or *-(i)nci*) or a universal particle (i.e., *-(i)na* or *-(i)tunci*) to the interrogative roots:

- (xi) a. Nwukwu-(i)nka/(i)nci-ka wass-ni?
 PERSON-inka/inci-NOM came-Q
 ‘Did **someone** come?’
 b. Nwukwu-(i)na/(i)tunci-ka Minswu-lul cohahan-ta.
 PERSON-ina/intunci-NOM Minswu-ACC like-DECL
 ‘**Everyone** likes Minswu.’ (Shin, 2005, p. 49: (3))

Negatives

- (25) a. *Minho-ka mwe-l an kacywa-ss-ta.*
Minho-NOM THING-ACC NEG bring-PAST-DECL
'Minho didn't bring **something**.'

(Yun, 2011)

- b. *Nwu-ka¹⁷ chayk-ul an kacikowa-ss-ta.*
PERSON book-ACC NEG bring-PAST-DECL
'**Someone** didn't bring a book.'

(O'Grady & M. Choo, p.c., 21 May 2010)

Recall that in negative sentences, Chinese *wh*-existentials are confined to the scope of negation (i.e., structurally lower than negation) (e.g., (16)). This restriction does not apply to Korean *wh*-existentials. As we can see, the \exists reading is available not only when the *wh*-word occurs in the direct object position of a negative sentence, as in (25a), but also when it is in the subject position, as in (25b).

Questions

- (26) *Nwu-ka cha-lul masiko iss-nayo?*
PERSON-NOM tea-ACC drink PROG-Q
a. 'Who is drinking tea?'
b. 'Is **anyone/someone** drinking tea?'

(Gil & Marsden, 2013, p. 124: (18a))

Korean does not have separate question markers for *yes/no* questions and *wh*-questions. In (26), in the presence of the general question marker *-nayo*, the *wh*-word *nwukwu* 'PERSON' is interpreted either as Q as in (26a) or as \exists as in (26b). This contrasts with

¹⁷ When the nominative marker *-ka* is attached to the *wh*-word *nwukwu* 'PERSON', the form is realized as *nwu-ka*, namely, *nwukwu + ka* \rightarrow *nwu-ka* (Lee & Ramsey, 2001, p. 93).

Chinese, where the question marker *-ma* is exclusively for *yes/no* questions, and *wh*-questions either are marked with the (optional) *wh*-question marker *-ne* or go without any overt question marker. When a *wh*-word in Chinese co-occurs with the *yes/no*-question marker *-ma*, it is unambiguously interpreted as \exists (e.g., (17)).

Conditionals

- (27) **Nwu**-ka sen-ul nemu-*myen*, kispal-ul tul-era.
 PERSON-NOM line-ACC cross-if flag-ACC raise-IMPER
 ‘If **anyone** crosses the line, raise the flag.’

(Gil & Marsden, 2010, p. 41: (3c))

In the protasis of conditional sentences such as (27), *wh*-words are interpreted as \exists , similarly to Chinese *wh*-words (e.g., (18)).

Affirmative Declaratives

- (28) a. John-i **mwues**-ul mek-ess-ta.
 John-NOM THING-ACC eat-PST-DECL
 ‘John ate **something**.’

(Choi, 2009, p. 21: (2.7a))

- b. Mary-ka **mwues**-ul ssu-ko iss-ta.
 Mary-NOM THING-ACC write-PROG-DECL
 ‘Mary is writing **something**.’

(K.-S. Park, p.c., 19 Sept. 2012)

We see a crucial contrast between Korean and Chinese in (28) above. Korean *wh*-existentials can occur happily in affirmative declaratives, which make reference to past events (e.g., (28a)) or on-going events (e.g., (28b)), whereas in these same environments, Chinese *wh*-existentials are prohibited (e.g., (19a_{ii}/b_{ii})).

Taken together, these data show that Korean *wh*-existentials are allowed in a wider range of environments than the Chinese counterparts. More specifically, Korean *wh*-existentials can occur not only in all environments where Chinese *wh*-existentials are licensed (e.g., in the scope of negatives, (*yes/no*) questions, conditionals) but also in environments where Chinese *wh*-existentials are ruled out (e.g., the subject position of negative sentences, affirmative declaratives), indicating, at the least, that Korean *wh*-existentials are free from the licensing conditions which constrain Chinese *wh*-existentials.

2.2.3.2 The Representation

Although *wh*-words in both Chinese and Korean can be interpreted as existential, their representations are different. It has been proposed that Korean *wh*-words are variables with no quantificational force of their own, and their quantificational force is determined by quantificational operators with which they are associated (Aoun & Li, 2003; Gil, 2004; Kim, 1989; inter alia). Building on this proposal, Choi (2009) and Lardiere (2009) argued that Korean *wh*-words are variable expressions and their interpretations are determined by whether the morphological particle inflected on the verb bears a [+Q] feature or a [-Q] feature. Consider bi-clausal sentences such as (29):

(29) a. John-un Mary-ka **mwues**-ul sassnun-*ci* an-ta
 John-TOP Mary-NOM THING-ACC bought-Q know-DECL
 ‘John knows **what** Mary bought.’

b. John-un Mary-ka **mwues**-ul sass-*ta*-(ko) an-ta
 John-Top Mary-Nom THING-ACC bought-DECL-C know-DECL
 ‘John knows (that) Mary bought **something**.’

(Lardiere, 2009, p. 186: (2))

In (29), the particle on the matrix verb in both sentences is identical (i.e., the declarative *-ta*), but the particles on the verb of the embedded clause (which contains the *wh*-word *mues* ‘THING’) vary. When the question particle *-ci* is used in (29a), the

wh-word *mues* is interpreted as Q ‘what’; when the declarative particle *-ta* is used in (29b), *mues* is interpreted as \exists .

However, if we look at the monoclausal sentence shown in (26), repeated in (30) below, we find that with the presence of the question particle *-nayo*, the *wh*-word *nwukwu* is interpreted either as Q in (30a) or as \exists in (30b):

- (30) **Nwu**-ka cha-lul masiko iss-*nayo*?
PERSON-NOM tea-ACC drink PROG-Q
a. ‘**Who** is drinking tea?’
b. ‘Is **anyone/someone** drinking tea?’

To account for the ambiguity involved in monoclausal sentences such as (30), we need to consider the functional properties of Korean question particles (e.g., *-nayo*). It is well-known that a question particle functions to seek information, and the information requested is the focus of the question (Bencini, 2003). In terms of a *wh*-question, the focus is generally considered to be on the *wh*-expression (Erteschik-Shir, 1986). In terms of a *yes/no* question, the focus can be assigned either to the whole proposition or to one particular constituent in the question (Bencini, 2003).

Recall that Korean does not differentiate *wh*-question particles and *yes/no* particles. So propositional focus and constituent focus are both possible with Korean question particles, even with the presence of *wh*-words. Take (30) for example, when the *wh*-word *nwu* ‘PERSON’ functions as the focus domain, the question is a *wh*-question (30a); when the whole proposition functions as the focus domain, the question is a *yes/no* question (30b).

Using terminologies adopted in the previous literature (e.g., Aoun & Li, 2003; Choi, 2009; Gil, 2004; Kim, 1989), the question particle *-nayo* in (30) can be viewed as the lexical host of a question operator. When the question operator binds the *wh*-word *nwu* ‘PERSON’ (i.e., *nwu* ‘PERSON’ is the focus), *nwu* ‘PERSON’ gets the interrogative force as in (30a). When the question operator binds the whole proposition (i.e., the whole proposition is the focus), the entire sentence gets the interrogative force as in (30b). In the latter case, the question operator is no longer able to ‘see into’ the proposition and

bind a variable contained within the proposition. This means that *nwu* ‘PERSON’ cannot derive its quantificational force from the question operator. Then how does *nwu* ‘PERSON’ get bound in this case? Following Heim’s (1982) line of reasoning, we suggest that when no overt quantificational element is available, *nwu* ‘PERSON’ is bound by a non-overt existential operator via the rule of existential closure, resulting in the \exists reading of *nwu* ‘PERSON’ in (30b).

Note that in our account of the availability of both the Q and \exists interpretations of *nwu* ‘PERSON’ in (30), the placement of focus is crucial. Since focus is often signaled by prosodic cues (e.g., stress, pitch accent, amplitude, etc.) (e.g., Féry, 2013; Meyer & Mleinek, 2006; Schafer, Carlson, Clifton, & Frazier, 2000), one would expect that prosody has an important role to play in disambiguating the *wh*-question reading (where the *wh*-word is interpreted as Q) and the *yes/no*-question reading (where the *wh*-word is interpreted as \exists) of monoclausal questions in Korean (e.g., (30)). In fact, this claim has repeatedly been proposed in the literature over the years (e.g., Cho, 1990; Choe, 1985; Choi, 2009; Park, 2009). Empirical findings from Jun and Oh’s (1996) speech production and perception study indicated that the different senses of *wh*-words involved in Korean monoclausal questions (e.g., (30)) were distinguished by “the combination of boundary tones, accentual phrasing, pitch ranges and peak amplitude” (p. 58). As prosody goes beyond the scope of the present study, we will not get into further details here.

To summarize what we have discussed in this section, *wh*-words in Korean are variables and their quantificational force is contributed by quantificational operators associated with them. When bound by an interrogative operator, which is realized overtly as question particles such as *-ci* and *-nayo*, the *wh*-word is interpreted as Q; when bound by an existential operator, which is realized either overtly as declarative particles such as *-ta* or covertly by means of existential closure. The representation of the two different sense of the *wh*-word *mwues* ‘THING’ can thus be schematized as in (31). The notations used here parallel those used in (24).

- (31) a. $Q_{(x)} \dots MWUES_{(x)}$ \rightarrow *mwues* ‘what’ (interrogative reading)
 b. $\exists_{(x)} \dots MWUES_{(x)}$ \rightarrow *mwues* ‘something/anything’ (existential reading)

It is worth emphasizing that the existential quantificational force of Chinese *wh*-words vs. Korean *wh*-words comes from two different types of operators. Chinese *wh*-existentials, with their polarity sensitivity, are derived from the underspecified lexical representation being bound by a nonveridical operator (see (24c)), the consequence being that Chinese *wh*-existentials are strictly restricted to nonveridical environments. By contrast, Korean *wh*-existentials are not polarity items and their existential quantificational force is derived from the underspecified representation being bound by an existential operator (see (31b)). This is manifested as the relatively free distribution of Korean *wh*-existentials (Gil, 2004; Gil & Marsden, 2013).

2.2.4 The Representation of *Wh*-words in English

Bare *wh*-words in English¹⁸ mainly have two different uses: interrogatives, e.g., (32), and relative pronouns, e.g., (33):

(32) Who_i did you see t_i?

(33) I saw the person_i who_i plays guitar nicely.

When used as interrogatives, *wh*-words have to be fronted to clause-initial position in monoclausal sentences. The syntactic movement is claimed to be semantically motivated, i.e., to mark the interrogative sense (Cheng, 1991). When used as relative pronouns, *wh*-words are usually adjacent to the head noun of the relative clause, and their function is to mark relative clauses (Baker, 1995).

In line with the idea that *wh*-words in East Asian languages are variables (Cheng, 1991; Kim, 1989; Nishigauchi, 1990), Tsai (1999) proposed that *wh*-words in English are

¹⁸ It has been suggested that English has morphologically marked *wh*-indefinites similar to those in Japanese (e.g., (15)) (Tsai, 1999; Zavitnevich-Beaulac, 2005):

(xii)	<u>interrogative</u>	<u>existential</u>	<u>universal</u>
	what	somewhat	whatever
	where	somewhere	wherever

This claim seems strained in two ways. First, note that *somewhat* does not behave like common *wh*-derived existentials (e.g., *nani-ka* in Japanese) in that it is an adverbial, meaning ‘to some extent’. Second, some predicted forms such as *somewho*, *somewhen*, etc. do not actually exist.

also variables without intrinsic quantificational force, and the interrogative and relative senses are determined by interrogative and relative operators that bind them. According to Tsai, both operators are phonologically null in English. The null interrogative operator is fused with the underspecified *wh*-entry as its binder. The operator-variable pair has to move to the Spec of CP position for the purpose of checking the interrogative feature. This is why the *wh*-word in a single *wh*-question in English, e.g., (32), must occur in clause-initial position. For multiple *wh*-questions like (34), Tsai argued that the null interrogative operator is incorporated with the first *wh*-word, here *what*; as this *what* is in the Spec of CP position, the interrogative operator fused with *what* acts as an unselective binder and binds the in-situ *wh*-word, here *whom*, contributing to the interrogative interpretation of this second *wh*-word.

(34) What_i did you give t_i to whom?

As for the null relative operator, Tsai offered two possibilities. One is that it is fused with the *wh*-entry, in which case relative *wh*-words functioning as relative pronouns are essentially null operators plus a set of ϕ -features. The second possibility is that the null relative operator is inserted in the specifier position of the relative clause, serving as “a medium for identification” (Tsai, 1999, p. 23). The first option seems more appealing, given that it is consistent with how the interrogative sense is derived, i.e., the operator is inserted word-internally in both cases.

B.D. Schwartz (personal communication, 18 July 2013) pointed out the ambiguity involved in sentences like (35), where the *wh*-word can introduce either an embedded *wh*-question or a free relative:

(35) I don't know **who** you know.

In Tsai's story, the two different senses of *who* in (35) can be argued to result from two different operators at work. When bound by an interrogative operator, *who* is interpreted as Q; when bound by a relative operator, *who* is interpreted as a relative pronoun. Since

both operators are realized as null, the two different senses of *who* in (35) cannot be differentiated at the level of overt syntax.

In parallel with the previous two sections, let us now present the schematic representation for the two different senses of the English *who* ‘PERSON’ in (36):

- (36) a. $[_{CP}[Q_{(x)}-WHO_{(x)}]_i [_{IP}\dots t_i \dots]] \rightarrow who$ (interrogative reading)¹⁹
 b. $REL_{(x)}-WHO_{(x)} \rightarrow who$ (relative pronoun reading)²⁰

Here $[Q_{(x)}-WHO_{(x)}]$ indicates that the interrogative (Q) operator binds the lexical entry WHO word-internally. The movement of the operator-variable pair is co-indexed with its trace (t) by subscript. Similarly, $[REL_{(x)}-WHO_{(x)}]$ shows that the relative operator binds the lexical entry WHO word-internally.

2.2.5 Summary

Wh-words in Chinese, Korean and English show contrasting properties in several aspects. First, bare *wh*-words in Chinese and Korean can be interpreted as existential as well as interrogative, whereas the existential sense is absent with bare *wh*-words in English. Second, Chinese *wh*-existentials are restricted to nonveridical environments; no such restrictions are found with Korean *wh*-existentials. Third, *wh*-interrogatives in English have to undergo syntactic movement, whereas those in Chinese and Korean stay in their base-generated positions.

The discussions regarding the representations suggest that *wh*-entries in the three languages are underlying the same in that they are variables.²¹ Crosslinguistic differences we have seen arise from differences in operator selection or differences in operator instantiations. In the case of *wh*-interrogatives, despite the fact that an

¹⁹ This schematic representation was proposed in Tsai (1999, p. 22: (18b)). In case of multiple *wh*-questions, Tsai argued that the interrogative operator in the Spec of CP binds all non-fronted *whs*, giving their interrogative interpretation.

²⁰ As the relative pronoun sense goes beyond the scope of the present study, the detailed phrase structure is omitted.

²¹ In fact, by analyzing a wide range of crosslinguistic data, Zavitnevich-Beaulac (2005) argued that the nature of *wh*-words is universally identical in that they are “*wh*-proforms” without quantificational force of their own, and their semantic content depends on which element they are combined with (p. 97).

interrogative operator acts as the binder of *wh*-entries in all three languages, it is hosted by question particles (overt or null) in Chinese and Korean, the consequence of which is that *wh*-words in these two languages stay in their base-generated positions. By contrast, the interrogative operator is merged with *wh*-entries in English, which drives *wh*-words involved in single *wh*-questions in English to move to the clause-initial position.

In the case of *wh*-existentials, the existential quantificational force is contributed by a nonveridical operator in Chinese and by an existential operator in Korean. This results in the restricted distribution of Chinese *wh*-existentials (e.g., in the scope of negators *mei*(you) ‘not’ or *bu* ‘not’, *yes/no*-question particle *-ma*, conditional markers *ruguo* ‘if’, *yaoshi* ‘if’, etc.) and a relatively free distribution of Korean *wh*-existentials. As *wh*-entries in English cannot be bound by operators with existential quantificational force, the existential sense is ruled out with bare *wh*-words in English.

Before we turn to the motivation of the present study, there are two important points to spell out. First, in classical generative grammar, linguistic knowledge is partitioned into “information and processes that reside in the lexicon and those rules and processes that are part of syntax” (Ramchand, 2008, p. 1). Over the past two decades, however, a strict separation between the lexicon and syntax has been challenged (e.g., Bresnan, 2001; Hale & Keyser, 1993; Pollard & Sag, 1994). For example, Jackendoff (2011, p. 4) contended: “Syntactically composite expressions *within* the lexicon create a sort of ordering paradox: generalization *in* the lexicon can be stated only in terms of rules that apply *outside* or ‘after’ the lexicon.” Following Zwarts’s (1998) analysis of the phenomenon of polarity, Gil and Marsden (2013) argued, in particular, that the crosslinguistic variations of existential quantifiers, e.g., Chinese *wh*-existentials, Korean *wh*-existentials and English *any*, are of a lexical nature. In the present study, we thus consider knowledge of the semantic and syntactic properties of *wh*-words as lexically rooted. Second, as current linguistic theory does not yet have a feature-based account for the crosslinguistic differences of *wh*-words (Gil & Marsden, 2013), we leave the issue open as to how different operator features – interrogative, nonveridical, existential, relative, etc. – are represented in the lexicon. This does not have serious consequences on the present study, because our goal is to test Sprouse’s (2006) Lexical Transfer Hypothesis.

2.3 Motivation of the Present Study

Given the crosslinguistic differences instantiated by *wh*-words in Chinese, Korean and English, the present study seeks to understand whether the L1 lexical knowledge will have effects on the representations of *wh*-words in the L2. More specifically, we zoom in on the development of *wh*-existentials in the L2 Chinese of L1-Korean and L1-English speakers to determine whether the syntactic and semantic properties underlying L1 *wh*-words have interpretive consequences in the L2.

According to Sprouse's (2006) Lexical Transfer Hypothesis, the entirety of the syntactic and semantic properties of L1 lexical items is copied to the L2 lexical representation at the L2 initial state. In light of this hypothesis, at the L2 initial state, the properties of *wh*-words in the L2 Chinese of L1-Korean and L1-English speakers are expected to show resemblance to properties of the L1 counterparts. Consequently, lower-proficiency L1-English L2ers are expected to disallow *wh*-existentials, even in cases where pragmatic contexts make the existential sense appropriate, because such uses are incompatible with their L1 knowledge, i.e., bare *wh*-words are never existential in English. Lower-proficiency L1-Korean L2ers, on the other hand, are expected to allow *wh*-existentials not only in nonveridical environments, where Chinese *wh*-existentials are licensed, but also in veridical environments, where Chinese *wh*-existentials are prohibited, the reason being that Korean *wh*-existentials are well-formed in both environments. In addition, restructuring of the L1-based lexical knowledge is predicted to be immensely difficult for Korean L2ers of Chinese, as unlearning the overgeneralized existential sense demands negative evidence (i.e., evidence showing that *wh*-existentials are prohibited in veridical environments in Chinese), which is argued to be non-existent in the input (Schwartz & Gubala-Ryzak, 1992).

Three different tasks are employed to test the interpretation, production and acceptability of constructions involving *wh*-existentials (i.e., negatives, *yes/no* questions, and conditionals) against the above predictions.

Although lexical semantics of *wh*-words is a very under-investigated area in acquisition research, we do find a few studies which specifically addressed this issue, to which we turn in Chapter 3.

CHAPTER 3

PREVIOUS RESEARCH

The lexical semantics of *wh*-words is seldom touched upon in acquisition research. To the best of my knowledge, there are only four existing studies that have specifically addressed this topic. In this chapter, we consider these studies in detail. Section 3.1 reviews the study by Cole, Gil, Hermon and Tadmor (2001) on *wh*-interrogatives and *wh*-indefinites in child L1 Jakarta Indonesian. Section 3.2 examines Umeda's (2008) study on *wh*-universals in the L2 Japanese of L1-English and L1-Chinese learners. Section 3.3 is devoted to Choi's (2009) study on *wh*-existentials in the L2 Korean of L1-English learners. Section 3.4 discusses Yuan's (2010) study on *wh*-existentials in the L2 Chinese of L1-English and L1-Japanese learners. Section 3.5 summarizes the findings and outstanding issues, and gives the empirical motivation for the present study.

3.1 Cole, Gil, Hermon and Tadmor (2001)

The Cole, Gil, Hermon and Tadmor (2001) study is concerned with the L1 acquisition of *wh*-interrogatives and *wh*-indefinites in Jakarta Indonesian, a colloquial dialect spoken in Jakarta.

In adult Jakarta Indonesian, *wh*-indefinites take three forms: (i) bare *wh*-form; (ii) *wh*-form + conjunctive *aja* 'just' (e.g., *siapa* 'who' vs. *siapa aja* 'everyone'); and (iii) reduplicated *wh*-form (e.g., *siapa* 'who' vs. *siapa-siapa* 'anyone'). Reduplicated *wh*-existentials behave similarly to Chinese *wh*-existentials in that they are restricted to nonveridical environments such as negatives, *yes/no* questions, conditionals, modality, etc. The example in (1) illustrates a case where the reduplicated *wh*-existential *siapa-siapa* is licensed by negation:

- (1) Gua *nggak* suka sama **siapa-siapa**
I NEG like with RED-PERSON
'I don't like **anybody**.'

(Cole et al., 2001, p. 171: (6))

Cole et al. analyzed 7,664 *wh*-forms drawn from a spontaneous production corpus, which consisted of bi-weekly naturalistic recordings of 8 L1-Jakarta Indonesian children, aged 18 to 57 months. Results show that *wh*-interrogatives were used productively from early on, whereas *wh*-indefinites were not observed with children under the age of 26 months. Out of the 844 instances of *wh*-forms produced by children aged 26 to 39 months, 14 were *wh*-indefinites (i.e., 1.6%), of which 8 appeared in chunk expressions and 6 were reduplicated *wh*-existentials licensed by negation. Out of the 1020 instances of *wh*-forms produced by children older than 40 months, 42 were *wh*-indefinites (i.e., 4%), of which 22 were used in chunk expressions, 11 were reduplicated *wh*-existentials licensed by negation, and 9 were *wh*-universals licensed by the conjunctive *aja* 'just'.

Clearly, *wh*-indefinites were limited in child language both in quantity and in the types of constructions in which they occur (reduplicated *wh*-existentials were only found in negatives). However, it was noted that once reduplicated *wh*-existentials were produced, they were always grammatically well-formed, with negation licensing the reduplicated *wh*-existentials. Cole et al. attributed the late use of reduplicated *wh*-existentials to the fact that the licensing conditions took time to acquire.

One serious methodological limitation of the study, as the researchers themselves realized, is that with data entirely from spontaneous production, it is difficult to determine whether the observed delayed emergence of *wh*-indefinites is due to lack of pertinent grammatical knowledge or to lack of required contexts in everyday speech. Moreover, bare *wh*-words can be used as *wh*-indefinites in the adult language, but no such uses were attested in the child data. When exactly the indefinite senses are incorporated into the lexical representation of bare *wh*-words in child Jakarta Indonesian is left unanswered. In addition, as pointed out by B.D. Schwartz (personal communication, 18 July 2013), in the absence of a corpus analysis of child-directed speech, we cannot tell what the input looks like. Therefore, we cannot rule out the

possibility that children prior to the age of 57 months have not yet witnessed sufficient instances of *wh*-indefinites in the input.

3.2 Umeda (2008)

Umeda (2008) investigated two phenomena in L2 Japanese: the scope of *wh*-interrogatives and the non-local licensing of *wh*-universals. We focus on the latter here.

Let us first look at some basic data, which will help us understand the properties of *wh*-words in Japanese. Consider (2a) and (2b):

- (2) a. John-ga ringo-o kaimasita-ka?
John-NOM apple-ACC bought-KA
'Did John buy apples?'

(Umeda, 2008, p. 31: (7))

- b. **Dare**-ga ringo-o tabemasita-ka?
PERSON-NOM apple-ACC ate-KA
'**Who** ate an apple?'

(Umeda, 2008, p. 2: (3a))

Both sentences in (2) are questions. In the absence of a *wh*-word, (2a) is a *yes/no* question; in the presence of the *wh*-word *dare* 'PERSON', (2b) is a *wh*-question. In both cases, we see that the particle *-ka* occurs sentence-finally, suffixed onto the verb. This suggests that *-ka*, when attached to the verb of a sentence, functions as a question particle, which occurs with both *yes/no* questions and *wh*-questions. Note that (2b) is unambiguously a *wh*-question, indicating that when the question particle *-ka* co-occurs with a *wh*-word in a sentence, the relevant *wh*-word has to be interpreted as interrogative (Q) 'who'. Now compare (2b) with (3):

- (3) **Dare-ka-ga** ringo-o tabemasita.
 PERSON-KA-NOM apple-ACC ate
 ‘**Someone** ate an apple.’

(Umeda, 2008, p. 2: (3b))

The particle *-ka* is also found in (3), but this time it is directly attached to the *wh*-word *dare*, and here *dare* is interpreted as existential (\exists) ‘someone’. Clearly, when suffixed to a *wh*-word itself, *-ka* serves as a quantificational particle, contributing to the \exists interpretation of the *wh*-word.

The contrast between (2) and (3) shows that *-ka* has two distinct functions in Japanese. First, when suffixed onto the verb of a sentence, e.g., (2), *-ka* is a question particle, which marks the illocutionary force of the sentence as interrogative. If a *wh*-word occurs in the sentence, e.g., (2b), the *wh*-word picks up the Q interpretation. Second, when suffixed to a *wh*-word, e.g., (3), *-ka* is a quantificational particle, which gives the \exists interpretation to the *wh*-word. Note that the Q interpretation results from the non-local association of the *wh*-word with *-ka*, i.e., the two elements are separated from each other, whereas the \exists interpretation results from local association, with *-ka* being directly suffixed to the *wh*-word.

In addition to the Q interpretation and the \exists interpretation, *wh*-words in Japanese can also be interpreted as universal (\forall):

- (4) **Dare-mo-ga** ringo-o tabemasita.
 PERSON-MO-NOM apple-ACC ate
 ‘**Everyone** ate an apple.’

(Umeda, 2008, p. 2: (3))

In (4), the *wh*-word *dare* ‘PERSON’ is interpreted as \forall ‘everyone’ when the particle *-mo* is suffixed to the *wh*-word. This is the case where the \forall interpretation is derived from local association between the *wh*-word and the quantificational particle *-mo*. A non-local association between the *wh*-word and universal particle *-mo* is also possible, as illustrated in (5):

- (5) a. Watasi-wa [[_{PP} **dare**-kara]-*mo*] tegami-o uketotta.
 I-TOP PERSON-from-MO letter-ACC received
 ‘I received a letter from **everyone**.’
- b. Watasi-wa [[_{NP} [_{CP} **dare**-ga kai-ta] tegami]-*mo*] yon-da.
 I-TOP PERSON-NOM write-PST letter-MO read-PST
 ‘I read the letters **everyone** wrote.’

(Umeda, 2008, p. 34: (11))

In (5a), *-mo* is attached to a PP, which contains the *wh*-word *dare*. In (5b), *-mo* is attached to the complex NP (i.e., the [relative clause + N]), which contains *dare*. In both sentences, *dare* is interpreted as \forall , despite the fact that it is separated from the universal particle *-mo*. In particular, note that although *-mo* surfaces in a position which is adjacent to the head of the relative clause (i.e., *tegami* ‘letter’) in (5b), it is, in fact, attached to the complex NP, giving the \forall interpretation to *dare*, the subject of the relative clause.²²

Similar to Japanese, bare *wh*-words in Chinese can also be interpreted as universal when quantified by the particle *dou* ‘all’. The universal particle *dou* may be either adjacent to the *wh*-word (i.e., local association) or separated from the *wh*-word (i.e., non-local association), as exemplified, in respectively, (6a) and (6b). The contrast between (6b) and *(6c) shows that the non-local association in (6b) is due to the (obligatory) topicalization of the relative clause to which *dou* was originally attached, stranding *dou*.²³

²² B.D. Schwartz (personal communication, 27 March 2014) wondered whether *-mo* also quantifies the head noun of the relative clause in (5b), i.e., whether (5b) can be interpreted as ‘I read **every** letter that **everyone** wrote’. Umeda did not discuss this point in her dissertation.

²³ This point was suggested by B.D. Schwartz (personal communication, 11 March 2014).

- (6) a. Wo **shui** dou xihuan.
 I PERSON all like
 ‘I like **everyone**.’
- b. **Shui** xie de shu wo dou xihuan.
 PERSON write DE book I all like
 ‘I like the book **everyone** wrote.’
- c. * Wo xihuan **shui** xie de shu dou.
 I like book write DE book all
 ‘I like the book **everyone** wrote.’

In contrast to Japanese and Chinese, bare *wh*-words in English can never function as universals.

To determine the effects of L1 influence, Umeda tested L1-Chinese and L1-English L2ers of Japanese on their knowledge of the non-local licensing of *wh*-universals in sentences like (5b). Three tasks were employed: grammaticality judgments, translation, and question-answer pair acceptability judgments. Based on the results of a cloze test, L2 participants were divided into 2 proficiency levels: intermediate (Int.) and advanced (Adv.). In addition to the 4 L2 groups (i.e., Chinese_Int. ($n = 27$); Chinese_Adv. ($n = 25$); English_Int. ($n = 19$); English_Adv. ($n = 13$)), a group of Japanese native speakers ($n = 12$) also participated in the study as the control group.

In the grammaticality judgment task, participants were given contexts which were intended for the \forall interpretation of *dare* ‘PERSON’, and were asked to judge the acceptability of sentences such as (7a) and (7b) on a scale of 1 to 4, with 1 designating an impossible sentence and 4 a possible sentence. A ‘don’t know’ option was also provided. Contexts were presented in the participants’ L1, followed by the Japanese test sentences.

(7) [context, English version]

Each student from Daisuke’s class read a different book. According to Daisuke,

a. [[**Dare**-ga yonda hon]-*mo*] omosirokatta.
 PERSON-NOM read book-MO was-interesting
 ‘The books that **everyone** read were interesting.’

b. * [[**Dare**-ga yonda hon]-*ga*] omosirokatta.
 PERSON-NOM read book-NOM was-interesting

(Umeda, 2008, p. 158: (9) and (10))

Crucially, when the universal particle *-mo* is present in (7a), the sentence is grammatical; when *-mo* is replaced by the nominative marker *-ga* in (7b), the sentence becomes ungrammatical.

Experimental items testing the non-local licensing of *wh*-universals consisted of 4 grammatical sentences (e.g., (7a)) and 4 ungrammatical sentences (e.g., *(7b)). These 8 experimental items, together with the 8 experimental items testing the scope of *wh*-interrogatives, were pseudo-randomized with 24 fillers.

Table 3.1 presents the results of the two types of sentences testing the L2 knowledge of non-local licensing of *dare* as \forall :

Table 3.1. Umeda (2008): Results of Grammaticality Judgments on the Non-local Licensing of *Dare* as \forall (Group Mean)

	Grammatical (with <i>-mo</i>)		Ungrammatical (with <i>-ga</i>)
Native Control	3.38	*	1.52
Chinese_Int.	2.26		2.50
Chinese_Adv.	2.35		2.16
English_Int.	2.30		2.30
English_Adv.	2.54	*	1.56

NB: * = statistical difference between the grammatical and ungrammatical sentences
 (adapted from Umeda, 2008, p. 162: Table 21)

As we can see, the English_Adv. group, along with the natives, differentiated grammatical vs. ungrammatical sentence types, suggesting that they knew that *dare* must co-occur with *-mo* under the given contexts. The mean ratings by the English_Int. group and the 2 Chinese L2 groups were slightly above 2 (out of 4) for both the grammatical and ungrammatical types, showing that these 3 groups were unable to establish the association between *dare* and *-mo* under the given contexts. (Note that we deliberately use the vague term “under the given contexts” for now because our interpretation of these results will be left open until we get to the critique of the study.)

In the translation task, the L2 participants were provided with contexts in their L1, where both Q and \forall interpretations of *dare* are plausible, and were asked to translate sentences such as (8a) and (8b) into their L1:

(8) [context, English version]

Kazuo, Kenji, and Naoko each brought wine to Akemi’s place. Akemi’s friend asked her,

a. [[**Dare**-ga mottekita wain]-*mo*] oisikattadesu-ka?
 PERSON-NOM brought wine-MO was-delicious-KA
 ‘Was the wine that **everyone** brought delicious?’

b. [[**Dare**-ga mottekita wain]-*ga*] oisikattadesu-ka?
 PERSON-NOM brought wine-NOM was-delicious-KA
 ‘**Who** brought the wine that was delicious?’

(Umeda, 2008, p. 168: (17) and (18))

The different interpretations of (8a) and (8b) are determined by the quantificational particle with which *dare* is associated. In (8a), the question particle *-ka* is attached to the matrix verb, and the universal particle *-mo* is attached to the complex NP, which contains *dare*. In the presence of *-mo*, *dare* has to be interpreted as \forall via non-local association. The sentence-final question particle *-ka* serves to contribute to the interrogative force of the entire sentence. Consequently, (8a) is a *yes/no* question, where *dare* is interpreted as

∇. In (8b), the question particle *-ka* is attached to the matrix verb, and the nominative marker *-ga* is attached to the complex NP. As *-ga* is not a quantificational particle, *dare* has to be associated with the sentence-final question particle *-ka*, the consequence being that the sentence becomes a *wh*-question, where *dare* is interpreted as Q.

There were 4 tokens of each sentence type, resulting in 8 experimental sentences testing the ∇ vs. Q interpretations of *dare*. In addition, there were 8 experimental sentences testing the scope of *wh*-interrogatives, 8 experimental sentences testing the interrogative complementizer *-ka* vs. the declarative complementizer *-to*, and 16 fillers, yielding a total of 40 test items.

Table 3.2 shows the results of sentences involving *-mo* (e.g., (8a)):

Table 3.2. Umeda (2008): Translation Task Results for *-Mo* Sentences²⁴

	Chinese		English	
	Intermediate	Advanced	Intermediate	Advanced
∇ (target)	50/108 (46.29%)	53/100 (53.00%)	5/76 (6.58%)	32/52 (61.54%)
Q	47/108 (43.51%)	43/100 (43.00%)	32/76 (42.11%)	3/52 (5.77%)
∃	4/108 (3.70%)	4/100 (4.00%)	36/76 (47.37%)	17/52 (32.69%)
not translated	7/108 (6.48%)	0/100 (0.00%)	3/76 (3.95%)	0/52 (0.00%)

(adapted from Umeda, 2008, p. 174: Table 30)

Results of paired sample t-tests indicate that the Chinese_Int. group was significantly more target-like than the English_Int. group in getting the ∇ reading of *dare*. Umeda interpreted this result as effects of L1 transfer. Interestingly, the English_Int. group misinterpreted *dare* as ∃ (i.e., ‘Did **someone** bring the wine that was delicious?’) at a substantially higher rate than the Chinese_Int. group, showing that to a certain extent, the English intermediate L2ers were aware that a non-interrogative use of *dare* was possible in Japanese, but their knowledge of the indefinite sense was deviant. As for the two advanced L2 groups, the English_Adv. group was significantly more target-like than the Chinese_Adv. group, a result which is hard to interpret.

Table 3.3 presents the results of sentences with *-ga* (e.g., (8b)):

²⁴ Some of the percentages in Umeda’s (2008) Table 30 were miscalculated. The percentages presented here are recalculations.

Table 3.3. Umeda (2008): Translation Task Results for -Ga Sentences

	Chinese		English	
	Intermediate	Advanced	Intermediate	Advanced
Q (target)	94/108 (87.04%)	95/100 (95.00%)	45/76 (59.21%)	35/52 (67.31%)
\forall	2/108 (1.85%)	5/100 (5.00%)	0/76 (0.00%)	5/52 (1.92%)
\exists	7/108 (6.48%)	0/100 (0.00%)	28/76 (36.84%)	16/52 (30.77%)
not translated	5/108 (4.63%)	0/100 (0.00%)	3/76 (3.95%)	0/52 (0.00%)

(adapted from Umeda, 2008, p. 175: Table 31)

Both English L2 groups were significantly less target-like than the Chinese L2 groups in interpreting *dare* as Q, due to fact that they, again, misinterpreted *dare* as \exists (i.e., ‘Did **someone** bring the wine that was delicious?’). These results, coupled with the results from the *-mo* sentences, show that the English L2ers had a strong tendency to interpret *dare* as \exists , not only in sentences where *dare* functions as \forall (e.g., (8a)) but also in sentences where *dare* functions as Q (e.g., (8b)). Given that bare *wh*-words are never used as \exists in English and that *dare*, in the absence of the suffix *-ka*, is never interpreted as \exists in Japanese, the deviant \exists sense observed with the English L2ers is surprising, as it is not instantiated in the L1 and it is not instantiated in the input, at least in the strict sense.

In the question-answer pair acceptability judgment task, the participants were given contexts where *dare* can be interpreted either as \forall or as Q, followed by 3 types of question-answer exchanges. The contexts were presented in the L1 of the participants. Their task was to judge on a scale of 1 to 4 how natural each answer was with respect to the question, with 1 designating very odd and 4 natural. A ‘don’t know’ choice was also provided. Sample items are presented in (9):

- (9) [context, English version]
Prof. Tanaka, Prof. Suzuki, and Prof. Ito each published a book last year. Akemi knows all three professors, and Hiroko asked her,

[Type 1] With *-Mo*: Appropriate Q/A pair

Q: [**Dare**-ga kaita hon]-*mo* yoku uremasita-ka?
PERSON-NOM wrote book-MO well sold-KA

‘Did the books **everyone** wrote sell well?’

A: Hai, uremasita-yo.

Yes, sold-PART.

‘Yes, they did.’

[Type 2]: With *-Ga*: Appropriate Q/A pair

Q: [**Dare**-ga kaita hon]-*ga* yoku uremasita-ka?
PERSON-NOM wrote book-NOM well sold-KA

‘**Who** wrote the book that sold well?’

A: Tanaka-sensei-ga kaita hon-ga yoku uremasita-yo.

Tanaka-professor-NOM wrote book-NOM well sold-PART

‘The book Prof. Tanaka wrote sold well.’

[Type 3]: With *-Ga*: Inappropriate Q/A pair

Q: [**Dare**-ga kaita hon]-*ga* yoku uremasita-ka?
PERSON-NOM wrote book-NOM well sold-KA

‘**Who** wrote the book that sold well?’

A: Hai, uremasita-yo.

Yes, sold-PART.

‘Yes, it did.’

(Umeda, 2008, pp. 182-183: (27), (28) and (29))

Note that the questions in the 3 types of exchanges in (9) are the same except that in Type 1, *-mo* is attached to the complex NP (which contains *dare* ‘PERSON’), whereas in

Types 2 and 3, *-mo* is replaced with *-ga* (the questions in Types 2 and 3 are identical). As we discussed earlier, with *-mo*, the sentence is a *yes/no* question, where *dare* is interpreted as \forall . Thus, the *yes/no*-question response in Type 1 is appropriate. With *-ga*, the sentence is a *wh*-question, where *dare* is interpreted as *Q*. Therefore, the *wh*-question response in Type 2 is appropriate, whereas the *yes/no*-question response in Type 3 is inappropriate. Each of the 3 types had 4 tokens. The 12 question-answer pairs, together with 16 question-answer pairs testing the scope of *wh*-interrogatives, were mixed with 20 fillers.

