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A Study in Second Language Classrooms:
Container Verbs in Chinese English Interlanguage

by

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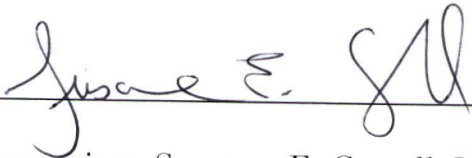
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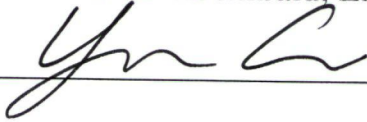
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled A study in second language classrooms: container verbs in Chinese English interlanguage submitted by Wing Yee So in partial fulfilment of the requirements for the degree of Master of Arts.



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ABSTRACT

This study seeks to illuminate the complexities of second-language (L2) learning by focusing upon the acquisition of English container words by Chinese speakers. This class of words includes verbs as nouns such as *bag*, *bin*, *bottle*, *can*, etc, as shown in (1):

- (1) a. [_{VP} V NP₁ [_{PP} P NP₂]] (i.e., [_{VP} pour water [_{PP} into bottles]]);
b. [_{VP} V NP] (i.e. [_{VP} bottled water]).

(1a) consists of a verb accompanied by NP1 and a PP which consists of a preposition and NP2. The NP1 denotes material and NP2 within the PP denotes a container. (1a) is referred to as *basic frame*. (1b) involves the conversion process in which the container noun NP2 incorporates into the verb. (1b) is referred to as *conversion frame*. The major aim of this study is to investigate whether Chinese L2 learners of English are aware of the possibility of converting container nouns into container verbs.

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Second language acquisition, or SLA, is the process by which people learn languages in addition to their native language(s). What is this process? Some experts regard SLA as the acquisition of four skills, namely reading, writing, listening and speaking (Leaver, 2005). This tells us that we can think of SLA as kinds of behaviour. Such a definition, however, does not tell us the whole story. It does not, for example, tell us what kinds of knowledge learners acquire in learning another language. Therefore, we should also include in a definition of SLA various sets of enabling knowledge — syntax (knowledge of sentence structure), morphology (knowledge of word structure), vocabulary (knowledge of the existing words of a language), phonology (how to pronounce the language), semantics/pragmatics (how to convey meaning through language), discourse (how to build texts), social and cultural knowledge (how to use language appropriately in a given community in specific social contexts). This thesis deals with knowledge of syntax, morphology, semantics and, to a limited extent, vocabulary.

The language that second language learners produce is called an **interlanguage** by the researchers who investigate SLA. An **interlanguage** grammar is an emerging linguistic system that has been developed by a learner of a second language who is not yet fully proficient, but, rather, is only approximating the target language (Selinker, 1972). L2 learners often preserve some features of their first language in speaking or writing the target language and create innovations; they say things that no native speaker or teacher has ever said or would say. Such errors reveal the patterns of the underlying interlanguage grammar. Other kinds of behaviours, such as the judgements that learners make

about what is or is not a possible sentence of the L2, can also shed light on their developing knowledge.

This study concerns the second language learning of English container verbs by Chinese students. Container verbs involve a conversion process, a way of creating “new words from old”. This term from morphology refers to a process by which a form changes word class, say from a Noun to a Verb, without adding an affix. This is a derivational morphological process.

1.1 Derivational Morphology

Languages include words for the categories of things, attributes, states, and events we find in the world around us. They may include pairs of words related to a single concept by a particular abstract grammatical construction. For example, for the word *large* as in (2a), there is an event involving a change of state in some object in the direction of that attribute, as in (2b) and also the action event involving an agent who causes such a change of state, as in (2c).

- (2) a. *large* lawn
- b. The lawn *enlarges* at this point.
- c. I am *enlarging* the lawn.

These examples show us how languages capitalize on generalizations involving related words for similar concepts. We can create new words from a common morpheme (here *large*) through processes of **derivational morphology** which combine “words” to form compounds or affixes with a lexical root, to form the new word as in (2b-c) (Aronoff, 1976; Bauer, 1983; Selkirk, 1982; Di Sciullo and Williams, 1987).

When discussing derivational morphology from the point of view of a

language user's linguistic competence, I assume that a speaker or hearer must know not only what the grammatical morphemes are and how they combine but also the grammatical conventions for how the meaning of the more complex word is derived from the meanings of the two components. A language users' ability to create and understand new words already implicates this level of lexical structure as well. How this information is acquired, represented and used are central issues in the study of language and are of concern in this thesis.

The acquisition of second language morphology is, however, a relatively new area of research. Previous studies of L2 morphology have mainly concentrated on the order of acquisition of functional categories such as Tense, Finiteness, Definiteness (the "morpheme order studies" (Zobl & Liceras, 1994; Lardiere, 2000)). These studies, however, paid little attention to the underlying strategies applied by the learner in acquiring, processing and producing morphologically complex words, or to the general organization and development of the learner's lexicon. As studies in this particular area have been sparse, there is little material to draw on¹. We can nonetheless obtain some clues about learning morphology from studies of L1 morphology. Studies of children's lexical innovations reveal that children make use of morphological generalizations on a large scale. These data provide invaluable insights into the mechanisms and processes of the acquisition of morphology, which might alternately be generalizable to the acquisition of L2 morphology. In spite of the potential for gleaning significant insights from L1 data, they do not contribute directly to our understanding of L2 morphology. We still need to explore data which will enable us to address the question of

¹ In educational studies of, e.g. English-as-a-second language (ESL), there is a large literature on "vocabulary learning". This literature presupposes that learning a language's words involves learning lists of unrelated forms. It poses a fundamental dichotomy, therefore, between "grammar", on the one hand, and "vocabulary" on the other. Applied linguists such as Leaver (2005) also treat vocabulary and grammar as distinct constructs.. Linguistic approaches to word learning, in contrast, view morpheme learning and word learning as being central to grammatical organization and focus on the structural and semantic relations linking lexical expressions.

how a second language learner acquires knowledge of morphological structure. In this study, we are primarily interested in understanding how L2 learners understand new words that are created from lexical roots via conversion.

1.2 The Purpose of Study

When people refer to a new entity, experience or idea in English, they can make use of a range of word formation processes to meet their vocabulary needs. For instance, the noun *package* in (3a) is used as a verb in (3b) without any change in the word form². This phenomenon is referred to as **conversion**.

(3) a. We put the potato chips in *packages*.

b. We finally *packaged* the potato chips

This study addresses the question of how second language learners learn a class of English verbs that will be referred to here as **container verbs**. This class includes verbs such as *bag, bin, bottle, can, garage, house, pot*, etc. These words can either function as nouns or verbs, as shown in (4), and they permit the concept of container expressed by the noun to be incorporated into the verb form expressing the process of putting an object into the container, as in (4b).

(4) a. We (AGENT) finally put the potato chips (THEME) in
packages (LOCATION).

b. We (AGENT) finally packaged the potato chips (THEME)³.

² The noun *packages* in (3a), which appears as a verb in (3b) is marked for plural. ‘-s’ is an inflectional morpheme limited to nouns. In (3b), we see that the base form *package* is marked for past tense (*packaged*). Past tense is an inflectional morpheme limited to verbs. The fact that the sound form behaves as if it were a member of two distinct word classes (Noun and Verb), is, of course, precisely the evidence that conversion exists, despite the fact that this shift from noun to verb class is not marked by an addition of a specific verb-making affix.

³ The semantic relationship of an argument is expressed through the assignment of a theta role by the predicate to the argument, in conformity with the theta criterion (Chomsky, 1981, 1986). Different theta-roles have different labels, such as Agent and

In languages such as Chinese, equivalent nouns, may not necessarily be used as verbs. For instance, English container verbs such as *bag*, *bin*, *bottle*, *can*, *garage*, *house*, *pot* cannot be used as verbs in Chinese. However, other English container verbs such as *pack*, *cover*, *shade*, *net* have equivalent verbs in Chinese. In fact, container verbs are relatively limited in Chinese. This difference among languages may pose learning problems to Chinese L2 learners of English. Because their first language has another system of ‘containerization’, they may have difficulty understanding or using container verbs such as in (3b). By hypothesis, we might assume that (i) they cannot accurately transfer noun-to-verb derivational ‘rules’ to their interlanguage in the scarcity of comparable relations in the L1; (ii) because these verbs are infrequent in the input and normally are not taught in second language classroom, it is unlikely that such learners will be exposed to individual examples of container verbs (which could be learnt by rote) or to enough instances to extract a general noun-to-verb rule.

These two assumptions are a precondition for making a poverty-of-the-stimulus (POS) argument in second language acquisition research. The poverty-of-the-stimulus argument asserts that the information in the primary linguistic input is insufficient for learning the grammar. In 1965, Noam Chomsky (1965: 47-59) argued that the basis of language is genetically given. Children only hear a finite number of sentences, yet they learn to speak and comprehend sentences drawn from a grammar that can represent an infinite number of sentences. According to this view, at every stage of language acquisition, inferring a syntactic rule, or determining the sub-categorization frame of a new verb, the child can make many logically possible generalizations, but generalizes correctly. The core of the argument is that the grammar cannot be acquired

Theme, to describe what they contribute to the meaning of a sentence. Agent is a type of argument or thematic role which designates an entity which is the cause of and has control over the action denoted by the predicate. Theme refers to the object that is located or relocated in space (Fillmore, 1968; Gruber, 1965; Jackendoff, 1990).

solely on the basis of the input. Instead, infants learn their first languages guided by experience-independent internal knowledge. This knowledge is referred to as Universal Grammar.

Since 1980, the idea that input is impoverished in relevant respects has also been made in second language acquisition. It has been argued that the nature of L2 grammatical knowledge is analogous to that of the L1 grammar, consequently the issue of learning abstract structure from impoverished input is essentially the same. What is a particular question in SLA research is whether UG still constrains adult L2 acquisition (Clahsen & Muysken, 1989; Schachter, 1988; White, 1989, 1990).

To further investigate the role of UG in SLA, in this study I focus on the acquisition of English container verbs by Chinese speakers. As container verbs are not common in Chinese, what the Chinese L2 learners need to learn is to map the conceptual representations of English container noun to the correct morphological and syntactic representations in instances of conversion. This specific area of English grammar has not been investigated in the literature of second language research. Chinese learners of English were chosen as the subjects because container verbs are not common in Chinese. Moreover, these learners are seldom taught about English container verbs in second language classroom. It is interesting to examine what these learners know about English container verbs given that their linguistic input is, by hypothesis, insufficient to learn the words by exposure and practice, imitation or explicit instruction. This study is an attempt to pioneer the investigation of L2 acquisition of this aspect of derivational morphology.

As discussed in the previous section, **containerization** basically refers to putting something in a particular location (in a container). In English, this is expressed by denominal verb formation (a conversion process) while in Chinese, containerization is either shown in a denominal verb formation or a causative construction with *ba* (Li and Thompson, 1981). The use of two different frames demonstrates the potential linguistic differences between the two language systems (Chinese and English). In fact, containerization expressed in a denominal verb formation is not common in Chinese (Chan and Tai, 1994; Liu, 1991). Usually, the concept of containerization is conveyed with the use of *ba* construction. The limited use of denominal verb formation may cause insensitivity and troubles to the Chinese learners of English when they are exposed to English container verbs. Also, the results of our textbook examination, which is shown in Chapter Five, indicate that English container verbs do not emerge in the teaching materials of second language classrooms. This is a sign that adequate input concerning English container verbs may be lacking for this population of learners.

The fact that the learners' first language (Chinese) and second language (English) are different in terms of container verbs, as well as the observation that these verbs are not the subject of frequent instruction in classrooms, leads to the precise research question of this study: Are Chinese-speaking L2 learners of English aware of the relationship between container verbs and container nouns?

1.4 The Organization of This Study

This study consists of seven chapters. The current chapter serves as an overview of this study: it discussed **derivational morphology** briefly and introduced the notions **conversion** and **container verb**. Finally, the purpose of the study was established and motivated. Chapter Two provides a literature review on the phenomenon of conversion in English. The word-formation process **conversion** is defined and the relationship of **conversion** and English denominal verbs is also discussed with various types of English examples provided by Clark and Clark (1979). Following the analysis of denominal verbs, I discuss English container verbs. Apart from the morphological analysis, I also provide the syntactic and semantic representations of English container verbs in section 2.5 and 2.6. Chapter Three is a discussion of conversion in Chinese. Following the structure of Chapter Two, the expression of containerization in Chinese is discussed briefly, using various types of examples in Mandarin and Cantonese. Similarly, I also provide morphological, syntactic and semantic analyses of Chinese container verbs. Throughout the section, I compare English and Chinese denominal verbs from a morphological, syntactic and semantic point of view. Chapter Four describes the methodology of my empirical research and specifies details of the subjects involved, material adopted, data collection (a questionnaire and an acceptability judgement task were used), data analysis and hypotheses. The procedure of both the pilot study and the main study are also explained. Chapter Five presents the findings. It provides a quantitative analysis of data resulting from the questionnaire and the acceptability judgment task. This includes the statistical analysis of L2 learners and native speakers' performance on acceptability judgement task. Various statistical tests are adopted to further confirm the validity of the results. Chapter Six discusses those findings in line

with the research question put forward above. In addition, I discuss briefly⁹ the implications of my findings for the theory of UG in SLA and for the issue of the poverty-of-the-stimulus. Finally, Chapter Seven concludes the study by presenting its limitations and an agenda for further research.

2.1 A Definition of Conversion and Its Relation to Denominal Verbs

2.1.1 What is *Conversion*?

Deriving words by adding affixes is a common process of word formation in English. For example, attaching the affix *-er* to verbs such as *write* produces nouns like *writer*, meaning ‘one who writes’. We can also attach the affix *-ness* to adjectives such as *happy* to create the noun *happiness*, meaning to have the quality of ‘happy’. Or else, the addition of the affix *-able* to verbs such as *remark* turns the verb into the adjective *remarkable*.

Affixation is not the only derivational process in English. There are also a number of other ways to create new words. **Conversion** is a word formation process that assigns an existing word to a new lexical category. This involves a change in category and meaning of a particular lexical item without any overt morphological marking. For instance, nouns such as *break* (*take a break*), *stand* (*take a stand*), *walk* (*go for a walk*), *drive* (*go for a drive*) derive from the verbal forms *break*, *stand*, *walk*, *drive*. These derivations result not only in a category change (from verb to noun), but also in a change of meaning. *To break* can have a meaning of ‘cause something to be damaged’ as in (5a) while the noun can mean an interval between periods of work as in (5b) or a broken place in an object as in (5c). Here, *to break* (*broke* as in (5a)) is the base (or root) and the deverbial noun (*break* in (5b) and (5c)) is the derived form.

- (5) a. She *broke* a cup this morning.
 b. We have an hour’s *break* for lunch every day.
 c. There is a *break* in the wall.

In spite of the lack of morphological differences between the base and the derived form, (5) shows that the items of a conversion pair ((5a) vs. (5b) and (5c)) are semantically related. However, English is full of words which have the same form and pronunciation but are not morphologically related. For instance, the words *bank* in a pair of sentences like *I put some money in the bank* vs. *The bank of the river collapsed* are examples of homophony, not conversion. Although the two words are identical in form and pronunciation, they have unrelated meanings. Given this, homophony might not be easily distinguishable from conversion to language learners. In that case, the language learners must presumably grasp the semantic relatedness of two forms in order to learn that a pair of forms is in a conversion relation. In any case, conversion is a very productive word formation process in English and various types of conversion cases are found. They are shown in (6):

(6)

a.

Noun → Verb	
the bottle	to bottle
the hammer	to hammer
the file	to file
the skin	to skin
the jail	to jail

b.

Verb → Noun	
to call	a call
to jump	a jump
to run	a run
to guess	a guess
to drive	a drive

c.

Adjective → Verb	
empty	to empty
open	to open
cool	to cool
black	to black
slow	to slow

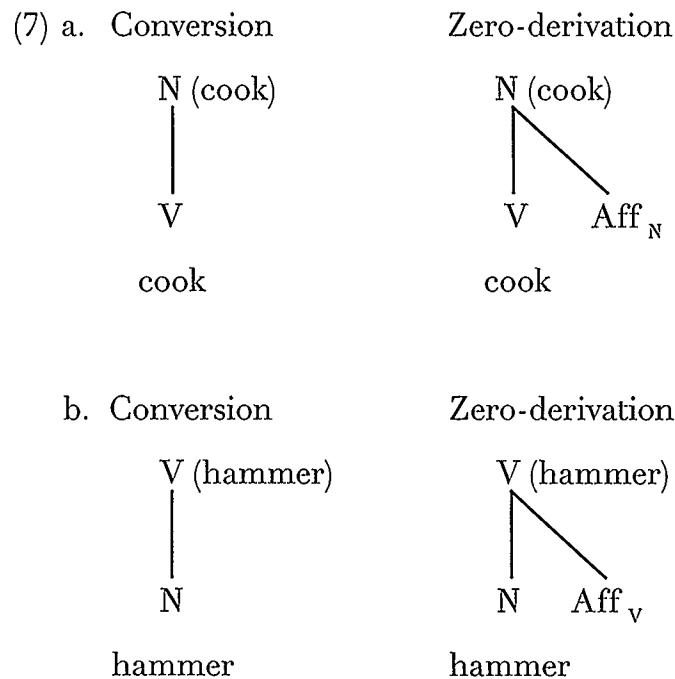
d.

Adjective → Noun	
daily	a daily
intellectual	an intellectual
innocent	an innocent
alcoholic	an alcoholic
comic	a comic

These examples demonstrate that conversion is rather common in English. Nouns frequently become verbs and vice versa. Adjectives become verbs or nouns as well. In fact, conversion has been a topic of much discussion on word formation in the literature (Allen, 1978; Beard, 1995; Don, 1993, 2003, 2004; Kiparsky, 1982; Lieber, 1980, 1981, 1992, 2005; Marantz, 1993, 1997, 2001; Marchand, 1964, 1969) and has received considerable attention both from the standpoint of the nature of the morphological processes involved and their relationship to affixation, and from the point of view of the semantics of conversion-related words. Nonetheless, the terminology used for this process has not been very clear. Some scholars use the term *conversion*, because a word is converted (shifted) to a different part of speech; others use the term *zero-derivation* or *zero-affixation*, because the process is like deriving a word from another morphological category by attaching a zero-affix. In either case (category shift, or affixation), the putative morphological process creates a semantic dependence between the derived word and its base (Quirk, 1997: 1558). Even so, the two terms refer to

different processes, a fact that will be briefly discussed here.

Some linguists treat conversion and zero-derivation as synonymous terms, while others make a clear distinction between them. Conversion and zero-derivation imply two different theoretical claims. Zero-derivation analyses hypothesize that conversion creates a derived morphological category by means of affixation. The affix involved is present in morphological structure even though there is no overt phonetic exponent of it; in this sense, it is ‘abstract’ and designed to make the relevant pairs look like conventionally derived pairs. In contrast, conversion does not involve such an affix. (7) is the representation of the two analyses of converted *cook* and *hammer*:



Owing to the distinct structural properties of conversion and zero-derivation, the correct analysis of relevant examples generates a number of contentious issues, namely (i) the problem of directionality (Kiparsky, 1982; Don, 1993, 2003, 2004), (ii) the problem of the status of the zero-morpheme (Lieber, 1980, 1981, 1992, 2005) and (iii) the problem of the morphology-syntax boundary (Marantz,

1997, 2001). However, these issues are not my concern in this thesis and will not be discussed further. Now, we turn to the question: “How are denominal verbs related to conversion?”

Above, I used *break* as an example of a deverbal noun since it is derived from the verb to *break*. Here we have a change in category and meaning but no change in form. The relationship of [break]_V and [break]_N thus looks like an instance of conversion, with the noun being derived from a base verb. As was shown above, verbs can also be derived from nouns. For example, *bottle* is used as a noun to refer to a particular kind of container. The verb *bottle*, as in *bottle the water*, also exists. Since a new verb is derived from the parent noun, this derivational process is referred to as **denominalization** while the derived form is referred to as **denominal verb**. In the following, I discuss English denominal verbs in more detail.

2.2 English Denominal Verbs

2.2.1 *The Literature on Denominal Verbs*

Apart from *bottle*, which I mentioned in 2.1.1, *cushion* and *button* are also good examples of conversion. These two words originated in English as nouns, but subsequently developed a verb use as well. Undoubtedly, denominalization is a very productive way to create lexical innovations and novel examples keep emerging (e.g. the verb *google* as in *We googled to find the definition of the new word* is derived from the site’s name *google*). Despite the high productivity of denominal verbs, the literature on denominal verbs is comparatively scarce in contrast to other morphological phenomena. Nonetheless, studies which focus on the creative use of denominal verbs are not entirely lacking (e.g. Aronoff,

1980; Clark & Clark, 1979; Clark, 1992; Kelly, 1988; Kelly, 1998). Among these few studies, Clark & Clark's analysis of denominal verbs is considered to be a classic and one of the finest examples of lexical semantic analysis.

Clark & Clark (1979) introduced two novel theoretical notions to discuss zero-derived or conversion cases of denominal verbs in English. Clark and Clark claim that the use of denominal verbs is regulated by a convention. In using such a verb, this convention serves as a function of the cooperation between speaker and hearer. According to Clark and Clark:

“The convention is that when a speaker utters such a verb, he intends his listener to see that the verb picks out a readily computable and unique kind of state, event, or process that the speaker is confident the listener can figure out on the basis of the verb itself, the linguistic context and other mutual knowledge.” (Clark and Clark, 1979, p.768).

The second notion is a new semantic category of expressions. Clark and Clark call it **contextuals**. They call denominal verbs **contextuals** because these verbs have a sense and denotation which shift according to the context of use (Clark & Clark, 1979, p.782). Clark and Clark use *bachelor* for illustration⁴. They first establish a notion of *constant denotation* vs. *shifting reference*. The noun denotes an unmarried man in every real or imaginary world and at the same time the particular person it refers to (its referent) changes with the time, place, and circumstances of its utterance. So too do denominal verbs have a shifting reference, but denominal verbs are a type of contextual expression whose denotation also shifts, depending on the time, place and context of the utterance. I will use the example shown in (8) for illustration. In (8a), *brick* means ‘fill in, block or seal the window with

⁴ *Bachelor* refers to an unmarried male here. It also has the meaning of a university degree as in “The bachelors come to the right and the masters come to the left” uttered during a convocation ceremony. It could be argued that bachelor shows that underived nouns also vary widely in meaning depending on context; the counterargument would be that there are two distinct words bachelor illustrated here, i.e. a case of accidental homonymy.

bricks'. However, if the context is changed, the meaning of *brick* changes with it as well. For instance, *brick* means “form the ice-cream into the shape and size of a brick” as in (8b); it no longer denotes building materials made of clay. With the changes of the context outside the sentences, the denotation of denominal verbs also changes.

- (8) a. Let's brick up the window.
 b. She is bricking the ice-cream.