The results of the 3 types of question-answer pairs testing the non-local licensing of the \forall interpretation of *dare* are presented in Table 3.4 below:

Table 3.4. Umeda (2008): Q/A Acceptability Judgment Task Results: The Non-local Licensing of *Dare* as \forall (Group Mean)

	Type 1 (with <i>-mo</i>) appropriate	Type 2 (with <i>-ga</i>) appropriate	Type 3 (with <i>-ga</i>) inappropriate
Native Control	3.85	4.00	1.31
Chinese_Int.	1.65*	3.68	1.50
Chinese_Adv.	2.07*	3.88	1.08
English_Int.	1.72*	3.93	1.71
English_Adv.	3.23	3.90	1.56

NB: * = statistical difference from the native control group

(adapted from Umeda, 2008, p. 187: Table 36)

The result that all L2 groups performed like the natives in accepting Type 2 and rejecting Type 3 suggests that they successfully interpreted *dare* as *Q* in the presence of *-ga*.

To examine whether the L2 participants knew that the \forall interpretation of *dare* is possible in the presence of *-mo*, but impossible in the presence of *-ga*, Umeda compared the mean ratings of Type 1 and Type 3 by each group. Recall that a *yes/no* response is provided in both Type 1 and Type 3: It is appropriate in Type 1 (because the question involves *-mo*) but inappropriate in Type 3 (because the question involves *-ga*). If the L2 participants had target-like interpretations of the questions in Type 1 and Type 3, a significant difference should be found in the ratings of the 2 types.

The results of paired sample t-tests show that the native control group and the 2 advanced L2 groups rated Type 1 significantly higher than Type 3, suggesting that they assigned target-like interpretations to the questions in light of the two different particles

(i.e., a *yes/no*-question interpretation to the *-mo* question in Type 1, and a *wh*-question interpretation to the *-ga* question in Type 3). By contrast, the 2 intermediate L2 groups did not rate the 2 types significantly differently. In fact, Table 3.4 shows that their ratings for Type 1 and Type 3 are both fairly low (out of 4, Chinese_Int.: 1.65 vs. 1.50; English_Int.: 1.72 vs. 1.71), suggesting that they assigned a *wh*-question reading to the *-mo* question in Type 1, as they did to the *-ga* question in Type 3. In other words, the Chinese intermediate L2ers interpreted *dare* as Q, even in the presence of *-mo*, just like the English intermediate L2ers did. This seems to show that whether or not *wh*-universals are instantiated in the L1 has little role to play in the acquisition of the non-local licensing of *dare* as \forall in L2 Japanese.

Taken together, the results from the 3 tasks were mixed. In the grammaticality judgment task and the question-answer pair acceptability judgment task, the Chinese_Int. group showed no advantage over the English_Int. group in interpreting *dare* as \forall , which seems to hint at little effect of L1 knowledge. In the translation task, however, the Chinese_Int. group outperformed the English_Int. group in translating sentences containing universal *dare*, which seems to point towards L1 influence. Nevertheless, we have reservations about these findings. There are two main reasons for this.

First, Umeda aimed to test whether L2ers of Japanese knew that the *wh*-word *dare* ‘PERSON’ can be interpreted as \forall when it is associated with the non-local universal particle *-mo*. However, how she set up the grammaticality judgment task and the question-answer pair acceptability judgment task was problematic, which makes it difficult to ascertain what interpretations participants assigned to [*dare...mo*]. Consider the sample item of the grammaticality judgment in (7), repeated in (10) for convenience:

(10) [context, English version]

Each student from Daisuke's class read a different book. According to Daisuke,

a. [[**Dare**-ga yonda hon]-*mo*] omosirokatta.
PERSON-NOM read book-MO was-interesting
'The books that **everyone** read were interesting.'

b. * [[**Dare**-ga yonda hon]-*ga*] omosirokatta.
PERSON-NOM read book-NOM was-interesting

(Umeda, 2008, p. 158: (9) and (10))

If participants accepted (10a), all it tells us is that they did not interpret [*dare...mo*] as Q. However, there are various correct and incorrect non-interrogative interpretations for (10a), some conceivable ones are listed in (11):

- (11) a. The books that **everyone** read were interesting.
b. **Every** book that **everyone** read was interesting.
c. **All** books that **everyone** read were interesting.
d. **Some** books that **everyone** read were interesting.
e. The books that **someone** read were interesting.
f. **Every** book that **someone** read was interesting.
g. **All** books that **someone** read were interesting.
h. **Every** book that **someone** read was interesting.

Any of the interpretations in (11) may lead to acceptance of (10a). Putting aside the different interpretations of *hon* 'book', acceptance of (10a) cannot inform us whether participants interpreted [*dare...mo*] as \forall 'everyone' or as \exists 'someone', the former being target-like, the latter, nontarget-like. In other words, target-like judgments, i.e., acceptances of sentences like (10a), do not necessarily entail target-like interpretations, i.e., the \forall interpretations of [*dare...mo*].

The same problem is also found with the question-answer pair acceptability judgment task. Look at the Type 1 sample item in (9), repeated in (12):

(12) [context, English version]

Prof. Tanaka, Prof. Suzuki, and Prof. Ito each published a book last year. Akemi knows all three professors, and Hiroko asked her,

[Type 1] With *-mo*: Appropriate Q/A pair

Q: [**Dare**-ga kaita hon]-*mo* yoku uremasita-ka?

PERSON-NOM wrote book-MO well sold-KA

‘Did the books **everyone** wrote sell well?’

A: Hai, uremasita-yo.

Yes, sold-PART.

‘Yes, they did.’

(Umeda, 2008, p. 182: (27))

In this type, a *-mo* question is followed by a *yes/no*-question response. If participants judged the *yes/no*-question response as appropriate, it shows that they interpreted the question as a *yes/no* question. However, interpreting the question as a *yes/no* question is not sufficient for arguing that [*dare...mo*] is interpreted as \forall , because there are many other possible ways to interpret a *yes/no* question containing [*dare...mo*]. For example, the question can be incorrectly interpreted as ‘Did the book **someone** wrote sell well?’, where [*dare...mo*] is assigned the \exists interpretation. Like in the previous task, target-like responses in this task do not ensure target-like interpretations. However, Umeda interpreted the results of both tasks such that target-like responses were taken as evidence that participants successfully interpreted [*dare...mo*] as \forall . This methodological oversight is very unfortunate, given that results of the translation task suggest that the English L2ers had a much stronger propensity than the Chinese L2ers to misinterpret [*dare...mo*] as \exists . This may be the reason why no L1 effect was found in these two judgment tasks, as the \exists interpretations, incorrectly assigned to [*dare...mo*] by the English L2ers, were miscoded as the target-like \forall interpretations.

The second issue is with the translation task. Translation tasks have the strength of revealing how L2ers interpret the sentences under investigation. However, a sentence can be translated in various ways via different lexical items and/or via different sentence patterns. This requires researchers to set criteria to tease apart translations which are considered target-like from those which are considered nontarget-like. The criteria are usually subjective. The problem becomes even more severe when a comparative study is undertaken, because target sentences are translated into different L1s, which means that criteria have to be made for each L1. It is immensely difficult to make these cross-language criteria strictly comparable to each other. Moreover, translation tasks also involve the risk that some L2ers may translate a sentence word for word, without understanding the meaning of the entire sentence. Such translations thus do not reflect the grammatical knowledge of L2ers.

Coming back to Umeda's translation task, the L2 participants were asked to translate sentences in (8), repeated below in (13):

- (13) a. [[**Dare**-ga mottekita wain]-*mo*] oisikattadesu-ka?
 PERSON-NOM brought wine-MO was-delicious-KA
 ‘Was the wine that **everyone** brought delicious?’
- b. [[**Dare**-ga mottekita wain]-*ga*] oisikattadesu-ka?
 PERSON-NOM brought wine-NOM was-delicious-KA
 ‘**Who** brought the wine that was delicious?’

(Umeda, 2008, p. 168: (17) and (18))

For the *-mo* sentences (e.g., (13a)), Umeda gave the following examples of what were considered target-like Chinese translations (14) and what were considered target-like English translations (15):

(14) Examples of what were considered target-like Chinese translations of *-mo* sentences:²⁵

a. **Shei** kan de dianying dou youyisi ma?
PERSON see DE movie all interesting Q_{yes/no}
'Were the movies that **everyone** saw interesting?'

b. **Dajia** kan de dianying dou heng youqu ma?
everyone see DE movie all very interesting Q_{yes/no}
'Were the movies that **everyone** saw interesting?'

(Umeda, 2008, p. 173: (19))

(15) Examples of what were considered target-like English translations of *-mo* sentences:

- a. Were the movies **everyone** saw interesting?
- b. Did **everyone** see an interesting movie?
- c. Were **all** the movies **they** saw interesting?

(Umeda, 2008, p. 173: (20))

In the Chinese examples, two types of expressions were considered target-like translations for [*dare... -mo*]: (i) the *wh*-word *shui* 'PERSON' quantified by *dou* 'all'; and (ii) the lexical universal quantifier *dajia* 'everyone'. I consulted 7 native speakers of Chinese on their intuitions regarding (14a), and all of them considered it an unacceptable Chinese sentence. Thus, the occurrence of sentences like (14a) in the translation task is very likely to be due to an effect of the task itself, i.e., the L1-Chinese participants simply translated the Japanese sentence verbatim, without comprehending the whole sentence. Yet, translations like (14a) were used to infer the participants' grammatical knowledge.

²⁵ The examples of what were considered target-like Chinese translations and English translations of *-mo* sentences shown in (14) and (15), respectively, were not for the sample item in (13). Umeda did not give examples of what were considered target-like Chinese translations and English translations for (13).

In the English examples, we see that the translation in (15c) involves a universal quantifier *all* modifying the head noun of the relative clause (i.e., *the movies*) and a pronoun *they* in the subject position of the relative clause, which, we think, was not the interpretation under investigation, i.e., the \forall interpretation of non-local association between *wh*-words and *-mo*.

To sum up, Umeda (2008) examined the L2 acquisition of *wh*-universals licensed by the non-local quantificational particle *-mo* by L1-Chinese and L1-English speakers to determine the effects of L1 knowledge. Her findings are largely inconclusive. The methodological problems discussed above are likely to be responsible for the mixed results.

3.3 Choi (2009)

Using a listening translation task, a written translation task and a truth-value judgment task, Choi (2009) investigated the L2 development of *wh*-existentials vis-à-vis *wh*-interrogatives in the L2 Korean of native English speakers. Experimental items in all 3 tasks involved 3 different *wh*-words: *nwukwu* ‘PERSON’, *mwues* ‘THING’, *eti* ‘PLACE’. Umeda lumped them together in her analyses. Participants included 24 high-intermediate and 23 advanced L1-English L2ers of Korean as well as 20 Korean native controls. L2 Korean proficiency was determined based on the results of the 24 filler items in the two translation tasks.

As discussed in Chapter 2, monoclausal questions involving *wh*-words are ambiguous in Korean. When focus is assigned to the *wh*-word, the question gets a *wh*-question reading; when focus is assigned to the whole proposition, the question gets a *yes/no*-question reading. The two different focus placements are often accompanied by different prosodic cues. In the listening translation task, Choi examined whether the L1-English L2ers were able to make use of sentence-final falling vs. sentence-final rising intonations to interpret *wh*-words contained in monoclausal questions such as (16) and (17):

(16) Falling intonation: Q

John-i **mwues-ul** mek-ess-ni? ↘
 John-NOM THING-ACC eat-PAST-Q
 ‘**What** did John eat?’

(Choi, 2009, p. 123: (4.1))

(17) Rising intonation: ∃

John-i **mwues-ul** mek-ess-ni? ↗
 John-NOM THING-ACC eat-PAST-Q
 ‘Did John eat **something**?’

(Choi, 2009, p. 123: (4.2))

Each type of intonation pattern had 6 tokens, resulting in a total of 12 experimental items. In addition, 5 *yes/no* questions which did not contain *wh*-words and 7 declarative sentences were included as fillers. The 24 test items, together with oral directions, were pre-recorded as an MP3 file, with each item said twice. There was a 32-second pause between two audio stimuli. Participants were asked to listen to the recording and then translate each sentence into English in written form. The results are presented in Table 3.5:

Table 3.5. Choi (2009): Listening Translation Task Results (Mean Accuracy)

	Falling Intonation Q	Rising Intonation ∃
Native Control	100.00%	100.00%
High-Intermediate	96.74%	6.94%
Advanced	94.20%	68.09%

(adapted from Choi, 2009, p. 141: Table 5.1)

While both L2 groups were very accurate in the Q interpretation, their mean accuracies on the ∃ interpretation were significantly lower. In fact, the high-intermediate group very rarely got this interpretation at all.

In embedded clauses, the interpretation of Korean *wh*-words is determined by the particles (question vs. declarative) that they are associated with. In the written translation

task, the participants were tested on constructions such as (18) and (19) to see whether they could interpret *wh*-words differently according to the morphological information available to them:

- (18) John-un [Mary-ka **nwukwu**-lul cohahay-ss-*nunci*] kiekhan-ta.
 John-TOP Mary-NOM PERSON-ACC like-PAST-Q remember-DECL
 ‘John remembers **who** Mary liked.’
 (Choi, 2009, p. 126: (4.6))

- (19) John-un [Mary-ka **nwukwu**-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**.’
 (Choi, 2009, p. 126: (4.5))

When the question particle-*nunci* is attached to the verb of the embedded clause, the *wh*-word *nwukwu* is interpreted as Q as in (18); when the declarative particle *-ta* is used, the *nwukwu* is interpreted as \exists as in (19).

The 2 sentence types above had 6 tokens each, forming the 12 experimental items. In addition, 12 sentences which do not involve *wh*-elements were included as fillers. The 24 test items were randomized and presented to all participants in written form. The participants’ task was to read the Korean sentences and translate them into English.²⁶

Table 3.6 summarizes the results:

Table 3.6. Choi (2009): Written Translation Task Results (Mean Accuracy)

	Question Particle Q	Declarative Particle \exists
Native Control	100.00%	100.00%
High-Intermediate	85.42%	14.24%
Advanced	84.06%	60.14%

(adapted from Choi, 2009, p. 148: Table 5.3)

²⁶ It is not clear why the Korean native controls were also asked to translate the Korean sentences into their L2 English. Interestingly, the results of Table 3.6 show that the English translations by the Korean native controls were 100% accurate.

Similar to what was found in the listening translation task, both L2 groups were significantly more target-like at the Q interpretation than at the \exists interpretation, and this was particularly so with the high-intermediate group.

In the truth-value judgment task, participants were tested on the interpretation of *wh*-words in embedded clauses. Each test item in this task is in the format of a story context followed by 4 Korean sentences. Context stories were presented to the L2 participants in English and to the Korean native controls in Korean. Participants were required to judge whether the sentences were true or false according to the content of the story. A ‘don’t know’ choice was also provided.

Experimental test items fall into two types. The first type is exemplified in (20):

(20) [story context, English version]

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.

[Target 1: Q]

John-un [nwu-ka Mary-lul cohaha-*nunci*] an-ta.
 John-Top PERSON-NOM Mary-ACC like-Q know-DECL
 ‘John knows **who** likes Mary.’

[Target 2: \exists]

John-un [nwu-ka Mary-lul cohahan-*ta-ko*] an-ta.
 John-TOP PERSON-NOM Mary-ACC like-DECL-C know-DECL
 ‘John knows that **somebody** likes Mary.’

(adapted from Choi, 2009, p. 130: Figure 4.1)

In this type, the story context involves an indefinite referent, i.e., John knew that someone liked Mary from the fact a flower basket was sent to her with a love message,

but he did not know who exactly this person was. Under this context, Target 2 should be judged as true, because the declarative particle *-ta* is attached to the verb of the embedded clause, which gives *nwukwu* the \exists reading ‘someone’. On the other hand, Target 1 should be judged as false, because the presence of the question particle *-nunci* gives *nwukwu* the Q reading ‘who’, which goes against the story. In addition to the 2 target sentences, 2 bi-clausal declarative sentences were included as fillers, neither of which contained *wh*-words.

The second type of experimental items is illustrated in (21):

(21) [story context, English version]

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

[Target 1: Q]

Chelswu-nun [tongsayng-i **eti-ey** ka-ss-*nunci*] an-ta.
 Chelswu-TOP brother-NOM PLACE-LOC go-PAST-Q know-DECL
 ‘Chelswu knows **where** his brother went.’

[Target 2: \exists]

Chelswu-nun [tongsayng-i **eti-ey** ka-ss-*ta-ko*] an-ta.
 Chelswu-TOP brother-NOM PLACE-LOC go-PAST-DECL-C know-DECL
 ‘Chelswu knows that his brother went **somewhere**.’

(adapted from Choi, 2009, p. 131: Figure 4.2)

The story context in this type explicitly specified where exactly Chelswu was, i.e., at Yenghi’s home. Under this context, Target 1 should be judged as true, because the embedded *wh*-question reading (i.e., ‘Chelswu knows **where** his brother went’) is consistent with the story. Meanwhile, Target 2 should also be judged as true, because the fact that Chelswu went to Yenghi’s home entails that Chelswu went somewhere, so the \exists

interpretation of *eti* ‘somewhere’ in Target 2 is also compatible with the context. Like in the previous type, 2 bi-clausal declarative sentences without *wh*-words were included as fillers.

There were 6 tokens of each experimental type, resulting in a total of 12 experimental items. In addition, 8 filler items were also included, all of which were in the same format as the experimental items (i.e., a story context followed by 4 sentences for judgments). The ‘True’ responses and ‘False’ responses were counterbalanced.

Data were coded such that a ‘True’ response receives +1 point and a ‘False’ response gets –1 point. The results of Type 1 are presented in Table 3.7:

Table 3.7. Choi (2009): Truth-Value Judgment Task Results: Type 1 (Mean Judgments)

Group	Q		∃		Paired t-test: Q vs. ∃	
	Mean	SD	Mean	SD	<i>t</i>	sig.
Native Control	– 0.98	.086	+ 0.84	.213	33.085	.000
High-Intermediate	– 0.61	.595	– 0.75	.396	– 1.096	.285
Advanced	– 0.76	.340	+ 0.65	.507	10.309	.000

NB: (i) ‘True’ responses are indicated by the ‘+’ sign

(ii) ‘False’ responses are indicated by the ‘–’ sign

(adapted from Choi, 2009, p. 167: Table 5.10)

The data in Table 3.7 reflect mean judgments rather than accuracy. A ‘+’ number indicates acceptance of the relevant interpretation, and a ‘–’ number indicates rejection of the relevant interpretation. Recall that the Q interpretation runs counter to the story context, whereas the ∃ interpretation is consistent with the story. Let us look at the natives first: Out of 1 point, the mean judgments of the Q interpretation is – 0.98, and the mean judgments of the ∃ interpretation is + 0.84. The paired sample t-test shows that the difference between the two interpretations is significant, suggesting that the native controls differentiated the Q and ∃ interpretations based on the two different particles attached to the verb of the embedded clause. The advanced L2 group followed the natives’ pattern, but the high-intermediate L2 group failed to make such a distinction. Their mean judgment of the ∃ interpretation was very low (i.e., – 0.75), showing that, in the presence of declarative particles, they still interpreted the relevant *wh*-words as Q.

The results of Type 2 are summarized in Table 3.8 below:

Table 3.8. Choi (2009): Truth-Value Judgment Task Results: Type 2 (Mean Judgments)

Group	Q		∃		Paired t-test: Q vs. ∃	
	Mean	SD	Mean	SD	<i>t</i>	sig.
Native Control	+ 0.91	.491	+ 0.73	.198	– 1.658	.120
High-Intermediate	+ 0.86	.345	+ 0.63	.367	– 2.245	.035
Advanced	+ 0.74	.351	+ 0.75	.245	– 0.238	.814

NB: (i) ‘True’ responses are indicated by the ‘+’ sign

(ii) ‘False’ responses are indicated by the ‘–’ sign

(adapted from Choi, 2009, p. 170: Table 5.11)

In Type 2, both the Q and ∃ interpretations are accommodated by the story context. The Q interpretation is consistent with the story; the Q interpretation also entails the ∃ interpretation, i.e., if ‘X knows *where* Y went’ is true, then ‘X knows Y went *somewhere*’ is also true. Table 3.8 shows that the mean judgments of the two target sentences by all groups are relatively high (at least above + 0.63), suggesting that the participants accepted both target sentences in the given context. However, it is not clear how to interpret the results. For the Korean native controls, the results may suggest that they interpreted the two target sentences correctly and determined that both the Q and ∃ interpretations worked fine in the context of the story.

For the L2 groups, there are at least two possibilities for Type 2: (i) They, like the Korean natives, interpreted the two target sentences differently in light of the two different quantificational particles, and judged both the Q and ∃ interpretations as ‘True’ in the context; (ii) they misinterpreted the *wh*-word associated with the declarative particle as Q, which, by entailment, also makes the target sentence true in the context of the story. Recall that the results of Type 1 showed that the high-intermediate L2 group had a great difficulty in getting the ∃ interpretation when the *wh*-word co-occurred with the declarative particle. It thus seems likely that the high-intermediate group may have interpreted both target sentences as Q in Type 2. In short, the results of Type 2 are not informative in telling us how the participants interpreted the two target sentences.

To sum up, the overall results of the 3 tasks indicate that the high-intermediate English L2ers were significantly more target-like with *wh*-interrogatives than with *wh*-existentials. Following Lardiere’s (2009) Feature Reassembly Hypothesis, Choi suggested that in English, the [Q] feature and the [wh] feature are always fused together

as single lexical items, and consequently, *wh*-words in English are interpreted solely as Q, whereas in Korean, these two features are separately realized, either by means of different prosodic patterns or by means of different morphological particles attached to embedded verbs, resulting in the Q and \exists interpretations of *wh*-words. Choi argued that the nontarget-like performance shown by the intermediate L1-English L2ers of Korean with respect to *wh*-existentials was due to the difficulty they had in re-assembling the L1 features onto different intonation patterns or different lexical items in Korean.

One outstanding issue left here is that in the absence of an L2 comparison group, whose L1 is similar to Korean with respect to *wh*-existentials, it is hard to tell whether the difficulty associated with *wh*-existentials is due to transfer of L1 lexical knowledge or due to factors that may hold true for L2ers across the board.

Choi brought up the issue of whether or not the English L2ers' difficulties with *wh*-existentials as compared to *wh*-interrogatives were due to the possibility that the former were less frequent than the latter in the input. She conducted a corpus search examining the relative frequencies of the Q and \exists uses of *nwukwu* 'PERSON', *mwues* 'THING' and *eti* 'PLACE' in the Sejong corpus collected by the 21st Century Sejong Project. The results are as follows:

Table 3.9. Choi (2009): Frequencies of the Q and \exists uses of *Nwukwu* 'PERSON', *Mwues* 'THING' and *Eti* 'PLACE' in the Sejong Corpus

	Q		\exists	
	token	%	token	%
<i>nwukwu</i> 'PERSON'	58/168	35%	110/168	65%
<i>mwues</i> 'THING'	183/314	58%	131/314	42%
<i>eti</i> 'PLACE'	22/32	69%	10/32	31%
TOTAL	263/514	51%	251/514	49%

(adapted from Choi, 2009, p. 236: Table 7.1)

Looking at the 3 *wh*-words as a whole, we find that the frequency of the \exists use is not substantially different from the Q use. Choi thus argued that frequency could not account for the L2ers' problems with *wh*-existentials. However, if we look at the 3 *wh*-words separately, we see obvious differences. First, *nwukwu* 'PERSON' and *mwues* 'THING' occur a lot more frequently than *eti* 'PLACE'. Second, *nwukwu* 'PERSON' is more frequently used as \exists than as Q, whereas the opposite pattern is found with *mwues*

‘THING’ and *eti* ‘PLACE’. Unfortunately, in the analyses of all of her 3 tasks, Choi lumped the 3 *wh*-words together.²⁷ We are left wondering whether or not the frequency differences exhibited by the 3 *wh*-words had any effects on the L2 acquisition of *wh*-existentials.

3.4 Yuan (2010)

Yuan’s (2010) study looked into the L2 acquisition of *wh*-existentials by L1-English and L1-Japanese L2ers of Chinese.

On the basis of the results from a Chinese cloze test, the L2 participants were divided into 5 proficiency levels, resulting in 10 L2 groups: L1-English beginner (EB) ($n = 20$); L1-English post-beginner (EPB) ($n = 20$); L1-English intermediate (EI) ($n = 28$); L1-English post-intermediate (EPI) ($n = 25$); L1-English advanced (EA) ($n = 14$); L1-Japanese beginner (JB) ($n = 18$); L1-Japanese post-beginner (JPB) ($n = 17$); L1-Japanese intermediate (JI) ($n = 25$); L1-Japanese post-intermediate (JPI) ($n = 29$); L1-Japanese advanced (JA) ($n = 22$). A group of Chinese native speakers ($n = 20$) was also included as the native control group.

Recall our discussion in Chapter 2: Chinese *wh*-existentials are subject to semantic and syntactic constraints. Semantically, Chinese *wh*-existentials must occur in nonveridical environments, where the truth of the propositions cannot be asserted. Such environments include constructions involving negatives, non-factive verbs, uncertainty adverbs, conditionals, *yes/no* questions, inferential *-le*, A-not-A questions, etc. Syntactically, Chinese *wh*-existentials must be c-commanded by the nonveridical licensors. To investigate whether L2ers were able to acquire the constraints on Chinese *wh*-existentials, Yuan employed an acceptability judgment task.

The test materials included 7 categories of sentence types (see the 1st column of Table 3.10). For each category, there is a grammatical type (where the *wh*-word occurs within the scope of a nonveridical licensor) (see the 2nd column of Table 3.10) and an ungrammatical type (where the *wh*-word is either outside the scope of a nonveridical licensor or is without any licensor) (see the 3rd column of Table 3.10), except for the

²⁷ Choi did not give detailed information regarding the 3 *wh*-words in her 3 tasks. The test materials in the appendices were presented in Korean Hangul without English glosses. Readers may refer to the appendices in Choi (2009) if they have sound knowledge of Korean, or contact Choi for further details on this.

category of *yes/no* questions (which only had 2 grammatical types) and the category of inferential *-le* (which had 2 grammatical types and 2 ungrammatical types). In these 16 experimental types, 2 *wh*-arguments were used: *shui* ‘PERSON’ and *shenme* ‘THING’. In addition, Yuan also included a control type for each category, except for the category of non-factive verb, which had 2 control types (one for non-factive verbs and one for factive verbs). This yields a total of 8 control types. The control sentence and the corresponding experimental sentence were the same except that the former had the potential *wh*-existential licenser but no *wh*-word, whereas the latter had both. These 24 sentence types, i.e., 16 experimental types and 8 control types, had 4 tokens each, yielding a total of 96 sentences. The test sentences were randomized and presented to participants in Chinese characters, preceded by directions in the participants’ L1.

Table 3.10. Yuan (2010): Categories and Types of Experimental Sentences

Category	Grammatical	Ungrammatical
1. Negation	Negator + obj. <i>wh</i> - \exists	** Subj. <i>wh</i> - \exists + negator
2. Non-factive verb	Non-factive V + <i>wh</i> - \exists	** Factive V + <i>wh</i> - \exists
3. Uncertainty adverb	Uncertainty adverb + <i>wh</i> - \exists	* <i>wh</i> - \exists without uncertainty adverb
4. Conditional	<i>wh</i> - \exists in protasis	** <i>wh</i> - \exists in apodosis
5. <i>Yes/No</i> question	Obj. <i>wh</i> - \exists + <i>yes/no</i> question <i>-ma</i> Subj. <i>wh</i> - \exists + <i>yes/no</i> question <i>-ma</i>	none none
6. Inferential <i>-le</i>	Obj. <i>wh</i> - \exists with inferential <i>-le</i> Subj. <i>wh</i> - \exists with inferential <i>-le</i>	** Obj. <i>wh</i> - \exists without inferential <i>-le</i> ** Subj. <i>wh</i> - \exists without inferential <i>-le</i>
7. A-not-A question	A-not-A + obj. <i>wh</i> - \exists	** subj. <i>wh</i> - \exists + A-not-A

(adapted from Yuan, 2010, p. 233: Table 4)

Participants were asked to judge the acceptability of each sentence by circling a number on a 7-point scale, with -3 representing completely unacceptable, +3 completely acceptable, and 0 ‘I don’t know’.

For the relevance of the present study, we focus on 3 categories: negation, conditional, and *yes/no* question. Consider the example sentences for negatives:

- (22) a. Women *meiyou* kanjian **shenme** ren.
 we NEG see THING person
 ‘We didn’t see **anybody**.’
- b. * **Shenme** ren *meiyou* kanjian women.
 THING person NEG see us
 ‘**Somebody** didn’t see us.’

(Yuan, 2010, p. 223: (2) and (3))

In (22), the *wh*-word *shenme* ‘THING’ functions as a determiner of the noun *ren* ‘person’. In (22a), when the determiner phrase (DP) *shenme ren* occurs in object position, which is in the scope of the negative *meiyou* ‘not’, the sentence is well-formed on the \exists interpretation; in (22b), when *shenme ren* occurs in subject position, which is outside the scope of the negative, the sentence is ill-formed on the \exists interpretation. It should be noted that (22b) ends with a period. If the exact same string ends with a question mark, the sentence becomes grammatical on the Q interpretation, i.e., ‘**Who** didn’t see us?’.

Table 3.11 presents the mean judgments of *wh*-existentials in negative sentences:

Table 3.11. Yuan (2010): Results of *Wh*-existentials in Negative Sentences (Mean)

Group	Negator + obj. <i>wh</i> - \exists	* Subj. <i>wh</i> - \exists + negator	Control negation
Natives	2.52	- 2.49	2.85
EB	- 0.40*	- 0.93*	1.69*
EPB	0.73*	0.34*	2.64
EI	0.73*	- 0.11*	2.70
EPI	1.59	- 0.99	2.79
EA	1.67	- 2.13	2.75
JB	0.39*	- 0.11*	1.68*
JPB	- 0.02*	- 0.37*	2.22
JI	0.87*	- 0.26*	2.12
JPI	1.39	- 1.18	2.72
JA	2.06	- 1.83	2.88

NB: (i) EB = L1-English beginner JB = L1-Japanese beginner
 EPB = L1-English post-beginner JPB = L1-Japanese post-beginner
 EI = L1-English intermediate JI = L1-Japanese intermediate
 EPI = L1-English post-intermediate JPI = L1-Japanese post-intermediate
 EA = L1-English advanced JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 234: Table 5)

Looking at the control type first (the last column of Table 3.11), we see that all L2 groups, except for the EB and JB groups, performed like the natives in accepting the control sentences, suggesting that these L2ers had target-like knowledge with respect to negation. However, when *wh*-existentials were involved, only the EPI, EA, JPI and JA groups showed native-like intuitions in simultaneously accepting sentences where *wh*-existentials occurred in the object position (i.e., lower than negation) and rejecting sentences where *wh*-existentials occurred in the subject position (i.e., higher than negation). In other words, it was not until after the post-intermediate stage that the L2ers came to know the *wh*-existential licensing conditions with respect to negation.

Turning now to the conditional pattern, (23) presents the example sentences:

(23) a. *Ruguo* women nonghuai-le **shenme** dongxi, laoshi hui hen shengqi.
 if we damage-ASP THING thing teacher would very angry
 ‘If we damage **something**, the teacher would be very angry.’

b. *Ruguo* **shenme** ren nonghuai-le jisuanji, laoshi hui hen shengqi.
 if THING person damage-ASP computer teacher would very angry
 ‘If **somebody** damages the computer, the teacher would be very angry.’

c. * *Ruguo* women nonghuai-le jisuanji, **shenme** ren hui hen shengqi.
 if we damage-ASP computer THING person would very angry
 ‘If we damage the computer, **someone** would be very angry.’

(Yuan, 2010, p. 223: (4), (5) and (6))

The *wh*-word *shenme* ‘THING’ functions as determiner in (23). When the DP containing *shenme* occurs in the object position (23a) or the subject position (23b) of the protasis, the sentence is well-formed, where the DP is interpreted as \exists ; when the DP occurs in the subject position of the apodosis (23c), the sentence is ill-formed. If the period in (23c) were replaced with a question mark, the sentence would become grammatical on the Q interpretation, viz. ‘If we damage the computer, **who** would be very angry?’.

The results of conditional sentences are reported in Table 3.12:

Table 3.12. Yuan (2010): Results of *Wh*-existentials in Conditional Sentences (Mean)

Group	<i>wh</i> - \exists in protasis	* <i>wh</i> - \exists in apodosis	Control conditional
Natives	2.10	- 2.09	2.75
EB	- 0.41*	- 0.61*	1.40*
EPB	0.76*	0.26*	1.76
EI	0.63*	0.08*	2.07
EPI	0.85*	- 0.34*	2.23
EA	1.55	- 1.45	2.05
JB	0.35*	- 0.07*	0.89*
JPB	0.44*	- 0.19*	1.53*
JI	1.11	- 0.90	1.65*
JPI	1.33	- 1.02	2.23
JA	1.73	- 1.38	2.56

NB: (i) EB = L1-English beginner JB = L1-Japanese beginner
 EPB = L1-English post-beginner JPB = L1-Japanese post-beginner
 EI = L1-English intermediate JI = L1-Japanese intermediate
 EPI = L1-English post-intermediate JPI = L1-Japanese post-intermediate
 EA = L1-English advanced JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 238: Table 8)

The last column of Table 3.12 shows that the EPB, EI, EPI, EA, JPI and JA groups fell within the native range in judging the control sentences. However, when comparing the mean judgments of the 2 experimental types by each group, it was found that only the EA, JI, JPI and JA groups, along with the natives, judged the grammatical sentences (where the *wh*-existential occurred in the protasis) significantly differently from the ungrammatical ones (where the *wh*-existential occurred in the apodosis), suggesting that only these groups acquired the c-commanding requirement between the *wh*-existential licenser and the licensee.

The example sentences for the *yes/no*-question pattern are given in (24):

- (24) a. Ni xihuan **shei** ma?
 you like PERSON $Q_{yes/no}$
 ‘Do you like **somebody/anybody**?’
- b. **Shei** xihuan ni ma?
 PERSON like you $Q_{yes/no}$
 ‘Does **somebody/anybody** like you?’

(Yuan, 2010, p. 224: (8) and (9))

In (24), the *wh*-word *shui* ‘PERSON’ functions as an NP. No matter whether *shui* occurs in the object position (24a) or in the subject position (24b) of a *yes/no* question, the sentence is grammatical, where *shui* is interpreted as \exists .

Table 3.13 summarizes the results:

Table 3.13. Yuan (2010): Results of *Wh*-existentials in *Yes/No* Questions (Mean)

Group	Obj. <i>wh</i> - \exists + $Q_{yes/no}$ - <i>ma</i>	Subj. <i>wh</i> - \exists + $Q_{yes/no}$ - <i>ma</i>	Control $Q_{yes/no}$ - <i>ma</i>
Natives	1.98	1.68	2.86
EB	- 0.06*	- 0.26*	1.88*
EPB	- 0.79*	- 0.55*	2.43
EI	- 0.78*	- 0.82*	2.48
EPI	- 0.70*	- 1.17*	2.60
EA	- 0.63*	- 1.25*	2.65
JB	- 0.04*	0.29*	2.04
JPB	- 0.66*	- 0.19*	2.12
JI	- 0.74*	0.26*	2.08
JPI	- 0.84*	- 0.59*	2.60
JA	1.17	0.46	2.83

NB: (i) EB = L1-English beginner

JB = L1-Japanese beginner

EPB = L1-English post-beginner

JPB = L1-Japanese post-beginner

EI = L1-English intermediate

JI = L1-Japanese intermediate

EPI = L1-English post-intermediate

JPI = L1-Japanese post-intermediate

EA = L1-English advanced

JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 240: Table 9)

As we can see, except for the EB group, all L2 groups performed like the natives in accepting the control sentences (the last column of Table 3.13), indicating that *yes/no* questions were acquired early. As for the 2 experimental sentence types, although both types are grammatical in Chinese, the natives’ judgments were relatively mediocre (with means below 2), as compared to their judgments of the experimental sentences of negatives and conditionals. Most L2 groups rejected both types, as indicated by the ‘-’ mean scores. Statistical results show that only the JA group accepted both experimental sentence types like the natives did.

Yuan also examined participants' mean judgments of the non-factive verb pattern (25), the uncertain adverb pattern (26), the inferential *-le* pattern (27), and the A-not-A question pattern (28):

- (25) a. Wo *renwei* ta tou-le **shenme** dongxi.
I think he steal-ASP THING thing
'I think he has stolen **something**.'
- b. Ta hai *yiwei* **shenme** ren diu-le shoubiao.
he still thought THING person lose-ASP watch
'He mistakenly thought **someone** had lost his/her watch.'
- c. * Wo *baoyuan* ta tou-le **shenme** dongxi.
I complain he steal-ASP THING thing
'I complain he has stolen **something**.'

(Yuan, 2010, pp. 226-227: (17), (18) and (21))

- (26) a. Li Ming *keneng* diu-le **shenme**.
Li Ming possibly lose-ASP THING
'Li Ming has probably lost **something**.'
- b. * **Shenme** ren *keneng* lai-le.
THING person possibly come-ASP
'**Somebody** has probably arrived.'

(Yuan, 2010, p. 225: (13) and (14))

- (27) a. Zhang Hong aishang **shenme** ren *le*.
 Zhang Hong fall-in-love THING person inferential particle
 ‘Zhang Hong seems to have fallen in love with **someone**.’
- b. **Shenme** ren aishang Zhang Hong *le*.
 THING person fall-in-love Zhang Hong inferential particle
 ‘**Someone** seems to have fallen in love with Zhang Hong.’
 (Yuan, 2010, p. 225: (15) and (16))
- (28) a. Ni *ren-bu-renshi* **shei**?
 you know-not-know PERSON
 ‘Do you know **somebody**?’
- b. * **Shei** *ren-bu-renshi* ni?
 PERSON know-not-know you
- c. *Shi-bu-shi* **shei** renshi ni?
 Be-not-be PERSON know you
 ‘Does **somebody** know you?’
 (Yuan, 2010, p. 224: (10), (11) and (12))

The main findings are summarized as follows: (i) Only the 2 advanced L2 groups patterned like natives in their judgments of *wh*-existentials licensed by non-factive verbs and uncertain adverbs; (ii) only the JA group performed like the natives in their judgments of *wh*-existentials licensed by inferential *-le*; (iii) none of the L2 groups patterned like natives in their judgments of *wh*-existential licensed by A-not-A questions (see Appendix A for the results of these 4 categories).

Based on these results, Yuan made the following observations: (i) The 2 advanced L2 groups were able to acquire the *wh*-existential licensing conditions with respect to negation, non-factive verbs, uncertainty adverbs and conditionals; all of these licensors are free lexical items; (ii) even the 2 advanced groups showed great difficulty in

acquiring *wh*-existentials licensed by the *yes/no*-question marker *-ma*, the inferential *-le*, and A-not-A questions; all of these licensors are bound morphemes positioned in functional categories. Yuan thus argued that the L2 acquisition of the licensing conditions of Chinese *wh*-existentials is influenced by the status of the licensor, i.e., whether the licensor is a free lexical item or a bound functional morpheme.²⁸

The overall results of Yuan's (2010) study seem to suggest that L1 knowledge does not have an important role to play in the L2 acquisition of Chinese *wh*-existentials, i.e., the fact that (morphologically marked) *wh*-existentials are present in Japanese but absent in English did not put the Japanese L2ers, as compared to their English peers, in an advantageous position in the acquisition of the licensing conditions governing Chinese *wh*-existentials. There are, however, several reasons that one should take Yuan's (2010) results with caution.