Clark and Clark's descriptions indicate that denominal verbs are variable in their interpretations (meaning both their reference and their denotation). But what makes these verbs possess such a property? One contributing factor is the unfamiliarity of their meaning to the listener.

Clark and Clark (1979) point out that denominal verbs are typically introduced into English as an innovation. The noun that is used may never have been used as a verb before and will be unfamiliar to the listener when so introduced. For instance, verbs like *email* as in *The employer emailed the candidate by telling her the results* are entirely new when internet was initially established. At that time *email* was mostly used as nouns and the relationship between the noun the derived verb were not transparent. When the word firstly appears as verbs, it may sound novel to the listeners. As the denominal verb is used more frequently, the relationship between the noun and the verb may become conventionalized, such as *blanket* in *blanket the bed*. While *blanket the bed* might originally have meant uniquely “to cover the bed with a blanket”, the denominal verb no longer is required to express this meaning, e.g. *to blanket with snow*, *to blanket with petals*, etc. *To blanket* now means something like “to cover densely”. Some common denominal verbs such as *boycott* and *diddle* were originally based on proper nouns (*Captain Boycott* and *Diddle*). Eventually, the noun origins of these verbs were lost and they have become opaque idioms (e.g. *boycott the store*,

they've diddled me out of the rent) (Clark & Clark, 1979).

This historical shift from an innovative denominal verb to a conventional denominal verb suggests that the semantic transparency of denominal verbs is subject to change. The disappearance of their transparency may bring more problems to language learners, because the relationship between the parent noun and the verb is hard to notice. In this study, the relationship between denominal verbs and their parent nouns is vital because the learners are assumed to know the meaning of a container verb if they know the meaning of the container noun (Clark & Gerrig, 1983). In other words, they should be able to infer something about the meaning of the verb based on their knowledge of the meaning of the parent noun. Without any knowledge of the noun, it is unlikely that the learners can infer any meaning of the verb. For instance, if we do not know the meaning of the noun *boycott*, we cannot know what the meaning of the verb (*boycott the store*) is because we have to refer to the context and the meaning of the noun in order to be able to interpret denominal verb. Therefore, knowledge of the meaning of the noun plays an important role in the interpretation of denominal verbs.

In addition to this, the context is also indispensable for the learners to figure out the meaning of denominal verbs. By context Clark and Clark mean the speaker's and listener's mutual knowledge, as well as some other criteria. They use the following example for illustration:

(9) a. Max teapotted a policeman. (Clark, 1992)

To arrive at a meaning for this sentence, the listener/reader must draw a pragmatic inference from knowledge of the situation. First, one has to assume that Max did something to a policeman involving a teapot. However, to know exactly what Max did, i.e. to infer the manner of his action, requires knowledge of the situation (Clark, 1992). A comparable example was provided by Susanne

Carroll (p.c. 2006) who heard on the radio a speaker produce (9b):

- (9) b. I've got coffee mugs from the gas station; I've got coffee mugs
from the car dealership; Everytime I turn around, someone is
trying to mug me.

This case is interesting not only because the compound noun *coffee mug* has been reduced to *mug* in the final sentence and is only interpretable in the context as a reduced version of *someone is trying to coffee mug me*, but also because pre-emption (see below) should have applied here (the verb *mug* existing already in the sense of 'to violently rob').

Aronoff(1980), who is also interested in studying the use and understanding of denominal verbs, accepts the claim that context plays a role in interpreting denominal verbs, but argues that it is not obligatory to create a new category of contextual expressions to understand the meaning of denominal verbs. Instead, it can be arrived at by using Grice's (1975) Cooperative Principle along with the interpretive principle used for dealing with evaluative adjectives^{5,6}. Aronoff (1980) points out that one must access information about the conventional use of the item in order to understand the adjective. For example, *good* as in a *good knife* is modifying *knife* in a positive evaluation; a *good knife* is a more desirable knife than a *bad knife* or a *mediocre knife*. This information is obtained from the conventional lexical information for *knife*. However, a good knife is one that cuts well. The contribution of *good* in modifying *knife* is thus quite different from its contribution in modifying *book*. A good book is not one that cuts well; a good book is rather one that is entertaining. The question is: Where does this meaning come from? For Aronoff, it comes from the conventional lexical

⁵ The Cooperative Principle is a principle of conversation that was proposed by Grice (1975), stating that participants expect that each will make a "conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange." (Grice, 1975: 45-46)

⁶ The Interpretive principle tells us to make as much use of the meanings of expressions as possible to compute what is expressed in context. (Katz, 1964: 751)

information of the modified noun. Aronoff then asserts that if the semantic system can access evaluative adjectives like *good* from the conventional lexical information of the modified noun, this process should also be possible in the case of zero-derived verbs. One can analyze the meaning of the sentence by restating the sentence with a denominal verb as an evaluative phrase. This conventional linguistic mechanism is the same mechanism that is used to analyze evaluative phrases. For instance, the sentence in (10) can be interpreted as a verb which denotes an action in which a bottle could be used, namely, throwing bottles at demonstrators.

- (10) We were stoned and bottled by the spectators as we
marched down the street. (Clark and Clark, 1979, p.785)

Hence, Aronoff argues against the necessity of introducing a denominal verb convention and the semantic category **contextual**. Using Grice's (1975) Cooperative Principle, it can be presumed that the listener can derive a meaning for the utterance from the conventional meaning of the noun, the conventional meaning of the verb construction, and other aspects of the meaning of the sentence.

2.3 Types of Denominal Verbs

While Clark and Clark (1979) and Aronoff (1980) disagree on the role of contextual information in interpreting denominal verbs, Kelly (1998) shows that they do not form a homogenous class. According to Kelly (1998), there are two classes of denominal verbs. The first class consists of rule-derived denominal verbs derived from nouns that belong to the same semantic category. When these nouns are used as verbs, they all have a predictable meaning. An example

is the semantic category “vehicle” which contains nouns, such as *boat* and *truck*. They can be interpreted as ‘to travel by X’ when used verbally. Therefore, the verbs *boat* and *truck* have the interpretation “to travel by boat” and “to travel by truck” respectively.

The second class consists of denominal verbs derived from nouns that do not belong to the same semantic category and possess diverse meanings when used as verbs. For instance, *to fish* is interpreted as “to try to catch fish”. Conversely, *to dog* means “to pursue tirelessly”. Because of their nature, idiosyncratically derived denominal verbs rely heavily on context for interpretation. These verbs do not have any predetermined interpretation. When compared to this second class, rule-derived denominal verbs are relatively predictable. They might be more easily produced and understood as well. Kelly’s observation indicates that nouns that belong to rule-based categories are more likely to denominalize using the rule and be given the interpretation based on the rule. However, he points out that there are some nouns that may not have a verbal use as a result of the implied meaning even though they fit into rule-based categories. I call this **pre-emption** (Aronoff, 1976: 43). According to Clark and Clark, pre-emption is a constraint on denominal verbs. The concept of pre-emption may account for the existence of nouns that cannot be as verbs. As illustrated above, nouns that refer to vehicles have the interpretation of “travel by X” when used as verbs. However, the existence of well-established verbs such as *drive* and *fly* pre-empt the creation of verbs such as *to car* and *to airplane* as in (11) and (12) although the sentences are semantically transparent.

(11) We *carred/drove around the city.

(12) We *airplaned/flew across the Atlantic.

Hence, pre-emption serves to block the use of the innovative denominal verb. In this study, I focus on two types of pre-emption. First, pre-emption by synonymy

prevents potential innovative denominal verbs from being synonymous with pre-existing verbs. For example, a denominal verb *to hospital* is pre-empted because it would be synonymous with *to hospitalize* (Clark & Clark, 1979). The other type is pre-emption by homonymy. This type blocks creation of denominal verbs from the parent noun which is homonymous with some other well-established verb. For example, the denominal verb *to dodge* (the name of an automobile company) is pre-empted because the homophonous verb *to dodge* is a well-established verb. Similarly, we can use the name of a season as a verb to mean ‘spending the season in some location’ with seasons that do not have homophonous verb counterparts such as *We summered in Paris*, *We wintered in Paris* and *We autumned in Paris*. Nevertheless, sentences like *We *springed/*sprang in Paris* and *We *falled/*fell in Paris* are impossible. According to Clark and Clark (1979), the problem here is that the main verb in these sentences is not recognized as an innovative denominal verb, but as the conventional verb homonym. Pre-emption again excludes this invention.

2.4 Clark and Clark’s Categorization of Denominal Verbs

Clark and Clark (1979) categorize denominal verbs based on their uses. Among all types, **locatum verbs** are one of the largest classes. **Locatum verbs** typically refer to the application of the object denoted by the parent noun onto some surface. Examples of this class of verbs include *to grease (the pan)*, *to date (the cheque)* and *to muzzle (the dog)*. Another common class of denominal verbs is the **location class**. For **location verbs**, the parent noun refers to the end location as in *bag the groceries*, *headquarter the troops*, *bottle the wine* and *kennel the dog*. Apart from these two types, there are other common denominal verb classes that are

classified in accordance with core semantic relations such as **goal**, **source**, and **instrument**. The parent nouns in goal denominal verbs are the goal of some action. Examples of this class include *carpool the people*, and *cream the butter*. The parent nouns in source denominal verbs are the source of some action. These examples include *piece the quilt* and *letter the sign*. Finally, the most common of all denominal verbs is the instrument class; their parent nouns denote instruments. Examples include *net the fish*, *drill the hole* and *jet around the world*. In Clark and Clark's study, the following nine semantic categories are established.

(13)

Category	Characteristics	Example
Locatum verb	These verbs involve the description of one location in reference to another, typically referring to the application of the parent noun onto some other surface.	<i><u>paint</u> the ceiling, <u>powder</u> her nose, <u>man</u> the ship, <u>sign</u> the cheque, <u>fence</u> the yard</i>
Location verb	These verbs differ from locatum verbs in that the parent noun refers to the end location.	<i><u>ground</u> the planes, <u>string</u> the beads, <u>pot</u> the begonias, <u>photograph</u> the children, <u>shell</u> the peas</i>
Duration verb	The parent noun of these verbs must denote a stretch of time and take a preposition 'for'.	<i><u>summer</u> in France, <u>winter</u> in Australia, <u>vacation</u> in Mexico, <u>honeymoon</u> in Hawaii, <u>autumn</u> in New York</i>
Agent verb	The parent noun of these verbs is in the agentive case.	<i><u>butcher</u> the cow, <u>guard</u> the jewels, <u>tutor</u> the boys, <u>referee</u> the game, <u>parent</u> the child</i>
Experiencer verb	"Witness the accident" is classified that way because witnesses do not watch accidents but see them. "Boycott the store" means doing the act one would do to Captain Boycott. "Badger the officials" refers to the act a dog would do to a badger.	<i><u>witness</u> the accident, <u>boycott</u> the store, <u>bager</u> the officials (note: only three examples are given in Clark and Clark's paper)</i>
Goal verb	The parent noun of these verbs denotes roles conferred on people by external forces.	<i><u>fool</u> the man, <u>orphan</u> the children, <u>pile</u> the money, <u>knot</u> the string, <u>loop</u> the rope</i>

Source verb	The parent noun of these verbs is the source of some actions.	<i>Piece the quilt, word the sentence, letter the sign</i> (Again, only three examples are given)
Instrument verb	The parent noun of these verbs denotes instruments.	<i>Bicycle into town, mop the floor, bat the ball, knife the man, market the goods</i>
Miscellaneous verb	The parent noun if these Verbs are of various kinds, including meals, crops elements and others.	<i>Meals (e.g. lunch at McDonald's); Crops (e.g. timber off the hills); Elements (e.g. snow in Iceland)</i>

(Clark and Clark, 1979)

The various classes of denominal verbs in (13) reveal one remarkable aspect of the human capacity to use language: our ability to create and understand expressions we have never heard before. However, one may wonder how the meanings of such innovations are understood. Again, we may refer to Clark and Clark **Denominal Verb Convention**, which has been discussed before. As I mentioned, one cannot use a denominal verb without a proper context. Hence, the constraints for the use of innovative denominal verbs are both pragmatic and grammatical. In a nutshell, the speaker must assume that the listener knows semantic and syntactic properties of the parent noun to infer the proper interpretation. In the next section I address the issue of how syntax can constrain the interpretation of container verbs.

2.5 The Syntactic Characteristics of English Container Verbs

In addition to the conditions mentioned in 2.4, the last condition of the Denominal Verb Convention is:

“in such a way that the parent noun denotes one role in the situation, and the remaining surface arguments of the denominal verb denote

other roles in the situation” (Clark & Clark, 1979, p. 787).

This last condition entails that the kind of situation that a verb denotes must encompass the parent noun and all the verb’s surface arguments. For *John bottled the water*, *John*, *bottles*, and *the water* must be participants in the same event. In this case, *John* has to be the agent, the *water* is the patient of his action, and *the bottle* is the container. These requirements give rise to the syntactic frame in (14):

(14) [_{VP} V NP] (i.e. [_{VP} [_V bottled] [_{NP} water]])

(14) illustrates that container verbs are transitive verbs. The agent *John* made use of the container (*bottle*) to perform a certain kind of action (*pour the water in*). *The water* plays a patient role. It is affected (ends up in the bottle) because of John’s action. This syntactic characteristic brings out the fact that the interpretation of an innovative verb is constrained by its syntactic environment. Therefore, the syntactic environment must be considered along with all other conditions of the Denominal Verb Convention.

2.6 The Semantic Representation of English Container Verbs

While Clark and Clark mainly discussed the creation and use of denominal verbs with respect to the notions of **context** and **conventionality**, they do not formalize the mechanism by which these verbs are derived from more complex conceptual representations. To properly understand what learners might be doing when attempting to learn the relationship between container nouns and converted verbs, we need to advert to principles for combining the meanings of conceptual structures of subjects, verbs, and complements. I will therefore address specifically the syntax-semantics interface and adopt Jackendoff’s lexical conceptual semantics (Jackendoff, 1972, 1983).

2.6.1 *What is Lexical Conceptual Semantics?*

Lexical conceptual semantics is a framework for semantic analysis. Its aim is to provide a characterization of the conceptual elements by which a person understands words and sentences, and thus to provide an explanatory semantic representation. According to Jackendoff (1972, 1983), syntax can be mapped onto semantics and vice versa. If the structures which govern sentences and those which govern the construction of concepts are related, then the patterns which govern syntax and semantics must be related. Jackendoff introduces the notion of conceptual constituent defined from a small set of ontological categories (also called **conceptual parts of speech**), among which the most important are: **THING**, **EVENT**, **STATE**, **PLACE**, **PATH**, which are listed below. These categories may subsume more specific ones, e.g. the category **THING** subsumes: **HUMAN**, **ANIMAL**, **OBJECT**. (15) demonstrates what the primitives equivalent to in syntax and traditional semantics are.

(15)	Conceptual primitive	Syntactic category	Argument Structure
	[THING]	Noun phrase	Agent, patient, theme, etc.
	[PLACE]	Prepositional phrases expressing Location	
	[PATH]	Prepositional phrases Source, goal	
	[EVENT]	Verb (action)	Predicates like go (Mary, London)
	[STATE]	Verb (state)	Predicates like in (Mary, London)

As shown in (15), [THINGS] represents physical entities. [PLACES] stands for exact points in physical space. [PATHS] points to routes through physical

space. [EVENTS] and [STATES] express transitory events and less transitory states. From these primitives, we can form conceptual structures as shown in the formalization below⁷.

(16)	[THING]:	[_{Thing} X]	
	[PLACE]:	[_{Place} X]	[_{Place} PLACE FUNCTION [_{Thing} Y]]
	[PATH]:	[_{Path} X]	[_{Path} PATH FUNCTION [_{Thing} Y]] [_{Place} PATH FUNCTION [_{Place} Y]]
	[EVENT]:	[_{Event} X]	[_{Event} GO [_{Thing} Y], [_{Path} Z]] [_{Event} STAY [_{Thing} Y], [_{Place} Z]] [_{Event} CAUSE [_{Thing} Y], [_{Event} Z]]
	[STATE]:	[_{State} X]	[_{State} BE [_{Thing} Y], [_{Place} Z]] [_{State} ORIENT [_{Thing} Y], [_{Path} Z]] [_{State} EXTEND [_{Thing} Y], [_{Path} Z]] [_{Event} DO [_{Thing} X], [_{Thing} Y]]

Such semantic functions and arguments are basic types of semantic representations which can be used to describe the meaning of specific words in *lexical conceptual structures* (LCS).

⁷ Jackendoff's (1983, 1990) logical structures are based on a localist conception, such that all events involving location and motion are central for the construal of events. He uses the predicates GO, BE, STAY, and CAUSE to encode the properties of motion events, and the two types of location events, viz. stative and eventive, and their corresponding causatives respectively.

2.6.2 Conceptual Representations of Event Verbs

As mentioned in the previous section, a sentence corresponds to the entire Event in conceptual structure. An example like (17) provides a good illustration.

- (17) $[_{\text{Event}} \text{CAUSE } [_{\text{Thing}} \text{John}], [_{\text{Event}} \text{GO } [_{\text{Thing}} \text{WATER}], [_{\text{Path}} \text{TO } [_{\text{Place}} \text{IN } [_{\text{Thing}} \text{BOTTLE}]]]]]$
 “John poured the water into the bottle.”

The proper account of the reading is that it involves a causer (agent), *John*, who performed the action *pouring* and a location *into the bottle*. Affected by John’s action, the water ended up occupying the relevant space in the interior of the bottle. In other words, the action of pouring causes the water to be in the bottle. Now, the question is how to represent sentences with container verbs in Lexical Conceptual Semantics? Consider the sentence *John bottled the water*. In (18), the two affected entities are *John* and *water*. Likewise, *John* is the agent who acted on the water. Hence, *water* plays the patient role in this case. Since *bottle* is a denominal verb, it incorporates the parent noun (*bottle*) as Goal rather than as Theme of the verb’s conceptual structure. So, (18) means “pour water into the bottle”.

- (18)
- $$\left(\begin{array}{l} \text{bottle} \\ [_{\text{v}} \text{N}] \\ \text{----- NP}_j \\ [_{\text{Event}} \text{CAUSE } ([[_{\text{Thing}} \text{John}]i, [_{\text{Event}} \text{GO } ([[_{\text{Thing}} \text{water}]j, [_{\text{Path}} \text{TO } [_{\text{Place}} \text{IN } [_{\text{Thing}} \text{BOTTLE}]]])])])]) \end{array} \right)$$

Let us assume that learners must construct the relevant LCS (18) on hearing *John bottled the water* presumably on the basis of the knowledge that *bottles* are containers, that they can contain liquids (as opposed to *boxes*, which conventionally do not), that *water* is a liquid, and that NP VNP sequences typically

express AGENT ACTION PATIENT/THEME relations. If these semantic-syntax correspondences are part of UG, acquiring the class of conversion verbs might be relatively easy, despite impoverished input where such relationships are never made explicit, on the assumption L2 acquirers bring such tacit knowledge to the job of SLA. In the absence of this tacit knowledge, it is not obvious how L2 learners would acquire conversion verbs.

In this chapter, I defined the morphological process **conversion** and its relation to English denominal verbs. In addition to the morphological discussion, I also considered container verbs. Such verbs are presumed to derive from their parent noun as a result of denominalization from the syntactic and semantic perspective by specifying their syntactic representation and lexical conceptual structure. In the next chapter, I discuss the process of conversion in Chinese.

3.1 Conversion in Chinese

With respect to grammatical categories, some linguists argue that grammatical categories (nouns and verbs) are not easily identified in Chinese because of its comparative lack of inflectional morphology, and because the same morphological form can perform multiple grammatical functions (Kao, 1990). In Chinese, most of the grammatical markers on nouns and verbs that we find in other languages (e.g. gender, number, definiteness, tense and number) are absent (with the exception of aspect markers). In addition, many Chinese verbs can occur freely as subjects and nouns as predicates involving no morphological change (Mo and Shan, 1985). Due to this lack of grammatical markers and the large number of ambiguous noun-verb lexical items, the shifts among grammatical categories are difficult to identify and formulate in the lexicon. Despite these issues, the topic of category shifts or conversion has not been neglected, and some scholars state that Chinese also exhibits conversion (e.g. Chan & Tai, 1994; Liu, 1991; Tai, 1992).

In this chapter, I focus on various classes of denominal verbs in Mandarin and Cantonese. I briefly discuss different types of conversion and the differences between English and Chinese denominal verbs. In sections 3.1 and 3.3.3, I also provide the syntactic and semantic representations of Chinese denominal verbs.

3.1.1 *Verb-to-Noun Shift*

In Chinese, the distinction between a base form (the root) and a derived form is expressed through a tone difference. The Qusheng words are derived from non-Qusheng forms (Wang Li, 1958 and Downer, 1959). In (14), the verb/noun forms are pronounced identically except for tone. The noun forms are in the Qusheng (Mandarin Tone 4), whereas the verb form is non-Qusheng. Hence, the pairs in (19) involve a derivation of the nominal form from the verbal form.

(19)	VERB		NOUN	
a.	bǎ	‘to hold’	bà	‘handle’
b.	bēi	‘to carry on the back’	bèi	‘back’
c.	chēng	‘to weigh on a scale’	chèng	‘scale’
d.	fēn	‘to divide’	fèn	‘share’
e.	liáng	‘to measure’	liàng	‘quantity’
f.	shǔ	‘to enumerate’	shù	‘number’

(Tai, 1992: 450)

3.1.2 *Noun-to-Verb Shift*

Generally, the majority of Chinese noun/verb forms possess verbal roots rather than nominal roots. There is, nonetheless, a small group of denominal verbs, which can be divided into two types. In (20), the nouns and verbs are in the same forms, whereas those in (21) have undergone tonal derivation from non-Qusheng to Qusheng.

(20)	NOUN	VERB
a.	bīng 'ice'	bīng 'to cool with ice'
b.	diàn 'electricity'	diàn 'to give an electric shock to'
c.	dú 'poison'	dú 'to poison'
d.	jiào 'cellar'	jiào 'to store in the cellar'
e.	miàn 'face'	miàn 'to face'

(Tai, 1992: 454)

(21)	NOUN	VERB
a.	gāng 'steel'	gàng 'to reinforce with steel'
b.	gāo 'grease, ointment'	gào 'to lubricate'
c.	tāng 'hot water'	tàng 'to heat with water'
d.	zhōng 'centre'	zhòng 'to hit the target'
e.	wǎ 'tile'	wà 'to tile'

(Tai, 1992: 454) (20)

3.1.3 Adjective-to-Causative Verb Shift

Like English, Chinese has adjectives which can be used as transitive causative verbs without overt morphological marking. They are illustrated in (22).

(22)	ADJECTIVE	CAUSATIVE VERB
a.	lei 'tired'	lei 'to make (sb) tired'
b.	anding 'peaceful'	anding 'to make peaceful'
c.	chunjie 'pure'	chunjie 'to purify'

(Tai, 1992: 457)

3.1.4 *Adjective-to-Adverb Shift*

Apart from the above three types, adverbs can be formed from adjectives by means of zero derivation in Mandarin Chinese. This is illustrated in (23).