First, *wh*-existentials in Japanese are substantially different from those in Chinese in that they are morphologically marked. Whether (the root of) *wh*-interrogatives (e.g., *nani* 'what') and *wh*-existentials (e.g., *nani-ka* 'something/anything') are represented as a single lexical entry or as two separate ones is an open question. In this respect, the possibility that Japanese L2ers of Chinese mapped *shenme*, for instance, to the bare *wh*-word *nani*, which is solely Q in Japanese, cannot be ruled out. If this were the case, then the similar performance of L1-English L2ers and L1-Japanese L2ers in Yuan's study does not, in and of itself, indicate the absence of L1 transfer.

The second reason for caution is a methodological one: Isolated acceptability judgments are likely not appropriate for investigating interpretations. For example, the string in (29) is well formed on the Q interpretation (29a) but ungrammatical on the \exists interpretation (29b):

²⁸ Though an interesting argument, it is not clear how Yuan made the distinction between a free lexical item and a bound functional morpheme. As is well-known, Chinese is a typical isolating language; orthographically, each character is a single morpheme, and a single character may be a mono-morphemic word on its own or bound in a multi-morphemic word. This is clearly not the use of "free" vs. "bound" of interest here. Indeed, all of the licensors that Yuan dubbed as "free lexical items" are actually multi-morphemic words consisting of bound morphemes, whereas the *yes/no*-question marker *-ma* and inferential *-le* – both of which Yuan referred to as "bound functional morphemes" – are in fact free mono-morphemic words. Moreover, as B. D. Schwartz rightly pointed out (personal communication, 30 May 2014), it is hard to tell what exactly the bound morpheme is for A-not-A questions (see fn. 7 for exposition and an example of this type of question). In terms of the lexical vs. functional distinction, Yuan classified the negative marker *meiyou* 'not' as lexical, though sentential negation is generally considered (an element filling) a functional category.

- (29) **Shui** *mei* *chi* *zaofan*
 PERSON NEG eat breakfast
 a. ‘**Who** didn’t have breakfast?’
 b. * ‘**Someone** didn’t have breakfast.’

It is true that all of Yuan’s test items ended with periods, which presumably preclude the Q interpretation in (29a). However, the interpretation of the results then rests on the assumption that the participants indeed attended to the sentence-final punctuation marks at all times.

The final problem is with the test materials. Yuan did not give the complete set of his test items, but from the example test items Yuan did provide (i.e., (22)-(28)), we see that he did not test the 2 *wh*-words *shenme* ‘THING’ and *shui* ‘PERSON’ separately, i.e., in some types, *shenme* was used; in other types, *shui* was used. Moreover, their grammatical functions were not properly controlled for: While *shui* was always used as an NP, *shenme* was sometimes used as a determiner and sometimes used as an NP. For instance, in the example items testing *wh*-existentials licensed by uncertain adverbs (i.e., (26)), *shenme* was used as an NP in the grammatical type (i.e., (26a)), but as a determiner in the ungrammatical type (i.e., (26b)). It is not clear whether these variations across or even within experimental types had interfered with participants’ judgments.

3.5 Summary and Outstanding Issues

In this chapter, we examined four previous studies on the L1 or L2 acquisition of different senses of *wh*-words. Despite the fact that various research methods were employed, and despite the fact that four distinct target languages were investigated, all studies yielded results showing that the indefinite senses (\exists or \forall) were acquired later than the interrogative sense. The explanations offered, however, vary from study to study. Some attributed the delay to the inherent complexity involved in *wh*-indefinites. Cole et al. (2001), for example, argued that the licensing conditions for reduplicated *wh*-existentials in Jakarta Indonesian had to be acquired gradually by L1 children. Yuan (2010) contended the licensing conditions for *wh*-existentials in Chinese were acquired differentially by L2ers, depending on the status of the licensors: *wh*-existentials licensed

by free lexical items were less problematic than those licensed by bound functional morphemes. Choi (2009), on the other hand, suggested that the delay in the L2 acquisition of Korean *wh*-existentials by English speakers had its roots in L1 influence.

To address the issue of L1 lexical transfer, special care needs to be taken in the L1-TL pairings. First, as alluded to in the discussion of Yuan (2010), bare *wh*-existentials and morphologically derived *wh*-existentials should be treated separately, given the absence of evidence suggesting that they share single lexical representations. Second, L1-TL pairings should not be based on a dichotomous classification of languages, i.e., the presence vs. absence of *wh*-indefinites, because the indefinite senses are often subject to specific linguistic environments; even if *wh*-indefinites are attested in both the L1 and the TL, the environments in which they occur may vary.

Moreover, comparative Interlanguage studies are advisable. Only by testing groups of L2ers whose L1s exhibit contrasting properties with respect to the target phenomenon can one start to unambiguously determine the role of the L1 knowledge.

The above considerations directly motivate the present comparative Interlanguage study, which is built upon more nuanced crosslinguistic comparisons. To this end, we investigate how L1-Korean and L1-English L2ers of Chinese perform in constructions which highlight distinct L1-TL contrasts with respect to the \exists sense of *wh*-words. More specifically, we include two broad types of constructions in the study: (i) nonveridical constructions, where Korean *wh*-words parallel Chinese *wh*-words in the grammaticality of the \exists sense, whereas English *wh*-words differ; and (ii) veridical constructions, where English *wh*-words pattern with Chinese *wh*-words in the ungrammaticality of the \exists sense, whereas Korean *wh*-words differ. If L1 lexical knowledge transfers into the L2 initial state, then the L1-Korean and L1-English L2ers of Chinese should show distinct performance patterns in the two types of constructions, at least at earlier stages of L2 development. An important point worth highlighting is that all 4 of the studies reviewed in this chapter show that (relative to *wh*-interrogatives) there is a substantial delay in the acquisition of *wh*-indefinites. This latter area of knowledge is thus less likely to be subject to early Interlanguage restructuring, making it an ideal testing ground for exploring L1 lexical transfer at the L2 initial state.

CHAPTER 4

EXPERIMENTAL DESIGN, PROCEDURES AND PARTICIPANTS

The primary goal of this study is to empirically test Sprouse's (2006) Lexical Transfer Hypothesis by looking into the development of *wh*-existentials in the L2 Chinese of L1-English and L1-Korean speakers. Building on the Full Transfer/Full Access (FT/FA) model (Schwartz & Sprouse, 1996), Sprouse (2006) hypothesized that the L2 initial state is characterized by full transfer of the L1 grammar at the level of the lexicon. He operationalized his proposal by incorporating the process of relexification, a hypothesis originally put forward in the field of creole research (Lefebvre, 1998; Muysken, 1981). The idea of relexification basically says that speakers in possession of an established lexicon, in observing the partial semantic overlap between L1 lexical entries and TL lexical entries, create a nonnative idiolect by copying the L1 lexical entries and replacing (i.e., relabelling) their phonological representations with representations derived from the phonetic strings of the TL. Sprouse's (2006) Lexical Transfer Hypothesis thus introduces into the FT/FA model three explicit and falsifiable claims. First, the L1 lexicon (minus phonetic matrices) is transferred in its entirety into the L2 initial state. Second, the basis for L1 transfer is specified on semantic grounds, i.e., the (perceived) partial semantic overlap between the lexical entries in the L1 and the target lexical entries. Third, the output of relexification is a lexical entity, whose phonetics is derived from the TL and whose syntactic and semantic properties at the L2 initial state are virtually isomorphic to those of the corresponding L1 lexical entry.

In light of this hypothesis, the present study looks into the L2 knowledge of the two *wh*-arguments *shenme* 'THING' and *shui* 'PERSON' in English-Chinese and Korean-Chinese Interlanguages to determine whether syntactic and semantic properties associated with the relevant L1 *wh*-words have consequences on the acquisition of the existential sense.

As discussed in Chapter 2, despite the common interrogative sense, *wh*-words in Chinese, Korean and English differ with respect to the existential sense. In Chinese, it is restricted to nonveridical environments; in Korean, it is allowed in veridical as well as nonveridical environments; and in English, it is prohibited in both contexts. Based on these crosslinguistic differences, 3 tasks were employed to test how L1-Korean and L1-English L2ers fare in interpretation, production and acceptability judgments with respect to *wh*-existentials in Chinese.

This chapter reports on the research methodology of the present study. Section 4.1 establishes the premise that the overlapped interrogative sense of *wh*-words forms the semantic basis on which L1-TL lexical associations are made. Section 4.2 describes the overall experimental design and the data-collection procedures. Details regarding the L2 Chinese proficiency measures (including results) are given in Section 4.3. Section 4.4 presents information on the participants.

4.1 Premise

Recall that Sprouse (2006) hypothesized that the perceived partial semantic overlap between L1 lexical entries and target lexical entries motivates lexical transfer. For our task at hand, the initial question that concerns us is: Based on which sense(s) are *shenme* ‘THING’ and *shui* ‘PERSON’ mapped to the (transferred) L1 lexical entries?

In an early L2 lexical study, Kellerman (1978) investigated the transferability of different senses of a polysemous word. Adult L1-Dutch learners of English were asked to judge whether or not a list of Dutch sentences containing the verb *breken* could be translated by using the English verb *break*. Results show that when the prominent²⁹ sense of *breken* was used (e.g., *Hij brak zijn been* ‘He broke his leg’), 81% of the L2 participants judged the sentence as *break*-translatable; when less prominent senses of *breken* were used (e.g., *Sommige arbeiders hebben de staking gebroken* ‘Some workers have broken the strike’), only 9% of the participants considered the sentence as *break*-translatable, although both senses are possible in English. Kellerman’s findings

²⁹ We opt for this generic term over technical terminologies that require further elaborations, for example, ‘unmarked’, ‘prototypical’, ‘core’, etc.

indicate that when multiple senses are involved in a single word, the one that is perceived as more prominent than the others is likely to prompt the link between L1 and TL words.

With respect to *wh*-words, a common finding emerging from the four studies reviewed in Chapter 3 is that the acquisition of *wh*-indefinites (i.e., *wh*-existentials or *wh*-universals) is delayed relative to *wh*-interrogatives. This perhaps suggests the prominence of the interrogative sense over the indefinite senses of *wh*-words.

We tested this assumption by asking 15 L1-English L2ers of Chinese and 15 L1-Korean L2ers of Chinese, who did not participate in the main study, to make up one sentence for each of the 10 polysemous nouns given to them, including *shenme* ‘THING’ and *shui* ‘PERSON’.³⁰ It was found that with the exception of one L1-English L2er (who used a *shenme dou* construction which denotes the universal sense ‘everything’), the remaining 29 L2ers used the two *wh*-words exclusively as interrogatives. This suggests that *shenme* and *shui* are predominantly perceived as interrogatives by L2ers of Chinese.

It thus seems very likely that L2ers of Chinese will associate *shenme* and *shui* with the corresponding *wh*-entries in their L1, due to the prominence of the interrogative sense.³¹ We take this as the working premise for the study and proceed to investigate whether the syntactic and semantic properties associated with the L1 *wh*-words will influence the development of *wh*-existentials in L2 Chinese.

4.2 Overall Experimental Design and Procedures

The experiment comprised 3 main tasks testing L2 knowledge of Chinese *wh*-existentials, a background questionnaire, and a cloze test. Table 4.1 is an overview of the experimental design. The tasks are listed in the order in which participants were tested (all in one test session):

³⁰ The 10 polysemous nouns include: *bantian* ‘half a day’/‘a long time’; *beijing* ‘background’/‘experience’/‘connections’; *changmian* ‘occasion’/‘scene’; *gongfu* ‘Kung Fu’/‘time’; *gongzuo* ‘job’/‘work’; *guanxi* ‘relation’/‘connection’/‘to concern’; *shenme* ‘what’/‘something’/‘anything’; *shui* ‘who’/‘someone’/‘anyone’; *wenti* ‘question’/‘problem’; *yisi* ‘meaning’/‘opinion’/‘a token of appreciation’.

³¹ This assumption will be further tested in the contextualized multiple-choice interpretation task (see Chapter 5 for details).

Table 4.1. Overview of the Experimental Design

#	Task	Objective
1	Cloze Test	proficiency measure
2	Contextualized Multiple-Choice Interpretation Task	interpretation of <i>shenme</i> in veridical & nonveridical contexts
3	Background Questionnaire	biographical info. (all participants) + prior L2 learning experiences (L2 participants only)
4	Elicited Production Task	use of existential <i>shenme</i> & <i>shui</i> in veridical & nonveridical contexts
5	Acceptability Judgment Task (AJT)	judgment on <i>yes/no</i> questions & conditionals involving <i>shui</i> ; fillers used as proficiency measure

All tasks in the experiment were conducted in written format. To ensure comprehension, the background questionnaire was given in the participants' L1, as were the directions for the other 4 tasks. Considering that L2ers of Chinese may differ in their skills in using Chinese characters, all test items were presented with Pinyin³² on top of characters. As an illustration, (1) is a test item from the acceptability judgment task (and it means 'Yesterday Lao Wang bought 5 books').

zuó tiān lǎo wáng mǎi le wǔ běn shū
(1) 昨天老王买了五本书。

For tasks involving production (i.e., the cloze test and the elicited production task), participants were given the option of supplying their answers in either Pinyin or characters, whichever they felt comfortable with.

Within each of the 3 main tasks, two orders of presentation were used, with one being the reverse of the other. Approximately half of the participants were tested on Order 1 and half on Order 2. This was a precaution against order effects in the experiment.

³² Pinyin, also known as Hanyu Pinyin, is the official romanization system for transcribing Chinese characters. While native Chinese speakers primarily use it for phonetic notation, some L2ers of Chinese rely heavily, or even solely, on it in their reading and writing.

The L2 experimentation was conducted individually, either in person or on Skype/Google Talk.³³ The procedures are as follows. Participants were first informed that they were to complete 4 different tasks using Chinese as well as a language learning background questionnaire in their native language, and the entire experiment would take approximately 1 hour.

When the participants confirmed that they were ready, the first task (the cloze test) was given to them. They were asked to read the directions carefully so as to fully understand what they were expected to do, and they were encouraged to pose questions in case anything was unclear. After indicating that they understood the task requirements, participants were given as much time as needed to complete the task. For the convenience of the participants, spaces for answers were provided next to test items. Upon receiving the completed task, the experimenter passed the next task to the participant. The experiment proceeded in this fashion till the end. A five-minute break was given after the participant finished the first 3 tasks. The entire experiment took 60 to 80 minutes for L2 participants. The experimenter remained accessible during the whole process to answer clarification questions. Each L2 participant was compensated with a \$10 Amazon gift card after the whole experiment was completed.

For testing the native control participants, all test materials, except for the language learning background questionnaire, were compiled into a booklet. The order of tasks was the same as that in the L2 experimentation. There were general instructions on the very first page of the booklet, emphasizing that the participants complete the tasks based on intuition. The native control participants completed the booklet at their own convenience. They reported that the whole experiment took 40-50 minutes.

4.3 Measure of L2 Chinese Proficiency

L2 Chinese proficiency was assessed by a combination of a cloze test³⁴ and an acceptability judgment task.

³³ Skype and Google Talk are two widely-used web teleconference services which allow users to instantly transfer files as well as to communicate with each other by voice, video and instant messaging.

³⁴ The cloze test was generously provided by Boping Yuan.

The cloze test is in the form of a folk tale consisting of 153 characters, 20 of which were removed and replaced with blanks. Of these 20 characters, 7 were morphemes contained in bi-/tri-morphemic words, 6 were mono-morphemic lexical words, and 7 were mono-morphemic function words.³⁵

Participants were instructed to read the passage quickly to get the general meaning and then fill in each blank with one suitable character.³⁶ Results were coded such that a target answer gets one point and a nontarget answer (including no response) gets a zero. The total of points that a participant gets is his/her “cloze score.” The English, Korean and Chinese versions of the cloze test (along with the answer key) can be found in Appendix B.

As 13 out of the 20 questions in the cloze test targeted lexical knowledge, it was decided that an acceptability judgment task (AJT) also be included to measure morphosyntactic knowledge. Six types of sentences testing various characteristic aspects of Chinese grammar were constructed, including classifiers, plural-marking, negative marking, perfective aspect, placement of prepositional adverbials, and the verb-copying construction. There were 5 tokens of each type. These 30 sentences (5 grammatical, 25 ungrammatical) were randomly mixed with the 30 experimental items (25 grammatical, 5 ungrammatical) in the AJT as filler items. Scores from these 30 filler items were summed up as his/her “AJT proficiency score.”³⁷

In computing overall proficiency, the cloze score and the AJT proficiency score were weighted equally. As they consisted of, respectively, 20 items and 30 items, a participant’s proficiency score was calculated by using this formula: Proficiency = (cloze score \times 1.5) \times 50% + AJT proficiency score \times 50%.

³⁵ The basic building blocks of the Chinese lexicon are lexical morphemes, which are realized as individual characters. A single character may be a mono-morphemic word on its own (e.g., 树 ‘tree’) or bound in multi-morphemic words (e.g., 太阳 ‘sun’). A greater part of the Chinese lexicon is claimed to be multi-morphemic (Arcodia, 2011).

³⁶ To avoid the technical term ‘morpheme’, ‘character’ is used here as a unit of orthography rather than a type of orthography (i.e., character vs. Pinyin). Participants were explicitly told in the directions that they could write their answers either in characters or in Pinyin.

³⁷ Details of the materials, procedures and data coding of the AJT can be found in Chapter 7.

4.4 Participants

Forty-two English-speaking adult L2ers of Chinese, 42 Korean-speaking adult L2ers of Chinese³⁸ and 30 adult Chinese native speakers participated in the study. All L1-English L2ers and 16 L1-Korean L2ers were college students recruited from the University of Hawai‘i at Manoa, Ohlone Community College, California State University, East Bay, and the University of California, Berkeley. The remaining 26 L1-Korean L2 participants were recruited from Pohang University of Science and Technology and Seoul National University in South Korea. The Chinese native participants were professionals working in Wuxi, Jiangsu Province in mainland China.

Based on the proficiency scores, L1-English and L1-Korean participants were divided into intermediate (Int.) and advanced (Adv.) proficiency groups,³⁹ the cut-off point being 22. This cut-off point was set based on the researcher’s general impression of the data and the consideration that a similar number of participants was included in each group for statistical purposes. Table 4.2 summarizes the results:

Table 4.2. Results of the Proficiency Tests

Group	Cloze Test		AJT		Proficiency	
		Mean (SD)		Mean (SD)		Mean (SD)
Natives	(<i>n</i> = 30)	19.23 (0.94)		28.63 (1.65)		28.74 (1.20)
Eng_Int.	(<i>n</i> = 20)	9.60 (4.98)		17.05 (4.61)		15.73 (5.06)
Eng_Adv.	(<i>n</i> = 22)	16.91 (1.51)		24.64 (2.54)		25.00 (1.86)
Kr_Int.	(<i>n</i> = 21)	11.05 (3.68)		15.57 (4.80)		16.07 (3.67)
Kr_Adv.	(<i>n</i> = 20)	17.50 (1.50)		24.65 (3.66)		25.45 (2.24)

NB: Proficiency = (cloze score × 1.5) × 50% + AJT proficiency score × 50%

A one-way ANOVA was conducted to test for proficiency differences across the 5 groups. Results show a significant effect of Group ($F(4, 108) = 91.138, p = .000$).

Tukey post-hoc comparisons of the 5 groups confirm (i) that within each L1 group, the intermediate group differed significantly from the advanced group ($p = .000$); (ii) that all

³⁸ One Korean L2 participant was subsequently excluded from data analysis because he selected the ‘Not Sure’ choice throughout the AJT.

³⁹ Efforts were made to involve the least proficient L2 participants possible in the study. However, the experiments require having a vocabulary size of at least several hundred words and knowing the structures of declaratives, negatives, conditionals and *yes/no* questions. Once at this stage, even the least proficient L2ers were hardly true beginners; the label ‘intermediate’ was thus adopted. L2ers whose proficiency was assessed as higher than the so-called ‘intermediate’ L2 participants were given the label ‘advanced’.

4 L2 groups differed significantly from the native control group ($p \leq .002$); and (iii) that there were no significant differences between the two intermediate groups ($p = .996$) or the two advanced groups ($p = .998$).

The background information of the L2 participants is reported in Table 4.3. See Appendix C for the English and Korean versions of the background questionnaire.

Table 4.3. Background Information of the L2 Participants

Group	Age	Gender	AOE ^a	LOL ^b	Immersion ^c
	Mean (SD)	(F/M)	Mean (SD)	Mean (SD)	Mean (SD)
Eng_Int. ($n = 20$)	22.60 (7.46)	12/8	15.85 (10.41)	4.80 (4.05)	0.38 (0.79)
Eng_Adv. ($n = 22$)	22.95 (6.07)	12/10	15.05 (6.52)	4.42 (3.74)	1.06 (1.19)
Kr_Int. ($n = 21$)	29.62 (6.71)	11/10	21.57 (6.80)	2.46 (1.93)	1.09 (2.16)
Kr_Adv. ($n = 20$)	27.20 (6.94)	14/6	19.00 (6.24)	2.48 (1.56)	1.47 (2.89)

NB: ^a AOE = Age of (Initial) Exposure to Chinese: years

^b LOL = Length of Chinese Learning: years

^c Immersion = Immersion in a Chinese-speaking community: years

As shown in Table 4.3, the mean age of the L2 participants was between 22.60 to 29.62 years, and their first exposure to Chinese averaged later than at age 15. In terms of mean length of learning Chinese, it was reported as between 2.46 and 4.80 years; the L1-English L2ers had a slightly longer average learning time. However, the L1-Korean L2ers, on average, had stayed in Chinese-speaking communities longer than the L1-English L2ers had, as can be seen from the mean length of immersion.

In the background questionnaire, L2 participants were also asked to indicate all languages that they spoke, studied or had had contact with, and to rate the overall proficiency of each language on a scale of 1 (beginning) to 5 (native or near native). All but 3 L2 participants reported knowledge of at least one additional language other than Chinese. Of the L1-English L2 participants, the most commonly listed languages were Spanish, French and Japanese (in descending order) and only one indicated beginning-level knowledge of Korean. All Korean L2 participants reported knowledge of English, the mean proficiency rating being 3.46.

The biographical information of the native participants is presented in Table 4.4:

Table 4.4. Biographical Information of the Native Participants

Group	Age		Gender	
	Mean (SD)	Range	Female	Male
Natives (<i>n</i> = 30)	34.93 (8.11)	24--55	18	12

All the L2 participants and the native control participants completed the contextualized multiple-choice interpretation task (Chapter 5), the elicited production task (Chapter 6), and the acceptability judgment task (Chapter 7), and they all rendered useable data, except for one Korean L2 participant (see fn. 38). We now turn to the first experiment, the contextualized multiple-choice interpretation task.

CHAPTER 5

CONTEXTUALIZED MULTIPLE-CHOICE INTERPRETATION TASK

The contextualized multiple-choice interpretation task aims to test Sprouse's (2006) Lexical Transfer Hypothesis by examining how L1-English and L1-Korean L2ers of Chinese interpret *shenme* in constructions such as (1) and (2):

- (1) Zhangsan zai kan **shenme**
Zhangsan ASP look-at THING
a. 'What is Zhangsan looking at?'
b. * 'Zhangsan is looking at **something**.'
- (2) Lisi *mei* kan **shenme**
Lisi NEG look-at THING
a. 'What isn't Lisi looking at?'
b. 'Lisi isn't looking at **anything**.'

Recall that *wh*-existentials in Chinese have to be licensed by c-commanding nonveridical licensors (e.g., negatives, conditionals, *yes/no* questions, etc.). When *shenme* occurs in a sentence with present progressive (a typical veridical context) as in (1), the \exists interpretation is ruled out (i.e., *(1b)); when it occurs in a nonveridical context like (2) (c-commanded by the negative *mei* 'not'), the \exists interpretation becomes available (i.e., (2b)). Note that the semantico-syntactic difference between (1) and (2) affects only the availability of the \exists sense (i.e., *(1b) vs. (2b)); the Q sense (i.e., (1a) and (2a)) remains intact because it is syntactically free.

In contrast to Chinese, *wh*-words in English can never be interpreted as \exists , regardless of construction types, and *wh*-words in Korean can be interpreted as \exists in veridical as well as nonveridical constructions.

If, on the basis of the common Q sense, L1-English L2ers of Chinese associate *shenme* with *what* in English and L1-Korean L2ers of Chinese associate *shenme* with *mwues* in Korean, the Lexical Transfer Hypothesis predicts that at the L2 initial state, the semantic and syntactic properties of *shenme* should bear resemblance to those of the lexical equivalents in their L1.

Therefore, if we situate each of the 2 target constructions as exemplified in (1) and (2) in 2 pragmatically contrasting contexts, with one context biased either towards the Q reading of *shenme* (i.e., (1a) and (2a)) and the other biased towards the \exists reading (i.e., *(1b) and (2b)), we should expect similar performances between the L2ers and the native controls with respect to the Q interpretation but divergent performances (at least initially) with respect to the \exists interpretation.

More specifically, we expect the following performance patterns:

- (3) When pragmatic contexts are geared towards the Q reading of *shenme*:
No matter whether the construction is veridical (e.g., (1)) or nonveridical (e.g., (2)), all L2ers should behave like natives in getting at the Q interpretation (e.g., (1a) and (2a)).

- (4) When pragmatic contexts are geared towards the \exists reading of *shenme*:
- a. If the construction is veridical (e.g., (1)), natives should disallow the $*\exists$ interpretation (e.g., *(1b)) because there is no nonveridical licenser to license this interpretation. Lower-proficiency L1-English L2ers should pattern like the natives in prohibiting the $*\exists$ interpretation, but their reason is due to transfer of L1 lexical knowledge, i.e., the lexical equivalent in their L1, *what*, is never interpreted as \exists . Lower proficiency L1-Korean L2ers, on the other hand, should diverge from the natives and allow the $*\exists$ interpretation, because their L1 lexical equivalent, *mwues*, can be legitimately interpreted as \exists in veridical constructions.
 - b. If the construction is nonveridical (e.g., (2)), natives should allow the \exists interpretation (e.g., (2b)) because the licensing condition is satisfied. Due to transfer of the relevant lexical knowledge from their respective L1, lower-proficiency L1-Korean L2ers should follow the native controls' pattern in allowing the \exists interpretation, whereas lower-proficiency L1-English L2ers should perform otherwise.

We test the predictions in (3) and (4) using a contextualized multiple-choice interpretation task. Although the focal point of our investigation is on the \exists interpretation of *shenme*, or the predictions stated in (4), testing the predictions regarding the Q interpretation (i.e., (3)) is indispensable. First, it will provide evidence which helps us evaluate the assumption that *shenme* is primarily perceived as Q by all L2ers (and the natives). This assumption was initially confirmed by the sentence-making task reported in Chapter 4, which showed that *shenme* and *shui* were overwhelmingly used as Q by L1-English and L1-Korean L2ers. These participants did not participate in this main study. In this task, we seek further evidence from interpretation, examining whether participants of the main study will uniformly favor the Q interpretation of *shenme* in both target constructions (exemplified in (1) and (2)) when pragmatic contexts are biased towards the Q reading. If the prediction in (3) is borne out, we can argue with confidence that Q is the prominent sense, hence motivating the L1-TL lexical association. Second,

given that our hypothesis predicts the \exists sense is initially absent in the Interlanguage of L1-English L2ers but present in that of L1-Korean L2ers, the pragmatic contexts we provide to elicit the \exists interpretation of *shenme* have to accommodate the Q interpretation, albeit to a lesser degree, so that L2ers who do not have knowledge of the \exists sense of *shenme* may still feel that the contexts and the target constructions (to be interpreted) are not irrelevant. Looking at the participants' interpretations of *shenme* in Q-biased contexts gives us a reference point against which we can interpret their performances in \exists -biased contexts.

In this chapter, we present the experimental specifics, data analysis, and results of the experiment. Section 5.1 describes the task design, procedures, and materials. Section 5.2 presents detailed information regarding the data analysis and results. Section 5.3 discusses the main findings.

5.1 Task Design, Procedures, and Materials

Inspired by the methodology of Marsden's (2004, 2008) studies on quantifier scope in L2 Japanese, we put each of the two target constructions (as in (1) and (2)) in 2 different picture contexts as prompt sentences, with one picture context biased towards the Q reading of *shenme* (e.g., (1a) and (2a)), and one biased towards the \exists reading of *shenme* (e.g., *(1b) and (2b)). This yields 4 types of experimental items. Table 5.1 presents the types and examples of experimental prompt sentences:

Table 5.1. Multiple-Choice Interpretation Task: Types and Examples of Experimental Prompt Sentences

Type	Example
1. Q interpretation (grammatical): veridical construction + Q-biased contexts	Tamen zai kan shenme they ASP look-at THING ' What are they looking at?'
2. \exists interpretation (ungrammatical): veridical construction + \exists -biased contexts	Tamen zai kan shenme they ASP look-at THING '*They are looking at something .'
3. Q interpretation (grammatical): nonveridical construction + Q-biased contexts	Ta <i>mei</i> na shenme he NEG hold THING ' What isn't he holding?'
4. \exists interpretation (grammatical): nonveridical construction + \exists -biased contexts	Ta <i>mei</i> na shenme he NEG hold THING 'He isn't holding anything .'

To see the format of experimental items, consider the sample item in Figure 5.1:



Gloss (not in the experiment):

Ta *mei* chuan **shenme**

He NEG wear THING

Choices:

shì de

A: 是 的。

xié

B: 鞋 。

hé dōukěyǐ

C: A 和 B 都 可 以 。

bùquèdìngxuǎnnǎgè

D: 不 确 定 选 哪 个 。

Translation (not in the experiment):

A: Yes.

B: Shoes.

C: Both A and B are OK.

D: Not sure which one to choose.

Figure 5.1. Multiple-Choice Interpretation Task: Format of Experimental Items

Participants were asked to look at each picture (pragmatic context) carefully, read the prompt sentence (i.e., what the man under the picture said) and decide on the appropriate response(s) for the woman by selecting one from the 4 choices (always the same): (A) concurrence with a statement; (B) a response to a *what*-question; (C) ‘Both A and B are OK’; (D) ‘Not sure which one to choose’ (see Appendix D for the English, Korean and Chinese versions of the task directions). In this sample item, for example, we see a man standing in the middle without wearing anything. In the background, the closet door is open, with shoes, tops, pants, a hat, etc. in the closet. The man underneath ‘uttered’ the prompt sentence *Ta mei chuan shenme*. If Choice A (i.e., *Shide* ‘yes’) is picked, it indicates that the prompt sentence is understood as a statement ‘He isn’t wearing **anything**’, where *shenme* has the \exists reading. If Choice B (i.e., *Xie* ‘shoes’) is selected, it shows that the prompt is interpreted as a *what*-question ‘**What** isn’t he wearing?’, where *shenme* has the Q reading. Considering that some participants may allow both interpretations, Choice C (i.e., ‘Both A and B are OK’) is provided. A ‘Not sure which

one to choose' option is also given as Choice D. Note that the punctuation mark of the prompt sentence was deliberately missing. The purpose was to prevent participants from using this information (viz. question mark vs. final stop) as an unambiguous cue for interpreting *shenme*. We justified the absence of punctuation by telling the participants that the pictures were fragments from an old picture book, whose right-hand side was ripped off, so certain information such as punctuation was missing. The yellowish background color and the tear-off effects on the right edges of the pictures were meant to give the fragment feel.

Now let us look at the 2 types of items testing the interpretations of *shenme* in the veridical construction (a present progressive) in (1). Figure 5.2 is a sample item in which the target construction is situated in a Q-biased context (Type 1):

Gloss (not in the experiment):
Tamen zai kan **shenme**
they ASP look-at THING

Choices:
shì de
A: 是的。
mǎyǐ
B: 蚂蚁。
hé dōukěyǐ
C: A 和 B 都可以。
bùquèdìngxuǎnnǎgè
D: 不 确 定 选 哪 个。

Translation (not in the experiment):
A: Yes.
B: Ants.
C: Both A and B are OK.
D: Not sure which one to choose.

Figure 5.2. Multiple-Choice Interpretation Task: Type 1 Sample Item

In the picture above, we see that a boy and a girl are looking at ants. If the participant takes *shenme* as Q, the prompt sentence should mean ‘**What** are they looking at?’, so Choice B, ‘Ants’, will be the appropriate response. On the other hand, if the participant considers *shenme* as \exists , the prompt sentence should mean ‘They are looking at

something', so Choice A, 'Yes', is tempting. Clearly, the Q interpretation is more pragmatically appropriate because the picture shows what exactly the boy and the girl are looking at.

Compare this item with the sample item shown in Figure 5.3, in which the target construction is embedded in an \exists -biased context (Type 2):

Gloss (not in the experiment):
Ta zai kan **shenme**
he ASP look-at THING


Choices:
shì de
A: 是的。
bùzhīdào
B: 不知道。
hé dōukěyǐ
C: A 和 B 都可以。
bùquèdìngxuǎnnǎgè
D: 不 确 定 选 哪 个。

Translation (not in the experiment):
A: Yes.
B: No idea.
C: Both A and B are OK.
D: Not sure which one to choose.

Figure 5.3. Multiple-Choice Interpretation Task: Type 2 Sample Item

The first thing to note here is that while the prompt sentence is the same as that in Type 1 (except for minor modification of the subject pronoun), the picture in which the prompt appears is different: In Figure 5.3, what the man is looking at is not shown. The indefiniteness of the referent of *shenme* makes it favorable for participants to interpret the prompt sentence as 'He is looking at **something**', if their grammar allows it. Choice A, 'Yes', was provided as a response to this \exists interpretation. The second thing to note is that the \exists interpretation is, in fact, impossible in this (veridical) construction in the TL. Thus, a response to the Q interpretation (i.e., '**What** is he looking at?') was offered, namely, Choice B, 'No idea'.

We turn now to the 2 types of items examining the interpretations of *shenme* in the nonveridical construction (*shenme* is c-commanded by the negative *mei* ‘not’) (e.g., (2)). Figure 5.4 presents a sample item in which the pragmatic context is geared towards the Q interpretation (Type 3):



Gloss (not in the experiment):
Ta mei na **shenme**
he NEG hold THING

Choices:
shì de
A: 是的。
kèběn
B: 课本。
hé dōukěyǐ
C: A 和 B 都可以。
bùquèdìngxuǎnnǎgè
D: 不 确 定 选 哪 个。

Translation (not in the experiment):
A: Yes.
B: Textbooks.
C: Both A and B are OK.
D: Not sure which one to choose.

Figure 5.4. Multiple-Choice Interpretation Task: Type 3 Sample Item

In this picture, a boy is holding many things, but there are two textbooks that he is not holding. If the participant interprets *shenme* as Q, the prompt sentence is a negative *what*-question ‘**What** isn’t he holding?’, and the appropriate response will be Choice B, ‘Textbooks’. If the participant interprets *shenme* as \exists , the prompt sentence should mean either ‘There is **something** that he isn’t holding’ (under the wide scope reading of *shenme*) or ‘He isn’t holding **anything**’ (under the narrow scope reading of *shenme*). In these cases, he/she should go for either Choice A ‘Yes’ (the response to the wide scope interpretation) or Choice D ‘Not sure which one to choose’ (as the picture goes against the narrow scope interpretation). As the picture clearly depicts the referent of *shenme* (i.e., textbooks), the Q interpretation is more contextually appropriate.

Compare this item above with the sample item given in Figure 5.5, in which the nonveridical construction occurs in an \exists -biased picture context (Type 4):



Gloss (not in the experiment):

Ta mei na **shenme**
he NEG hold THING

Choices:

shì de

A: 是的。

bǐ

B: 笔。

hé dōukěyǐ

C: A和B都可以。

bùquèdìngxuǎnnǎgè

D: 不确定选哪个。

Translation (not in the experiment):

A: Yes.

B: Pens.

C: Both A and B are OK.

D: Not sure which one to choose.

Figure 5.5. Multiple-Choice Interpretation Task: Type 4 Sample Item

We see here that the prompt sentence in Figure 5.5 is identical to that in Type 3, but this time the boy is not holding anything in his hands. This context makes the (narrow scope) \exists reading of the prompt ‘He isn’t holding **anything**’ more appealing than the previous picture (in Figure 5.4) did. In addition, a response to the Q reading of the prompt sentence ‘**What** isn’t he holding?’ is provided, i.e., Choice B, ‘Pens’. Although ‘He isn’t holding pens’ is not exactly an accurate depiction of the picture (because there are many other things the boy isn’t holding as well), there is certainly nothing wrong with saying that he isn’t holding pens given the picture context. In other words, if participants do not know the \exists sense of *shenme*, at least the picture does not prohibit them from interpreting *shenme* as Q.

These 4 types of experimental items each consisted of 5 tokens, yielding a total of 20 experimental items. The prompt sentences were all monoclausal, and were controlled

for length (5-7 characters), verb selection (from the top 100 frequency list and all transitive) and syntactic position of *shenme* (always in object position).

In addition, 20 filler items were included. These items took the same format as the experimental items, namely, prompt sentences appeared in picture contexts and participants were asked to choose appropriate responses to prompts by selecting one of the 4 choices. Also like in the experimental items, the choices provided in the filler items were always as follows: (A) concurrence with a statement; (B) a response to a *what time/what day*-question; (C) ‘Both A and B OK’; (D) ‘Not sure which one to choose’. A sample filler item is shown in Figure 5.6:

Gloss (not in the experiment):
Ta jiahao mei shang shuxue ke
she what-day NEG have math class

Choices:
shì de
A: 是的。
wǔhào
B: 五号。
hé dōukěyǐ
C: A 和 B 都可以。
bùquèdìngxuǎnnǎgè
D: 不 确 定 选 哪 个。

Translation (not in the experiment):
A: Yes.
B: At eight.
C: Both A and B are OK.
D: Not sure which one to choose.

Figure 5.6. Multiple-Choice Interpretation Task: Filler Sample Item

These filler items were designed to approximate the experimental items as much as possible. Recall that the 4 types of experimental prompt sentences were intended to elicit the following interpretations: (i) Type 1, the Q interpretation of *shenme* in the veridical construction; (ii) Type 2, the (nontarget) \exists interpretation of *shenme* in the veridical construction; (iii) Type 3, the Q interpretation of *shenme* in the nonveridical construction; and (iv) Type 4, the \exists interpretation of *shenme* in the nonveridical

construction. These intended interpretations make the experimental prompts fall into 4 kinds: (i) affirmative *wh*-question (Type 1); (ii) affirmative declarative (Type 2); (iii) negative *wh*-question (Type 3); and (iv) negative declarative (Type 4). The prompt sentences of the filler items were also of these 4 kinds, except that they were all unambiguous and that the *wh*-questions here involve *wh*-adjuncts *jidian* ‘what time’ and *jihao* ‘what day’, both of which are solely interrogative in Chinese.

The 4 types of filler prompt sentences, along with an example of each, are presented in Table 5.2:

Table 5.2. Multiple-Choice Interpretation Task: Types and Examples of Filler Prompt Sentences

Type	Example
A. affirmative <i>wh</i> -question	Ta jidian zai kan diansh he what-time ASP watch TV ‘What time is he watching TV?’
B. affirmative declarative	Ta zai tan gangqin she ASP play piano ‘She is playing piano.’
C. negative <i>wh</i> -question	Ta jihao mei zuo fan she what-day NEG make meal ‘What day didn’t she cook?’
D. negative declarative	Ta mei zai huahua he NEG ASP paint ‘He isn’t painting.’

All punctuation marks of the filler prompt sentences were removed and their length was controlled to 4-8 characters so that they are comparable to the experimental prompts in these aspects. See Appendix E for all items, experimental and filler, used in this task.

5.2 Data Analysis and Results

5.2.1 Fillers

We start with the filler items, since they can help us determine whether participants understood what they were expected to do in this task and whether they paid attention during the experiment.

Data were coded as target and nontarget. To determine whether all items were reliable, we counted native participants' target responses to each individual item.

Table 5.3 reports the results:

Table 5.3. Multiple-Choice Interpretation Task: Natives' Target Responses to Individual Filler Items

ID	A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5
Score	29	29	28	29	28	29	27	28	30	29	30	30	28	29	24	29	30	30	30	30

NB: Score = the number of target responses by the 30 natives

For a given item, if 90% or more of the 30 natives provided a target response (i.e., a score ≥ 27), the item was deemed reliable. Against this criterion, filler C5 was excluded.

All participants' target responses to the remaining 29 filler items were counted.

Table 5.3 reports the group results of each type:

Table 5.4. Multiple-Choice Interpretation Task: Group Results of Each Filler Type

Group	Type A ($k = 5$)	Type B ($k = 5$)	Type C ($k = 4$)	Type D ($k = 5$)
Natives ($n = 30$)	95.3% (143/150)	95.3% (143/150)	97.5% (117/120)	99.3% (149/150)
Eng_Int. ($n = 20$)	92.0% (92/100)	91.0% (91/100)	88.8% (71/80)	90.0% (90/100)
Eng_Adv. ($n = 22$)	95.5% (105/110)	99.1% (109/110)	85.2% (75/88)	98.2% (108/110)
Kr_Int. ($n = 21$)	91.4% (96/105)	100% (105/105)	75.0% (64/84)	98.1% (103/105)
Kr_Adv. ($n = 20$)	98.0% (98/100)	99.0% (99/100)	86.3% (69/80)	99.0% (99/100)

As we can see, L2 participants' responses for Types A, B and D were highly accurate (i.e., target response rates $\geq 90\%$), suggesting that they understood the task fairly well and were attentive while doing it. Their target response rates for Type C were not as high as the other 3 types, but this was probably due to the relative complexity of the prompt sentences in this type (i.e., negative *wh*-questions), rather than to lack of attention. It was therefore decided that all participants be included in the subsequent analyses of the experimental data.

5.2.2 Experimental items

5.2.2.1 Data Coding

The choices of experimental items fall into 4 types: Q, \exists , Q& \exists , and ‘Not Sure’. Participants’ responses were tallied accordingly.

5.2.2.2 The Interpretations of *Shenme* in Q-biased Contexts

In this section, we focus on the Q-biased contexts, examining how the participants interpreted *shenme* in the veridical construction (Type 1) and the nonveridical construction (Type 3). Our prediction was that all L2 groups should behave like the natives in both constructions.

Veridical Construction in the Q-biased Context (Type 1)

Let us first look at the veridical construction in the Q-biased context (Type 1), the type with the picture in the sample item showing a boy and a girl looking at ants (Figure 5.2). Figure 5.7 shows the distribution of participants’ responses:

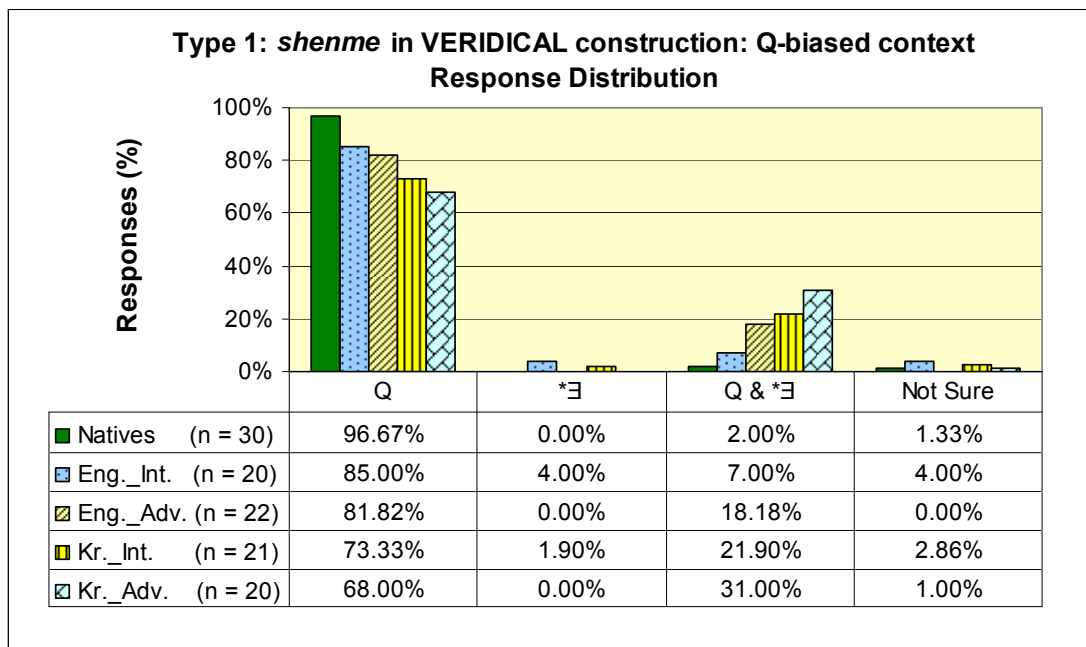
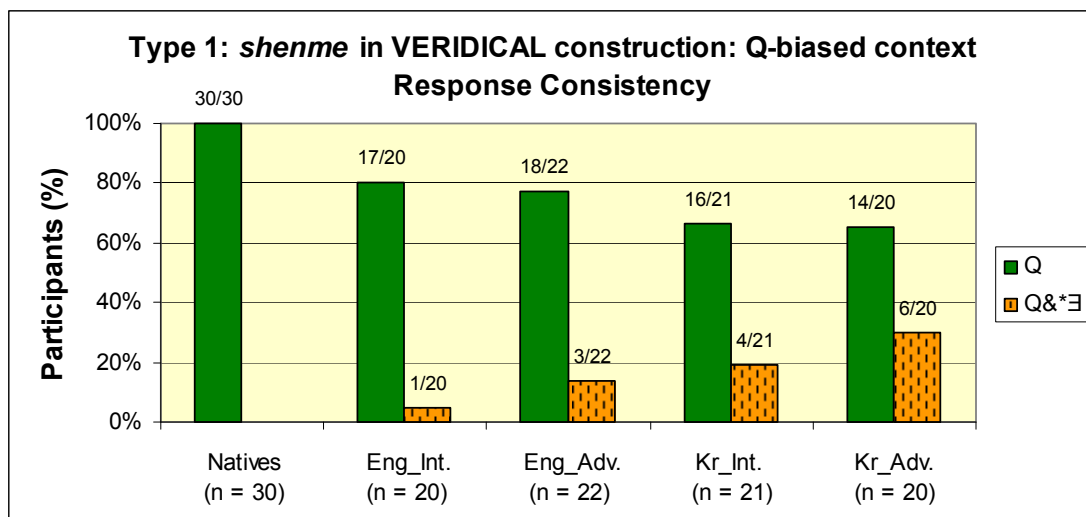


Figure 5.7. Multiple-Choice Interpretation Task: Type 1 Response Distribution

Descriptively, we notice a difference in the response patterns between the natives and the L2ers. The natives' responses uniformly fall into the Q category, which suggests that the task is working, whereas the L2ers' responses are found in two categories, namely, Q and Q&* \exists , with the majority of responses in Q.

We examined individual data to determine whether or not the responses observed in the group results were consistently chosen. This question is important because response consistency enables us to tease apart knowledge from performance variability. Following Marsden (2004) and Kweon and Bley-Vroman (2011), we define response consistency as the same response to at least 4 of the 5 tokens. The results are shown in Figure 5.8:



NB: response consistency = same response to at least 4 of the 5 tokens

Figure 5.8. Multiple-Choice Interpretation Task: Type 1 Response Consistency

As we can see, all native participants and a great majority of L2 participants almost always picked the Q response. However, there were 14 L2ers who consistently favored the Q&* \exists response. Of these participants, 10 were Korean L2ers (4 intermediate and 6 advanced) and 4 were English L2ers (1 intermediate and 3 advanced).

It is very interesting that 14 L2ers got the ambiguity of *shenme* in the Q-biased context, but this is not entirely surprising. Recall the sample item in Figure 5.2. The Q response ‘(they are looking at) ants’ is more pragmatically favorable than the \exists response ‘yes, (they are looking at something)’ – i.e., when the picture clearly shows that the two

children are looking at ants – and it makes better sense to describe the picture as ‘they are looking at **ants**’ instead of ‘they are looking at **something**’. However, in terms of the logical relation, if the Q response ‘(they are looking at) ants’ is true, the \exists response ‘yes, (they are looking at **something**)’ is also true. In other words, although the \exists interpretation is less contextually appropriate, it is nevertheless logically entailed by the Q interpretation. The fact that the solely \exists responses were almost never chosen seems to indicate that the L2 participants did not much like the \exists interpretation in and of itself. In short, the \exists responses that came side by side with the Q responses are very likely to have occurred by logical reasoning (i.e., entailed by the Q response) rather than by a picture-based interpretation.

The finding that a lot more Korean L2 participants consistently favored the Q&* \exists responses than their English peers seems to give us a glimpse of L1 transfer effects. Recall that the lexical equivalent of *shenme* in English, *what*, is never interpreted as \exists . We see that only 1 English intermediate participant showed knowledge of the ambiguity of *shenme* by consistently choosing the Q&* \exists response. The number of English advanced L2ers who consistently chose the Q&* \exists response increased (to 3), suggesting they gradually picked up the ‘new’ \exists sense, although they did not seem to have acquired that this sense is structurally restricted in Chinese. As for the Korean L2ers, their L1 lexical equivalent, *mwues*, is ambiguous between the Q reading and the \exists reading, even in veridical constructions. It turns out that 10 out of the 14 L2 participants who consistently picked the Q&* \exists responses were Korean L2ers.

Given that the pictures were biased towards the Q sense of *shenme* in this type, the \exists interpretation which surfaced as the Q&* \exists responses here is perhaps very suggestive. We will investigate the \exists sense in the next section. The question that concerns us now is whether or not the L2ers were like the native controls in terms of the Q interpretation of *shenme*.

Among the 4 choices, the Q interpretation is present in both the (solely) Q and the Q&* \exists responses, so we need to collapse these 2 types of responses together. Since the ‘Not Sure’ responses do not inform us how exactly the participant interpreted *shenme*, it was decided that they be excluded from each participant’s total responses. (From Figure 5.7 we can see that the ‘Not Sure’ responses were very rare.) Then we calculated

the proportion of Q interpretation out of the total responses (with ‘Not Sure’ responses excluded) for each participant. The results were entered into SPSS for statistical analysis.

As our data were categorical and were clearly not normally distributed, a non-parametric Kruskal-Wallis Test was conducted, with the proportion of Q interpretation being the dependent variable and with Group being the independent variable. Results show that the effects of Group were not statistically significant ($p = .124$), indicating that in the veridical construction, the L2 groups were not different from the native control group with respect to the Q interpretation of *shenme*.

Nonveridical Construction in the Q-biased Context (Type 3)

Let us move on to the nonveridical construction in the Q-biased context (Type 3), the type with the picture in the sample item showing a boy holding many things, but not the two textbooks in front of him (Figure 5.4). Figure 5.9 presents the distribution of participants’ responses:

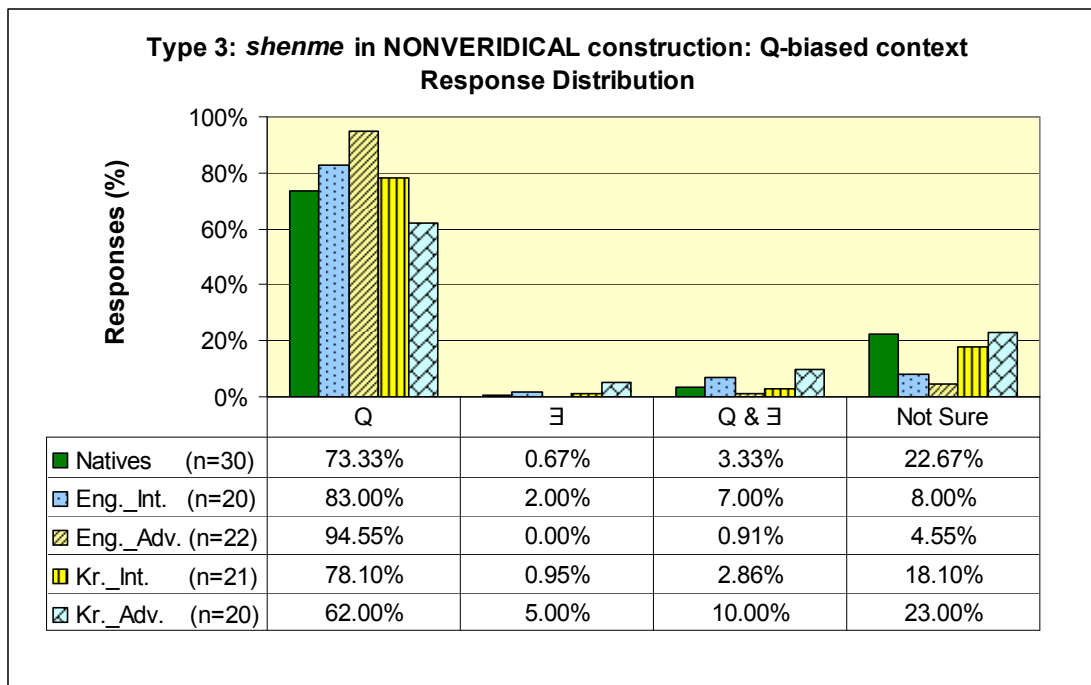
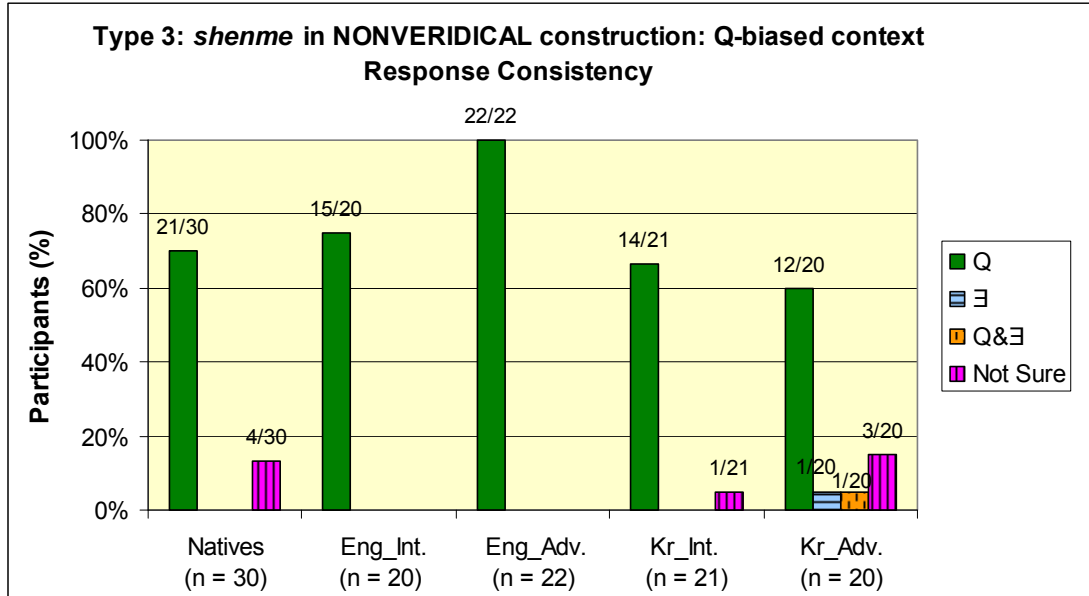


Figure 5.9. Multiple-Choice Interpretation Task: Type 3 Response Distribution

Among the 4 responses, the Q response, again, is the most preferred with all groups. The \exists and Q& \exists responses are rare, but the magnitude of the ‘Not Sure’ responses, especially from the natives, seems to exceed usual noise level.

Again, we examined individual data to see how consistent their responses were.

Figure 5.10 reports the results:



NB: response consistency = same response to at least 4 of the 5 tokens

Figure 5.10. Multiple-Choice Interpretation Task: Type 3 Response Consistency

As we can see, most participants picked the same response to at least 4 of the 5 tokens. While a great majority of participants consistently chose the Q responses, there were also 8 participants who were consistent in their ‘Not Sure’ responses, all of whom came from the native control group and the 2 Korean L2 groups. It is clear that the ‘Not Sure’ responses in this type did not occur incidentally and require an explanation.

If we look at the sample item in Figure 5.4, we see a picture in which a boy is holding many things, but there are two textbooks that he is not holding. We expected the participants to interpret the prompt sentence as a *what*-question, i.e., ‘**What** isn’t he holding?’. Participants, indeed, performed largely as expected, as evidenced by the overwhelming Q responses. However, given that in this (nonveridical) construction, the \exists interpretation is allowed in Chinese and Korean, it makes it possible for the natives as

well as Korean L2ers to interpret the prompt sentence as ‘He isn’t holding **anything**’. But this \exists reading clearly contradicts what was depicted in the picture, as the boy is actually holding many things. We thus speculate that the tension between linguistic grammaticality and pragmatic implausibility led to the ‘Not Sure’ responses from the 4 Natives and the 4 Korean L2ers. As for English L2ers, the \exists sense, if present, must have been newly added to their L1-derived lexical knowledge; that this ‘new’ sense did not consistently surface in a pragmatically incompatible context is not surprising. If our speculation is on the right track, the divergent performance between English L2ers and Korean L2ers with respect to the ‘Not Sure’ response in this experimental type (Type 3) goes the way that lexical transfer would expect.

Similar to the analysis in the previous type (Type 1), a Kruskal-Wallis Test was conducted on the proportion of the Q interpretation (Q + [Q& \exists]) out of the total responses (with ‘Not Sure’ responses excluded).⁴⁰ Results show that the effects of Group on the proportion of the Q interpretation in Type 3 were not significant ($p = .152$), indicating that in the nonveridical construction, the L2ers were not different from the natives in terms of the Q sense of *shenme*.

Proportions of Q Interpretation: Type 1 vs. Type 3

Now let us compare the proportions of Q interpretation in Type 1 (i.e., veridical construction in the Q-biased context) and in Type 3 (i.e., nonveridical construction in the Q-biased context) by the 5 groups, as presented in Figure 5.11:

⁴⁰ One native participant and 3 Korean advanced L2ers had 5 ‘Not Sure’ responses across all 5 tokens.

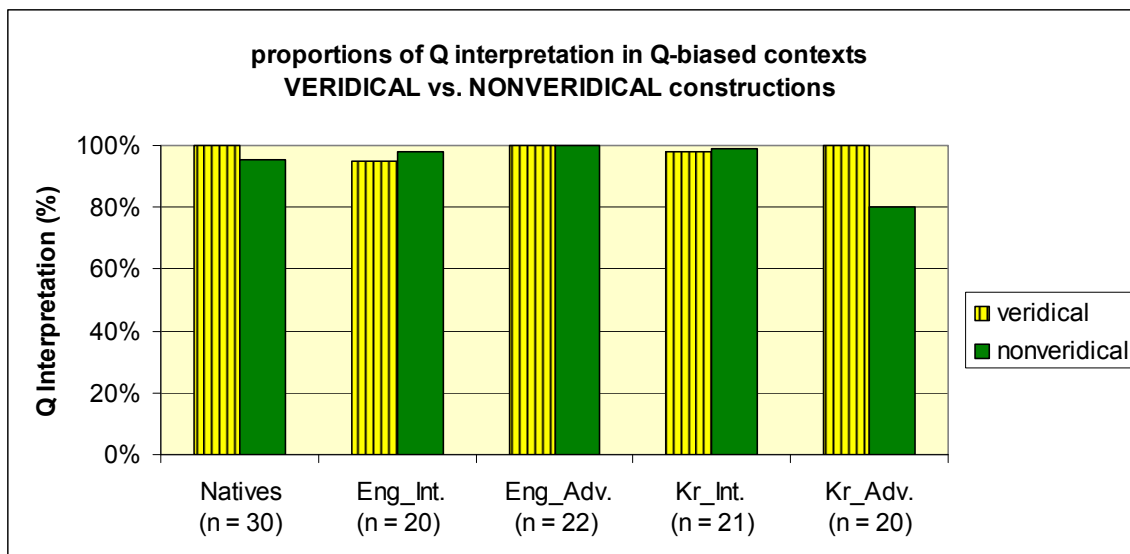


Figure 5.11. Multiple-Choice Interpretation Task: Proportions of the Q Interpretation: Type 1 vs. Type 3

It is clear that the mean percentages of the Q interpretation are at least 80% for all groups. Wilcoxon Signed-Rank Tests show that the effect of Construction is not significant for all groups except the Kr_Adv. group ($p = .046$).⁴¹ That the Kr_Adv. group had a lower rate of Q interpretation in the nonveridical construction is mainly due to the fact that 3 Korean advanced participants consistently picked the ‘Not Sure’ responses across the 5 tokens.

5.2.2.3 The Interpretations of *Shenme* in \exists -biased Contexts

In this section, we test the Lexical Transfer Hypothesis by looking into how participants interpreted *shenme* in veridical and nonveridical constructions when picture contexts were biased towards the \exists sense. Our predictions were stated in (4), repeated in (5) below for convenience:

⁴¹ It is very difficult to do nonparametric two-way analyses of variance with repeated measures, which would allow us to examine the effects of Group, Construction and their interaction simultaneously. The Wilcoxon Signed Tests used here instead are only for an approximation of the effects of Construction, and the results should be taken with caution.

- (5) When pragmatic contexts are geared towards the \exists reading of *shenme*:
- a. If the construction is veridical (e.g., (1)), natives should disallow the $*\exists$ interpretation (e.g., *(1b)) because there is no nonveridical licenser to license this interpretation. Lower-proficiency L1-English L2ers should pattern like the natives in prohibiting the $*\exists$ interpretation, but their reason is due to transfer of L1 lexical knowledge, i.e., the lexical equivalent in their L1, *what*, is never interpreted as \exists . Lower proficiency L1-Korean L2ers, on the other hand, should diverge from the natives and allow the $*\exists$ interpretation, because their L1 lexical equivalent, *mwues*, can be legitimately interpreted as \exists in veridical constructions.
 - b. If the construction is nonveridical (e.g., (2)), natives should allow the \exists interpretation (e.g., (2b)) because the licensing condition is satisfied. Due to transfer of the relevant lexical knowledge from their respective L1, lower-proficiency L1-Korean L2ers should follow the native controls' pattern in allowing the \exists interpretation, whereas lower-proficiency L1-English L2ers should perform otherwise.

Let us now look at how participants interpreted *shenme* in \exists -biased contexts.

Veridical Construction in the \exists -biased Context (Type 2)

In Type 2, the veridical construction was situated in an \exists -biased context, the type with the picture in the sample item showing a man looking at something with a pair of binoculars (Figure 5.3). The distribution of participants' responses in this type is presented in Figure 5.12:

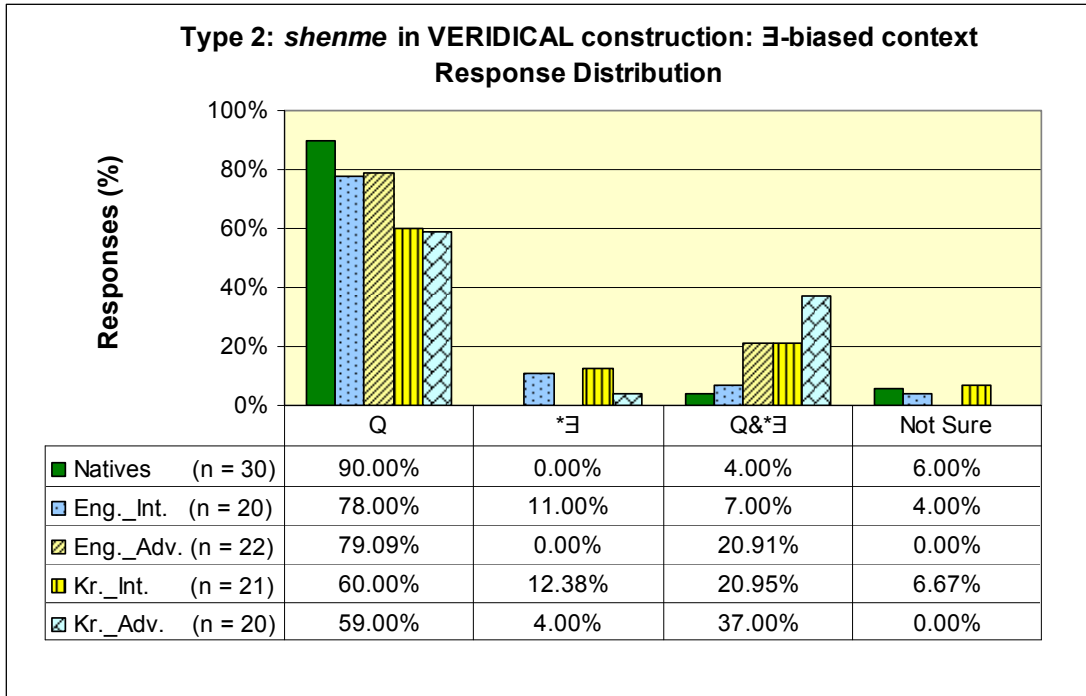
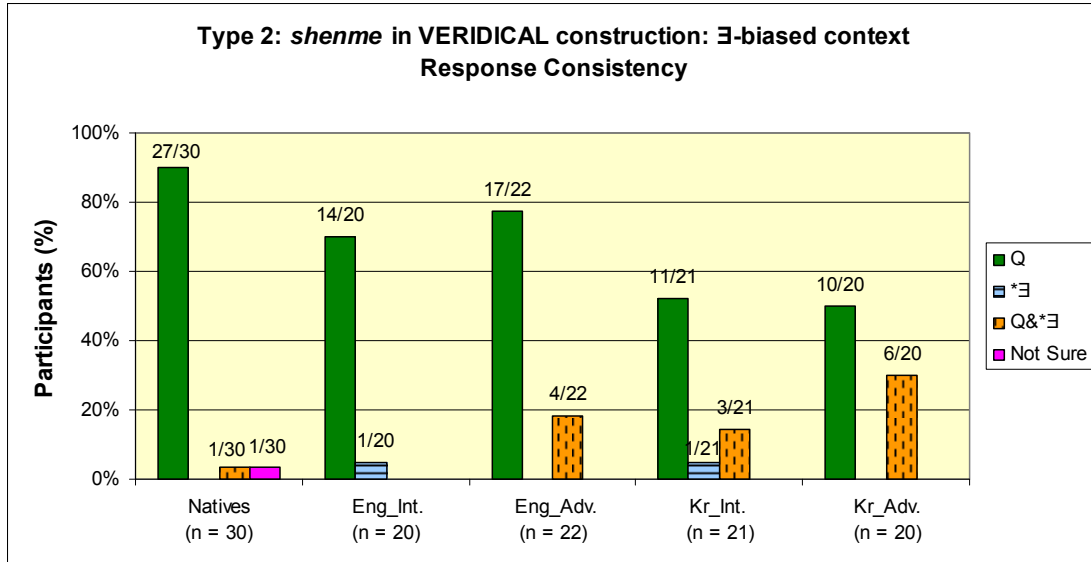


Figure 5.12. Multiple-Choice Interpretation Task: Type 2 Response Distribution

Perhaps the first reaction towards the high percentages of the Q responses is one of surprise, but recall that in the veridical construction, the \exists interpretation of *shenme* is prohibited in the TL grammar. In other words, what we are trying to do here is to examine whether the $*\exists$ interpretation was (incorrectly) permitted in the learner grammars. The pictures were considered \exists -biased because with an absence of the referents of *shenme* in the pictures, the $*\exists$ interpretation, if allowed in the grammar, should arise more easily than in Q-biased pictures, where the referents of *shenme* were shown. In fact, compared with the response distribution for Type 1 (Figure 5.7), we indeed find that the percentages of the $*\exists$ and Q& $*\exists$ responses increased, suggesting that our context manipulation took effect.

Now let us look at Figure 5.13 to see how consistent the participants' responses were.



NB: response consistency = same response to at least 4 of the 5 tokens

Figure 5.13. Multiple-Choice Interpretation Task: Type 2 Response Consistency

Evidently, most participants consistently picked the same response for at least 4 of the 5 tokens. While the general tendency was that the participants who fell into the (exclusively) Q category substantially outnumbered those in the other categories, the (exclusively) Q response clearly appealed to a lot more L1-English L2ers than L1-Korean L2ers. The participants who consistently preferred the Q&* \exists response were mainly from the 2 Korean L2 groups ($n = 9$) and the English advanced group ($n = 4$), replicating what was previously found in Type 1 (Figure 5.8). The solely * \exists response was consistently (incorrectly) chosen only by 1 English intermediate L2er and 1 Korean intermediate L2er, indicating that the \exists sense was seldom perceived in separation of the Q sense, even if it was present in the grammar.

If L1 lexical transfer did occur, a valid question to ask is why the responses by the Korean L2ers did not fall *primarily* into the * \exists or the Q&* \exists categories, given that the pictures were geared towards the \exists interpretation. The answer, we speculate, lies in the matter of prominence.

When ambiguity is involved, it is often the case that the more prominent meaning is favored over the less prominent one. For example, in their seminal work on quantifier scope ambiguity, Kurtzman and MacDonald (1993) found that when asked to judge sentences like *Every kid climbed a tree*, adult English native speakers accepted surface

scope (i.e., *every* > *a*) – the more prominent interpretation – at rates above 70%, whereas their acceptance rates for the less prominent inverse-scope interpretation (i.e., *a* > *every*) were only between 20% and 35%, although both interpretations are possible in English. By the same token, even though *wh*-words can be interpreted as both Q and \exists in Korean, Q is probably much more readily accessible than \exists .

As our interest was in the L2 knowledge of the \exists sense of *shenme*, we combined the 2 types of responses involving this sense, namely, the $\ast\exists$ and the Q& $\ast\exists$ responses, and then calculated the proportion of the $\ast\exists$ interpretation out of the total responses (with ‘Not Sure’ responses excluded) for each participant, the same logic as we used for the analysis of the Q interpretation. A Kruskal-Wallis Test was conducted and results show that the effects of Group on the proportions of the $\ast\exists$ interpretation were statistically significant ($p = .001$).

The Kruskal-Wallis Test does not come with direct post-hoc pairwise comparisons. To locate the differences, a common practice is to run a series of nonparametric Mann-Whitney Tests and adjust the α level with the Bonferroni method. Following this convention, throughout this study, we will conduct paired Mann-Whitney Tests for post-hoc comparisons if Kruskal-Wallis Tests yield significant results.

For the Bonferroni correction, since we have 5 groups in the study, there are 10 possible paired comparisons (i.e., $(k \times (k-1)) / 2 = (5 \times (5-1)) / 2 = 10$). The α level is therefore adjusted to .005 (i.e., $\alpha = .05/10 = .005$).

Against this adjusted α value, the paired Mann-Whitney tests show that both Korean L2 groups were significantly different from the native control group: Kr_Int. vs. Natives ($U = 170$, $Z = -3.627$, $p = .000$, $r = -.51$); Kr_Adv. vs. Natives ($U = 137.5$, $Z = -4.07$, $p = .000$, $r = -.58$). The 2 English L2 groups, on the other hand, were not statistically different from the native control group: Eng_Int. vs. Natives ($U = 216$, $Z = -2.484$, $p = .013$); Eng_Adv. vs. Natives ($U = 259.5$; $Z = -2.081$, $p = .037$).

We return now to our prediction in (4/5a): With respect to the nontarget \exists interpretation of *shenme* in the veridical construction, lower-proficiency L1-English L2ers should perform within the natives’ range in disallowing it, whereas lower-proficiency L1-Korean L2ers should be significantly different from the natives. Our results are consistent with this prediction.

The Lexical Transfer Hypothesis does not give immediate predictions on the performances of the 2 advanced groups, but if L1-Korean L2ers initially allow *shenme* to be interpreted as \exists in veridical constructions, learnability dictates that the nontarget \exists interpretation should be difficult to retract from, as negative evidence (i.e., information that the \exists interpretation is impossible in veridical constructions in Chinese) is not available in the input (Schwartz & Gubala-Ryzak, 1992). We thus expect that the Kr_Adv. group should perform differently from the natives in the same way as the Kr_Int. group does. This is also supported by the results.

As for the Eng_Adv. group, despite the numerical increase of the Q&* \exists responses, the proportion of the * \exists interpretations by this group is not statistically different from that of the natives, indicating that the initial L1-based knowledge persists to the advanced level.

Nonveridical Construction in the \exists -biased Context (Type 4)

Now let us move on to the nonveridical construction in the \exists -biased Context (Type 4), the type with the picture in the sample item showing a boy holding nothing in his hands (Figure 5.5). The distribution of participants' responses is given in Figure 5.14:

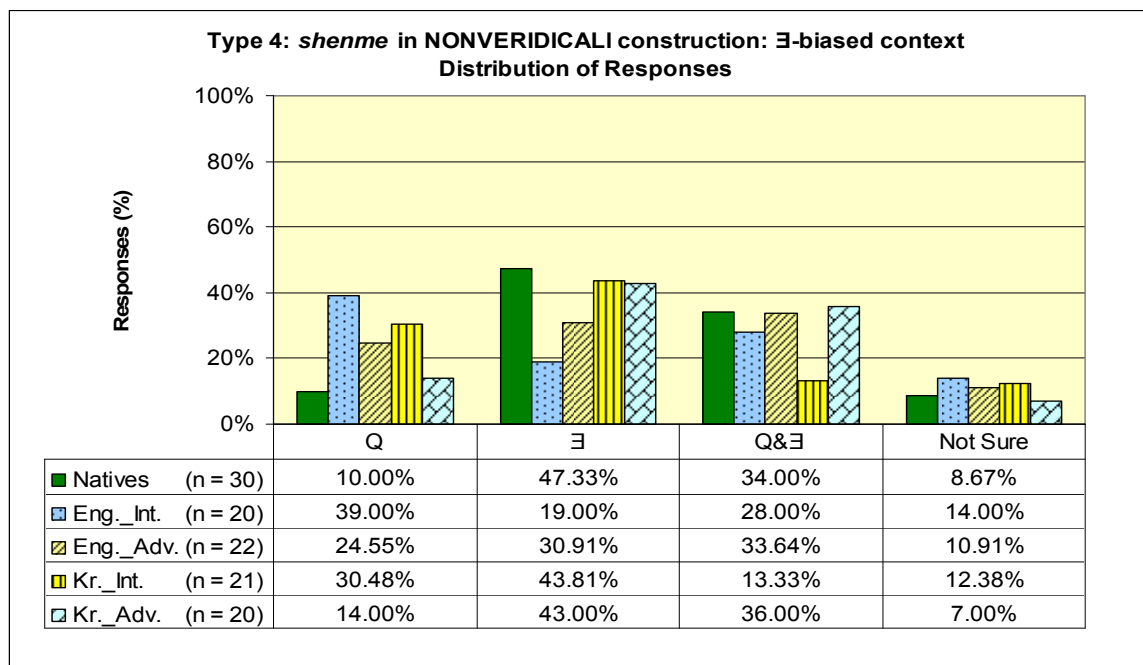


Figure 5.14. Multiple-Choice Interpretation Task: Type 4 Distribution of Responses

Admittedly, the results are not as clear-cut as we would want to see. The responses that got picked most by the natives are \exists (47.33%) and Q& \exists (34%); the percentages of the Q and ‘Not Sure’ responses are relatively small. The 2 Korean L2 groups, like the natives, preferred \exists the most (Kr_Int.= 43.81%; Kr_Adv. = 43%). The Kr_Int. group, however, picked the (exclusively) Q response at a much higher rate (i.e., 30.48%) than the natives did (i.e., 10%). The 2 English L2 groups displayed different preference patterns. The Eng_Int. group chose the (exclusively) Q response most often (39%), followed by the Q& \exists response (28%). The Eng_Adv. group’s choices were more or less spread across Q& \exists (33.64%), \exists (30.91%) and Q (24.55%).⁴²

Again, we also looked into individual data to examine response consistency. The results are reported in Figure 5.15:

⁴² We speculate that the perplexing L2 results might have something to do with scope interactions between *wh*-existentials and negation. Consider, for example, the prompt sentence of the Type 4 sample item:

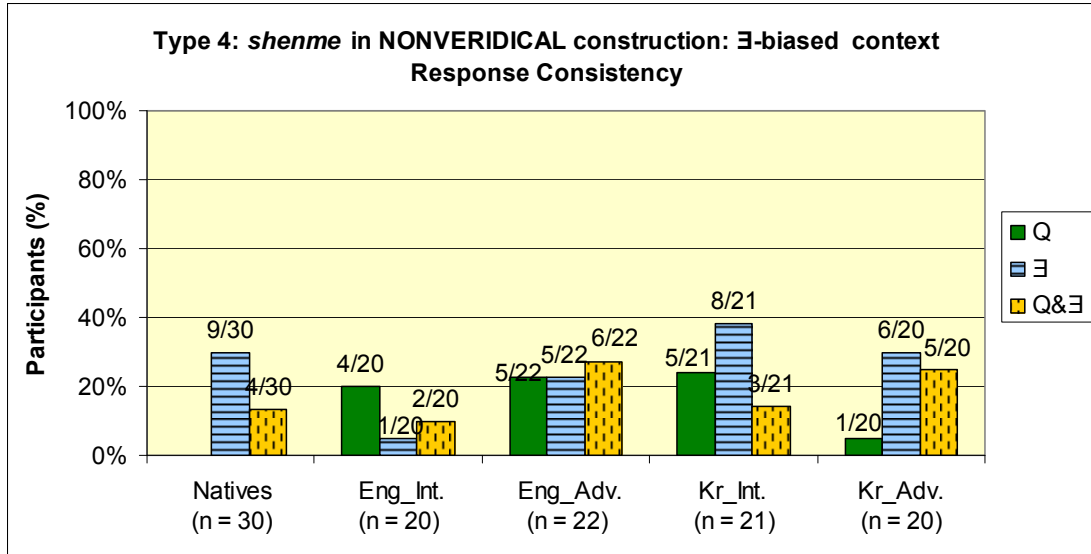
- (xiii) Ta *mei* na **shenme**.
 he NEG hold THING
 a. ‘He isn’t holding **anything**.’
 b. *‘There is **something** that he isn’t holding.’

Here, only the narrow scope \exists interpretation (NEG > *wh*-existential) is possible (i.e., (xiiiia)); wide scope (*wh*-existential > NEG) is banned (i.e., *(xiiiib)). Thus, the picture context (a boy not holding anything) caters to the target narrow scope \exists interpretation. Still, as K. Deen pointed out (personal communication, 1 May 2014), even if the L2ers allow the \exists sense of *shenme*, scope may or may not be target-like. As the picture context is not (fully) compatible with the wide scope interpretation, L2ers who assigned this interpretation to the prompt sentence (*(xiiiib)) may have suffered from not knowing which choice to pick.

This problem could be particularly acute for L1-Korean L2ers of Chinese; in Korean, the wide scope interpretation is strongly preferred, according to K.-H. Gil (personal communication, 27 April 2013) and to W. O’Grady (personal communication, 1 May 2014) (who also suggested that it may be revealing to the above speculation to test Korean natives on a Korean version of this experiment). This is shown in (xiv):

- (xiv) Minho-ka **mwe-l** *an* kacyewa-ss-ta.
 Minho-NOM THING-ACC NEG bring-PAST-DECL
 a. ‘Minho didn’t bring **something**.’
 b. ? ‘Minho didn’t bring **anything**.’