(23)	ADJECTIVE	ADVERB
a.	zhen ‘real’	zhen ‘really’
b.	kuai ‘quick’	kuai ‘quickly’
c.	tebie ‘special’	tebie ‘especially’

(Tai, 1992: 458)

From these examples, we see that conversion, or category shift is possible in Chinese. Different types of derivation without overt marking are identifiable. Now let us consider the type of noun/verb words that we are primarily interested in, namely denominal verbs. In what way are Chinese denominal verbs distinct from their English counterparts? How might knowledge of Chinese denominal verbs affect the acquisition of English denominal verbs? In the following section, we will briefly review denominal verbs in Chinese.

3.2. Denominal Verbs in Chinese

The question of how nouns surface as transitive verbs in Chinese has not been particularly well studied. This phenomenon has not been given much attention since Liu’s (1991) and Tai’s (1992) papers. Unlike English and many other European languages, denominal verbs are quite limited in Chinese. It is shown in Chan and Tai (1994) that the categories of Chinese denominal verbs are less diverse than English. Furthermore, Tai (1992) shows that denominal verbs are

in fact very rare in Chinese. Before analyzing the differences in denominal verbs between the two languages, the following set of criteria for Chinese denominal verbs are laid out.

Following Chan and Tai (1994), there are two main criteria. First, homophony (tone difference is allowed) is required between the parent noun and the derived verb. Verbs that are homophonous to the nouns are treated as derivable from their corresponding nouns through the process of conversion. Next, the source noun must denote visible or tangible entities (e.g., *bag/to bag*, *dress/to dress*). However, Chan and Tai are not implying that only nouns that refer to concrete objects can be used verbally. In fact, there are a considerable number of nouns that refer to events or concepts; and yet have verbal use. For example, the compound noun *jiao dao* ‘education’ and *shen jia* ‘participation’ can be used as verbs. Nevertheless, note that most of such source nouns are disyllabic. In contrast, the majority of concrete source nouns are monosyllabic, i.e. they are represented by a single character. For the purpose of this study, I am interested in denominal verbs which have concrete source nouns. Therefore, my discussion concentrates on monosyllabic denominal verbs only.

3.3 Categories of Chinese Denominal Verbs

Clark and Clark (1979) categorize English denominal verbs into nine different types, which were listed in section 2.4. Chan and Tai (1994) apply Clark and Clark’s categorization to different groups of verbs in Mandarin, Cantonese, Taiwanese, Japanese and Korean. My study mainly focuses on Mandarin and Cantonese because these are the languages of the L2 subjects investigated.

Cantonese is the L2 subjects' native spoken language, whereas Mandarin is their written language.

3.3.1. *Categories of Denominal Verbs in Mandarin*

Following Clark and Clark's classification, there are four types of denominal verbs in Mandarin.

(24)

Category	Example
Locatum verb	<i>qi</i> 'to paint', <i>gao</i> 'to grease', <i>wa</i> 'to tile', <i>fen</i> 'to put manure', <i>dian</i> 'to put a dot'
Location verb	<i>jiao</i> 'to store in a cellar', <i>tao</i> 'to put into a case', <i>kang</i> 'to bake on a heatable brick bed', <i>xiu</i> 'to tuck hands into sleeves', <i>ding</i> 'to carry on the head'
Goal verb	<i>chuan</i> 'to string', <i>dui</i> 'to pile', <i>pian</i> 'to slice', <i>hua</i> 'to draw a picture', <i>kun</i> 'to bundle'
Instrument verb	<i>chu</i> 'to hoe', <i>li</i> 'to plow', <i>shu</i> 'to comb', <i>bian</i> 'to whip', <i>shai</i> 'to sieve, sift'

(Chan and Tai, 1994)

Among these categories, instrument verbs are the most common. This is similar to English. Goal verbs are the second most common while locatum and location verbs have the same rank. Both of them are the least common.

3.3.2. *Categories of Denominal Verbs in Cantonese*

The categories of Cantonese denominal verbs are the same as those identified in Mandarin. Locatum, Location, Goal and Instrument verbs.

(25)

Category	Example
Locatum verb	<i>pou1</i> 'to tile the floor', <i>jau4</i> 'to paint', <i>lau5</i> 'to drape over shoulders', <i>pai 1</i> 'to peel skin', <i>zin3</i> 'to cushion'
Location verb	<i>tsyn3</i> 'to string to beads', <i>ying2</i> 'to photograph', <i>tung2</i> 'to insert into a pipe', <i>toi6</i> 'to bag, to put into pocket', <i>tsam2</i> 'to rest on pillow'
Goal verb	<i>toey1</i> 'to pile up', <i>hyun1</i> 'to loop (a rope)', <i>waak6</i> 'to forma stroke', <i>ying2</i> 'to photograph', <i>gaak3</i> 'to partition'
Instrument verb	<i>tse1</i> 'to drive, to be hit by a car, to sew', <i>bou1</i> 'to boil', <i>bam1</i> 'to pump', <i>gaap3</i> 'to clip', <i>sou2</i> 'to dust, to sweep'

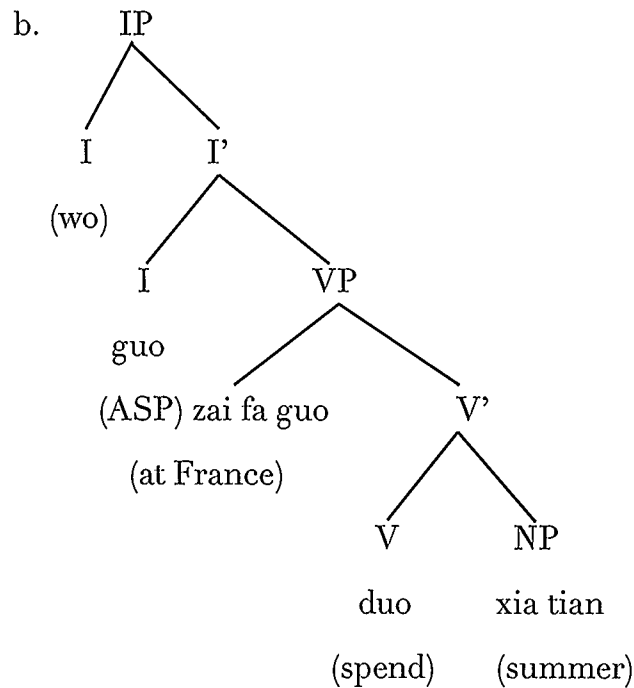
(Chan and Tai, 1994)

Similar to Mandarin, instrument verbs are also the most common among the four categories in Cantonese. Goal verbs are the second most common. Next, locatum and location verbs are the least common. Despite the fact that Mandarin and Cantonese belong to two distinct dialects of the Chinese language, they share most of the characteristics in terms of denominalization. Based on Clark and Clark's categorization, there are nine groups of denominal verbs in English, whereas in Mandarin and Cantonese, only four types are identified. However, this does not imply that the corpora of denominal verbs in Chinese is trivial. It is simply a matter of less variety.

3.3.3. *The Categories of Denominal Verbalization in English and Chinese*

So far, it has been observed that the categories of Chinese denominal verb are more restricted than in English. For this reason, we might find it hard to seek a particular Chinese denominal verb that exactly corresponds to its English counterpart. Very often, denominal verbs that exist in English are absent in Chinese. For instance, the duration verb *summer* as in *summer in France* has no equivalent in Chinese (26a) and a completely different sentence structure has to be adopted to express the same meaning as shown in (26b).

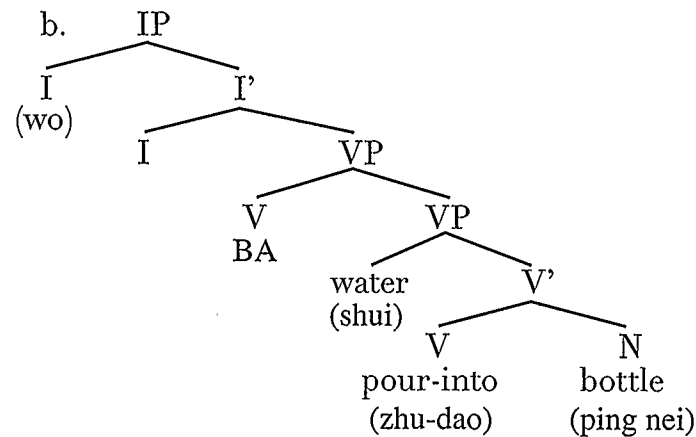
- (26) a. Wo zai fa guo duo guo xia tian
 I at France spend time summer
 ‘I spend my summer in France.’



The structure in (26b) represents the temporal notion ‘summer’ as an NP serving as a complement to the verb *duo*. This scarcity of denominal verbs in Chinese

might also explain the differences in containerization between English and Chinese. Containerization expressed by denominal verb is not very common in Chinese. When referring to Chan and Tai's classification of Mandarin and Cantonese denominal verbs, a few verbs with 'container' meaning can be found. They include *bao* 'to pack/wrap up', *jiao* 'to store in a cellar', *wang* 'to net' and *zhao* 'to cover, shade' in Mandarin; *paau1* 'to pack/wrap up', *tou3* 'to put into case', *mong5* 'to net' and *tsau3* 'to cover, shade' in Cantonese. Many English container verbs, such as *bottle*, *kennel*, *jug*, *can*, *box*, etc., do not exist in Chinese. Their meaning is expressed with the 'ba structure'⁸.

- (27) a. Wo BA shui zhu-dao ping-ne
 I BA water pour-into bottle
 'I pour water into the bottle.'



(Bender, 2000)

⁸ *Ba* can be used to express concrete physical holding and guarding or abstract control. It can also be used metaphorically to express causation. In the *ba* construction, *ba* is used either abstractly as in the agentive and experiential senses or metaphorically as in the causative sense. Following Bender (1998, 2000), *ba* is regarded as the syntactic head subcategorizing for a subject, an object and a verbal complement.

3.3.4 *The Scarcity of Denominal Verbs in Chinese*

I noted the paucity of denominal verbs in Chinese, which raises a series of interesting questions regarding Chinese denominalization. A prominent one is why denominal verbs in Chinese are not as abundant as they are in English. Are there any constraints in Chinese that may possibly impede the productivity of denominal verbs? Undoubtedly, we need a more in-depth understanding of the semantics and the morphological system of Chinese to be able to provide appropriate answers to these questions. At the same time, this also implies that further studies are required that would focus on languages with limited use of denominalization. This may help to pinpoint the differentiating factors that lead some languages to have highly productive uses of denominal verbs, but others to have no use of denominalization. I leave this area for future research. For the purposes of this study, I refer to the existing theories which may justify the small number of denominal verbs in the Chinese languages.

As suggested by Tai (1992), there is an asymmetry in Chinese grammar. Concrete objects are rarely used as verbs, whereas the names of activities can often be used as nouns. This is a possible reason for the low productivity of denominal verbs in Chinese. Tai called this phenomenon the ‘asymmetry between nominalization and verbalization’. In fact, this observation is true not only for Chinese, but also for other languages. Hopper and Thompson (1984) make two generalizations to account for this phenomenon. First, they state that “Languages tend to have special nominalizing morphology, but no special verbalizing morphology” (Hopper and Thompson, 1984:745). By applying this claim in this study, we anticipate that somehow conversion to provide verbs is less common than conversion to provide nouns. In other words, we expect fewer cases of noun-to-verb conversion than of verb-to-noun conversion. This generalization also establishes an asymmetry between nominalized morphology

and verbalized morphology.