Note also that in the prompt in (xiii), *mei* ‘not’ precedes the *wh*-existential *shenme*. All things being equal, surface (narrow) scope should be easier to get than inverse (wide) scope (see O’Grady, 2006).



NB: response consistency = same response to at least 4 of the 5 tokens

Figure 5.15. Multiple-Choice Interpretation Task: Type 4 Response Consistency

Unlike the general response consistency found in the other 3 experimental types, here in Type 4, the percentages of consistent participants (i.e., participants who chose the same response to at least 4 of the 5 tokens) vary across the 5 groups (Natives = 43.33%; Eng_Int. = 35%; Eng_Adv. = 72.73%; Kr_Int. = 76.19%; Kr_Adv. = 60%). If this were due to lack of validity of certain items in this type, we would expect response consistency to drop with all groups. This is clearly not what we see. We do not have a good explanation for why the Kr_Int. group, the Eng_Adv. group, and the Kr_Adv group (in descending order) had substantially more consistent participants than the natives and the Eng_Int. group.

In terms of the types of consistent responses, the natives preferred the two responses involving the \exists interpretation, namely, the \exists response and the Q& \exists response. As for the L2ers, we see that these two responses attracted more participants from the 2 Korean L2 groups and the Eng_Adv. group than from the Eng_Int. group.

Following the same logic of data analysis used before, we calculated the proportion of the \exists interpretation (\exists responses + Q& \exists responses) out of the total responses (with 'Not Sure' responses excluded) for each participant. Data were entered into SPSS for statistical analysis. Results from the Kruskal-Wallis Test suggest that there is a significant effect of Group on the proportions of the \exists interpretation ($p = .002$).

Against the adjusted α level of .005, the series of Mann-Whitney post-hoc tests yield a significant difference in Eng_Int. vs. Natives ($U = 120$, $Z = -3.851$, $p = .000$, $r = -.54$), but no difference in: Eng_Adv. vs. Natives ($U = 266.5$, $Z = -1.412$, $p = .158$); Kr_Int. vs. Natives ($U = 218$, $Z = -2.175$, $p = .030$); Kr_Adv. vs. Natives ($U = 278.5$, $Z = -.526$, $p = .599$).

It was predicted in (4/5b) that in nonveridical constructions, lower-proficiency L1-English L2ers should diverge from the natives with respect to the \exists interpretation of *shenme*, whereas lower-proficiency L1-Korean L2ers should perform like the natives. This is exactly what was found here.

The finding that the Eng_Adv. group did not significantly differ from the natives suggests that as Chinese proficiency increased, the L1-English L2ers learned that *shenme* can be interpreted as \exists in nonveridical constructions in Chinese. This is what we would expect from the perspective of learnability, because there is presumably (abundant) positive evidence in the input instantiating the \exists sense of *shenme*.

Proportions of \exists Interpretation: Type 2 vs. Type 4

Figure 5.16 compares the proportions of the \exists interpretation of *shenme* in Type 2 (i.e., veridical construction in the \exists -biased context) and in Type 4 (i.e., nonveridical construction in the \exists -biased context) by the 5 groups. We should keep in mind that in the TL, the \exists interpretation is prohibited in the veridical construction but becomes fine in the nonveridical construction.

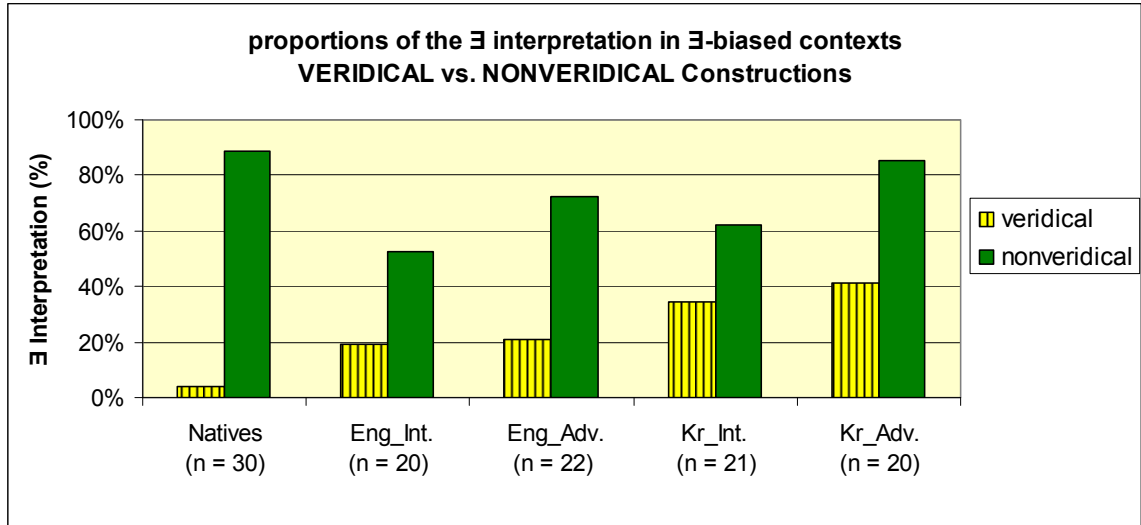


Figure 5.16. Multiple-Choice Interpretation Task: Proportions of the ∃ Interpretation: Type 2 vs. Type 4

As we can see, all 5 groups had much higher proportions of the ∃ interpretation in the nonveridical construction than in the veridical construction. Results of the Wilcoxon Signed-Rank Tests indicate that the difference is statistically significant for all groups ($p \leq .003$), suggesting that they differentiated the 2 constructions with respect to the ∃ interpretation of *shenme*.

5.3 Discussion

Returning to the aim of this task, we tested the interpretations of *shenme* against two broad predictions based on Sprouse’s (2006) Lexical Transfer Hypothesis: (i) In Q-biased contexts, all L2 groups should behave like the native controls in terms of the Q interpretation of *shenme*, no matter whether the construction is veridical or nonveridical; (ii) in ∃-biased contexts, differences in L1 lexical properties should be manifested in opposite patterns in the two target constructions (at least at lower levels of proficiency): When the construction is veridical, we expect a parallel between the L1-English intermediate group and the natives in prohibiting the ∃ interpretation; when the construction is nonveridical, we expect a parallel between the L1-Korean intermediate group and the natives in allowing the ∃ interpretation.

Results show that when veridical and nonveridical prompts appeared in Q-biased picture contexts (i.e., Type 1 and Type 3), all L2 groups performed within the native

control group range in getting at the Q interpretation of *shenme*. The proportion of the Q interpretation by each group is generally not influenced by the construction difference, confirming the first prediction. This provides us with evidence to argue that *shenme* is primarily perceived as a *wh*-interrogative by the L2ers of Chinese, which motivates the L1-TL lexical association.

The second prediction is also borne out: When picture contexts were biased towards the \exists interpretation of *shenme*, it was found (i) that in the veridical construction (i.e., Type 2), both L1-English groups behaved like the natives in shunning the $*\exists$ interpretation, whereas both L1-Korean groups had significantly more $*\exists$ responses, and (ii) that in the nonveridical construction (i.e., Type 4), both L1-Korean groups patterned like the natives in allowing the \exists interpretation, whereas the Eng_Int. group did not.

What is perplexing, though, is that despite the above L1-based differences, all L2 groups displayed a tendency which resembles the native-like intuition in that *shenme* was interpreted as \exists significantly more in the nonveridical construction than in the veridical one. This is unexpected under the strict sense of the Lexical Transfer Hypothesis, because lower proficiency L1-English L2ers should disallow the \exists interpretation more or less to the same extent in both constructions, due to the absence of the \exists sense in their L1 lexical equivalent, and lower proficiency L1-Korean L2ers should allow it in both constructions, due to the fact that the \exists sense is available in both veridical and nonveridical constructions in their L1.

One explanation is that the intermediate groups were too far removed from the L2 initial state, so that they had (more or less) learned the constraint that *wh*-existentials are only possible in nonveridical environments in Chinese (or at least that *wh*-existentials are possible in negatives but impossible in present progressives) by the time of the experiment. This seems likely for English intermediate L2ers because the evidence they need is readily available in the input. However, a proficiency factor alone cannot account for why the Korean L2 groups differentially interpreted *shenme* as \exists in the two constructions (i.e., veridical vs. nonveridical), because the learnability problem faced by Korean L2ers should make it very difficult for these L2ers to unlearn the \exists interpretation in the veridical construction, due to lack of negative evidence in the input.

The second possibility is that the degree of bias varied in the 2 types of \exists -biased conditions. In the veridical condition (Type 2), for example, the one with a man looking at something with a pair of binoculars, the conversation based on the Q interpretation of *shenme* (i.e., [Prompt] ‘What is he looking at?’ [Response] ‘No idea’) is fully compatible with the picture. In the nonveridical condition (Type 4), for example, the one with a boy holding nothing in his hands, the conversation based on the Q interpretation of *shenme* (i.e., [Prompt] ‘What isn’t he holding?’ [Response] ‘Pens’) is less desirable because there are many other things that the boy isn’t holding. This may have made the participants lean more towards the Q interpretation in the veridical type, the consequence of which is that the \exists response, if allowed in the grammar, was suppressed by the Q response to some extent.

This brings up the methodological issue of whether it might have been more appropriate to ask participants to make judgments on the acceptability of the Q and \exists responses in the contexts of the pictures. In fact, this was how the task was initially designed. However, when the task was piloted with 6 Chinese native speakers, it was found, for instance, that in the picture context where a man was looking at something unknown with a pair of binoculars, the $*\exists$ response (i.e., *Shi de* ‘Yes’) was judged as an acceptable response to the veridical prompt (*Ta zai kan shenme* ‘He is looking at **something**’). In the interview afterwards, these native speakers reported that although the conversations sounded a little odd, they more or less described the pictures. When asked to select an appropriate response from 4 different choices, these same Chinese native speakers almost never chose the $*\exists$ responses for the veridical prompts.

There is no denying that the multiple-choice interpretation task employed here had its own limitation, namely, the interference of the different choices. Research on lexical ambiguity has shown that successful selection of one context-compatible sense may impede search for alternative senses of that word (Rayner & Frazier, 1989). When contexts accommodate both interpretations of *shenme*, to the extent that the participant’s grammar allows them, the retrieval of one sense is likely to terminate the occurrence of the other sense. Given that the Q interpretation is more prominent, the \exists interpretation, even if present in learners’ grammars, is much harder to get at, as compared to the Q interpretation.

Taken together, the findings obtained in this task suggest a general picture that is consistent with the Lexical Transfer Hypothesis. However, strictly testing the L2 knowledge of the \exists sense separate from the Q sense seems extremely difficult in an interpretation task. It is for this reason that an elicited production task is included in the study, which we turn to in the next chapter.

CHAPTER 6

ELICITED PRODUCTION TASK

In this experiment, we test Sprouse's (2006) Lexical Transfer Hypothesis from the perspective of production, with the scope of investigation extended to two *wh*-arguments: *shenme* 'THING' and *shui* 'PERSON'. The target constructions are essentially the same as those in the interpretation task. We examine whether or not L1-English and L1-Korean L2ers of Chinese, when given pragmatically appropriate contexts, will produce nonveridical negatives sentences (e.g., (1a) and (2a)) and veridical present progressive sentences (e.g., *(1b) and *(2b)) in which *shenme* and *shui* function as \exists .

(1) *shenme* 'THING'

a. Ta *mei* chi **shenme**. (nonveridical)
He NEG eat THING
'He isn't eating **anything**.'

b. * Ta zai chi **shenme**. (veridical)
He ASP eat THING
'He is eating **something**.'

(2) *shui* 'PERSON'

a. Ta *mei* tui **shui**. (nonveridical)
He NEG push PERSON
'He isn't pushing **anyone**.'

b. * Ta zai tui **shui**. (veridical)
He ASP push PERSON
'He is pushing **someone**.'

As the \exists use of *wh*-words is restricted to nonveridical sentences in Chinese, but is allowed in veridical as well as nonveridical constructions in Korean and is entirely ruled out in English, we predict the following performance patterns under the Lexical Transfer Hypothesis:

- (3) a. In nonveridical sentences:
The L1-Korean intermediate L2ers will be inclined to use existential *shenme* and *shui* (e.g., (1a) and (2a)) like the Chinese natives, whereas the L1-English intermediate L2ers will not.
- b. In veridical sentences:
The L1-English intermediate L2ers will shun the nontarget existential *shenme* and *shui* (e.g., *(1b) and *(2b)) like the Chinese natives, whereas the L1-Korean intermediate L2ers will show a propensity to use them.

We test these predictions using an elicited production task. This chapter presents detailed information about this experiment. Section 6.1 describes the materials and procedures. Section 6.2 presents the results. Section 6.3 is a discussion of the main findings.

6.1 Materials and Procedures

For each *wh*-word, two types of picture contexts were constructed, one for eliciting *wh*-existentials in nonveridical sentences, one for eliciting (nontarget) *wh*-existentials in veridical sentences. Participants were asked to look at each picture carefully and write a statement to describe what a designated character was doing by using words chosen from a word list, which includes either *shenme* or *shui*. Participants were explicitly told that not all words in the word lists were useful and no words of their own should be added.

Looking at the nonveridical construction first, Figure 6.1 gives a sample item for eliciting \exists *shenme* in nonveridical sentences:

PICTURE



xiǎozhāng

YOUR SENTENCE: 小 张 _____。

WORD LIST (gloss not in the experiment):

xiāngjiāo chī shénme
 香 蕉 、 吃 、 什 么 、
 banana eat THING

méiyǒu bǐngān zài
 没 有 、 饼 干 、 在
 NEG cookie ASP

Figure 6.1. Elicited Production Task: Sample Item for Eliciting Existential *Shenme* in a Nonveridical Sentence

In this example, three characters are present in the picture: One is eating a cookie, one is eating a banana, and the one with his name given in the speech bubble, the target for description, is eating nothing. The contrast between the three characters in the picture was intended to highlight the fact that Xiao Zhang is not eating anything, which makes the context plausible for using \exists *shenme*, if it is allowed in participants' grammars.

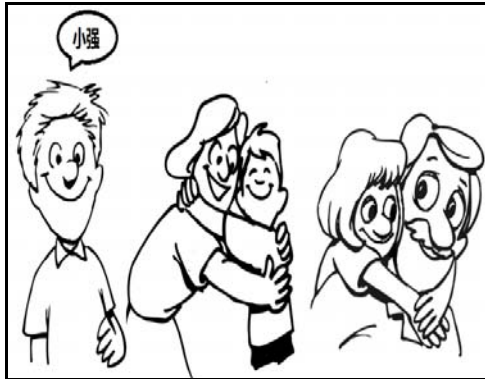
Word lists for this experimental condition contained: *shenme*, a transitive verb, 2 nouns, the negative marker *meiyǒu*, and the durative aspect marker *zài*. The order in which they appear in each item was random.

In the space provided for participants' answers, the subject of the sentence (i.e., the name of the designated character) was supplied (as illustrated in Figure 6.1). By doing so, we controlled the syntactic position of *shenme* to the object position, if the participant chooses to use it. A period was also given to remind the participants that their sentences should be statements rather than questions.

The expected sentence for this item is *Xiao Zhang meiyǒu (zài) chi shenme* 'Xiao Zhang isn't eating anything'. If the \exists sense of *shenme* is absent in the grammar, the participant would be forced to use either of the nouns in the word list instead of *shenme*, producing something like *Xiao Zhang meiyǒu (zài) chi binggan/xiangjiao* 'Xiao Zhang isn't eating a cookie/a banana', which is a less desirable description because Xiao Zhang is eating neither a cookie nor a banana.

Figure 6.2 shows a sample item for eliciting \exists *shui* in nonveridical sentences:

PICTURE:



xiǎoqiáng

YOUR SENTENCE: 小 强 _____。

WORD LIST (gloss not in the experiment):

yōngbào 拥 抱、 hug	zài 在、 ASP	māmā 妈 妈、 Mom
shuí 谁、 PERSON	méiyǒu 没 有、 NEG	bàba 爸 爸 Dad

Figure 6.2. Elicited Production Task: Sample Item for Eliciting Existential *Shui* in a Nonveridical Sentence

In this picture, we see that a boy is hugging a woman and a girl is hugging a man, but the boy named Xiao Qiang is not hugging anyone. For this context, the accurate description of Xiao Qiang requires the use of *shui* as \exists ‘anyone’.

Word lists for this experimental condition consisted of: *shui*, a transitive verb, 2 nouns, the negative marker *meiyou*, and the durative aspect marker *zai*. These words are presented in random order in each item.

Turning now to the veridical construction, Figure 6.3 presents a sample item for eliciting (nontarget) \exists *shenme* in veridical sentences:

PICTURE:



xiǎochén

YOUR SENTENCE: 小 陈 _____。

WORD LIST (gloss not in the experiment):

zài 在、 ASP	shénme 什么、 THING	xiě 写、 write
zì 字、 character	le 了、 ASP	zuòyè 作业 homework

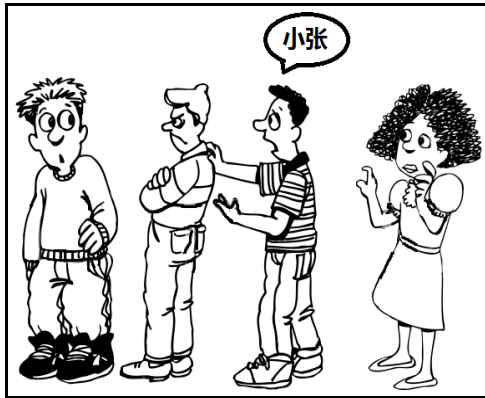
Figure 6.3. Elicited Production Task: Sample Item for Eliciting (Nontarget) Existential *Shenme* in a Veridical Sentence

In this sample item, the boy named Xiao Chen is writing something and the girl next to him is not. We deliberately made it hard to tell from the picture what exactly Xiao Chen was writing so as to make the context plausible for using \exists *shenme* ‘something’, if it is (incorrectly) permitted by the participant’s grammar.

Words provided for this experimental condition were: *shenme*, a transitive verb, 2 nouns, the durative aspect maker *zai*, and the perfective aspect maker *le*. They appear in each item in random order. (Note that the word *xie* ‘write’ is strictly transitive in Chinese, so participants must decide on what object to use, either *shenme* or one of the nouns.)

Figure 6.4 shows a sample item for eliciting (nontarget) \exists *shui* in veridical sentences:

PICTURE:



xiǎozhāng

YOUR SENTENCE: 小 张 _____。

WORD LIST (gloss not in the experiment):

tuī	le	shuí
推、	了、	谁、
Push	ASP	PERSON

tā	zài	tāmen
他、	在、	他们
him,	ASP	them

Figure 6.4. Elicited Production Task: Sample Item for Eliciting (Nontarget) Existential *Shui* in a Veridical Sentence

In this example, the guy named Xiao Zhang is pushing a man whose identity is unknown. If participants (incorrectly) allow \exists *shui* to occur in veridical sentences, they are expected to produce **Xiao Zhang zai tui shui* to mean ‘Xiao Zhang is pushing someone’.

Words supplied for this experimental condition were: *shui*, a transitive verb, 2 pronouns, the durative aspect maker *zai*, and the perfective aspect maker *le*. The order in which they appear in each item was random.

There were 3 tokens of each type, yielding a total of 12 items. Because the task is quite demanding, no filler items were included in this task. The test items were randomized and presented to participants in 2 different presentation orders.

Detailed instructions were provided in the participants’ L1, followed by an example (without *shenme* or *shui*) illustrating what the participants were expected to do in the task. They were explicitly told that their sentences could be written in characters or Pinyin. In addition, it was especially emphasized that the sentences they made up must be statements (i.e., declaratives) (see Appendix F for the English, Korean and Chinese versions of the instructions and Appendix G for the complete set of test items).

The participants are the same as those in Experiment 1.

6.2 Results

Participants' answers were first examined to see if there were any unusable data. Three screening criteria were employed: (i) missing or incomplete answers; (ii) sentences where the (transitive) verbs were used intransitively (or with null objects), in which case there would be no syntactic position for the relevant *wh*-word; (iii) sentences where *wh*-words were used as interrogatives, as signaled by use of question marks. It was found that all participants had closely followed the instructions and provided sentences meeting the task requirements. Thus all of these sentences were included in the data analysis.

Because all sentences produced by participants were declaratives, any *wh*-words used had to be existentials. We therefore coded each sentence involving *shenme* or *shui* as 1, and other sentences as 0. Grammatical errors such as missing or misuse of aspect makers were ignored because they were not relevant to the focus of our investigation.

6.2.1 Nonveridical Sentences

It was predicted in (3a) that in nonveridical sentences, the L1-Korean intermediate L2ers will be inclined to use \exists *shenme* and \exists *shui* just like the Chinese natives, whereas the L1-English intermediate L2ers will refrain from using them. Now let us see whether these predictions are borne out.

Figure 6.5 presents the mean instances of \exists *shenme* and \exists *shui* produced by the 5 groups:

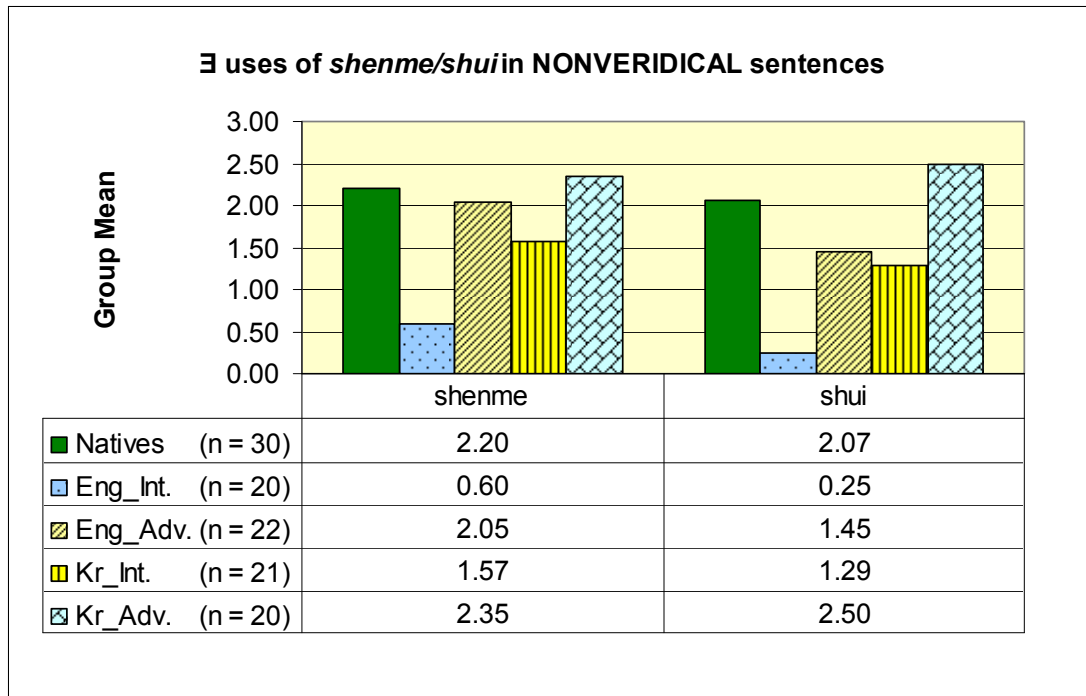


Figure 6.5. Elicited Production Task: Existential *Shenme/Shui* in Nonveridical Sentences – Group Results

As we can see, the two clusters of bar charts closely parallel each other, showing that *shenme* and *shui* were used in similar ways by each group. Out of the 3 tokens, the instances of *shenme* and *shui* produced by the native control group average to 2.20 and 2.07, respectively. This suggests that the natives indeed had a strong tendency to use *wh*-existentials in nonveridical sentences. The two Korean L2 groups and the Eng_Adv. group also produced a notable number of *shenme* and *shui*. The Eng_Int. group, however, used *shenme* and *shui* at very low rates, 0.60 and 0.25, respectively.

We examined individual data to see the distribution of participants in terms of the number of *shenme/shui* produced in nonveridical sentences. The results are reported in Table 6.1:

Table 6.1. Elicited Production Task: Distribution of Participants in Terms of Instances of *Shenme/Shui* Produced in Nonveridical Sentences

<i>Wh</i> -word	Group	Instances Produced			
		3	2	1	0
<i>shenme</i>	Natives (<i>n</i> = 30)	18 (60%)	5 (17%)	2 (7%)	5 (17%)
	Eng_Int. (<i>n</i> = 20)	0 (0%)	0 (0%)	12 (60%)	8 (40%)
	Eng_Adv. (<i>n</i> = 22)	13 (59%)	2 (9%)	2 (9%)	5 (23%)
	Kr_Int. (<i>n</i> = 21)	8 (38%)	4 (19%)	1 (5%)	8 (38%)
	Kr_Adv. (<i>n</i> = 20)	14 (70%)	2 (10%)	1 (5%)	3 (15%)
<i>shui</i>	Natives (<i>n</i> = 30)	12 (40%)	9 (30%)	8 (27%)	1 (3%)
	Eng_Int. (<i>n</i> = 20)	0 (0%)	0 (0%)	5 (25%)	15 (75%)
	Eng_Adv. (<i>n</i> = 22)	7 (32%)	3 (14%)	5 (23%)	7 (32%)
	Kr_Int. (<i>n</i> = 21)	5 (24%)	4 (19%)	4 (19%)	8 (38%)
	Kr_Adv. (<i>n</i> = 20)	15 (75%)	2 (10%)	1 (5%)	2 (10%)

The Eng_Int. group clearly stood out from the rest of the groups in that not a single participant in this group produced more than one instance of *shenme* or *shui*. Their resistance towards *shui* was particularly strong, as 75% of the 20 participants refrained from using it at all.

The Kruskal-Wallis Test conducted on the number of *shenme* produced by the 5 groups showed that the difference is statistically significant ($p = .000$). Against the adjusted α level of .005, the paired Mann-Whitney Tests found significant differences in two meaningful comparisons: Eng_Int. vs. Natives ($U = 92, Z = -4.31, p = .000, r = -.61$); Eng_Int. vs. Eng_Adv. ($U = 92, Z = -3.39, p = .001, r = -.52$).

The Kruskal-Wallis Test on *shui* also found a significant difference across the 5 groups ($p = .000$). The Mann-Whitney post-hoc tests found statistical differences only in: Eng_Int. vs. Natives ($U = 32.5, Z = -5.492, p = .000, r = -.78$); Eng_Int. vs. Eng_Adv. ($U = 100, Z = -3.301, p = .001, r = -.51$); Kr_Int. vs. Kr_Adv. ($U = 96.5, Z = -3.183, p = .001, r = -.50$).

Thus, L1-English intermediate L2ers produced significantly fewer *shenme* and *shui* in nonveridical sentences than natives did, but L1-Korean intermediate L2ers performed within the natives' range, which is fully in line with the predictions in (3a).

In addition, it was found that the English advanced L2ers performed like the natives in using *shenme* and *shui* in nonveridical sentences, whereas the English intermediate L2ers significantly differed from the natives, suggesting that the English L2ers learned the \exists use of *shenme* and *shui* as proficiency rose. This neatly parallels the

previous result found in Experiment 1, the interpretation task, which showed that the English advanced L2ers patterned like the natives with respect to the \exists interpretation of *shenme*, whereas the English intermediate L2ers diverged from the natives.

The finding that the 2 Korean L2 groups performed like the natives in terms of the number of *shenme* produced in nonveridical sentences is expected, because under the proposal of lexical transfer, L1-Korean L2ers should have knowledge of *wh*-existentials from the earliest point of L2 acquisition of Chinese. However, we see that Korean intermediate L2ers produced significantly fewer instances of *shui* than Korean advanced L2ers did, and we do not have an explanation for it.

6.2.2 Veridical Sentences

In this section, we look at the production of \exists *shenme* and \exists *shui* in veridical sentences. It was predicted in (3b) that the L1-English intermediate L2ers will shun the nontarget \exists *shenme* and \exists *shui* like the natives, whereas the L1-Korean intermediate L2ers will (incorrectly) tend to use them. Figure 6.6 presents the mean instances of \exists *shenme* and \exists *shui* produced by the 5 groups:

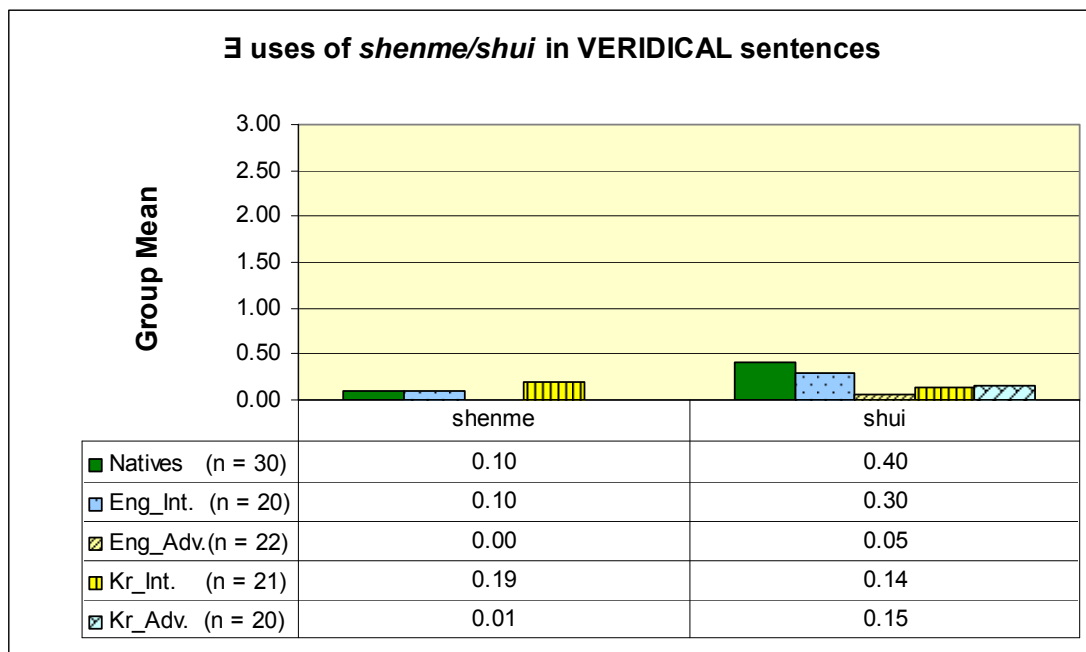


Figure 6.6. Elicited Production Task: Existential *Shenme/Shui* in Veridical Sentences – Group Results

Out of the 3 tokens, the mean number of *shenme* and *shui* was at most 0.40 with all 5 groups. We looked into the individual data to see whether the few *wh*-existentials detected came from the same participants. Table 6.2 presents the results:

Table 6.2. Elicited Production Task: Distribution of Participants in Terms of Instances of *Shenme/Shui* Produced in Veridical Sentences

<i>Wh</i> -word	Group	Instances Produced				
		3	2	1	0	
<i>shenme</i>	Natives (<i>n</i> = 30)	0 (0%)	1 (3%)	1 (3%)	28 (93%)	
	Eng_Int. (<i>n</i> = 20)	0 (0%)	0 (0%)	2 (10%)	18 (90%)	
	Eng_Adv. (<i>n</i> = 22)	0 (0%)	0 (0%)	0 (0%)	22 (100%)	
	Kr_Int. (<i>n</i> = 21)	0 (0%)	0 (0%)	4 (19%)	17 (81%)	
	Kr_Adv. (<i>n</i> = 20)	0 (0%)	0 (0%)	1 (5%)	19 (95%)	
<i>shui</i>	Natives (<i>n</i> = 30)	0 (0%)	2 (7%)	8 (27%)	20 (67%)	
	Eng_Int. (<i>n</i> = 20)	0 (0%)	2 (10%)	2 (10%)	16 (80%)	
	Eng_Adv. (<i>n</i> = 22)	0 (0%)	0 (0%)	1 (5%)	21 (95%)	
	Kr_Int. (<i>n</i> = 21)	0 (0%)	0 (0%)	3 (19%)	18 (81%)	
	Kr_Adv. (<i>n</i> = 20)	0 (0%)	0 (0%)	3 (15%)	17 (85%)	

The shaded data in Table 6.2 show that in each group, the great majority of participants either did not use *shenme/shui* at all or used it only once.

Kruskal-Wallis Tests were conducted on the number of *shenme/shui* produced by the 5 groups. The results show that the effect of Group is nonsignificant with both *shenme* and *shui* ($p \geq .10$). This suggests that all groups showed uniform inhibition against the \exists use of *shenme* or *shui* in veridical sentences, contra the prediction in (3b) for the L1-Korean intermediate L2ers. Reasons for why this pattern of results occurred (especially within the L2 groups) are discussed below.

6.3 Discussion

In this elicited production task, we tested Sprouse’s (2006) Lexical Transfer Hypothesis by comparing the behaviors of L1-English and L1-Korean L2ers of Chinese vis-à-vis native speakers of Chinese with respect to the production of \exists *shenme* and \exists *shui* in nonveridical sentences (where the \exists use is legitimate in the TL) and veridical sentences (where the \exists use is prohibited in the TL). In the nonveridical sentence pattern, L1-Korean intermediate L2ers were expected to perform on a par with the natives in readily using *shenme* and *shui*, whereas L1-English L2ers were expected to be

significantly different from the natives. In the veridical sentence pattern, L1-Korean intermediate L2ers were expected to produce significantly more instances of (nontarget) *shenme* and *shui* than the natives, whereas L1-English intermediate L2ers were expected to pattern like the natives.

Results from the nonveridical conditions are as predicted. The Korean intermediate L2ers indeed favored using *shenme* and *shui* in their sentences and the proportions produced by them were statistically comparable to the proportions produced by the natives. The English intermediate L2ers, by contrast, seldom produced *shenme* or *shui* in these 2 conditions.

In veridical sentences, however, the predicted nontarget \exists use of *shenme* and *shui* was not observed with the Korean intermediate L2ers. In fact, all 5 groups avoided using *wh*-existentials in a uniform fashion. Taking these results at face value, the nonoccurrence of *shenme* and *shui* in veridical sentences in the Korean L2 groups is counter-evidence to the lexical transfer view. There are, however, at least two reasons that we should not jump to this conclusion in haste.

First, recall the results obtained in Experiment 1, the interpretation task, that the 2 Korean L2 groups were significantly more likely than the natives to interpret *shenme* as existential in veridical contexts, indicating that they had indeed overgeneralized the \exists sense of *shenme* to veridical sentences. On the assumption that interpretation and production operate under the same grammatical knowledge, it is hard to see why in this production task, the same L2 groups suddenly came to know that Chinese *wh*-existentials are prohibited in veridical sentences.

Second, the linguistic knowledge of L2ers differs from that of natives in that it is often unstable (e.g., Bley-Vroman, 2009), and, therefore, certain degrees of variability are commonly found in L2ers (e.g., Tsimpli, 2006). In particular, in Yuan's (2010) L2 study on Chinese *wh*-existentials, when judging sentences involving *wh*-existentials licensed by negation, L2ers did not show clear-cut intuitions on the licensing condition until after a post-intermediate stage (see Table 3.11 in Chapter 3 for a summary of Yuan's results for negative sentences). The invariant avoidance of *wh*-existentials in veridical sentences by all groups in the present task thus appears rather unusual. It seems likely that some extraneous factors might be at play. One possible factor is the influence of pragmatics.

The purpose of this production task was to examine whether participants would use existential *shenme* or *shui* to refer to entities whose identities were not revealed in the pictures. In daily communication, when the identity of a referent is unknown or is intended to be unspecified, existential expressions are commonly used. For example, one may say *Someone is eating a cake* when one does not know who the eater is or wants to conceal the information from the addressees.

Nevertheless, in a picture description task, a speaker's goal is to provide sufficient information so that the addressee is able to get specific details of the picture. By Grice's (1975) maxim of quantity, i.e., "Make your contribution as informative as is required (for the current purposes of the exchange)" (p. 45), the speaker should choose the most informative (referring) expressions that will enable the addressee(s) to pick out a referent (if there is one) from a set of alternatives (Brennan & Clark, 1996). Suppose we are asked to describe a picture where a person is eating a cake and we do not know who this person is, we would probably be inclined to use an indefinite noun phrase such as 'a man' or 'a woman' to refer to the eater (e.g., *A man is eating a cake.*) instead of using an existential (e.g., *Someone is eating a cake*), which is indefinite by nature.

In test items that were intended to elicit (nontarget) *wh*-existentials in veridical contexts, nouns or pronouns were included in the word lists along with *wh*-existentials. Consider the sample item in Figure 6.3, where the picture shows that Xiao Chen is writing, but it does not show what exactly he is writing. If such a situation arises in everyday language use, one may very well say '*Xiao Chen is writing something*', hence a pragmatically plausible context for using existential *shenme*, if the grammar allows this use. However, when asked to give descriptions, under the influence of the pragmatic principle, the maxim of quantity, participants may strive to be informative and choose to use either of the nouns (i.e., *zi* 'character', *zuoye* 'homework'), despite there being a certain amount of guessing involved. In other words, even if *wh*-existentials are incorrectly allowed in veridical sentences in the learner grammars, given that they are inherently indefinite, the Gricean maxim of quantity might well override the use of this knowledge and eliminate them from the ultimate utterances. This perhaps explains why *shenme* and *shui* were rarely used in veridical sentences by any L2ers.

B. D. Schwartz (personal communication, 14 November 2013) cautioned that the maxim of quality, i.e., “Try to make your contribution one that is true” (Grice, 1975, p. 46) should not be forgotten. This is certainly a pertinent point. Using an existential expression (e.g., ‘someone’, ‘something’) to refer to an indefinite referent in a veridical context is clearly closer to the whole truth than using a referential noun phrase, for which there lacks adequate evidence. In fact, this is precisely the rationale behind the design of the present task: When the identity of a referent is not shown in the picture, the participants were expected to use *wh*-existentials, to the extent that their grammars allow them.

However, as Grice (1975) himself pointed out, a speaker may sometimes be faced with clashes of the maxims: A speaker “may be unable, for example, to fulfill the first maxim of quantity (Be as informative as is required) without violating the second maxim of quality (Have adequate evidence for what you say)” (p. 49). This appears to be the case with the present task: By the maxim of quality, the participants should favor *wh*-existentials in veridical sentences, if their grammars allow them; by the maxim of quantity, the participants should use referential noun phrases. The L2 participants’ uniform avoidance of *wh*-existentials in veridical sentences seems to suggest that observance of the maxim of quality had given way to observance of the maxim of quantity, as being informative is of pivotal importance for the picture description task.

Matters are different with the nonveridical sentences. Take the sample item in Figure 6.1 for example, where the designated character, Xiao Zhang, is not eating anything in the picture, so the object of the eating action is an empty set. To indicate this empty set, negating the existential *shenme* (i.e., ‘Xiao Zhang is not eating anything’) is evidently more informative and more accurate than negating one of the individual elements in the reference set (i.e., ‘Xiao Zhang is not eating a banana/a cookie’). In other words, in nonveridical sentences, the negated *wh*-existentials happen to observe the Gricean maxims better than the negated referential noun phrases do, and this leads to the successful elicitation of existential *shenme* and *shui*, to the extent that the grammars make them available.

Taken together, we see that while the presence or absence of existential *shenme* and *shui* in nonveridical sentences goes the way as predicted by the Lexical Transfer

Hypothesis, the across-the-board nonoccurrence of *wh*-existentials in veridical sentences seems to run counter to it. We argue that the maxim of quantity dictates that participants choose the most informative (referring) expressions in the picture description task, and this pragmatic principle acts upon the output of the grammars such that negated *wh*-existentials are maintained whereas affirmative ones are filtered out, resulting in the mixed results as we see in this task.