Second, Hopper and Thompson declare that “A nominalization interprets an event as an entity but there is no corresponding verbalization which interprets an object as an event” (Hopper and Thompson, 1984: 745). This second generalization establishes a semantic asymmetry between nouns and verbs. The basic idea of Hopper and Thompson is that the morphological asymmetry is caused by a functional asymmetry between nouns and verbs in discourse. This functional asymmetry is rooted in a cognitive asymmetry. They explain that it is easier for human cognition to treat an abstract event as an entity than to treat a concrete object as an abstract event. Why this should be the case is unclear, but the generalization is straightforward. Their second generalization is supported by empirical evidence from Chinese, which shows a general lack of denominal verbs. As a matter of fact, this phenomenon can also be observed in English, which is illustrated in (28):

(28) a. Nominalization		b. Verbalization	
<i>Verb</i>	<i>Noun</i>	<i>Noun</i>	<i>Verb</i>
propose	proposal	water	to water
create	creation	skin	to skin
sell	selling	bottle	to bottle
excite	excitement	hospital	to hospitalize

From the examples in (28), we find that nominalization associates with more varieties of suffixation, namely *-al*, *-ion*, *-ing* and *-ment*. However, verbalization essentially involves zero derivation, apart from *-ize*. In essence, Hopper and Thompson propose that languages have affixal nominalization processes but no analogous affixal verbalization processes.

Note that there are counterexamples to Hopper and Thompson's generalization. For example, Tai (1992) provides empirical evidence that French, Spanish, German, Turkish and Indonesian have rich verbalizing morphology. Nevertheless, the cognitive asymmetry between nominalization and verbalization observed by Hopper and Thompson appears to be a plausible explanation of the limited number of denominal verbs in Chinese. The discussion above has already shown that the categories of Chinese denominal verbs are not as plentiful as those of English (four vs. nine). Among the four categories of denominal verbs in Chinese, the instrumental type is the most popular. The reason why instrumental verbs are the commonest in Chinese dialects is that an instrument is designed for specific purposes. For example, *bou*¹ (pot) is a vessel for boiling or cooking. Thus, when *bou* is used as a verb, it has the meaning of "to boil"⁹. In other words, the conceptual relationship between the instrument and the action associated with it is straightforward: a particular instrument is used for a specific purpose. However, for other noun types, they might be associated with several actions (e.g. hand can be used for holding, hitting, cutting, grabbing, etc.). This makes it harder for the hearer/reader to interpret the meaning intended by the speaker. This observation may indicate that nominalization is generally less productive than verbalization in human language, which may be a reason for the asymmetry between nominalization and verbalization in Chinese language.

⁹ *bou*¹ "to boil" means "to boil in a pot" in general, but not other kinds of containers or instruments (e.g. wok, fried pan, tray, dish or bowl)

3.3.5. Syntactic and Semantic Representations

In sections 3.3.3 and 3.3.4, I mentioned that many container verbs in English are missing in Chinese. For instance, a number of container verbs (e.g. *bottle*, *kennel*, *jug*, *can*, *box*) included in our questionnaire do not occur in Chinese. In order to represent the equivalent meaning, the “*ba* structure” has to be adopted and we have already seen the syntactic representation of it. *Ba* acts as a functional verb in Chinese, which has a causative meaning and forces the main verb to form a resultative predicate in a sentence. To better understand the *ba* structure, let us refer to the following linear representation.

$$(29) \quad \text{NP}_1 \text{ BA} \quad [\text{NP}_2 \text{ main V (NP}_3)]$$

Under the verbal analysis of *ba*, NP₂, the main verb and the optional NP₃ appear in its clausal complement, which must have a resultative reading. For instance, (30) is a good example to demonstrate the *ba* structure and its characteristics. The sentence expresses an action and a result that was achieved as a consequence of this action (Bender, 2000). In this sense, *ba* encodes the causative reading and forces the overt addition of a resultative with the clausal complement ([*shui* “water”]_{NP2} [*zhu dao* “pour into”]_V [*ping nei* “bottle”]_{NP3}).

- (30) Yue han ba shui zhu dao ping nei
 John BA water pour into bottle inside
 “John poured the water into the bottle.”
 Implication: John made an effort to pour the water into the bottle
 and succeeded.

Hence, we see that the main verb *zhu* (pour) in (30) does not carry enough information to have a predictable result and *ba* requires such a result. Such a result is added by the specific mentioning of the resulting state of the water (into the bottle). Although *ping nei* (inside the bottle) is an NP, it serves as an independent predicate describing the resulting state of the water. It is the *Theme* of the verb. Thus, I represent this in (31).

- (31) Yue han ba shui zhu dao ping nei.
 John BA water pour into bottle inside
 V' (AGENT, THEME) causes result (THEME).

The LCS representation of (31) is given in (32):

$$(32) \left(\begin{array}{l} \text{force} \\ \text{V} \\ \text{--- NP}_j \{ \text{PP}_k \} \{ \text{to S}_k \} \\ \text{Event CAUSE } ([_{\text{Thing}} \text{ Yue Han}], \left\{ \text{GO } ([_{\text{Thing}} \text{ shui}], [_{\text{Path}} \text{ TO } [_{\text{Place}} \text{ IN } [_{\text{Thing}} \text{ PING NEI}]]]]_k \right\} \{ \}_k \} \\ \text{AFF } ([\text{shui}]_i) \\ \text{Event AFF } ([\text{Yue Han}]_i, [\text{shui}]_j) \end{array} \right)$$

The conceptual structure here is rather similar to its English counterpart *John poured water into the bottle*, as in (32) in 2.6.2. In this Chinese sentence, *ba* behaves like a lexical causative. The effect is physical motion of the Patient (*water*) along the Path designated by the PP (*dao ping nei*). AFF ([*shui*]) functions as incorporated conceptual structure in one frame, and as a selectional restriction in the other: (i) it is an Event and (ii) its Actor is bound to the Patient of the superordinate Event.

Apart from this *ba* structure, Chinese also allows the incorporation of parent nouns into verbs to express the meaning of containerization. Chan and Tai (1994) report that some Chinese verbs have a ‘container’ meaning. The Mandarin examples include *bao* ‘to pack/wrap up’, *jiao* ‘to store in a cellar’, *wang* ‘to net’ and *zhao* ‘to cover, shade’ and the Cantonese examples are *paau1* ‘to pack/wrap up’, *tou3* ‘to put into case’, *mong5* ‘to net’ and *tsau3* ‘to cover, shade’. They are all homophonous noun-verb pairs found in Mandarin and Cantonese. They are also described as putative denominal verbs, with their corresponding source nouns. Although these verbs are not common in Chinese, the above examples occur in the same syntactic and semantic environment as English. (33) is an example.

- (33) Ta bao le yi dai/bao tang guo
 He bag ASP one bag candy
 ‘He bagged one bag of candies.’

In (33), *bao* ‘bag’ is a denominal verb that derives from its parent noun. Similar to English, it occurs in a transitive sentence, with *ta* ‘he’ as the agent and *yi dai tang guo* ‘one bag of candies’ as the patient. The same meaning can be expressed by means of a *ba*-construction:

- (34) Ta ba tang guo fang jin dai/bao nei
 He BA candy put into bag inside
 ‘He put the candies into the bag.’

Examples (33) and (34) indicate that Chinese container verbs such as *bao* ‘bag’ function somewhat like the English ones. In English, container words such as

bag, bin, bottle, can, etc. can appear in two syntactic frameworks: (i) [_{VP} V NP₁ [_{PP} P NP₂]] (i.e., [_{VP} pour water [_{PP} into bottles]]); (ii) [_{VP} V NP] (i.e. [_{VP} bottled water]). As mentioned, the first is referred to as the **basic frame**, while the second is referred to the **conversion frame**. I have already shown their syntactic and semantic representations. Likewise, Chinese container words such as *bao* ‘bag’ can also occur in two syntactic frameworks, namely the *ba* structure, as in (34) and the conversion frame as in (33). The syntactic framework and semantic representation of the *ba* structure have already been discussed. Now, we may look at how a Chinese container verb in the conversion frame is represented in terms of Lexical Conceptual Semantics.

$$(35) \left[\begin{array}{l} \textit{bao} \text{ (bag)} \\ [\textit{v} \text{ N}] \\ \text{---NP}_j \\ [\textit{Event} \text{ CAUSE } ([\textit{Thing} \text{ TA (he)}]_i, [\textit{Event} \text{ GO } ([\textit{Thing} \text{ TANG GUO (candy)}]_j, [\textit{Path} \text{ TO } [\textit{Place} \text{ IN} \\ [\textit{Thing} \text{ BAO/DAI (bag)}]]])])]] \end{array} \right]$$

(35) shows that the LCS of Chinese container verbs such as *bao* ‘bag’ is like English. *Ta* ‘he’ is the agent who volitionally did something (put the candies) and lead the patient *Tang guo* ‘candy’ to be in a certain place *bao/dai* ‘bag’. The parent noun *bao* ‘bag’ is the goal, but not the theme in this case.

After studying English and Chinese container verbs from the morphological, syntactic and semantic perspectives, we notice both the similarities and differences between them. On the whole, container verbs in Chinese are much less abundant than in English because denominalization in Chinese is not as productive as in European languages. This fact has

been shown by the fact that there are fewer varieties of denominal verbs in Chinese. Nonetheless, denominalization is not completely absent and container verbs which are derived via the denominalization process and occur in the conversion frame can also be found in Chinese. These findings indicate that, Chinese and English are not absolutely diverse from the perspective of containerization; the differences are relative. Despite the fact that some English container verbs might not be found in Chinese, I have shown that some Chinese container verbs can appear in the same syntactic and semantic structures as the English container verbs.

Given these similarities, we expect that the Chinese L2 learners of English may be aware of some of the container verbs. In so, we expect some Chinese container verbs like *bao* ‘bag’ to have the same LCS as their English equivalents. Since LCS is a characterization of the conceptual elements by which a person understands words and sentences, I assume that the L2 learners may possess the conceptual elements of a sentence with English container verbs based on what they know about their first language — Chinese. In other words, these L2 learners have the ability to figure out English container verbs if they know the corresponding container nouns because this relationship also exists in Chinese.

However, they are not expected to recognize all the container verbs in the questionnaire. There are several reasons for this. First, they are rarely or never instructed about these English container verbs. Less exposure may influence their performance. Second, since container verbs are very limited in Chinese, it may be difficult for L2 learners to discover the relationship between nouns and verbs. Finally, L2 learners may not know the verb if they do not know the noun; following Clark and Clark’s Denominal Verb Convention, some of the container nouns in the questionnaire may sound less familiar to the

L2 learners and they may pose obstacles in making a correct judgment on the acceptability judgement task.

4.1 The Pilot Study

4.1.1 *The Purpose of the Pilot Study*

A pilot study was conducted prior to the main study. The purpose in carrying out the pilot study was to test the adequacy of the instrument. In the acceptability judgment task, all 24 sentences were specifically designed for this study. However, some of them might not sound natural to native speakers. By examining native speakers' intuitions about the sentences, we should be able to identify ambiguities and difficult items in the task and to revise the instrument according to their feedback. Thus, the pilot study helps to improve the internal validity of the instrument.

4.1.2 *Participants*

The participants of the pilot study were first-year students at the University of Calgary (UC) who were also English native speakers. These individuals had no manifest background in linguistics and can be assumed to be "linguistically naïve". There were 10 participants (seven females and three males) and they were all above nineteen years of age. I posted a copy of my recruitment notice (Appendix 2) at the student centre and stated that each participant would receive ten dollars as a reward. Those interested in participation, were asked to complete the acceptability judgment task individually under my supervision.