In the next chapter, we will continue with our research agenda to test the Lexical Transfer Hypothesis in the domain of L2 knowledge of Chinese *wh*-existentials by looking at two other common constructions which license Chinese *wh*-existentials, namely, *yes/no* questions and conditionals. We will employ a research method that is claimed to have the potential to “produce the cleanest results” (Kweon & Bley-Vroman, 2011, p. 211), the acceptability judgment task.

CHAPTER 7

ACCEPTABILITY JUDGMENT TASK

In the previous two experiments, we have focused on *wh*-existentials licensed by negation. The aim of the present task is to examine L2 knowledge of *wh*-existentials licensed in *yes/no* questions (e.g., (1)) and conditionals (e.g., (2)):

- (1) Zhangsan pengdao **shui** le ma?
Zhangsan encounter PERSON ASP Q_{yes/no}
a. ‘Did Zhangsan encounter **someone/anyone**?’
b. * ‘**Who** did Zhangsan encounter?’
- (2) *Ruguo* Lisi aishang **shui** de hua, ta hui gaosu wo.
If Lisi fall-in-love-with PERSON he would tell me
a. ‘If Lisi fell in love with **someone/anyone**, he would tell me.’
b. * ‘If Lisi fell in love with **who**, he would tell me?’

Unlike *wh*-words under negation, which are ambiguous between Q and \exists , *wh*-words in *yes/no* questions and conditionals are solely interpreted as \exists . As we can see, (1) and (2) are well-formed when *shui* is interpreted as \exists (i.e., (1a) and (2a)) but ill-formed when it is interpreted as Q (i.e., *(1b) and *(2b)).

Similar to Chinese, *wh*-words in Korean can also be used as \exists in (*yes/no*) questions (e.g., (3)) and conditionals (e.g., (4)):

- (3) **Nwu**-ka cha-lul masiko iss-*nayo*?
 PERSON-NOM tea-ACC drink PROG-Q
 a. ‘Is **anyone** drinking tea?’
 b. ‘**Who** is drinking tea?’

(Gil & Marsden, 2010, p. 41: (3b))

- (4) **Nwu**-ka sen-ul nemu-*myen*, kispal-ul tul-*era*.
 PERSON-NOM line-ACC cross-if flag-ACC raise-IMPER
 ‘If **anyone** crosses the line, raise the flag.’

(Gil & Marsden, 2010, p. 41: (3c))

What is different, though, is that the Korean question in (3) can be either a *yes/no* question (i.e., (3a)), where the *wh*-word *nwu* gets the \exists reading, or a *wh*-question (i.e., (3b)), where *nwu* gets the Q reading, whereas the Chinese question in (1) is unambiguously a *yes/no* question.

In English, due to the absence of the \exists sense of *wh*-words, they are prohibited in *yes/no* questions. For conditionals, even though there might be situations where one wants to ask, for instance, the equivalent of ‘Who is the person such that if he goes then you will go?’, a sentence like (5) is still strongly disfavored, if not entirely impossible:

- (5) ?? If who goes, then you will go?

Taking advantage of the lack of ambiguity of *wh*-existentials licensed by *yes/no* questions and conditionals in Chinese, we designed an acceptability judgment task (AJT) to test the following predictions based on Sprouse’s (2006) Lexical Transfer Hypothesis:

- (6) a. Intermediate and advanced L1-Korean L2ers of Chinese should perform like Chinese natives in accepting *wh*-existentials contained in *yes/no* questions and conditionals (e.g., (1) and (2)).
 b. Intermediate L1-English L2ers should reject these constructions.

This chapter presents the details of the AJT experiment. Section 7.1 describes the materials and procedures, and Section 7.2 reports the results. Section 7.3 is a discussion of the main findings.

7.1 Materials and Procedures

7.1.1 Materials

We focus on the *wh*-word *shui* ‘PERSON’ in this task. The materials consisted of three parts: (i) test items targeting existential *shui* licensed in *yes/no* questions; (ii) test items targeting existential *shui* licensed in conditionals; and (iii) filler items, which are also used as part of the proficiency measures (see Section 4.3 in Chapter 4).

7.1.1.1 Existential *Shui* Licensed in *Yes/No* Questions

Yes/No questions in Chinese involving *wh*-existentials (e.g., (1)) can be a tricky construction for L1-English and L1-Korean L2ers, as questions containing *wh*-words are always *wh*-questions in English and are ambiguous between a *wh*-question and a *yes/no* question in Korean.

Note that *yes/no* questions in Chinese are obligatorily marked with the *yes/no*-question marker *-ma*, and *wh*-questions usually go without question markers.⁴³ When *-ma* co-occurs with a *wh*-word in questions like (1), it is not clear how the L2 participants might perceive *-ma*. This is an important issue in this experiment, because if the L2 participants incorrectly treat *-ma* as a general question marker, similar to the Korean *-nayo* in (3), there is no way for us to tell based on what interpretations the judgments are made: The relevant *wh*-word may be interpreted as Q and/or \exists . Only when the L2 participants show target-like knowledge of *-ma* (i.e., it is an obligatory question marker *exclusive* to *yes/no* questions) can their judgments be informative with respect to the interpretation of the relevant *wh*-word. More specifically, if they interpret the *wh*-word as Q, they will reject the sentence because the *yes/no*-question marker *-ma*

⁴³ Cheng (1997) argues that the particle *-ne* is an optional *wh*-question marker in Chinese. However, unlike *-ma*, which occurs obligatorily and exclusively in *yes/no* questions, the distribution of *-ne* is found in a wide range of environments, including declaratives, *wh*-questions, and A-not-A questions (C. N. Li & Thompson, 1981, pp. 300-307). In terms of its frequency, an examination of the first 100 instances of all types of *wh*-questions in the Lancaster Corpus of Mandarin Chinese (McEnery & Xiao, 2004) indicates that the average suppliance rate of *-ne* with *wh*-questions is 18.1% (54/298).

cannot occur in a *wh*-question; if they interpret the *wh*-word as \exists , they will accept the sentence. Therefore, we need independent evidence to separate the L2 participants who show target-like knowledge with respect to *-ma* from those who do not.

To test the status of *-ma* in the Interlanguage grammars of the L2 participants, we rely on *weishenme* ‘why’ questions in Chinese. As (7) illustrates, the *wh*-adjunct *weishenme* ‘why’ is solely interrogative in Chinese:

- (7) Wangwu weishenme chidao
 Wangwu why late
 a. ‘Why is/was Wangwu late?’
 b. * ‘Wangwu is/was late for some reason.’

As we can see, *weishenme* in (7) can only be interpreted as Q (i.e., (7a)); the \exists reading (i.e., *(7b)) is impossible.

Since *-ma* is exclusively used for *yes/no* questions, it is incompatible with *weishenme* questions, leading to the unacceptability of (8):

- (8) * Wangwu **weishenme** chidao **ma**?
 Wangwu why late $Q_{yes/no}$
 ‘Why is/was Wangwu late?’

If L2ers know that *-ma* is (exclusively) a *yes/no*-question marker in Chinese, they are expected to reject *(8). On the other hand, if they incorrectly take *-ma* as a general question marker, they are expected to accept *(8). We therefore created 2 types of *weishenme*-questions, one with the *yes/no*-question marker *-ma* (e.g., *(9)), and one without *-ma* (e.g., (10)), to diagnose the status of *-ma* in the grammars of the L2 participants:

- (9) * Xiao Zhang **weishenme** da ta didi *ma*?
 Xiao Zhang why beat his brother $Q_{yes/no}$
 ‘Why did Xiao Zhang beat his brother?’

- (10) Lao Zhao **weishenme** da ta erzi?
 Lao Zhao why beat his son
 ‘Why did Lao Zhao beat his son?’

To avoid monotony, the proper nouns used in the sentence types in *(9) and (10) were varied, but other aspects of the two sentence patterns (e.g., the predicates) were kept identical except for the presence vs. absence of *-ma*.

If participants reject type *(9) but accept type (10), it indicates that they know that *-ma* is only for *yes/no* questions. If, on the other hand, they judge both types *(9) and (10) as acceptable, it suggests that they treat *-ma* as a question marker, which occurs *optionally* with *wh*-questions. A third logical possibility is that they accept type *(9) but reject type (10); this means that they consider *-ma* as an obligatory *wh*-question marker.

Once we identify L2 participants who have target-like knowledge of *-ma*, we are in a good position to test their knowledge of existential *shui* licensed in *yes/no* questions, using sentences like (11):

- (11) Jintian zaoshang Xiao Zhang jiandao **shui** le ma?
 Today morning Xiao Zhang see PERSON ASP Q_{yes/no}
 ‘Did Xiaozhang see **someone/anyone** this morning?’

Although AJTs are widely used in L2 research, it is perhaps worth emphasizing that when a participant rejects a sentence, there may be all sorts of reasons for doing so. For instance, people may reject (11) because they dislike the verb, the aspect marker, etc., or simply because they do not know a particular word in the sentence; such judgments obviously have nothing to do with their knowledge of *shui*, the target area of our investigation. To control for this factor, a type of control sentence such as (12) was included, following Yuan’s (2010) study:

- (12) Zuotian Lao Wang jiandao **Lao Li** le ma?
 yesterday Lao Wang see Lao Li ASP Q_{yes/no}
 ‘Did Lao Wang see Lao Li yesterday?’

In the experimental pattern in (11), *shui* occurs in the object position, whereas in the control pattern in (12), *shui* is replaced with the proper noun *Lao Li*. Except for this difference, other aspects of the sentences such as the verb and its aspect were kept constant. By comparing judgments on the experimental and corresponding control sentences, we can, with good confidence, differentiate data resulting from knowledge of *shui* and data resulting from nontarget-like knowledge in areas irrelevant to our research question. In other words, only when participants provide target-like answers to the control sentences are their judgments on the experimental sentences considered usable.

7.1.1.2 Existential *Shui* Licensed in Conditionals

Similarly, 2 types of sentences were developed for testing L2 knowledge of *shui* licensed in conditionals, one experimental (e.g., (13)) and one control (e.g., (14)):

(13) *Ruguo* Ming Ming xihuan **shui** *de hua*, ta yiding hui gaosu ta jiejie.
 If Ming Ming like PERSON he definitely will tell his sister
 ‘If Ming Ming likes **someone/anyone**, he will definitely tell his sister.’

(14) *Ruguo* Xiao Zhao xihuan **Xiao Li** *de hua*, ta yiding hui gaosu ta jiejie.
 If Xiao Zhao like Xiao Li he definitely will tell his sister
 ‘If Xiao Zhao likes Xiao Li, he will definitely tell his sister.’

We can see that (13) and (14) differ in regard to the object position of the protases: either *shui* or a proper name. The verbs and their aspects in both the conditional and the main clauses remained the same.

The 6 types of sentences described above – comprising two types of diagnostic sentences testing L2 knowledge of *-ma* ((9)-(10)), one experimental type and one control type testing L2 knowledge of *shui* licensed in *yes/no* questions ((11)-(12)), and one experimental type and one control type testing L2 knowledge of *shui* licensed in conditionals ((13)-(14)) – had 5 tokens each, yielding 30 test items, of which 25 were acceptable and 5 unacceptable.

7.1.1.3 Filler Items

Six types of filler items were created, testing L2 knowledge of classifiers, plural-marking, negative marking, perfective aspect, placement of prepositional adverbials, and the verb copying construction. The sentence given in (15) below is an example sentence for testing the position of prepositional adverbials. This sentence is unacceptable because prepositional adverbials are strictly preverbal in Chinese.

- (15) * Xiao Ming xuexi zai tushuguan.
 Xiao Ming study in library
 ‘Xiao Ming studied in the library.’

There were 5 tokens of each type, resulting in 30 filler items. To balance the number of grammatical and ungrammatical test items in this task, 5 of the filler items were acceptable and 25 were unacceptable.

Table 7.1 presents the experimental design of the AJT.

Table 7.1. Acceptability Judgment Task: Experimental Design

Sentence Type	Acceptability	Objective
<i>weishenme</i> ‘why’-Q with [<i>ma</i>]	*	testing L2 knowledge of the
<i>weishenme</i> ‘why’-Q without [<i>ma</i>]	√	<i>yes/no</i> marker [<i>ma</i>]
<i>yes/no</i> Q with [<i>shui</i>]	√	testing L2 knowledge of <i>shui</i>
<i>yes/no</i> Q with proper noun	√	licensed in <i>yes/no</i> questions
conditional with [<i>shui</i>]	√	testing L2 knowledge of <i>shui</i>
conditional with proper noun	√	licensed in conditionals
classifier	√	proficiency test & fillers
quantifier with [<i>men</i>]	*	
negative marker [<i>bu</i>]	*	
aspect maker [<i>zai</i>]	*	
adverbial placement	*	
verb copying	*	

7.1.2 Procedures

The AJT is often criticized for being unnatural because common use of language seldom involves making acceptability judgments on sentences (Gass & Mackey, 2007;

Kweon & Bley-Vroman, 2011), so it is very important to include thorough instructions informing participants how to make judgments based on intuitions rather than on rules they may have learned.

Modeled after the well-acknowledged AJT instructions in the Bley-Vroman, Felix, and Ioup (1988) study, the instructions first show the participants what ‘natural’ and ‘awkward’ sentences are, using examples from Chinese and, for L2ers, their L1, and then participants were asked to read each of the 60 test sentences carefully and indicate how they feel about each one, i.e., whether it sounds natural or awkward. A ‘Not Sure’ option was also provided in case they do not have clear-cut intuitions.

The instructions were presented in the participants’ L1. After participants confirmed that they had fully understood the instructions, they were allowed to start the task. See Appendix H for the English, Korean and Chinese versions of the instructions given to participants and Appendix I for a complete list of items in the AJT.

Participants are the same as those in Experiments 1 and 2.

7.2 Results

A target-like response was coded as ‘1’ and a nontarget-like response, ‘0’. Although participants were given the ‘Not Sure’ option, such responses accounted for a very small proportion of the total responses (i.e., 4.2% for natives, and 4.9% for L2ers). Following Bley-Vroman, Felix, and Ioup (1988), these answers were also coded as ‘0’.

The results of the *yes/no*-question pattern and the conditional pattern are presented in Section 7.2.1 and Section 7.2.2, respectively.

7.2.1 Existential *Shui* Licensed in *Yes/No* Questions

7.2.1.1 Data Trimming

Individual data of the 2 types of sentences testing L2 knowledge of the *yes/no*-question marker *-ma* were first examined. Table 7.2 presents the results:

Table 7.2. Acceptability Judgment Task: Individual Results of Accuracy of *-Ma*

Partic.	Natives (n = 30)		Eng_Int. (n = 20)		Eng_Adv. (n = 22)		Kr_Int. (n = 21)		Kr_Adv. (n = 20)	
	* + <i>ma</i>	- <i>ma</i>	* + <i>ma</i>	- <i>ma</i>	* + <i>ma</i>	- <i>ma</i>	* + <i>ma</i>	- <i>ma</i>	* + <i>ma</i>	- <i>ma</i>
1	5	5	5	5	5	5	4	1	4	5
2	5	5	0	4	5	5	5	2	5	5
3	5	5	5	5	5	5	1	3	5	5
4	5	5	5	5	5	5	5	5	5	5
5	5	5	3	4	5	5	0	5	5	5
6	5	5	0	4	5	4	0	3	5	5
7	5	4	0	4	4	3	3	5	5	5
8	5	5	2	1	5	5	5	5	4	5
9	5	5	1	4	5	3	2	5	3	3
10	5	5	0	4	5	5	3	5	5	5
11	5	5	2	1	5	5	4	4	4	1
12	5	5	2	4	5	5	1	1	3	5
13	5	5	4	3	5	3	5	4	5	5
14	5	5	1	4	3	5	4	5	5	5
15	5	5	3	3	5	4	5	4	5	4
16	5	5	5	4	4	5	5	5	5	4
17	4	5	5	5	5	5	4	3	5	5
18	4	5	3	1	5	5	5	0	5	5
19	5	4	5	5	5	4	5	4	2	5
20	5	5	0	4	5	5	2	3	5	5
21	5	5			5	3	4	5		
22	5	5			5	5				
23	5	5								
24	5	4								
25	5	5								
26	5	5								
27	3	5								
28	5	5								
29	5	5								
30	5	5								
M	4.87	4.90	2.55	3.70	4.82	4.50	3.43	3.67	4.50	4.60
SD	0.43	0.31	2.01	1.30	0.50	0.80	1.75	1.56	0.89	0.99

NB: Individual scores reflect the number of target-like responses (maximum = 5)

Native participants had at least 3 targetlike responses in both *[+ *ma*] and [- *ma*] patterns; this was therefore used as the criterion for inclusion. The L2 participants who passed this criterion comprised: 9 (of the 20) L1-English intermediate L2ers, all 22 L1-English advanced L2ers, 12 (of the 21) L1-Korean intermediate L2ers, and 18 (of the 20) L1-Korean advanced L2ers. Participants who failed to satisfy the criterion, as indicated by the highlighted data in Table 7.2, were excluded from further analysis in this section.

The remaining participants' judgments on the experimental and control sentences of the *yes/no*-question pattern were checked side by side. If a participant judged a control sentence as acceptable, his/her judgment on the corresponding experimental sentence was left for further analysis. If a participant judged a control sentence as unacceptable, his/her judgment on the corresponding experimental sentence was no longer informative to our research question; it was decided that this judgment, whatever it was, be treated as no knowledge (i.e., coded as '0'). This trimming procedure affected very small proportions of the experimental data: Natives = 1.33% (2/150); Eng_Int. = 4.44% (2/45); Eng_Adv. = 3.63% (4/110); Kr_Int. = 1.67% (1/60); Kr_Adv. = 7.78% (7/90).

7.2.1.2 Results

Table 7.3 presents the mean judgment scores and standard deviations of the control type vs. experimental type of *yes/no* questions by the 5 groups:

Table 7.3. Acceptability Judgment Task: *Yes/No* Question Group Results

Group	<u>Control Type (with a proper noun)</u>		<u>Experimental Type (with <i>shui</i>)</u>	
	Mean	SD	Mean	SD
Natives (<i>n</i> = 30)	4.83	0.46	3.00	1.89
Eng_Int. (<i>n</i> = 9)	4.33	0.71	0.56	1.01
Eng_Adv. (<i>n</i> = 22)	4.50	0.74	0.68	1.36
Kr_Int. (<i>n</i> = 12)	4.42	0.79	1.17	1.53
Kr_Adv. (<i>n</i> = 18)	4.61	0.61	1.33	1.94

NB: maximum score = 5

Looking at the control type (i.e., *yes/no* questions with a proper noun) first, we find that the mean scores of judgment were high with all groups. Out of the maximum score of 5 (there were 5 tokens in each type), the group means all fall in the range of 4.33 – 4.83. In terms of the experimental type (i.e., *yes/no* questions involving *shui*), the natives, in general, judged the sentences as acceptable, but the group mean is not as high as expected (out of 5, mean = 3.00, SD = 1.89), especially in comparison to their high mean on the control sentences (out of 5, mean = 4.83, SD = 0.46). Together, these data show that the natives' judgments were less homogeneous when *shui* is present. As for the L2 groups,

the group means of the experimental sentences were all low, but the 2 L1-English groups showed a much stronger tendency to reject the experimental sentences than the 2 L1-Korean groups (group means: Eng_Int. = 0.56; Eng_Adv. = 0.68; Kr_Int. = 1.17; Kr_Adv. = 1.33).

We examined the individual data to determine whether or not the judgments observed in the group results were consistently made. We define consistency as acceptance or rejection of at least 4 of the 5 tokens. The results are reported in Table 7.4:

Table 7.4. Acceptability Judgment Task: Consistency of Participants on Yes/No Questions

Group	<u>Control Type (with a proper noun)</u>			<u>Experimental Type (with <i>shui</i>)</u>		
	Number (%) of participants who had...			Number (%) of participants who had...		
	Consistent Acceptance	Consistent Rejection	Inconsistent Responses	Consistent Acceptance	Consistent Rejection	Inconsistent Responses
Natives (<i>n</i> = 30)	29 (96.7%)	0 (0.0%)	1 (3.3%)	14 (46.7%)	6 (20%)	10 (33.3%)
Eng_Int. (<i>n</i> = 9)	8 (88.9%)	0 (0.0%)	1 (11.1%)	0 (0.0%)	8 (88.9%)	1 (11.1%)
Eng_Adv. (<i>n</i> = 22)	21 (95.5%)	0 (0.0%)	1 (4.5%)	2 (9.1%)	19 (86.4%)	1 (4.5%)
Kr_Int. (<i>n</i> = 12)	10 (83.3%)	0 (0.0%)	2 (16.7%)	2 (16.7%)	8 (66.7%)	2 (16.6%)
Kr_Adv. (<i>n</i> = 18)	17 (94.4%)	0 (0.0%)	1 (5.6%)	4 (22.2%)	12 (66.7%)	2 (11.1%)

NB: (i) consistent acceptance = acceptance of at least 4 of the 5 tokens

(ii) consistent rejection = rejection of at least 4 of the 5 tokens

(iii) inconsistent responses = neither consistent acceptance nor consistent rejection

Looking first at the control type (i.e., *yes/no* questions with a proper noun), we see that a great majority of participants accepted at least 4 of the 5 tokens and that no participant showed consistent rejection. This suggests that the L2ers had acquired target-like knowledge of *yes/no* questions when existential *shui* was not involved. For the experimental type (i.e., *yes/no* questions involving *shui*), by contrast, only 14 of the 30 natives had consistent acceptance and the remaining 6 had consistent rejection; this indicates that Chinese natives' intuitions regarding *wh*-existentials licensed in *yes/no* questions were not as clear-cut as claimed in the literature. As for the L2 participants, over 86% of the L1-English L2ers and around 67% of the L1-Korean L2ers consistently rejected the experimental sentences. The number of L2 participants who consistently accepted the experimental sentences was fairly low: none from the Eng_Int. group, 2

from the Eng_Adv. group, 2 from the Kr_Int. group, and 4 from the Kr_Adv. group. These results show that L2ers had great difficulty in acquiring *wh*-existentials licensed in *yes/no* questions, and this is particularly so for L1-English L2ers.

A Kruskal Wallis Test was conducted on the judgment scores of the control sentences by the 5 groups. The results show that there is no significant difference across groups ($p = .087$). This suggests that L2ers of Chinese, after acquiring target-like knowledge of *-ma*, do not have problems with *yes/no* questions which do not involve *wh*-existentials.

The Kruskal Wallis Test on the judgment scores of the experimental sentences by the 5 groups shows that the difference is statistically significant ($p = .000$), indicating that here judgments differ across groups. Against the adjusted α level of .005, the Mann-Whitney post-hoc tests found a significant difference for Eng_Int. vs. Natives ($U = 41.5, Z = -3.189, p = .001, r = -.51$) and for Eng_Adv. vs. Natives ($U = 118.5, Z = -4.064, p = .000, r = -.56$) as well as a marginal difference for Kr_Int. vs. Natives ($U = 84, Z = -2.727, p = .007, r = -.42$) and for Kr_Adv. vs. Natives ($U = 143.5, Z = -2.773, p = .006, r = -.40$).

These results, together, show that *yes/no* questions which do not contain *wh*-existentials were not problematic for L2ers, once they had acquired target-like knowledge of the *yes/no* marker *-ma*; but when *shui* occurs in *yes/no* questions, the sentences become challenging for all L2 groups. Nonetheless, when judging the experimental *yes/no* questions, the 2 Korean L2 groups did show a certain level of advantage over the 2 English L2 groups, although not as strong as would be predicted under the Lexical Transfer Hypothesis.

7.2.2 Existential *Shui* Licensed in Conditionals

7.2.2.1 Data Trimming

Attention is now turned to the conditional conditions of the AJT. Individual scores of the control and experimental sentences were scrutinized to screen the data. Like what was done with the *yes/no*-question pattern, if a control sentence was accepted, the judgment on the corresponding experimental sentence was considered valid; if a control sentence was rejected, the corresponding experimental sentence was treated as no

knowledge (i.e., ‘0’). The percentages of the experimental data affected by this data trimming procedure slightly increased, as compared to the *yes/no*-question pattern: Natives = 10% (15/150); Eng_Int. = 5% (5/100); Eng_Adv. = 9.09% (10/110); Kr_Int. = 2.86% (3/105); Kr_Adv. = 5% (5/100). This is perhaps not surprising given that the conditional pattern is bi-clausal, which involves two main verbs, one modal and one adverbial, so the chances for disliking a particular element increases, as compared to the monoclausal *yes/no*-question pattern.

7.2.2.2 Results

Table 7.5 presents the mean judgment scores and standard deviations of the control vs. experimental conditional sentences by the 5 groups:

Table 7.5. Acceptability Judgment Task: Conditional Group Results

Group	Control Type (with a proper noun)		Experimental Type (with <i>shui</i>)	
	Mean	SD	Mean	SD
Natives (n = 30)	4.07	1.39	3.50	1.85
Eng_Int. (n = 20)	3.65	1.76	2.10	1.59
Eng_Adv. (n = 22)	3.82	1.53	2.68	2.03
Kr_Int. (n = 21)	4.14	0.96	2.86	2.03
Kr_Adv. (n = 20)	4.25	1.12	3.60	1.67

NB: maximum score = 5

Let us first look at the control type, i.e., conditional sentences which do not involve *wh*-words. Out of 5 tokens, the group means range from 3.65 to 4.25, suggesting all 5 groups generally accepted the control sentences. For the experimental type, i.e., conditional sentences with *shui* in the protasis, the mean judgment scores by all groups decreased, as compared to the control type, suggesting that the presence of *shui* in the experimental type made these sentences more susceptible to rejection.

Again, we examined the individual data to see how consistent participants’ judgments were. Table 7.6 presents the results:

Table 7.6. Acceptability Judgment Task: Consistency of Participants on Conditionals

Group	<u>Control Type (with a proper noun)</u>			<u>Experimental Type (with <i>shui</i>)</u>		
	Number (%) of participants who had...			Number (%) of participants who had...		
	Consistent Acceptance	Consistent Rejection	Inconsistent Responses	Consistent Acceptance	Consistent Rejection	Inconsistent Responses
Natives (<i>n</i> = 30)	22 (73.3%)	1 (3.3%)	7 (23.3%)	18 (60.0%)	5 (16.7)	7 (23.3%)
Eng_Int. (<i>n</i> = 20)	13 (65.0%)	3 (15.0%)	4 (20.0%)	4 (20.0%)	7 (35.0%)	9 (45.0%)
Eng_Adv. (<i>n</i> = 22)	15 (68.2%)	2 (9.1%)	5 (22.7%)	11 (50.0%)	8 (36.4%)	3 (13.6%)
Kr_Int. (<i>n</i> = 21)	15 (71.4%)	0 (0.0%)	6 (28.6%)	11 (52.4%)	7 (33.3%)	3 (14.3%)
Kr_Adv. (<i>n</i> = 20)	15 (75.0%)	1 (5.0%)	4 (20.0%)	13 (65.0%)	2 (10.0%)	5 (25.0%)

NB: (i) consistent acceptance = acceptance of at least 4 of the 5 tokens
(ii) consistent rejection = rejection of at least 4 of the 5 tokens
(iii) inconsistent responses = neither consistent acceptance nor consistent rejection

From the results of the control type (conditionals with a proper noun), we find that at least 65% of the participants in each group accepted at least 4 of the 5 tokens and, moreover, that very few participants consistently rejected this pattern. As for the experimental sentences (conditionals involving *shui* in the protasis), 60% of the 30 natives demonstrated consistent acceptance, a rate much higher than that for the experimental sentences of the *yes/no*-question pattern (i.e., 46.7%); both the number of natives who consistently rejected the conditional experimental sentences and the number of natives who were inconsistent in their judgments were relatively smaller, as compared to their judgments on the *yes/no*-question experimental sentences. These data indicate that when existential *shui* is involved, Chinese natives prefer the conditional pattern over the *yes/no*-question pattern. The L2ers, in general, also exhibited a similar preference: Compared with the results of the *yes/no*-question experimental sentences (see Table 7.4), there were far more L2ers who consistently accepted the conditional experimental sentences and substantially fewer L2ers who consistently rejected this pattern. Of the 4 L2 groups, the Eng_Int. group disliked the experimental conditionals the most: Only 4 of the 20 participants showed consistent acceptance; 7 had consistent rejection; and 9 were inconsistent in their judgments.

The results of the Kruskal-Wallis Test conducted on the judgment scores of the control sentences show no significant difference across groups ($p = .838$), suggesting that

L1-English and L1-Korean L2ers of Chinese performed like the Chinese natives in accepting the control sentences.

The Kruskal-Wallis Test conducted on the judgment scores of the experimental sentences reveals a significant difference across groups ($p = .037$). Against the adjusted α level of .005, the Mann-Whitney post-hoc tests show a marginal difference between the Eng_Int. group and the natives ($U = 167$, $Z = -2.708$, $p = .007$, $r = -.38$), but no statistical differences in other pairwise comparisons ($p \geq .109$). This indicates that when *shui* occurs in the protasis of conditional sentences, the English intermediate L2ers were more likely than the Chinese natives to reject the sentences, whereas the English advanced L2ers and the 2 groups of Korean L2ers performed like the natives. This is what we would expect under the Lexical Transfer Hypothesis.

7.3 Discussion

In this experiment, we focused on two constructions which license *wh*-existentials in Chinese: *yes/no* questions and conditionals. The purpose was to test Sprouse's (2006) Lexical Transfer Hypothesis against two predictions. First, because *wh*-words in English are prohibited in *yes/no* questions and conditionals, L1-English intermediate L2ers of Chinese were expected to reject both target constructions. Second, because *wh*-existentials in Korean are allowed in *yes/no* questions and conditionals, intermediate and advanced L1-Korean L2ers of Chinese were expected to behave like Chinese native speakers in accepting both constructions.

It was found that when *yes/no* questions and conditionals do not involve the *wh*-word *shui* (i.e., the 2 control types), all L2 groups accepted the sentences like the natives, suggesting that the two sentence patterns alone were not problematic for L2ers of Chinese. However, when the *wh*-word *shui* appears in *yes/no* questions and conditionals (i.e., the two experimental types), interesting performance patterns started to surface.

For the experimental *yes/no* questions, the mean judgment scores of the 4 L2 groups were all low, indicating that *wh*-existentials licensed in *yes/no* questions were difficult for all L2 participants. However, the group means were much higher with the 2 Korean L2 groups than with the 2 English L2 groups. Statistical tests conducted on the judgment scores by the 5 groups revealed significant differences between the 2 English

L2 groups and the natives, but only marginal differences between the 2 Korean L2 groups and the natives.

For the experimental conditional sentences, the mean judgment scores got higher with all groups, as compared to the experimental *yes/no* questions. Statistically speaking, the L1-English intermediate L2ers were less likely than natives to accept conditionals involving *shui*, whereas the 2 L1-Korean groups as well as the L1-English advanced L2ers performed within the native range.

These results parallel the findings of Yuan's (2010) study in several aspects. First, Yuan found that *yes/no* questions containing *wh*-existentials were very difficult for all L1-English and L1-Japanese L2ers of Chinese, except those from the Japanese advanced group (see Table 3.13 in Chapter 3 for Yuan's *yes/no*-question results). Similarly, our L1-English and L1-Korean participants had trouble with the experimental *yes/no* questions, reflected as the low group means by all 4 L2 groups. Second, Yuan found that L1-English advanced L2ers, L1-Japanese post-intermediate and advanced L2ers had acquired target-like knowledge with respect to *wh*-existentials licensed by conditionals (see Table 3.12 in Chapter 3 for Yuan's conditional results). In the present experiment, our L1-English advanced L2ers, along with the 2 groups of Korean L2ers, also accepted the experimental conditional sentences like the natives did. Third, Yuan's participants generally had higher group means for experimental conditional sentences as compared to experimental *yes/no* questions. This is also what we have found.

On the assumption that L1 transfer effects are more likely to be observed at early stages of L2 acquisition, Yuan's results did not seem to show clear effects of L1 transfer, because at lower proficiency levels (i.e., beginner and post-beginner), his L1-English and L1-Japanese L2 groups both differed significantly from the natives in their judgment scores of all types of experimental sentences. However, as discussed in Chapter 3, the absence of L1 transfer effects (for lower-level L1-Japanese L2ers) in Yuan's results may be due to inappropriate L1-TL pairings (see Section 3.4 in Chapter 3 for details).

In the present experiment, we found that the English intermediate L2ers performed differently from the natives in judging both experimental types (i.e., *shui* contained in both *yes/no* questions and conditionals), which contrasts with the Korean intermediate L2ers, who behaved similarly to the natives in both types. Perhaps it is fair

to say that these results go the way the Lexical Transfer Hypothesis predicted, but the effects are not the most robust. Still, two issues in particular need to be addressed.

First, the acceptance level of the experimental conditional sentences on the part of the intermediate L1-English L2ers (out of 5, mean = 2.10) is higher than what would be expected under a strict view of lexical transfer. One possible explanation is that by the time of the experiment, these participants were far removed from the L2 initial state. In other words, these intermediate L2 participants may have had substantial input informing them that *wh*-existentials can occur in conditional sentences in Chinese. This seems very likely in light of the fact that they performed just like the natives in accepting both types of control sentences (i.e., conditionals and *yes/no* questions without *wh*-existentials).

The second issue seems just the opposite. In the experimental *yes/no* questions, the mean acceptance by the intermediate L1-Korean L2ers (out of 5, mean = 1.17) is not as high as expected. In other words, if the Korean intermediate participants transfer lexical properties from their L1, they should perform much more like the natives in this pattern. Yet, we see that their judgment scores were marginally different from the judgment scores of the natives. One possible explanation for Korean L2ers' lukewarm performance in this pattern may have to do with the *yes/no*-question marker *-ma*. Consider the following 3 pairs of sentences:

(16) a. Ta chi wanfan le ma?
He eat dinner ASP Q_{yes/no}
'Did he have dinner?'

b. * Ta chi wanfan le?
He eat dinner ASP
'Did he have dinner?'

- (17) a. Ta **weishenme** ku le?
 he why cry ASP
 ‘Why did he cry?’
- b. * Ta **weishenme** ku le *ma*?
 he why cry ASP *Q_{yes/no}*
 ‘Why did he cry?’
- (18) a. Ta da **shui** le?
 He beat PERSON ASP
 ‘Who did he beat?’
- b. Ta da **shui** le *ma*?
 He beat PERSON ASP *Q_{yes/no}*
 ‘Did he beat anyone?’

The presence of *-ma* in *yes/no* questions (e.g., (16a)) and the absence of *-ma* in *wh*-questions (e.g., (17a)) should inform L2ers that *-ma* is an obligatory question marker specific for *yes/no* questions, so *yes/no* questions without *-ma* (e.g., *(16b)) and *wh*-questions with *-ma* (e.g., *(17b)) are unacceptable. However, there are questions like (18a) and (18b) in the input, where *wh*-words sometimes co-occur with *-ma* (e.g., (18b)) and sometimes do not (e.g., (18a)). This kind of input may potentially mislead L2ers of Chinese to infer that *-ma* is a question marker, which is obligatory for *yes/no* questions and *optional* for *wh*-questions. This problem may be particularly acute for Korean L2ers of Chinese, because in their L1 Korean, the same question markers (e.g., *-nayo*) are used for both *yes/no* questions and *wh*-questions. After Korean L2ers have learned that *-ma* is exclusively for *yes/no* questions, they may *overlearn* it by disallowing *-ma* to co-occur with *wh*-words altogether, leading to the low acceptance of sentences like (18b).

In this regard, the input with respect to *wh*-existentials licensed in conditionals is relatively straightforward, i.e., *wh*-existentials can occur in conditional clauses in Chinese.

This may be why the L2 participants generally performed better in the experimental conditional sentences than in the experimental *yes/no* questions.

Alternatively, the different performances in experimental *yes/no* questions vs. experimental conditionals can also be explained from the processing perspective put forward by O’Grady and colleagues (O’Grady, 2005; O’Grady, Lee, & Kwak, 2009), which has two key claims with respect to interpretation: (i) An efficiency-driven processor, working from left to right, assigns each NP an interpretation at the first opportunity, based on available clues; and (ii) “revision of previously assigned interpretation is costly” as it exerts extra burden on working memory (O’Grady et al., 2009, p. 74). Applying these proposals to the two target constructions in this task, the \exists licenser *ruguo* ‘if’ occurs before the licensee *shui* in the conditional pattern, so the processor is able to assign the \exists interpretation to *shui* immediately when it gets to this *wh*-word. In the *yes/no*-question pattern, however, *shui* appears before the licenser *-ma*. In this case, the processor initially assigns a Q interpretation to *shui*, due to the prominence of this sense. When the processor reaches the \exists licenser *-ma* at the very end of the sentence, it has to revise the Q interpretation formerly assigned to *shui*, resulting in more processing cost in the *yes/no* pattern than in the conditional pattern.

On this processing view, the relative linear positions of the \exists licenser and the licensee in a sentence may have direct implications regarding the acquisition of different constructions which license *wh*-existentials. Specifically, constructions where the \exists licenser precedes the *wh*-word (e.g., *wh*-existentials licensed in negatives, conditionals, etc.) are predicted to be easier to acquire than constructions where the \exists licenser follows the *wh*-word, so *wh*-existentials licensed by the *yes/no*-question marker *-ma* (which we have seen in this task), inference *-le* (e.g., (19)), imperative *-ba* (e.g., (20)) are predicted to be very challenging:

- (19) Ta kandao **shenme** le.
He see THING PART.
‘(It seems that) he saw **something**.’

(Lin, 1998, p. 223: (15))

(20) Guolai chi dian **shenme** ba!
Come eat CL THING PART.
'Come over to eat **something**.'

(Lin, 1998, p. 226: (21b))

This line of thinking is worth pursuing in future research in this area.

To sum up, in this experiment, we examined participants' judgments on existential *shui* licensed in *yes/no* questions and in conditionals. Results from both experimental sentence patterns are generally consistent with the predictions based on the Lexical Transfer Hypothesis. It was also observed that the L2 participants generally performed better in experimental conditional sentences than in experimental *yes/no* questions. Two possible factors were discussed that may help explain this asymmetry, namely, misleading input and processing load.

CHAPTER 8

SUMMARY, DISCUSSION AND CONCLUSION

Framed within Sprouse's (2006) Lexical Transfer Hypothesis, this dissertation investigated an aspect of lexical transfer that has not yet received much attention: transfer of the syntactic and semantic properties underlying L1 *wh*-words. We set out to compare the L2 knowledge of *wh*-existentials on the part of L1-English and L1-Korean L2ers of Chinese vis-à-vis knowledge of Chinese native speakers. The purpose was to determine whether or not distinct lexical properties as instantiated in the L1 *wh*-words would result in distinct performances of the (lower-level) L2 participants with respect to the \exists sense. In this concluding chapter, we first summarize the main findings of the study and show how they support the predictions derived from the Lexical Transfer Hypothesis (Section 8.1). Then we discuss the implications of the results (Section 8.2). We conclude the dissertation by recapitulating outstanding issues that have been brought to light in the study and suggest directions for future research (Section 8.3).

8.1 Summary of Main Findings

The central aim of the study was to examine whether the development of *wh*-existentials in the L2 Chinese of L1-Korean and L1-English speakers was influenced by syntactic and semantic properties of the lexical equivalents in their respective L1. The investigation was motivated by the following crosslinguistic differences. In Chinese, *wh*-existentials can occur in nonveridical environments (i.e., in the scope of negatives *mei(you)/bu* 'not', the *yes/no*-question marker *-ma*, the protasis of conditionals, etc.), but not in veridical environments (e.g., affirmative present progressives). In Korean, *wh*-existentials can occur in nonveridical and veridical environments. In English, *wh*-words can never be used as \exists .

If initial L2 lexical knowledge is L1-based, two predictions immediately follow. First, in nonveridical constructions, lower proficiency L1-Korean L2ers of Chinese should pattern like Chinese natives in allowing *wh*-existentials, whereas lower proficiency L1-English L2ers should show inhibitions against them. Second, in veridical constructions, lower proficiency L1-English L2ers should perform like the Chinese natives in prohibiting nontarget *wh*-existentials, whereas lower proficiency L1-Korean L2ers should show a tendency to allow them. These predictions were tested using 3 different experimental tasks.

In the contextualized multiple-choice interpretation task, participants were tested on the interpretations of *shenme* ‘THING’ contained in nonveridical (negative) and veridical (affirmative present progressive) sentences, with picture contexts biased either towards Q or towards \exists . Results show that in Q-biased contexts, all L2 groups behaved like the Chinese natives in getting at the Q interpretation of *shenme*, regardless of construction type. This confirms our assumption that the Q sense is the semantic overlap across the three languages, which serves as the basis for lexical transfer. In \exists -biased contexts, it was found (i) that in the veridical construction, the 2 Korean L2 groups were significantly more likely than the natives to interpret *shenme* as \exists , whereas the Eng_Int. group did not; (ii) that in the nonveridical construction, both L1-Korean groups behaved within the natives’ range in terms of the proportions of \exists interpretation assigned, whereas the Eng_Int. group had significantly less \exists interpretation than the natives did. These results are consistent with the predictions we had. However, when comparing participants’ performances across constructions, we found that all L2 groups showed a native-like tendency in having significantly lower proportions of \exists interpretation in the veridical sentence than in the nonveridical sentence, which seems problematic under a strong version of the lexical transfer view. We speculated that this result could be caused by two factors: (i) The L2 Chinese proficiency of the intermediate participants was too far beyond the L2 initial state; and (ii) the Q interpretation was better accommodated by the pictures accompanying the veridical construction than by those accompanying the nonveridical construction, which may have suppressed the proportions of \exists interpretation in the former.

In the elicited production task, participants were tested on whether they would use existential *shenme* ‘THING’ or *shui* ‘PERSON’ in nonveridical (negative) and veridical (affirmative present progressive) sentences, when picture contexts were intended to make such uses plausible. Two main results were obtained. First, in nonveridical sentences, the rate of *shenme* and *shui* produced by L1-Korean intermediate L2ers is comparable to that produced by the natives. English intermediate L2ers, on the other hand, seldom used *shenme* or *shui*, a finding consistent with our prediction. Second, in veridical sentences, all participants refrained from using either of the two *wh*-words. The absence of L1 effects on the part of Korean L2ers in the latter finding was argued to be a task-induced artifact due to the operation of pragmatic principles. More specifically, by the maxim of quantity, the picture description task dictates that participants be as informative as possible, and indefinite noun phrases happened to be more informative than *wh*-existentials in veridical contexts.

In the acceptability judgment task, participants were asked to make judgments on the naturalness of 2 types of sentences containing existential *shui*: *yes/no* questions and conditionals. It was found that the judgment scores of the *yes/no*-question pattern were low in all L2 groups; still, when the L2 results were compared with those of the native group, the differences were significant for the 2 L1-English L2 groups, but only marginal for the 2 L1-Korean L2 groups. In the conditional pattern, the Eng_Int. group differed from the natives, whereas both of the Korean L2 groups performed like the natives. These results generally go the way as predicted.

Overall, the results obtained from the three tasks are in line with the Lexical Transfer Hypothesis.

8.2 Implications

Since the proposal of the Contrastive Analysis Hypothesis (Lado, 1957), much attention has been directed to L1 transfer in second language acquisition (see Gass, 1996 for an overview). Despite the extensive research documenting transfer effects in both generative and non-generative L2 literature (e.g., Jarvis, 1997; Kellerman, 1977; Marsden, 2004; Odlin, 1989; Schwartz & Sprouse, 1996; White, 1991; inter alia), and despite the numerous hypotheses put forward to conceptualize transfer (see Schwartz, 2013, p. 2 for

a list of these hypotheses), the precise nature and mechanisms of transfer are still not clearly understood (Schwartz, 2013).

According to Schwartz (2013), the main reason behind our limited understanding of transfer is this. The goal of transfer-oriented L2 research is to understand the extent to which Interlanguage development is influenced by the L1 grammar, which is necessarily an abstract conception. Nevertheless, for practical reasons, the investigations have to be framed in terms of constructions (e.g., verb phrase, relative clause, passive, etc.), the “artifacts” of grammar (Chomsky, 1993, p. 4; cited in Schwartz, 2013, p. 3). When results show transfer effects, which are often mixed with problematic data, it is usually difficult to discern what exactly is (or is not) transferred and at what level transfer operates.⁴⁴

In this section, we discuss the implications of the present study against the two issues Schwartz (2013) has raised.

8.2.1 What Exactly is Transferred, Surface Patterns or Underlying Grammar?

Our goal in this study was to look at transfer of L1 lexical knowledge. We compared the development of *wh*-existentials in the L2 Chinese of L1-English and L1-Korean speakers to determine the role of their respective L1 lexical properties. Employing 3 different research methods, the study investigated 4 different constructions in search of evidence for/against transfer of the L1 grammar: affirmative present progressives, negatives, *yes/no* questions, and conditionals. Despite some unexpected L2 data, the main findings from all 3 experiments, as summarized in Section 8.1, showed a cluster of L1-related effects. We interpreted these effects as transfer of the grammatical knowledge underlying the L1 *wh*-words.

Can the observed transfer effects be the consequence of transferring surface patterns from the L1? They cannot. Surface patterns are the linear sequences of formal elements; the lexical semantics of each individual element – much less other interpretative effects of the sentence as a whole – is not involved in a surface sentence

⁴⁴ Schwartz (2013) critically reviewed 4 studies probing the role of L1 transfer in the L2 acquisition of different domains of grammatical knowledge (i.e., Chu & Schwartz, 2013; Lam, 2003; S. Lee, 2009; Orfitelli & Grüter, In prep). (Chu & Schwartz, in fact, is an early look at Experiment 1, the contextualized multiple-choice interpretation task, the analysis of which, though couched in the same framework, has been refined in Chapter 5).

pattern. For example, in White's (1991) classic study on adverb placement, it was found that in the pre-test, L1-French L2ers of English overwhelmingly allowed the *SVAO order (e.g., **Cats catch often mice*) due to transfer of the L1 grammar. After explicit classroom instruction focusing solely on transitive sentences, the L2ers rejected not only this *SVAO order but also grammatical English sentences with intransitive verbs followed by a prepositional phrase (e.g., *Mary walks quickly to school*) in post-tests. Schwartz and Gubala-Ryzak (1992) convincingly argued that this was a consequence of generalizations based on the surface patterns – albeit coming from explicit classroom instruction rather than from the L1 – such that the L2ers would not allow an adverb to be placed between the verb and any other following constituent. For our target phenomenon, the semantics of *wh*-words is tied to the underlying syntax; surface patterns, blind to meaning, just will not work. For instance, in Experiment 1, the contextualized interpretation task, identical prompt sentences were situated in Q-biased contexts and \exists -biased contexts. In Q-biased contexts, all L2 groups performed like the Chinese natives in terms of the proportions of the Q interpretation of *shenme* ('what'); in \exists -biased contexts, by contrast, the two L1-based groups each showed distinct performance patterns vis-à-vis the natives in terms of the proportions of the \exists interpretation of *shenme* ('something'/'anything'). What surface patterns in the L1 could be transferred to give such results?

Even if we stretch it a bit, asking whether the observed transfer effects could come from transferred L1 constructions, in the sense of Construction Grammar (e.g., Goldberg, 1995), the answer is still “no.” As discussed in Chapter 2, constructions in Construction Grammar are conceptualized as form-meaning mapping units on their own; the semantics of the lexical items which (meet the constraints to) participate in them is constant. No semantic analysis is available to show that this approach can be applied to the polysemy of *wh*-words (much less to the (non)equivalence of constructions crosslinguistically). The results of Experiment 3, the acceptability judgment task, show that all L2ers behaved like the natives in their judgments of the control sentences, i.e., *yes/no* questions and conditionals involving proper nouns, whereas the L1-related performance patterns showed up in the experimental sentences involving existential *shui*

(‘someone’/‘anyone’), albeit more so with conditionals than with *yes/no* questions. Again, no analysis grounded in transferred L1 constructions could lead to such results.

In short, the nature of transfer revealed in our study is quite clear: transfer of L1 lexical knowledge.

8.2.2 At What Level does Transfer Operate, Lexical Items or Features?

Generative L2 research addressing the issue of transfer is often tied to technicalities of specific linguistic theories within which the research is conducted. Accounts of transfer effects may not be the same when different theoretical frameworks are employed (see Schwartz & Sprouse, 2000). Currently, two versions of the full transfer view are most compatible with a Minimalist approach (e.g., Chomsky 1995): the Lexical Transfer Hypothesis (Sprouse, 2006) and the Feature Reassembly Hypothesis (Lardiere, 2009).

The Lexical Transfer Hypothesis advocates transfer at the lexical level, postulating that on the basis of the (perceived) semantic overlap between lexical entries in the L1 and the TL, L2ers fully transfer the syntactic and semantic properties of L1 lexical entries into the L2 initial state. The unit of crosslinguistic comparison is the lexical entry, which entails the semantic and syntactic properties of (perceived) lexical equivalents in the L1 and the TL. One arguable merit of this framework is that it does not assume nuanced feature-based accounts for crosslinguistic variation associated with lexical items, so L2 researchers need not “be restricted to those phenomena that have been thoroughly explored in [M]inimalist syntax research” (Gil & Marsden, 2013, p. 118).

The Feature Reassembly Hypothesis (Lardiere, 2009, p. 173) proposes contrastive analysis between the L1 and TL at the level of features, “the primitive, elemental units that make up the lexical items of every language.” According to Lardiere, the L2 acquisition of TL grammar is essentially the task of reassembling features represented in the L1 lexical items into, when necessary, new feature configurations in Interlanguage.

Let us now consider the phenomenon investigated in the present study. Recall our discussions in Chapter 2: *Wh*-words in Chinese, Korean and English are variables, and their quantificational force is determined by quantificational operators associated with them. More specifically, *wh*-existentials in Chinese result from the variables being bound

by a nonveridical operator, which is realized as a variety of syntactic constructions (e.g., negatives, *yes/no* questions, conditionals, etc.), whereas *wh*-existentials in Korean are the result of the variables being bound by an existential operator, which is realized as (e.g.) certain morphological particles. In English, the variables are bound word-internally by an interrogative operator or a relative operator, resulting in the absence of the existential sense of English *wh*-words. Adopting the Lexical Transfer Hypothesis, this study focuses attention on the lexical level, comparing the L2 knowledge of Chinese *wh*-existentials of L1-English and L1-Korean speakers. The overall results of the 3 experiments show that the properties of the L1 *wh*-words indeed influence Interlanguage development.

Turning to the Feature Reassembly Hypothesis, if we look at our target phenomenon at the level of features, we need a Minimalist feature-based analysis of *wh*-words in Chinese, Korean and English. To my knowledge, no (morpho-syntactic) theory of this kind is yet available. However, we do find a few sporadic proposals in the L2 literature. For example, for Korean *wh*-words, Lardiere (2009) suggests that the existential interpretation results from the configuration of the *wh*-operator feature and the [-Q] feature. For Chinese *wh*-words, Gil and Marsden (2013) propose that for each (ambiguous) *wh*-expression, there are two phonologically identical lexical entries: one that bears an uninterpretable nonveridical feature, and one that does not;⁴⁵ when, for instance, the *wh*-entry with the uninterpretable nonveridical feature is checked (and deleted) by a nonveridical operator, which is realized as a *wh*-existential licenser (e.g., negatives, *yes/no*-question marker *-ma*, conditionals, etc.), the *wh*-word gets the existential interpretation. Despite the lack of fully-developed analyses, the bottom line is: The feature(s) responsible for Chinese *wh*-existentials cannot be the same as the feature(s) underlying Korean *wh*-existentials, as *wh*-existentials in these two languages show distinct syntactic and semantic properties.

In terms of empirical coverage, at this point it is unclear how the Lexical Transfer Hypothesis and the Feature Reassembly Hypothesis can be distinguished from each other (and indeed whether they are in fact fundamentally different – after all, lexical items

⁴⁵ Note that this proposal goes against the syntactic analyses of *wh*-words discussed in Chapter 2, where the *wh*-entries in Chinese, Korean and English are suggested to be underlyingly the same, i.e., variables void of quantificational force. Also, the claim that there are multiple lexical entries for each *wh*-expression in Chinese, Korean, etc. is equivalent to saying that *wh*-interrogatives and *wh*-existentials in Chinese, Korean, etc. are homonyms. See Chapter 2 for arguments against this view.

include syntactic and semantic properties that could be deconstructed into features). For the present study, these two L2 hypotheses predict that there will be L1 transfer and that the Chinese *wh*-existentials will be difficult to acquire for both L1-English and L1-Korean L2ers. We have seen in this study that the difficulties that English and Korean L2ers encountered were of different kinds. Framed within the Lexical Transfer Hypothesis, the challenge on the part of English L2ers was to ‘figure out’ from the input that *wh*-words can be used as existentials in Chinese and learn this ‘new’ sense along with its licensing conditions, whereas the crux of the challenge on the part of Korean L2ers was to unlearn the nontarget *wh*-existentials overgeneralized to veridical environments. A Feature Reassembly approach would frame the respective L1-based transfer and challenges (i.e., learnability issues) somewhat differently (i.e., in terms of the configuration of features), but the empirical predictions seem to be the same as those under a Lexical Transfer approach.

To sum up, at least at our current level of understanding of analyses of the crosslinguistic differences of *wh*-words in Chinese, Korean and English, our results are, minimally, compatible with the view that transfer occurs at the level of lexical items.

8.3 Outstanding Issues and Directions for Future Research

One often takes up a research topic with the hope that his/her investigation will put an end to it, but it often turns out that more questions are brought up in the process of the research. The present study is no exception.

Although the results of the study generally supported the Lexical Transfer Hypothesis, we did not see a simple transfer picture, where the L1 lexical knowledge was superimposed on the TL input. In the multiple-choice interpretation task, when picture contexts were geared towards the \exists sense, all L2 groups had significantly more \exists interpretation of *shenme* in the nonveridical construction (where the \exists sense is licensed in the TL grammar) than in the veridical construction (where the \exists sense is prohibited in the TL grammar), although the differentiation was less dramatic than what was observed with the natives. It is unclear whether this unexpected, seemingly native-like intuition of the licensing constraint, especially by the Korean L2ers, was induced by the task itself or was an indication that the L2ers sort of knew what was going on but not quite, a

phenomenon referred to as “imperfect knowledge in the domain that is controlled by principled constraints in native speakers” (Kweon & Bley-Vroman, 2011, p. 222). If the latter is the case, it still remains to be investigated what mechanism triggers the recovery from the L1-based overgeneralization on the part of Korean L2ers.

In the acceptability judgment task, although Korean intermediate L2ers outperformed English intermediate L2ers in judging both target constructions, which hints at transfer of the L1 lexical properties, it was also found that all L2 groups performed substantially better in the conditional pattern than in the *yes/no*-question pattern. This suggests that additional factors are likely to be at play. We have discussed two possibilities. One was that co-occurrence of *wh*-words with the *yes/no*-question marker *-ma* in the *yes/no*-question pattern potentially makes the input problematic for the L2ers, whereas the conditional pattern does not suffer from this complication.

The second possibility was that the relative linear positions of the licensee and its licensor are different in the two constructions. Under the processing view put forward in O’Grady (2005) and O’Grady, Lee, and Kwak (2009), this entails different processing loads. In the conditional pattern, the licensor precedes the *wh*-word, which makes it possible for the parser to immediately assign the \exists interpretation as it hits the *wh*-word. In the *yes/no*-question pattern, the licensor follows the licensee, so the parser initially assigns the Q interpretation to the *wh*-word until it reaches the licensor at the very end of the sentence and has to revise the previously assigned interpretation. This makes the *yes/no*-question pattern more costly to process than the conditional pattern.

To tease apart these two accounts, it would be interesting to see how L2ers fare in judgments on other sentence patterns where the existential licensor follows the *wh*-word, but the input does not involve lexical items whose status is difficult to determine (e.g., the particle *-ma* in the *yes/no*-question pattern). In this regard, testing the imperative pattern or the inference *-le* pattern, which we discussed in the previous chapter, is likely to bring insights.

On the methodological side, testing lexical ambiguity is a challenging task, and it is especially so when our focus is on the less prominent \exists sense of *wh*-words. More efforts are needed in developing new research methods which will let us test the \exists sense in separation from the Q sense. In addition, special care needs to be taken in avoiding

unnecessary interference from pragmatics when trying to elicit *wh*-existentials in production. Indeed, the fact that participants are put in an experimental setting to produce certain utterances is likely to exert pressure on the participants to be as informative as possible, which may lead to avoidance of *wh*-existentials in some linguistic patterns.

The above are the issues revealed by the study. In what follows, we will outline some directions for future research.

First, the issue of lexical transfer can be further pursued from the opposite direction, i.e., how L1-Chinese and L1-English L2ers acquire *wh*-existentials in Korean. Recall that the distribution of Chinese *wh*-existentials is restricted to nonveridical environments, whereas their Korean counterparts can occur in both veridical and nonveridical environments. Comparison of *wh*-existentials in Chinese-Korean and English-Korean Interlanguages can shed light on at least two questions: (i) Do (lower-proficiency) L1-Chinese L2ers of Korean transfer the licensing conditions on Chinese *wh*-existentials into L2 Korean? In other words, do they initially allow *wh*-existentials only in nonveridical environments in their L2 Korean? (ii) Assuming transfer occurs, does it also persist to more advanced proficiency levels? The answer to this question will contribute to a better understanding of how Interlanguage restructuring works when the L1 grammar has the same phenomenon as in the TL grammar but in a more constrained way (i.e., the L1 represents a subset to the superset TL).

Second, the general issue of how L2ers acquire different licensing conditions on Chinese *wh*-existentials can be approached by addressing the following more specific questions: (i) In some constructions (e.g., negatives, non-factive verbs, A-not-A questions), Chinese *wh*-existentials are allowed in the object position but prohibited in the subject position. When do L2ers of Chinese start to show sensitivity to the syntactic position (i.e., the c-command relation) of the relevant *wh*-word with respect to the existential sense? (ii) In some constructions (e.g., *yes/no* questions, conditionals, imperatives), Chinese *wh*-existentials are licensed in both the subject position and the object position. Does the syntactic position of the relevant *wh*-word have effects on the L2 knowledge of the licensed existential sense? (iii) Constructions which prohibit Chinese *wh*-existentials fall into two kinds: constructions in which the relevant *wh*-word

is outside the scope of the licenser (e.g., the subject position of negatives, the subject position of non-factive verbs, etc.) and constructions which do not contain licensers (e.g., declarative sentences in present progressive). Does the mere presence vs. absence of a licenser in these constructions influence L2 knowledge about the impossibility of the unlicensed existential sense? All these questions are meant to uncover factors that influence the L2 acquisition of the structural constraints on Chinese *wh*-existentials.

The (types of) linguistic knowledge wrapped up in seemingly innocent *wh*-existentials – lexical semantics derived from underlying syntax via a variable-binding mechanism (following the analysis of *wh*-words adopted in this dissertation) – deserves more attention from generative L2 researchers. It can be an ideal testing ground for investigating many theoretically important issues in L2 acquisition research: the L2 initial state, the nature of transfer, learnability, Interlanguage restructuring, etc. We eagerly anticipate future research in this area.

Table 2. Yuan (2010): Results of *Wh*-existentials in Sentences with Uncertainty Adverbs (Mean)

Group	Uncertainty adv. + <i>wh</i> - \exists	* <i>wh</i> - \exists w/o uncertainty adv.	Control uncertainty adv.
Natives	2.35	- 1.33	2.93
EB	- 0.07*	- 0.54	2.08
EPB	0.37*	- 0.09	2.39
EI	0.16*	- 0.47	2.55
EPI	0.21*	- 0.65	2.62
EA	1.83	- 1.05	2.77
JB	0.32*	0.00	1.40*
JPB	- 0.45*	- 0.59*	2.12
JI	- 0.04*	- 0.40	2.35
JPI	0.23*	- 0.34	2.55
JA	1.79	- 1.03	2.52

NB: (i) EB = L1-English beginner JB = L1-Japanese beginner
 EPB = L1-English post-beginner JPB = L1-Japanese post-beginner
 EI = L1-English intermediate JI = L1-Japanese intermediate
 EPI = L1-English post-intermediate JPI = L1-Japanese post-intermediate
 EA = L1-English advanced JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 237: Table 7)

Table 3. Yuan (2010): Mean Judgments of *Wh*-existentials in Sentences with Inferential *-le*

Group	Obj. <i>wh</i> - \exists with inferential <i>-le</i>	Subj. <i>wh</i> - \exists with inferential <i>-le</i>	* Obj. <i>wh</i> - \exists w/o inferential <i>-le</i>	* Subj. <i>wh</i> - \exists w/o inferential <i>-le</i>	Control inferential <i>-le</i>
Natives	1.84	1.25	- 2.54	- 2.41	2.74
EB	- 0.53*	- 0.40*	- 0.58*	- 0.53*	1.39*
EPB	- 0.19*	0.10*	- 0.13*	0.11*	1.59
EI	- 0.46*	- 0.25*	- 0.40*	- 0.14*	1.48
EPI	- 0.64*	- 1.04*	- 0.74*	- 0.74*	1.50
EA	0.66*	- 0.17*	- 0.68*	- 0.73*	1.84
JB	0.32*	- 0.02*	0.32*	- 0.10*	1.24*
JPB	- 0.41*	0.14*	- 0.41*	- 0.12*	1.44
JI	- 0.15*	- 0.08*	0.00*	- 0.44*	1.49
JPI	- 0.19*	- 0.80*	- 0.37*	- 0.75*	1.59
JA	0.61*	- 1.00*	- 0.51*	- 1.05	2.41

NB: (i) EB = L1-English beginner JB = L1-Japanese beginner
 EPB = L1-English post-beginner JPB = L1-Japanese post-beginner
 EI = L1-English intermediate JI = L1-Japanese intermediate
 EPI = L1-English post-intermediate JPI = L1-Japanese post-intermediate
 EA = L1-English advanced JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 241: Table 10)

Table 4. Yuan (2010): Results of *Wh*-existentials in A-not-A Questions (Mean)

Group	A-not-A + obj. <i>wh</i> - \exists	* subj. <i>wh</i> - \exists + A-not-A	Control A-not-A
Natives	1.20	- 2.45	2.80
EB	- 0.23*	- 0.39*	1.43
EPB	- 1.10*	- 1.13*	2.18
EI	- 0.39*	- 1.01*	2.25
EPI	- 0.70*	- 2.48	2.90
EA	- 0.50*	- 2.77	2.50
JB	- 0.81*	- 0.65*	0.28*
JPB	- 0.74*	- 0.94*	0.53*
JI	- 0.74*	- 1.12*	0.78*
JPI	- 0.81*	- 2.08	1.67
JA	- 0.91*	- 2.02	2.68

NB: (i) EB = L1-English beginner JB = L1-Japanese beginner
 EPB = L1-English post-beginner JPB = L1-Japanese post-beginner
 EI = L1-English intermediate JI = L1-Japanese intermediate
 EPI = L1-English post-intermediate JPI = L1-Japanese post-intermediate
 EA = L1-English advanced JA = L1-Japanese advanced

(ii) * = significantly different from the native control group

(adapted from Yuan, 2010, p. 243: Table 11)

APPENDIX B

CLOZE TEST

[English Version]

Directions:

1. Read the passage quickly to get the general meaning.
2. Write only **one** character in each blank in the column to the right
3. You may do it in characters or Pinyin, but not both.
4. Double check your answers.

Example:

wǒmen bānyī yǒu shí gè rén
我们 班 一 (1) 有 十 个 人。

Answer

gòng
1. 共 / gòng

ANSWERS

yǒuyī rén zài lùshang yùdào yī gèshén xiān
有 一 (1) 人 在 路 上 遇 到 (meet) 一 个 神 仙 (fairy),
zhège shénxiān yǐqián shì tā péngyǒu tā gào shénxiān
这 个 神 仙 以 前 是 他 (2) 朋 友。他 告 (3) 神 仙,
xiànzài tā de qíngkuàng yuè yuè bù rú cóng shēnghuó hěn
现 在 他 的 情 况 越 (4) 越 不 如 从 (5), 生 活 很
kùn shénxiān tīng wán dehuà yòng shǒu yī lùpáng de
困 (6)。神 仙 听 完 (7) 的 话, 用 手 一 (8) 路 旁 的
yīkuài xiǎo shítóu nà kuàishí tóu lìkè biàn le jīnzi
一 块 小 石 头, 那 块 石 头 立 刻 变 (9) 了 金 子,
shénxiān bǎ zhè kuài jīnzi le tā zhège dédào jīnzi hái
神 仙 把 这 块 金 子 (10) 了 他。这 个 (11) 得 到 金 子, 还
bù mǎnyì shén yòu yòng shǒu yī zhǐ bǎ yīkuài dà shítóu
不 满 意。神 (12) 又 用 手 一 指, 把 一 块 大 石 头 (13)
biànchéngle jīnzi yòu gěi le zhè gèrén shì bù mǎnyì
变 成 了 金 子, 又 给 了 (14)。这 个 人 (15) 是 不 满 意。
shénxiān tā zěnyāoyàng nǐ mǎnyì ne zhè gèrén huí
神 仙 (16) 他: “怎 么 样 你 (17) 满 意 呢?” 这 个 人 回
shuō wǒ yào nǐ de
(18) 说: “我 (19) 要 你 的 (20)。”

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

[Korean Version]

해석, 설명:

1. 일반적인 의미를 얻기 위해 신속하게 문장을 참조하십시오.
2. 오른쪽 열의 각 빈자리에 하나의 문자를 써넣으십시오.
3. 당신은 문자 나 병음을 사용할수 있지만 동시에 둘 다 사용할 수는 없습니다.
4. 답을 재확인하십시오.

예:

wǒmen bānyī yǒu shí gè rén
 我们 班一 (1) 有 十 个 人 。

답변

gòng
 1. 共 / gòng

답변

yǒuyī rén zài lùshang yùdào yī gèshén xiān
 有 一 (1) 人 在 路 上 遇 到 (meet) 一 个 神 仙 (fairy),
 zhège shénxiān yǐqián shì tā péngyǒu tā gào shénxiān
 这 个 神 仙 以 前 是 他 (2) 朋 友 。 他 告 (3) 神 仙 ,
 xiànzài tā de qíngkuàng yuè yuè bù rú cóng shēnghuó hěn
 现 在 他 的 情 况 越 (4) 越 不 如 从 (5), 生 活 很
 kùn shénxiān tīng wán dehuà yòng shǒu yī lùpáng de
 困 (6)。 神 仙 听 完 (7) 的 话 , 用 手 一 (8) 路 旁 的
 yīkuài xiǎo shítóu nà kuàishí tóu lìkè biàn le jīnzi
 一 块 小 石 头 , 那 块 石 头 立 刻 变 (9) 了 金 子 ,
 shénxiān bǎ zhè kuài jīnzi le tā zhège dédào jīnzi hái
 神 仙 把 这 块 金 子 (10) 了 他 。 这 个 (11) 得 到 金 子 , 还
 bù mǎnyì shén yòu yòng shǒu yī zhǐ bǎ yīkuài dà shítóu
 不 满 意 。 神 (12) 又 用 手 一 指 , 把 一 块 大 石 头 (13)
 biànchéngle jīnzi yòu gěi le zhè gèrén shì bù mǎnyì
 变 成 了 金 子 , 又 给 了 (14)。 这 个 人 (15) 是 不 满 意 。
 shénxiān tā zěnyāoyàng nǐ mǎnyì ne zhè gèrén huí
 神 仙 (16) 他 : “ 怎 么 样 你 (17) 满 意 呢 ? ” 这 个 人 回
 shuō wǒ yào nǐ de
 (18) 说 : “ 我 (19) 要 你 的 (20) 。”

- 1.
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- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

[Chinese Version]

说明:

- a. 快速阅读整段文章，了解文章大意。
- b. 在每个空格右栏的相应位置填上一个字。
- c. 填空时，你可以选择使用汉字或者拼音，但没有必要两个都用。
- d. 检查你的答案。

例如:

wǒmen bānyī yǒu shí gè rén
我们 班一 (1) 有 十 个 人。

答案

gòng
1. 共 / gòng

答案

yǒuyī rén zài lùshang yùdào yī gèshén xiān
有 一 (1) 人 在 路 上 遇 到 (meet) 一 个 神 仙 (fairy),
zhège shénxiān yǐqián shì tā péngyǒu tā gào shénxiān
这 个 神 仙 以 前 是 他 (2) 朋 友。他 告 (3) 神 仙,
xiànzài tā de qíngkuàng yuè yuè bù rú cóng (5), shēnghuó hěn
现 在 他 的 情 况 越 (4) 越 不 如 从 (5), 生 活 很
kùn shénxiān tīng wán (7) de huà yòng shǒu yī (8) lùpáng de
困 (6)。神 仙 听 完 (7) 的 话, 用 手 一 (8) 路 旁 的
yīkuài xiǎo shítóu nà kuàishí tóu lìkè biàn le jīnzi
一 块 小 石 头, 那 块 石 头 立 刻 变 (9) 了 金 子,
shénxiān bǎ zhè kuài jīnzi le tā zhège dédào jīnzi hái
神 仙 把 这 块 金 子 (10) 了 他。这 个 (11) 得 到 金 子, 还
bù mǎnyì shén yòu yòng shǒu yī zhǐ bǎ yīkuài dà shítóu (13)
不 满 意。神 (12) 又 用 手 一 指, 把 一 块 大 石 头 (13)
biànchéngle jīnzi yòu gěi le zhè gèrén shì bù mǎnyì
变 成 了 金 子, 又 给 了 (14)。这 个 人 (15) 是 不 满 意。
shénxiān tā zěnyāoyàng nǐ mǎnyì ne zhè gèrén huí
神 仙 (16) 他: “ 怎 么 样 你 (17) 满 意 呢? ” 这 个 人 回
shuō wǒ yào nǐ de
(18) 说: “ 我 (19) 要 你 的 (20)。”

- 1.
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- 16.
- 17.
- 18.
- 19.
- 20.

[Answer Key]

- | | | | |
|-------------|------------|-----------------------|-------------|
| (1) 个/gè | (2) 的/de | (3) 诉/sù | (4) 来/lái |
| (5) 前/qián | (6) 难/nán | (7) 他/tā | (8) 指/zhǐ |
| (9) 成/chéng | (10) 给/gěi | (11) 人/rén | (12) 仙/xiān |
| (13) 又/yòu | (14) 他/tā | (15) 还/hái | (16) 问/wèn |
| (17) 才/cái | (18) 答/dá | (19) 想/xiǎng or 还/hái | |
| (20) 手/shǒu | | | |

APPENDIX C
QUESTIONNAIRE ON LANGUAGE BACKGROUND

[English Version]

The questions below are intended to help us learn about your language learning experience. Your personal information will be kept confidential, and all other information will be used for research purposes only. Please read and answer all the following questions carefully. Use the blank space beside each question to clarify answers

I. BIOGRAPHICAL INFORMATION

Year of Birth: _____ Gender: _____ Native Country _____

II. LANGUAGE BACKGROUND

Please indicate all languages that you speak, studied or had much contact with, and rate your proficiency on the scale from 1 (beginner) to 5 (native or near-native)

LANGUAGE	PROFICIENCY				
	1. Beginner	2.	3.	4.	5. Native or near-native

III. CHINESE LEARNING EXPERIENCE

1. At what age did you begin to study Chinese? _____ years old
2. How many years of school instruction of Chinese did you receive?
(Please specify the total length) _____ year(s)
3. How many years of Chinese grammar have you learned?
(Please specify the total length) _____ year(s)
4. How long have you lived in a place or places where Chinese was/is the primary language of communication?
(Please specify the total length) _____ year(s)
5. Approximately how many hours a day do you use Chinese?
(Please specify) _____ hour(s)

[Korean Version]

아래 질문들은 귀하의 언어 학습 경험에 대한 것입니다. 귀하의 개인 정보는 비공개될 것이고 모든 정보는 연구 목적으로만 사용될 것입니다. 모든 질문에 대해 주십시오. 각 질문의 아래 빈칸에는 자세한 답을 써 주세요.

I. 개인정보

출생년도: _____

성별: _____

출생국가: _____

II. 언어배경:

귀하가 구사하시거나 배우신 언어를 모두 기재하여 주십시오. 그리고 각 언어능력을 1(초급)에서 5(원어민 수준) 중 하나를 표시하여 주세요.

언어	숙련정도				
	1. 초보자	2.	3.	4.	5. 기본 또는 원어민수준

III. 중국어 학습 경험:

1. 몇 살때 중국어를 배우기 시작하셨습니다? _____ 세

2. 중국어를 몇 년동안 학교에서 배우셨습니까?
(배운 기간 전체를 써 주세요.) _____ 년

3. 중국어 문법을 몇 년 동안 배우셨습니까?
(배운 기간 전체를 써 주세요.) _____ 년

4. 중국어를 사용하는 지역에서 몇 년 사셨습니까?
(배운 기간 전체를 써 주세요.) _____ 년

5. 중국어를 하루에 대략 몇 시간 사용하십니까?
(자세히 써 주세요.) _____ 시간(들)

APPENDIX D


MULTIPLE-CHOICE INTERPRETATION TASK DIRECTIONS

[English Version]

Directions:

In the following, you will see some pictures. Under each picture is a man and a woman talking about the picture. As the right hand side of the pictures are torn off, the conversations by the man are missing punctuations. Your task is to look at the pictures and choose an appropriate response for the woman. Mark your answers on the choices given on the right of the pictures. Please mark only **one** answer for each question.

Example 1:



shìde
[] A: 是的。
nǐshuōcuòle
[X] B: 你说错了。
hé dōukěyǐ
[] C: A和B都可以。
bùquèdìngxuǎnǎgè
[] D: 不确定选哪个。

In Example 1, we see that 小王 xiǎowáng is taller than 小李 xiǎolǐ, but what the man said is just the opposite.

Therefore, you may feel that the woman's response should be 你说错了 nǐshuōcuòle. Then make an **X** mark next to Choice B.

Example 2:



- A: zàichuángshàng
在 床 上 。
- B: shìde
是 的 。
- C: hé dōukěyǐ
A和B 都 可 以 。
- D: bùquèdìngxuǎnnǎgè
不 确 定 选 哪 个 。

In Example 2, the man asked where the child was reading. According to the picture, you may feel that ^{zài} 在 _{chuángshàng} 床 上 is an appropriate response. Make an **X** mark next to Choice A.

In cases where you are not sure about your choices, mark Choice D.

Please turn to the next page and start the task. There are 40 items in this section. Make sure that you have completed all questions

[Korean Version]

해석, 설명:

아래 각 그림에서는 한 남자와 한 여자가 그림에 대해 이야기합니다. 하지만 사진의 오른쪽이 찢어졌기에 남자의 대화에서 문장 부호가 누락되었습니다. 당신의 작업은 사진을 보고 여자에 대한 적절한 응답을 선택하는 것입니다. 사진 오른쪽에 주어진 선택에 대한 답을 표시합니다. 각 질문에 대한 하나의 답에 표시를 하십시오.

예 1:



- shìde
- [] A: 是的。
- nǐshuōcuòle
- [X] B: 你说错了。
- hé dōukěyǐ
- [] C: A和B都可以。
- bùquèdìngxuǎnǎgè
- [] D: 不确定选哪个。

xiǎowáng xiǎolǐ
 이 그림에서 우리는 小王 이 小李보다 키가 크다 것을 볼 수 있지만, 한 남자는 그 말이
 nǐshuōcuòle
 상반된다고 말했습니다. 따라서 여성의 응답이你说错了해야 한다고 느낄 수 있습니다. 다음
 선택 B 옆에 X 표시를 하십시오.

예 2:



- zàichuángshàng
[X] A: 在 床 上 。
- shìde
[] B: 是 的 。
- hé dōukěyǐ
[] C: A和B 都 可 以 。
- bùquèdìngxuǎnnǎgè
[] D: 不 确 定 选 哪 个 。

예문에서 남자는 아이가 어디에서 책을 보고 있는냐고 물었습니다. 그림에서 당신은 ^{zàichuáng}在 床
shàng
上 에서 책을 보고있다는것을 느낄 수 있습니다. 선택 A 옆에 X 표시를 합니다.

당신이 당신의 선택에 대해 확실하지 않은 경우, 선택 D에 표시하십시오.

다음 페이지로 넘겨서 이 항목의 테스트를 시작하십시오. 이 섹션에 40 개 품목이 있습니다. 당신이 모든 질문을 완료했는지 확인하십시오.

[Chinese Version]

说明:

以下每幅图片下边是一男一女关于这幅图片的对话。由于图片右侧有部分残缺，男人的对话部分缺少标点符号。请你根据图片的内容，为女人选择恰当的对话，并在相应的选项旁打叉“X”。每道题请选择一个答案。

例 1:



- [] A: shìde 是的。
- [X] B: nǐshuōcuòle 你说错了。
- [] C: hé dōukěyǐ A和B都可以。
- [] D: bùquèdìngxuǎnǎgè 不确定选哪个。

从图片中，我们看到小王比小李高，而男人所说的却与图片恰好相反。因而，你可能会觉得女人的反应会是“你说错了”，那么就请你在选项 B 旁打叉“X”。

例 2:



- zàichuángshàng
[X] A: 在 床 上 。
- shìde
[] B: 是 的 。
- hé dōukěyǐ
[] C: A和B 都 可 以 。
- bùquèdìngxuǎnǎgè
[] D: 不 确 定 选 哪 个 。

在这个例子里，男人在询问图片里的小孩在哪里看书，根据图片的内容，你可能会觉得选项 A “在床上”是恰当的反应，那么就请你在这个选项的旁边打叉“X”。


如果遇到你对自己的选择不确定时，请你选择 D “不确定选哪个”。




请翻到下一页开始这部分。此部分共有 40 道题，请对所有题目做出选择。




APPENDIX E




MULTIPLE-CHOICE INTERPRETATION TASK TEST ITEMS




- Notes:**
1. The type of a sentence is identified as alphabetical letters in the item index, where:
 - A = Experimental Type 1: *shenme* in a veridical sentence: Q-biased context
 - B = Experimental Type 2: *shenme* in a veridical sentence: * \exists -biased context
 - C = Experimental Type 3: *shenme* in a nonveridical sentence: Q-biased context
 - D = Experimental Type 4: *shenme* in a nonveridical sentence: \exists -biased context
 - E = Filler Type 1: affirmative *wh*-question
 - F = Filler Type 2: affirmative declarative
 - G = Filler Type 3: negative *wh*-question
 - H = Filler Type 4: negative declarative
 2. The numeral in the item index indicates the token number.
 3. The Item No. indicates the order number of an item in the two presentation lists.
 4. In the experiment, the choices were presented with Pinyin on top of characters. English translations of the choices are given here for space considerations. Please contact the author if the original choices are needed.