Among the twelve pairs of target items, four pairs were completely grammatical (both sentences in each pair were correct); four pairs were partially grammatical (only one of them was correct) and four pairs were ungrammatical (both sentences in each pair were incorrect). The twelve pairs of distracter sentences had the same organization. The organization of the sentences is given in Tables (1) and (2) below.

Table 1 The organization of the target pair items

Pair of target items (number of pairs)	Container verbs used in each pair
Totally grammatical (4)	<i>box, bag, bin, bottle</i>
Partially grammatical (1 st sentence is grammatical) (2)	<i>can, kennel</i>
Partially grammatical (2 nd sentence is grammatical) (2)	<i>pocket, bank</i>
Totally ungrammatical (4)	<i>pot, warehouse, jug, file</i>

Table 2 The organization of the distracters

Pair of distracters (number of pairs)	Category of distracters in each pair (Note: 'P' = Passive pair; D = Pairs of dative alternation; C(n→v) = Conversion from noun to verb)
Totally grammatical (4)	1 P & 1 D, 2C (n→v)
Partially grammatical (1 st sentence is grammatical) (2)	1D, 1C (n→v)
Partially grammatical (2 nd sentence is grammatical) (2)	1 P & 1 C
Totally ungrammatical (4)	2 P & 2 D

The presentation order of sentences was randomized so that subjects would not be able to guess the pattern of expected responses.

4.1.4 Procedures

The pilot was carried out on January 24, 2006. Prior to the task, brief standardized instructions were given to the subjects. This was to ensure that all subjects understood the task. The subjects were required to finish the acceptability judgment task within twenty minutes.

4.1.5 Data Analysis and Results

Responses were considered to be ‘correct’ if they corresponded to the predicted response (based on grammatical analyses), otherwise responses were scored as ‘incorrect’. After collecting and scoring the responses, I entered the data into a computer and examined them carefully. The results are represented in Tables (3a) and (3b) below.

Table 3(a) Results on the Ten Native Speakers (the target item)

Target Item	a (%)	b (%)	a & b (%)	c (%)	Correct % of each item
15	90	*10	*0	*0	90
21	*0	*0	90	*10	90
8	*0	80	*0	*20	80
10	80	*0	*0	*20	80
12	80	*0	*0	*20	80
16	*10	*10	80	*0	80
1	*10	60	*0	*30	60
4	*10	*30	*0	60	60
13	*20	*20	60	*0	60
6	*20	*20	*10	50	50
18	*20	*20	*10	50	50
19	*70	*0	30	*0	30

*Items with asterisks are incorrect answers

Table 3(b) Results on the Ten Native Speakers (the distracter item)

Distracter Item	a (%)	b (%)	a & b (%)	c (%)	Correct % of each item
7	100	*0	*0	*0	100
11	100	*0	*0	*0	100
5	*0	*20	*0	80	80
20	*20	*0	80	*0	80
3	*10	*20	70	*0	70
14	*0	*30	70	*0	70
17	*10	70	*10	*10	70
22	30	*0	70	*0	70
23	*0	60	*40	*0	60
9	*10	*40	*0	50	50
2	*0	60	*0	*40	40
24	*60	*0	*0	40	40

* Items with asterisks are incorrect answers

Tables (3a) and (3b) reveal that native speakers responded inconsistently to the test items. Since we are assuming that native speakers, by definition, ‘know’ their language, we regarded all sentences which received an accuracy rate of less than 70 percent to be problematic. According to this criterion, items 1, 4, 6, 10, 13, 18, 19, and 24 among the target items, and items 2, 9, and 23 among the distracter items had to be revised. I revised some of these sentences with the help of the linguists in the Linguistics Department of the University of Calgary. For instance, sentence items 1b, 9b, 13b, 18a and 19b (Please refer to Table 4 for the revised items) were not accepted by the native subjects; I consulted my Linguistics professors and they all agreed that these sentences were acceptable. I decided in these cases to rely on the judgements of the experts. These items were therefore carried over unchanged to the main study.

For the remaining sentences, I made some amendment. For example, in sentence (2), the verb was changed from *expose* to *hit*. In sentence (4), *aloe* was changed to *rose*. *All* was deleted in sentence (6). *From* was added to sentence

(10a) and *convey* was changed to *transport* in sentence (24a). All these changes are shown in Table 4. The reason for revising these sentences was to present the meaning of them more clearly and make it easier for the subjects to make judgments.

Table 4 Revised Items

Original Form	Revised Form (Note: the changes are underlined)
2 a * The soldiers exposed the wind and rain. b * The soldiers were exposed the wind and rain.	a. * The soldiers <u>hit</u> the wind and rain. b. * The soldiers <u>were hit</u> to the wind and rain.
4 a *The aloe put in a pot. b *The aloe potted.	a *The <u>rose</u> put in a pot. b *The <u>rose</u> potted.
6 a * All the goods stored in a warehouse. b *All the goods warehoused.	a * <u>At</u> the goods stored in a warehouse. b * <u>At</u> the goods warehoused.
10 a *The milk poured into a jug.	a *The milk poured into <u>from</u> a jug.
24 a *Hot water conveys from this boiler to every part of the building b *Pipes are conveyed hot water from this boiler to every part of the building.	a *Hot water <u>transports</u> from this boiler to every part of the building b *Pipes are <u>transported</u> hot water from this boiler to every part of the building.

The revised instrument appears as Appendix 3.

4.1.6 Data of Native Speakers Using the Revised Instrument

In the last section, I mentioned that some sentence items from the pilot study had to be revised in order to create a better instrument. For this reason, I collected new data from ten other English native speakers. This was to confirm that the revised items were generally accepted by most of the native speakers. The task consisted of five revised items and nineteen old items. The participants were

given the same amount of time (twenty minutes) to accomplish the task under my supervision and were paid ten-dollars as a reward.

The results of the new data shows that native speaker subjects now responded correctly at least 70 percent of the time on all target items, except item 19. They also met the same criterion on all distracters. One item only among the target items got less than 80%. Five items among the distracters got less than 80%. This result is much better. Since the correct percentage of item 19 is 0 %, I decided to remove this item from the data set in subsequent analyses¹⁰.

4.2 The Main Study

The main study addresses the question: To what extent are Chinese L2 learners aware of the relationship between container nouns and container verbs? In order to answer this question, I carried out an experiment involving Cantonese learners of English. They were given a list of 24 pairs of English sentences and asked to judge whether the sentences were grammatical or not. The details of the main study are described below.

4.2.1 *Participants*

The subjects were studying in a English medium (first banding) school. In

¹⁰ Concerning item 19, the linguistics professors I consulted all agreed that it was acceptable despite the fact that native speaker students s did not respond correctly on the item. I have no explanation for this result. The relevant items are shown below.

(19) a. I throw most of the mail that lands on my desk in the rubbish bin every morning.
b. I bin most of the mail that lands on my desk every morning.

Hong Kong, secondary schools are divided into three bands according to the banding system, with Band One representing the top, elite students, Band Two representing the medium-level students and Band Three representing the lowest level. The reason for choosing a Band One school was to examine how the best students under the Hong Kong education system understand the English container verbs.

The participants were twenty secondary students who were all native speakers of Cantonese. They started learning English in kindergarten (at approximately 3 years old). Academically, all the subjects were grade seven students, who also were the advanced learners of English in the secondary level. They were studying in the same school in Hong Kong and were between 18 and 21 years of age.

Since I intend to compare the results of the L2 learners to the data from the second examination of the test instrument, the results from the second group of native speakers is treated as part of the main study here. In other words, there are two groups of subjects in the main study. The first group consists of twenty Chinese L2 learners. The second group of subjects in the main study include ten English native speakers. They were first-year university students and were not linguistics majors. These native speakers are the control group of the study.

4.2.2 *Design*

The study was intended to investigate the participants' cognition and understanding of English container verbs. A mixed factorial design was used, with well-formedness (grammatical vs. ungrammatical) and item type (target vs. distracter) as within-subjects factors, and subject group (L2 vs. native) as a between-subjects factor.

4.2.3 *Materials*

The revised acceptability judgment task was used. I repeat its structure for the reader's convenience here. The pairs of sentences were of four types — twelve container pairs (target items), four passive pairs (distracters), four pairs of dative alternation (distracters) and four conversion pairs (distracters). Among the target and distracter sentences, four were completely grammatical, four were partially grammatical and four were totally ungrammatical for each group of sentences.

4.2.4 *Procedures*

Before carrying out the investigation, I sought approval from the Conjoint Faculties Research Ethics Board of the University of Calgary and obtained the ethics certificate for my study. Parental consent was not required for my study in Hong Kong since the Hong Kong Education and Manpower Bureau does not require parental consent for voluntary participation in research studies. Therefore, I contacted the principal of Buddhist Sin Tak College and received his permission to invite the Form 7 students to participate in this study.

A data collection session was arranged with the target subjects and was held on February 21, 2006 in their school in Hong Kong. The data were collected in-class by the student's teacher, who was approached by the researcher and instructed on what to do. At the beginning of the task, the teacher went through the first page of the instrument (i.e. purpose of study which included information of what the task was about) and made sure all students understood what they were going to do. The students were given thirty minutes to complete the task and they were not allowed to consult dictionaries or other people when

doing the task. At the end of the thirty-minute period, the teacher asked the students to return the instrument. Then the teacher mailed all the data to the researcher.

4.2.5 *Data Analysis*

Before completing the acceptability judgment task, all subjects are required to fill in the questionnaire (Appendix 1). There are two parts to the questionnaire. The first part concerns personal information such as sex, age, place of birth, the subjects' native language, as well as other languages that they speak at home. The second part includes questions that ask about the subjects' experience of learning English. For example, they were asked to indicate how many years they have studied English and estimate their English proficiency. I examined the information provided in these two parts, together with their results in the acceptability judgment task with the view to finding any correlations between their personal background, learning experience, self-reported proficiency and their results on the main task. By comparing their answers in the questionnaire and their responses in the acceptability judgment task, we might gain a better insight into the correlation between L2 learners' self-estimation of their English proficiency and their actual knowledge of container verbs. These findings will be reported in detail in Chapter 5.

Concerning the acceptability judgment task, it was scored in terms of accuracy, where accuracy was defined as responding to the predicted response (base on grammatical analyses and the opinions of the expert linguists). Descriptive statistics were calculated using the statistical package 'SPSS' before further statistical analysis was done. The details of these calculations and results will be shown in Chapter Five.

4.2.6 Hypotheses

Based on the discussion in the previous chapter as to what the L2 learners are expected to know, I have two assumptions: (i) native speakers are expected to outperform L2 learners on all 24 items in the task; (ii) the L1 (Chinese) of L2 learners will have an impact on the learners' L2. I formulate my Null hypothesis and Alternative Hypothesis as follows.

Null Hypotheses

1. The native speakers and L2 learners should perform equally well on the target items because container words exist in both English and Chinese.
2. The native speakers and L2 learners should perform equally well on the distracters since they all know the relevant English sentence structures.

Alternative Hypotheses

1. The native speakers should outperform the L2 learners on all items because their knowledge of English is greater than that of L2 learners.
2. If English container verbs are absent in the L2 learners' input, the L2 learners should perform badly on the target items given that the L2 learners have never been exposed to the precise words before, and because their knowledge of conversion as a derivational process is inadequate.
3. Conversely, if UG knowledge guides the correspondence between conceptual structures and syntactic forms, the L2 learners should perform well on the target items in spite of the absence of suitable input.
4. The L2 learners should recognize the distracters as they have been taught on the distracter items in their L2 classroom. However, the native speakers should outperform the L2 learners on the distracters given that the L2 learners do not possess the same knowledge of English as

the native speakers.