Index	Test Item	Item No.		
		List 1	List 2	
A1	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai xie shenme she ASP write THING</p>	<p><u>Choices</u> shì de A: 是的。 xìn B: 信。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Letter. C: Both A and B are OK. D: Not sure which one to choose.</p>	27	14

Index	Test Item	Item No.		
		List 1	List 2	
A2	 <p><u>Prompt Gloss</u> (not in the experiment) Tamen zai kan shenme They ASP look-at THING</p>	<p><u>Choices</u> shì de A: 是的。 mǎyǐ B: 蚂蚁。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Ants. C: Both A and B are OK. D: Not sure which one to choose.</p>	21	20
A3	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai he shenme she ASP drink THING</p>	<p><u>Choices</u> shì de A: 是的。 chá B: 茶。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Tea. C: Both A and B are OK. D: Not sure which one to choose.</p>	18	23
A4	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai ban shenme he ASP carry THING</p>	<p><u>Choices</u> shì de A: 是的。 shū B: 书。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Books. C: Both A and B are OK. D: Not sure which one to choose.</p>	39	2

Index	Test Item	Item No.		
		List 1	List 2	
A5	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai du shenme he ASP read THING</p>	<p><u>Choices</u> shì de A: 是的。 bào zhǐ B: 报纸。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Newspaper. C: Both A and B are OK. D: Not sure which one to choose.</p>	31	10
B1	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai xie shenme he ASP write THING</p>	<p><u>Choices</u> shì de A: 是的。 bù zhī dào B: 不知道。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: No idea. C: Both A and B are OK. D: Not sure which one to choose.</p>	36	5
B2	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai kan shenme she ASP look-at THING</p>	<p><u>Choices</u> shì de A: 是的。 bù zhī dào B: 不知道。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: No idea. C: Both A and B are OK. D: Not sure which one to choose.</p>	26	15

Index	Test Item	Item No.		
		List 1	List 2	
B3	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai he shenme he ASP drink THING</p>	<p><u>Choices</u> shì de A: 是的。 bùzhī dào B: 不知道。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: No idea. C: Both A and B are OK. D: Not sure which one to choose.</p>	28	13
B4	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai ban shenme he ASP carry THING</p>	<p><u>Choices</u> shì de A: 是的。 bùzhī dào B: 不知道。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: No idea. C: Both A and B are OK. D: Not sure which one to choose.</p>	3	38
B5	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai du shenme he ASP read THING</p>	<p><u>Choices</u> shì de A: 是的。 bùzhī dào B: 不知道。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: No idea. C: Both A and B are OK. D: Not sure which one to choose.</p>	7	34

Index	Test Item	Item No.	
		List 1	List 2
C1	 <p><u>Prompt Gloss</u> (not in the experiment) Ta mei mai shenme she NEG buy THING</p>	34	7
C2	 <p><u>Prompt Gloss</u> (not in the experiment) Ta mei chi shenme he NEG eat THING</p>	38	3
C3	 <p><u>Prompt Gloss</u> (not in the experiment) Ta mei na shenme he NEG carry THING</p>	14	27

Choices

- shì de
A: 是的。
niúniǎo
B: 牛奶。
hé dōukěyǐ
C: A和B都可以。
bùquèdìngxuǎnnǎgè
D: 不确定选哪个。

Choices (English Translation)

- (not in the experiment)
A: Yes.
B: Milk.
C: Both A and B are OK.
D: Not sure which one to choose.

Choices

- shì de
A: 是的。
dàn gāo
B: 蛋糕。
hé dōukěyǐ
C: A和B都可以。
bùquèdìngxuǎnnǎgè
D: 不确定选哪个。

Choices (English Translation)




- (not in the experiment)
A: Yes.
B: Cake.
C: Both A and B are OK.
D: Not sure which one to choose.

Choices




- shì de
A: 是的。
kèběn
B: 课本。
hé dōukěyǐ
C: A和B都可以。
bùquèdìngxuǎnnǎgè
D: 不确定选哪个。




Choices (English Translation):




- A: Yes.
B: Textbooks.
C: Both A and B are OK.
D: Not sure which one to choose.




Index	Test Item	Item No.		
		List 1	List 2	
C4	 <p>tā méi huà shénme 他 没 画 什 么</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta mei hua shenme he NEG draw THING</p>	<p><u>Choices</u> shì de A: 是的。 māo B: 猫。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不 确 定 选 哪 个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Cat. C: Both A and B are OK. D: Not sure which one to choose.</p>	24	17
C5	 <p>tā méi chuān shénme 他 没 穿 什 么</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta mei chuan shenme he NEG buy THING</p>	<p><u>Choices</u> shì de A: 是的。 máoyī B: 毛 衣。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不 确 定 选 哪 个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Sweater. C: Both A and B are OK. D: Not sure which one to choose.</p>	6	35
D1	 <p>tā méi mǎi shénme 她 没 买 什 么</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta mei mai shenme she NEG buy THING</p>	<p><u>Choices</u> shì de A: 是的。 píngguǒ B: 苹 果。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不 确 定 选 哪 个。</p> <p><u>Choices (English Translation):</u> A: Yes. B: Apple. C: Both A and B are OK. D: Not sure which one to choose.</p>	22	19

Index	Test Item	Item No.		
		List 1	List 2	
D2	<p><u>Prompt Gloss</u> (not in the experiment) Ta mei chi shenme she NEG eat THING</p>	<p><u>Choices</u> shì de A: 是的。 yú B: 鱼。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices</u> (English Translation) (not in the experiment) A: Yes. B: Fish. C: Both A and B are OK. D: Not sure which one to choose.</p>	11	30
D3	<p><u>Prompt Gloss</u> (not in the experiment) Ta mei na shenme he NEG carry THING</p>	<p><u>Choices</u> shì de A: 是的。 bǐ B: 笔。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices</u> (English Translation) (not in the experiment) A: Yes. B: Pen. C: Both A and B are OK. D: Not sure which one to choose.</p>	1	40
D4	<p><u>Prompt Gloss</u> (not in the experiment) Ta mei hua shenme he NEG draw THING</p>	<p><u>Choices</u> shì de A: 是的。 shù B: 树。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices</u> (English Translation) (not in the experiment) A: Yes. B: Tree C: Both A and B are OK. D: Not sure which one to choose.</p>	30	11

Index	Test Item	Item No.		
		List 1	List 2	
D5	 <p><u>Prompt Gloss</u> (not in the experiment) Ta mei chuan shenme she NEG buy THING</p>	<p><u>Choices</u> shì de A: 是的。 xié B: 鞋。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: Shoes. C: Both A and B are OK. D: Not sure which one to choose.</p>	16	25
E1	 <p><u>Prompt Gloss</u> (not in the experiment) Tamen jidian zai chi fan they what-time ASP eat meal 'At what time are they eating?'</p>	<p><u>Choices</u> shì de A: 是的。 bādiǎn B: 八点。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: 8 o'clock. C: Both A and B are OK. D: Not sure which one to choose.</p>	5	36
E2	 <p><u>Prompt Gloss</u> (not in the experiment) Ta jidian zai shuijiao He what-time ASP sleep 'At what time is he sleeping?'</p>	<p><u>Choices</u> shì de A: 是的。 shíyīdiǎn B: 十一点。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: 11 o'clock. C: Both A and B are OK. D: Not sure which one to choose.</p>	2	39




Index	Test Item	Item No.		
		List 1	List 2	
E3	 <p><u>Prompt Gloss</u> (not in the experiment) Ta jidian zai kan dianshi He what-time ASP watch TV 'At what time is he watching TV?'</p>	<p><u>Choices</u> shì de A: 是的。 bā diǎn B: 八点。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: 8 o'clock. C: Both A and B are OK. D: Not sure which one to choose.</p>	23	18
E4	 <p><u>Prompt Gloss</u> (not in the experiment) Ta jidian zai shang ke He what-time ASP teach class 'At what time is he teaching?'</p>	<p><u>Choices</u> shì de A: 是的。 liǎng diǎn B: 两点。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: 2 o'clock. C: Both A and B are OK. D: Not sure which one to choose.</p>	33	8
E5	 <p><u>Prompt Gloss</u> (not in the experiment) Ta jidian zai kan shu she what-time ASP read book 'At what time is she reading?'</p>	<p><u>Choices</u> shì de A: 是的。 sān diǎn B: 三点。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: 3 o'clock. C: Both A and B are OK. D: Not sure which one to choose.</p>	19	22

Index	Test Item	Item No.		
		List 1	List 2	
F1	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai tan gangqin she ASP play piano 'She is playing piano.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	37	4
F2	 <p><u>Prompt Gloss</u> (not in the experiment) Tamen zai deng qiche they ASP wait-for bus 'They are waiting for a bus.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	4	37
F3	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai zuo fan she ASP make meal 'She is cooking.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	10	31

Index	Test Item	Item No.		
		List 1	List 2	
F4	 <p><u>Prompt Gloss</u> (not in the experiment) Tamen zai tiaowu they ASP dance 'They are dancing.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuōcuòle B: 你说错了。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	13	28
F5	 <p><u>Prompt Gloss</u> (not in the experiment) Ta zai da dianhua he ASP make phone-call 'He is making a phone call.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuōcuòle B: 你说错了。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	29	12
G1	 <p><u>Prompt Gloss</u> (not in the experiment) Ta jihao mei shangxue he which-day NEG go-to-school 'On which day didn't he go to school?'</p>	<p><u>Choices</u> shì de A: 是的。 sānhào B: 三号。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: The 3rd. C: Both A and B are OK. D: Not sure which one to choose.</p>	15	26

Index	Test Item	Item No.		
		List 1	List 2	
G2	<p><u>Prompt Gloss</u> (not in the experiment) Ta jihaomei zuo fan she which-day NEG make meal 'On which day didn't she cook?'</p>	<p><u>Choices</u> shì de A: 是的。 liùhào B: 六号。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: The 6th. C: Both A and B are OK. D: Not sure which one to choose.</p>	20	21
G3	<p><u>Prompt Gloss</u> (not in the experiment) Ta jihaomei dasao fangjian she which-day NEG make room 'On which day didn't she clean room?'</p>	<p><u>Choices</u> shì de A: 是的。 shíhào B: 十号。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: The 10th. C: Both A and B are OK. D: Not sure which one to choose.</p>	25	16
G4	<p><u>Prompt Gloss</u> (not in the experiment) Ta jihaomei shang shuxueke she which-day NEG have math class 'On which day didn't she have math class?'</p>	<p><u>Choices</u> shì de A: 是的。 wǔhào B: 五号。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: The 5th. C: Both A and B are OK. D: Not sure which one to choose.</p>	12	29

Index	Test Item	Item No.		
		List 1	List 2	
G5	<p>tā jǐ hào méi shuìjiào 他几号没睡觉</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta jihao mei shuijiao he which-day NEG sleep 'On which day didn't he sleep?'</p>	<p><u>Choices</u> shì de A: 是的。 qī hào B: 七号。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: The 7th. C: Both A and B are OK. D: Not sure which one to choose.</p>	17	24
H1	<p>tā méi zài chōuyān 他没在抽烟</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta mei zai chouyan he NEG ASP smoke 'He isn't smoking.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuōcuòle B: 你说错了。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	9	32
H2	<p>tā méi dài yǎnjìng 他没戴眼镜</p> <p>.....</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta mei dai yanjing he NEG wear glasses 'He isn't wearing glasses.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuōcuòle B: 你说错了。 hé dōukěyǐ C: A和B都可以。 bùquèdìngxuǎnǎgè D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	8	33

Index	Test Item	Item No.		
		List 1	List 2	
H3	 <p>tāmen méi zài kàn diànshì 他们没在看电视</p> <p>• • • • •</p> <p><u>Prompt Gloss</u> (not in the experiment) Tāmen méi zài kàn diànshì they NEG ASP watch TV 'They are not watching TV.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	32	9
H4	 <p>tā méi zài huà huà 他没在画画</p> <p>• • • • •</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta méi zài huà huà he NEG ASP draw picture 'He isn't drawing a picture.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	40	1
H5	 <p>tā méi zài zuò fàn 他没在做饭</p> <p>• • • • •</p> <p><u>Prompt Gloss</u> (not in the experiment) Ta méi zài zuò fàn he NEG ASP make meal 'He isn't cooking.'</p>	<p><u>Choices</u> shì de A: 是的。 nǐ shuō cuò le B: 你说错了。 hé dōu kě yǐ C: A和B都可以。 bù què dìng xuǎn nǎ ge D: 不确定选哪个。</p> <p><u>Choices (English Translation)</u> (not in the experiment) A: Yes. B: You are wrong. C: Both A and B are OK. D: Not sure which one to choose.</p>	35	6

APPENDIX F
PRODUCTION TASK DIRECTIONS

[English Version]

Directions:

1. Look at the following pictures carefully and go over the vocabulary lists underneath.
2. Choose words from the vocabulary list and make up a **statement** to briefly describe what the designated character is doing in each picture.
3. Write your sentence in the space given below each picture.
4. You may do it in characters or Pinyin, but not necessarily both.

- NOTE:**
- i) Not all words in the vocabulary lists are useful;
 - ii) **DO NOT** add words of your own.

Example:



zài diànshì kàn shū tā

Vocabulary List: 在、电视、看、书、他

xiǎohóng

In this picture, we see that the specified character, 小红, is reading. Therefore, your sentence may be:

xiǎohóngzàikànshū

小 红 在 看 书。

There are 12 items in this section. Make sure that you have completed all questions.

[Korean Version]

설명:

1. 신중하게 다음의 그림을 보고 아래의 어휘 목록을 통해 이동합니다.
2. 단어 목록에서 단어를 선택하고 지정된 캐릭터가 각각의 그림에서 무엇을 하고 있는지 설명하는 문장을 구성합니다.
3. 각 사진 아래의 공간에 문장을 작성합니다.
4. 당신은 문자 나 병음으로 답할 수 있지만 동시에 둘 다 사용할 수는 없습니다.

- 참고:**
- i) 어휘 목록에 있는 모든 단어는 유용하지 않음;
 - ii) 자신의 단어를 추가하지 마십시오.

예:



zài diànshì kàn shū tā

단어목록: 在、电 视、看、书、他

xiǎohóng

이 그림에서 우리는 지정된 문장인 小红 책을 읽고있는 것을 볼 수 있습니다. 따라서 당신이 아래 답해야 할 문장을 알 수 있습니다:

xiǎohóngzàikànshū

小 红 在 看 书。

이 섹션에는 12 개 항목이 있습니다. 당신이 모든 질문을 완료했는지 확인하십시오.

[Chinese Version]

说明:

以下每幅图片中有一个指定人物，图片下方是一个选择词汇表，请从词汇表中选择合适的词，造一句**陈述句**来简要描述这个人物的行为。注意，不是所有的词都有用，请不要添加其他词汇。

例如:



zài diànshì kàn shū tā

词汇表: 在、电、视、看、书、他

在图片中，我们看到指定的人物，小红，正在看书，所以你造的句子可以是：

xiǎohóng zàikànshū



你的句子: 小 红 在 看 书。




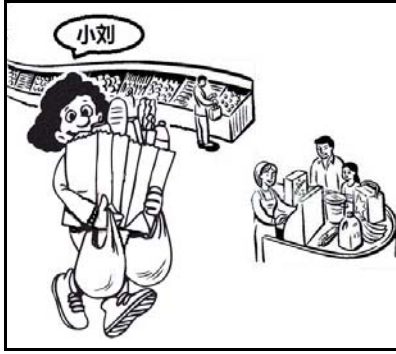
你可以选择使用拼音或汉字，但不必两者都用。


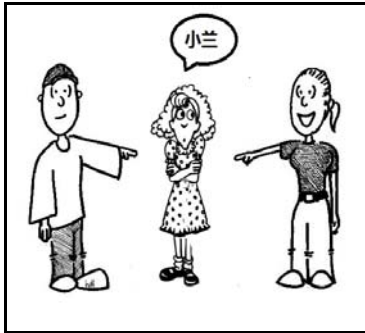


请翻到下一页开始这部分。此部分共有 12 道题，请对所有题目做出解答。

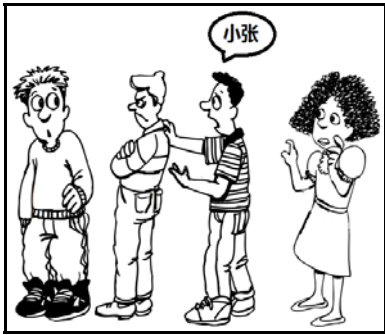

APPENDIX G
PRODUCTION TASK TEST ITEMS

- Notes:**
1. The type of the sentence is identified as alphabetical letters in the item index, where:
 A = existential *shenme* in a nonveridical sentence
 B = *existential *shenme* in a veridical sentence
 C = existential *shui* in a nonveridical sentence
 D = *existential *shui* in a veridical sentence
 2. The numeral in the item index indicates the token number.
 3. The Item No. indicates the order number of an item in the two presentation lists.
 4. In the experiment, the vocabulary lists were presented with Pinyin on top of characters. The English glosses were not included.

Index	Test Item	Item No.	
		List 1	List 2
A1	 <p>Vocabulary List (gloss not in the experiment)</p> <p>méiyǒu shénme kělè 没有, 什么, 可乐 NEG THING Coke</p> <p>hē zài jiǔ 喝, 在, 酒 drink ASP wine</p>	6	7
A2	 <p>Vocabulary List (gloss not in the experiment)</p> <p>zài shū méiyǒu 在, 书, 没有, ASP book NEG</p> <p>shénme ná qiānbǐ 什么, 拿, 铅笔 THING hold pencil</p>	8	5

Index	Test Item	Item No.	
		List 1	List 2
A3	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>xiāngjiāo chī shénme 香蕉, 吃, 什么, banana eat THING</p> <p>zài méiyǒu bǐnggān 在, 没有, 饼干 ASP NEG cookie</p>	4	9
B1	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>zài shénme xiě 在, 什么, 写, ASP THING write</p> <p>zì le zuòyè 字, 了, 作业 Character ASP homework</p>	3	10
B2	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>le pánzi zài 了, 盘子, 在, ASP dish ASP</p> <p>shénme xǐ dōngxi 什么, 洗, 东西 THING wash thing</p>	9	4
B3	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>shípin le mǎi 食品, 了, 买, Food ASP buy</p> <p>shénme zài dōngxi 什么, 在, 东西, TING ASP thing</p>	7	6

Index	Test Item	Item No.	
		List 1	List 2
C1	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>nánhái zài méiyǒu 男孩，在，没有， boy ASP NEG</p> <p>dǎ shuí nǚhái 打，谁，女孩 beat PERSON girl</p>	11	2
C2	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>méiyǒu shuí zhǐ 没有，谁，指， NEG PERSON point-at</p> <p>nánrén zài nǚrén 男人，在，女人 man ASP woman</p>	2	11
C3	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>yōngbào zài māmā 拥抱，在，妈妈， hug ASP Mom</p> <p>shuí méiyǒu bàba 谁，没有，爸爸 PERSON NEG Dad</p>	5	8
D1	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>zài shuí mà 在，谁，骂， ASP PERSON, scold</p> <p>tā le tāmen 她，了，他们 she/her ASP they/them</p>	12	1

Index	Test Item	Item No.	
		List 1	List 2
D2	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>tuī le shuí 推, 了, 谁, push ASP PERSON</p> <p>tā zài tāmen 他, 在, 他们 he/him ASP they/them</p>	10	3
D3	 <p><u>Vocabulary List</u> (gloss not in the experiment)</p> <p>zài tāmen kàn 在, 他们, 看, ASP they/them look-at</p> <p>shuí le tā 谁, 了, 她 PERSON ASP she/her</p>	1	12

APPENDIX H

ACCEPTABILITY JUDGMENT TASK DIRECTIONS

[English Version]

Directions:

Speakers of a language seem to develop an instinctive ‘feel’ for what is a possible sentence, even in the many cases where they have never been taught any particular rule.

For example, in English, you may feel that the first sentence below sounds natural, while the second one sounds awkward:

- (1) John is likely to win the race.
- (2) John is probable to win the race.

Likewise, in Chinese, you may feel that the first three sentences below sound natural, while the last one doesn't.

- wǒ sòng le yī běn shū gěi tā
- (1) 我 送 了 一 本 书 给 他。
- wǒ sòng le tā yī běn shū
- (2) 我 送 了 他 一 本 书。
- wǒ jì le yī běn shū gěi tā
- (3) 我 寄 了 一 本 书 给 他。
- wǒ jì le tā yī běn shū
- (4) 我 寄 了 他 一 本 书。

On the following pages is a list of Chinese sentences. We want you to tell us whether you feel they sound **natural** for you, or whether they sound **awkward** for you. Perhaps you have no clear feeling for whether they are natural or not. In this case mark **not sure**.

Read each sentence carefully and concentrate on how you feel about it. Mark only **one** answer for each sentence. Make sure you have answered all 60 questions

[Korean Version]

해석, 설명:

우리가 한 언어를 할 줄 안다고 하면 문법을 배우지 않고도 어떤 문장이 맞는지에 대한 감을 갖게 되는 것 같습니다.

예를 들면, 한국어에서 아래의 1, 2, 3의 문장은 괜찮게 들리고 4번의 문장은 좀 어색하게 들립니다.

- (1) 영희는 큰 사과를 가지고 있어요.
- (2) 영희는 작은 사과를 가지고 있어요.
- (3) 영희는 많은 사과를 가지고 있어요.
- (4) 영희는 적은 사과를 가지고 있어요.

마찬가지로, 아래의 1-3 문장은 중국어로 가능한 문장으로 들리고 4번의 문장은 자연스럽게 들리지 않습니다.

wǒ sòng le yī běn shū gěi tā

- (1) 我 送 了 一 本 书 给 他。

wǒ sòng le tā yī běn shū

- (2) 我 送 了 他 一 本 书。

wǒ jì le yī běn shū gěi tā

- (3) 我 寄 了 一 本 书 给 他。

wǒ jì le tā yī běn shū

- (4) 我 寄 了 他 一 本 书。

다음 페이지에서 여러 중국어 문장들을 보실 것입니다. 각 문장이 중국어로 가능한 **자연스러운** 문장이라고 느끼시는지, 가능하지 않은 **어색한** 문장이라고 느끼시는지 표시해 주세요. 어느 쪽인지 분명히 느끼시지 못한다면 **불확실한**에 표시하시면 됩니다.

각 문장을 잘 읽고 느낌을 알려주세요. 답안지에 답을 표시하여 주시면 됩니다. 각 문장마다 답을 **하나만** 표시하여 주세요. 60 문제 모두 답하셨는지 확인해 주시기 바랍니다.

[Chinese Version]

说明:

人们在使用语言的过程中似乎培养出一种“语感”。在很多情况下，虽然没有学习过什么特别的规则，人们却能“感觉”出某个句子是否是可以被接受。

例如，在读以下四个中文句子时，你可能会“感到”前三个句子很自然，而第四个句子却很别扭，不太象是真正的中文句子。

wǒ sòng le yī běn shū gěi tā

(1) 我 送 了 一 本 书 给 他。

wǒ sòng le tā yī běn shū

(2) 我 送 了 他 一 本 书。

wǒ jì le yī běn shū gěi tā

(3) 我 寄 了 一 本 书 给 他。

wǒ jì le tā yī běn shū

(4) 我 寄 了 他 一 本 书。

以下是一些中文句子。我们希望你告诉我们你对每个句子的“感觉”。你可能会感到有些句子读起来很自然，而有些句子很别扭。另外，你可能对有些句子的感觉不很明显。

请认真阅读每句话，注意你的感觉，然后判断这个句子是**自然**，**别扭**，或者**不确定**。请在每个句子下面所给选项的相应位置打“X”。每个句子请选择一个答案。

请对所有 60 个句子都做出判断。

APPENDIX I
ACCEPTABILITY JUDGMENT TASK TEST ITEMS

- Notes:**
1. The type of a sentence is identified as alphabetical letters in the item index, where:
 - A = *yes/no* question with existential *shuí* (Yes/no Question Experimental)
 - B = *yes/no* question with a proper noun (Yes/no Question Control)
 - C = conditional with existential *shuí* (Conditional Experimental)
 - D = conditional with a proper noun (Conditional Control)
 - E = **why*-question marked with the *yes/no* question particle *-ma* (Knowledge of *-ma*)
 - F = *why*-questions without *-ma* (Knowledge of *-ma*)
 - G = fillers
 2. The numeral in the item index indicates the token number.
 3. The Item No. indicates the order number of an item in the two presentation lists.

Index	Test Item	Item No.	
		List 1	List 2
A1	jīntiān zǎoshang xiǎozhāng pèng dào shuí le ma 今天 早上 小张 碰到 谁 了 吗? today morning XiaoZhang run-into PERSON ASP Q _{yes/no} 'Did Xiao Zhang run into someone/anyone this morning?'	42	19
A2	gāngcái xiǎo gūniang qīn shuí le ma 刚才 小 姑娘 亲 谁 了 吗? just now little girl kiss PERSON ASP Q _{yes/no} 'Did the little kiss someone/anyone just now?'	47	14
A3	zuótiān lǎoshī pīpíng shuí le ma 昨天 老师 批评 谁 了 吗? yesterday teacher criticize PERSON ASP Q _{yes/no} 'Did the teacher criticize someone/anyone this morning?'	26	35
A4	gāngcái xiǎomíng yōngbào shuí le ma 刚才 小明 拥抱 谁 了 吗? just now Xiao Ming hug PERSON ASP Q _{yes/no} 'Did Xiao Ming hug someone/anyone just now?'	11	50

Index	Test Item	Item No.	
		List 1	List 2
A5	<p>zuótiān lǎowáng jiàndào shuí le ma 昨天 老王 见到 谁 了 吗? yesterday Lao Wang see PERSON ASP Q_{yes/no} ‘Did Lao Wang see someone/anyone yesterday evening?’</p>	23	38
B1	<p>zuótiān lǎowáng pèngdào lǎoli le ma 昨天 老王 碰到 老李 了 吗? yesterday Lao Wang run-into Lao Li ASP Q_{yes/no} ‘Did Lao Wang run into Lao Li yesterday?’</p>	46	15
B2	<p>gāngcái xiǎo míng qīn tā māmā le ma 刚才 小明 亲 他 妈妈 了 吗? just now Xiao Ming kiss his mom ASP Q_{yes/no} ‘Did Xiao Ming kiss her mom just now?’</p>	52	9
B3	<p>shàngzhōu lǎoshī pīpíng xiǎoqiáng le ma 上周 老师 批评 小强 了 吗? last week teacher criticize Xiao Qiang ASP Q_{yes/no} ‘Did the teacher criticize Xiao Qiang last week?’</p>	6	55
B4	<p>jīntiān zǎoshang xiǎomíng dǎ hóng hóng le ma 今天 早上 小明 打 红红 了 吗? today morning Xiao Ming beat Hong Hong ASP Q_{yes/no} ‘Did Xiao Ming beat Hong Hong this morning?’</p>	19	42
B5	<p>zuótiān xiàwǔ xiǎozhào jiàndào tā gēgē le ma 昨天 下午 小赵 见到 他 哥哥 了 吗? yesterday afternoon XiaoZhao see his brother ASP Q_{yes/no} ‘Did Xiao Zhao see his brother yesterday afternoon?’</p>	3	58
C1	<p>rúguǒ xiǎohóng àishàng shuí dehuà tā yídìng 如果 小红 爱上 谁 的话, 她 一定 if Xiao Hong fall-in-love PERSON she definitely huì gàosù tā māmā 会 告诉 她 妈妈。 will tell her mom ‘If Xiao Hong falls in love with someone/anyone, she will definitely tell her mom.’</p>	24	37

Index	Test Item	Item No.	
		List 1	List 2
C2	<p>rúguǒ lǎolǐ xiǎngniàn shuí dehuà tā yídìng 如果 老李 想念 谁 的话, 他 一定 if Lao Li miss PERSON he definitely</p> <p>huì gàosù tā dìdì 会 告诉他 弟弟。 will tell his brother</p> <p>‘If Lao Li misses someone/anyone, he will definitely tell his brother.’</p>	10	51
C3	<p>rúguǒ xiǎozhào tǎoyàn shuí dehuà tā yídìng 如果 小赵 讨厌 谁 的话, 他 一定 if Xiao Zhao dislike PERSON he definitely</p> <p>huì gàosù tā nǚpéngyǒu 会 告诉他 女朋友。 will tell his girlfriend</p> <p>‘If Xiao Zhao dislikes someone/anyone, he will definitely tell his girlfriend.’</p>	31	30
C4	<p>rúguǒ míngmíng xǐhuan shuí dehuà tā yídìng 如果 明明 喜欢 谁 的话, 他 一定 if Ming Ming like PERSON he definitely</p> <p>huì gàosù tā jiějiě 会 告诉他 姐姐。 Will tell his sister</p> <p>‘If Ming Ming likes someone/anyone, he will definitely tell his sister.’</p>	32	29
C5	<p>rúguǒ lánlán hàipà shuí dehuà tā yídìng 如果 兰兰 害怕 谁 的话, 她 一定 If Lan Lan fear PERSON she definitely</p> <p>huì gàosù tā bàba 会 告诉她 爸爸。 will tell her dad</p> <p>‘If Lan Lan is afraid of someone/anyone, she will definitely tell her dad.’</p>	27	34

Index	Test Item	Item No.	
		List 1	List 2
D1	<p>rúguǒ xiǎozhōu àishàng xiǎowáng dehuà tā yídìng 如果 小周 爱上 小王 的话, 她 一定 if Xiao Zhou fall-in-love Xiao Wang she definitely</p> <p>huì gàosù tā mèimèi 会 告诉 她 妹妹。 will tell her sister</p> <p>‘If Xiao Zhou falls in love with Xiao Wang, she will definitely tell her sister.’</p>	41	20
D2	<p>rúguǒ lǎoli xiǎngniàn tā tàitài dehuà tā yídìng 如果 老李 想念 他 太太 的话, 他 一定 if Lao Li miss his wife he definitely</p> <p>huì gàosù tā nǚér 会 告诉 他 女儿。 will tell his daughter</p> <p>‘If Lao Li misses his wife, he will definitely tell his daughter.’</p>	1	60
D3	<p>rúguǒ hóngóng tǎoyàn xiǎomíng dehuà tā yídìng 如果 红红 讨厌 小明 的话, 她 一定 If Hong Hong dislike Xiao Ming she definitely</p> <p>huì gàosù tā bàba 会 告诉 她 爸爸。 will tell her dad</p> <p>‘If Hong Hong dislikes Xiao Ming, she will definitely tell her dad.’</p>	48	13
D4	<p>rúguǒ xiǎozhào xǐhuanxiǎoli de huà tā yídìng 如果 小赵 喜欢 小李 的话, 他 一定 if Xiao Zhao like Xiao Li he definitely</p> <p>huì gàosù tā jiějie 会 告诉 他 姐姐 will tell his sister</p> <p>‘If Xiao Zhao likes Xiao Li, he will definitely tell his sister.’</p>	56	5

Index	Test Item	Item No.	
		List 1	List 2
D5	<p>rúguǒ hónghóng hàipà lǎoshī dehuà tā yídìng 如果 红红 害怕 老师 的话, 她 一定 If Hong Hong fear teacher she definitely</p> <p>huì gàosù tā māmā 会 告诉 她 妈妈。 will tell her mom</p> <p>‘If Hong Hong is afraid of teachers, she will definitely tell her mom.’</p>	16	45
E1	<p>lǎowáng wèishénme zéguài xiǎoli ma *老王 为什么 责怪 小李 吗? Lao Wang why blame Xiao Li <i>Q_{yes/no}</i> ‘Why did Lao Wang blame Xiao Li?’</p>	34	27
E2	<p>xiǎozhāng wèishénme dǎ tā didì ma *小张 为什么 打 他 弟弟 吗? Xiao Zhang why beat his brother <i>Q_{yes/no}</i> ‘Why did Xiao Zhang beat his brother?’</p>	22	39
E3	<p>hónghóng wèishénme gēnzhe tā gēgē ma *红红 为什么 跟着 她 哥哥 吗? Hong Hong why follow her brother <i>Q_{yes/no}</i> ‘Why did Hong Hong follow her brother?’</p>	13	48
E4	<p>xiǎozhōu wèishénme yāoqǐng lǎomǎ ma *小周 为什么 邀请 老马 吗? Xiao Zhong why invite Lao Ma <i>Q_{yes/no}</i> ‘Why did Xiao Zhou invite Lao Ma?’</p>	17	44
E5	<p>xiǎomíng wèishénme piàn tā māmā ma *小明 为什么 骗 她 妈妈 吗? Xiao Ming why deceive her mom <i>Q_{yes/no}</i> ‘Why did Xiao Ming deceive her mom?’</p>	50	11
F1	<p>lǎozhāng wèishénme zéguài tā nǚér 老张 为什么 责怪 他 女儿? Lao Zhang why blame his daughter ‘Why did Lao Zhang blame her daughter?’</p>	20	41

Index	Test Item	Item No.	
		List 1	List 2
F2	lǎozhào wèishénme dǎ tā érzi 老赵 为什么打他儿子? Lao Zhao why beat his son 'Why did Lao Zhao beat his son?'	2	59
F3	hónghóng wèishénme gēnzhe tā jiějiě 红红 为什么跟着她姐姐? Hong Hong why follow her sister 'Why did Hong Hong follow her sister?'	28	33
F4	xiǎowú wèishénme yāoqǐng lǎozhèng 小吴 为什么邀请老郑? Xiao Wu why invite Lao Zheng 'Why did Xiao Wu invite Lao Zheng?'	45	16
F5	lánlán wèishénme piàn tā lǎoshī 兰兰 为什么骗她老师? Lan Lan why deceive her teacher 'Why did Lan Lan lie to her teacher?'	7	54
G1	zuótiān lǎowáng mǎi le wǔ běn shū 昨天 老王 买了五本书。 yesterday Lao Wang buy ASP give CL book 'Lao Wang bought five books yesterday.'	37	24
G2	shàng gè xīngqītiān tāmen kàn le yī chǎng diànyǐng 上个星期天他们看了一场电影。 last CL Sunday they see ASP one CL movies 'They saw a movie last Sunday.'	35	26
G3	jīntiān shàngwǔ xiǎoli chī le yī gè bīngqílín 今天上午 小李 吃了一个冰淇淋。 today morning Xiao Li eat ASP one CL ice cream 'Xiao Li ate an ice cream this morning.'	38	23
G4	zuótiān wǎnshàng lǎozhāng xiě le yī piān wénzhāng 昨天 晚上 老张 写了一篇文章。 yesterday evening LaoZhang write ASP one CL paper 'Lao Zhang wrote a paper yesterday evening.'	12	49

Index	Test Item	Item No.	
		List 1	List 2
G5	gāngcái xiǎomíng kàndào le yī zhī māo 刚才 小明 看到了 一只 猫。 just now Xiao Ming see ASP one CL cat 'Xiao Ming saw a cat just now.'	57	4
G6	hěnduō xuéshēng men wèn le zhè gè wèntí * 很多 学生 们 问 了 这 个 问 题。 many student PL ask ASP this CL question 'Many students asked this question.'	55	6
G7	xiǎohóng yǒu sān gè jiějiě men * 小 红 有 三 个 姐 姐 们。 Xiao Hong have three CL sister PL 'Xiao Hong has three sisters.'	51	10
G8	xiǎozhōu jiāo le xǔduō hào péngyǒu men * 小 周 交 了 许 多 好 朋 友 们。 Xiao Zhou make ASP many good friend PL 'Xiao Zhou made many good friends.'	59	2
G9	liǎng gè nánhái men zài dǎ diànhuà * 两 个 男 孩 们 在 打 电 话。 two CL boy PL ASP make phone call 'Two boys are making phone calls.'	29	32
G10	hěnduō nǚhái men dōu ài guàngjiē * 很 多 女 孩 们 都 爱 逛 街。 many girl PL all like shopping 'Many girls like shopping.'	25	36
G11	yǐqián lánlán bù jiàn guò dàxióngmāo * 以 前 兰 兰 不 见 过 大 熊 猫。 before Lan Lan NEG see ASP panda 'Lan Lan has not seen a panda before.'	9	52
G12	shàngzhōu lǎoliú bù kàn guò zhè běn shū * 上 周 老 刘 不 看 过 这 本 书。 last week Lao Liu NEG read ASP this CL book 'Lao Liu didn't read this book last week.'	14	47

Index	Test Item	Item No.	
		List 1	List 2
G13	<p>zuótiān lǎowáng bù pèngjiàn guò lǎoli * 昨天 老王 不 碰见 过 老李。 yesterday Lao Wang NEG run-into guo Lao Li 'Lao Wang didn't run into Lao Li yesterday.'</p>	44	17
G14	<p>qùnián tāmen bù qù guò běijīng * 去年 他们 不 去 过 北京。 last year they NEG go ASP Beijing 'They didn't go to Bei Jing last year.'</p>	8	53
G15	<p>jīntiān lǎoshī bù qù guò bàngōngshì * 今天 老师 不 去 过 办公室。 today teacher NEG go ASP office 'The teacher didn't go to his office today.'</p>	15	46
G16	<p>xiǎoli zài shōudào yī fēng xìn * 小李 在 收到 一 封 信。 Xiao Li ASP receive one CL letter 'Xiao Li is receiving a letter.'</p>	54	7
G17	<p>xiǎozhōu zài kànjiàn yī gè xiǎohái * 小周 在 看见 一 个 小孩。 Xiao Zhou ASP look-at one CL child 'Xiao Zhou is looking at a child.'</p>	36	25
G18	<p>xiǎomíng zài xiěwán yī běn shū * 小明 在 写完 一 本 书。 Xiao Ming ASP write-finish one CL book 'Xiao Ming is finishing writing a book.'</p>	43	18
G19	<p>lǎozhāng zài dǎ pò yī zhī chá bēi * 老张 在 打破 一 只 茶杯。 Lao Zhang ASP hit-broken one CL tea cup 'Lao Zhang is breaking a tea cup.'</p>	21	40
G20	<p>xiǎozhào zài mǎidào nà běn zìdiǎn * 小赵 在 买到 那 本 字典。 Xiao Zhao ASP buy-get that CL dictionary 'Xiao Zhao is buying that dictionary.'</p>	58	3

Index	Test Item	Item No.	
		List 1	List 2
G21	xiǎomíng xuéxí zài túshūguǎn * 小明 学习 在 图书馆。 Xiao Ming study at library ‘Xiao Ming is studying/studied at the library.’	18	43
G22	xuéshēng men huà huà zài jiàoshì * 学生们 画 画 在 教室。 student PL draw picture in classroom ‘Students are drawing/drew pictures in the classroom.’	4	57
G23	wǒmen chī wǎnfàn zài fànguǎn * 我们 吃 晚饭 在 饭馆。 we eat dinner in restaurant ‘We are having/had dinner in a restaurant.’	39	22
G24	wǒ xuéxí zhōngwén zài běijīng * 我 学习 中文 在 北京。 I learn Chinese in Beijing ‘I learn Chinese in Bei Jing.’	49	12
G25	hái zǐ men tī zúqiú zài gōngyuánli * 孩子们 踢 足球 在 公园里。 child PL kick football in park ‘The children are playing football in a park.’	33	28
G26	wǒ shuìjiào le wǔ gè xiǎoshí * 我 睡觉了 五 个 小时。 I sleep ASP five CL hour ‘I slept for five hours.’	53	8
G27	tāmen kǎoshì le liǎng gè xiǎoshí * 他们 考试 了 两 个 小时。 they have-exam ASP two CL hour ‘They had an exam for two hours.’	5	56
G28	lǎozhōu chī fàn le èrshí fēnzōng * 老周 吃 饭 了 二十 分钟。 Lao Zhou eat meal ASP twenty minute ‘Lao Zhou ate for twenty minutes.’	40	21

Index	Test Item	Item No.	
		List 1	List 2
G29	xiǎo nǚhái tán gāngqín le zhěng gè zǎoshang * 小女孩弹钢琴了 整个早上。 little girl play piano ASP whole CL morning ‘The little played the piano for the whole morning.’	30	31
G30	lǎowáng kàn shū le zhěng gè wǎnshang * 老王看书了 整个晚上。 Lao Wang read book ASP whole CL evening ‘Lao Wang read a book for the whole evening.’	60	1

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