The Null hypotheses and the Alternative hypotheses will be tested and the findings will be presented in the next chapter.

5.0 Introduction

In this chapter, I will analyse the empirical data of the study. Recall that the data consist of responses to the questionnaires and to the test instrument (the acceptability judgment task). I begin with the analysis of the data from the questionnaire in section 5.1. The analysis of the acceptability judgment task will be discussed in section 5.2. Section 5.3 presents the revised results of the acceptability judgment task. These include the descriptive statistics, t-test results and the results of chi-square tests.¹¹ Section 5.4 attempts to correlate scores on the acceptability judgment task and the questionnaire data.

5.1 Results of the Questionnaire

This section reports information on the L2 learners and the native speakers. This includes personal information such as age, sex, languages spoken and native language of the L2 learners and the native speakers. Results are summarized in Tables 5a and 5b.

¹¹ The alpha level for all T-tests was set at 0.05 throughout.

Table 5a The information of the L2 learners on the questionnaire

	Mean age	Mean hours of exposure to English per week	The mean of Self-estimation of English proficiency (1-5)
Group	17.85	11.65	3.4
Female	17.85	13.43	3.43
Male	17.83	7.5	3.33

Fourteen female and six male L2 subjects participated in this study. The mean age of the sample was 17.85, the age range was 17 to 19 years old. All the L2 subjects spoke Cantonese and English. One subject spoke Mandarin in addition to Cantonese and English; the native language of all L2 subjects was Cantonese. The questionnaire revealed that the L2 group was homogeneous in terms of subject age and language background.

Regarding the time of exposure to English (outside the classroom), it ranges from one to thirty hours per week. The mean of the group is 11.65. The mean of female subjects is 13.43 while the mean of male subjects is 7.5. Concerning their self-reported proficiency, it ranges from 2 to 5. The mean, mode and median of the group are 3.4, 3 and 3. The mean and median of female subjects and male subjects are 3.43 and 3.5, 3.33 and 3 respectively.¹²

Table 5b The ranges of age, number of hours and self-estimation of English proficiency

	Age range	The range of number of hours of exposure to English per week	The range of self-estimation of English proficiency (1-5)
Group	17-19	1-30	2-5
Female	17-19	1-30	3-4
Male	17-19	2-20	2-5

¹² The mode and median for the group is 7 and 10. The mode and median of female subjects are 10 and 10. The median of male subjects is 6. There is no mode for the male subjects.

The control group of native English speakers consists of six female and four male native speaker subjects, the mean age is 18.4; their age range is 17 to 19.

5.2 Results of the Acceptability Judgment Task

5.2.1 *Exploratory Analysis and Descriptive Statistics*

The mean, mode and median of all 30 subjects (L2 and controls combined) (N=720) on all items (24) are: 16.17, 13 and 16. The skewness (0.526) and kurtosis (-0.481) values suggest that the data is normally distributed. To further confirm the validity of this result, I also ran the Kolmogorov-Smirnov and the Shapiro-Wilk tests of normality. The Sig. values which indicate the normality of the data were 0.185 and 0.072 respectively. Both the Sig. values are greater than 0.05, this result indicates that the data is normally distributed.¹³

5.2.1.1 *Results by Item Group*

The mean value of 16.17 out of 24 equals a correct response rate of 67.3%. The result suggests that the subjects performed at an intermediate level, well above “floor” and below “ceiling” values. Therefore, there is presumably enough variation in the scores of groups and individuals to make further exploration of the data informative. First, let us look at the results by item group. The mean, mode and median of all subjects (N=360) on all the target items (12) are 9.1,

¹³ Normally the skewness and kurtosis values should be between 1 and -1 when the data is in normal distribution. If the Sig. value of Kolmogorov-Smirnov and the Shapiro-Wilk tests is less than 0.05 then the data is not normally distributed.

10 and 9 correct responses (the standard deviation (s.d.) = 1.373). The mean, mode and median of all subjects on the distracters (12) are 7.13, 6 and 7 correct responses (s.d. = 1.995). The results show that the subjects did better on the target items (9.1 vs. 7.13). The calculation of the standard deviations shows too that responses were more homogeneous on the target items (1.373 vs. 1.995). In the next section, I will report the results of the two sub-groups of subjects on the target items and distracters.

5.2.1.2 *Results by Participant Group*

In this section, I report the results of two groups of subjects: native speaker subjects and L2 subjects. First, the mean, mode and median of the ten native speakers (N=120) on the target items (12) are 9.6, 10 and 10 respectively (s.d. is 1.647). The mean, mode and median of the ten native speakers on the distracters are 9.4, 9 and 9 (s.d. is 0.966). In terms of percentage, the native speakers have an average of 80% accuracy on the target items and 78% accuracy on the distracters. These results are above average but not excellent since native speakers are expected to perform at very high levels. In addition, the standard deviations are relatively high, revealing heterogeneity among responses. The mean, mode and median of the twenty L2 learners (N=240) on the target items (12) are 8.85, 10 and 9 (s.d. is 1.182). This is equal to 74% accuracy. The mean, mode and median of L2 learners on the distracters were 6, 6, and 6 (s.d. is 1.257). This is equivalent to 50% accuracy. Their overall results are much lower than the native speakers'. With regards to the skewness and kurtosis values, the data from the distracters for both the native speakers and L2 learners are normally distributed while the data from the target items are not. The skewness and kurtosis values of the native speakers on the target items are -1.06 and 1.95 respectively. The former is a bit low

and the latter is too high to be normally distributed. The skewness and kurtosis of L2 learners on the target items, on the other hand, are -0.106 and -0.964. Both of them are negative and this also indicates a lack of normal distribution of the data points.

Since the target items were found to be not normally distributed, we may refer to the individual target items for further exploration. In section 4.1.6, I reported that item 19 was problematic to the native speakers and this was shown from its low correct percentage (0%). Therefore, I decided to remove item 19 from the data set. In the following, I will report the revised results.

5.3 Results of the Revised Acceptability Judgment Task

5.3.1 *Revised Descriptive Statistics*

Having removed item 19 from the data set, I report the revised descriptive statistics of the global results. The mean, mode and median of thirty subjects (N=690) on all items (23) are 15.9, 15 and 15 (s.d. = 2.796). This means that each subject has 16 correct responses in average out of 23 items, i.e. 69 % correct. The skewness is 0.475 and the kurtosis is -0.879. The tests of normality do not support this result. The Kolmogorov-Smirnov (0.006) and Shapiro-Wilk (0.032) values suggest that the data are not normally distributed. Therefore, I will investigate further the results by item groups and subject groups and explore if the data are normally distributed.

I report the revised descriptives of all subjects on the target items and distracters. The mean, mode and median of all subjects on the target items are 8.8, 10 and 9 (s.d. is 1.297). This is equal to 80% correct . The mean, mode and median of all subjects on the distracters are 7.13, 6 and 7 (s.d. is 1.995). This is

equivalent to 59% correct.

Regarding the revised descriptives by subject groups, the mean (N=110) of the ten native speakers on the target items (11) is 9.4 (s.d. is 1.776). The mode is 10 and the median is 10.¹⁴ The mean (N= 220) of L2 learners on the target items is 8.45 (s.d. is 1.05). The mode and median are 8 and 8.¹⁵ Concerning the distracters, the descriptive results of both the native speakers and L2 learners are unchanged. Hence, the data of the two subject groups on the distracters are normally distributed. However, the data of the native speakers on the target items is not. Table 6a below shows the differences of means results between the original and the revised data.

Table 6a A comparison of the means of native speakers and L2 learners on the target and distracter items (the original stimuli and the revised stimuli)

Participant Group			
Item types	Native Speakers (the original means)	L2 Learners (the original means)	Totals (the original means)
Target Item means	9.4 (s.d. = 1.776) (9.6 (s.d. = 1.647))	8.45 (s.d. = 1.05) (8.85(s.d. = 1.182))	8.8 (s.d. = 1.297) (9.1(s.d. = 1.373))
Distracter means	9.4 (s.d. = 0.966) (9.4 (s.d. = 0.966))	6 (s.d. = 1.257) (6(s.d. = 1.257))	7.13 (s.d. = 1.995) (7.13(s.d. = 1.995))
Total means	18.8 (s.d. = 2.394) (19(s.d. = 2.625))	14.45 (s.d. = 1.605) (14.75 (s.d. = 1.682))	15.9 (s.d. = 2.796) (16.17 (s.d. = 2.84))

¹⁴ The skewness and Kurtosis values are -1.95 and 4.262. Since they are below -1 and above 1, this indicates a lack of normal distribution of the data points. The mean (N= 120) of ten native speakers on the distracters (12) is 9.4 (s.d. is 0.966). The mode and median are 9 and 9. The data of native speakers on the distracters is normally distributed because the skewness (0.813) and the kurtosis (-0.022) are between 1 and -1.

¹⁵ The skewness (0.146) and kurtosis (-1.073) show that the data is normally distributed.

5.3.2 Adjusted Results

Table 6 reveals little difference in adjusted means, once the problematic item 19 has been removed. An analysis of the results of each individual subject shows that subjects 1 and 6 behave unusually. The correct percentage of subjects 1 and 6 are seventy-three and forty-five while other subjects have at least eighty percent accuracy. Their low scores have a strong impact on the overall results of the native speaker group and create a problem of analysis. However, I would not like to delete their results because of the small sample of native speakers. The small number of native speakers turns out to be one of the limitations of this study due to the low percentages of two native subjects. For this reason, I decided to adjust the results of subject 6 because his score is unreasonably low. Subject 1 did not perform well but seventy-three percent is not too unacceptable. Hence, I did not make any changes to it.

For subject 6, I adjusted his score back to that of the second standard deviation (7.624). Then, I re-calculated the descriptives. The adjusted mean (9.5) is somewhat higher than the original one. However, the skewness (-1.576) and kurtosis (2.628) are still too low and too high to be normal. In other words, the adjusted data is not normally distributed. Therefore, I attempted another way of adjustment. This time, I tried to remove the data of subject 6. The adjusted mean (9.89) is much higher. Nevertheless, this adjusted result still lacks a normal distribution of data points. The skewness is -0.944 and the kurtosis is 1.354. In a nut shell, the adjustments of data do not have the effect of making the non-normally distributed scores normally distributed. Also, the sample of nativespeakers is too small. Therefore, I decided to include all of the data and perform non-parametric statistics.¹⁶

¹⁶ Statistical tests which involve ranks of scores are referred to as non-parametric tests of significance. These are used in various circumstances. One of them is when the measurement instrument involves either equal interval or ratio scales but we cannot assume

5.3.3 *T-test Results*

5.3.3.1 *The Results of Independent Samples T-test*

In the preceding section, the data were found to be not normally distributed and non-parametric tests had to be used for further analysis. To analyze the data further, I did an item analysis. My aim was to examine if there is a relationship between the two groups of subjects on different types of stimuli. To achieve this goal, I first ran an independent samples t-test to assess whether there was a significant means difference between the two groups of subjects on the two groups of items.¹⁷

The t-test results suggest that there is a significant difference between the native speakers and L2 learners on the distracter items ($t = 7.496$, $p < 0.001$). The t-test results on the target items ($t = 1.848$, $p = 0.075$) is very close to the alpha value and approaching significance. It is possible, that if the sample sizes had been greater, the difference here too might have been significant. In brief, the t-tests show that there is significant difference on the distracters but not on the target items between the two groups of subjects.

5.3.3.2 *The Results of Paired Sample T-test*

The results of the independent samples t-test above shows that there is a significant difference between the two groups of subjects on the distracters.

that the scores of the populations would be normally distributed and that the samples from distributions with equal variance (Hinton, 1995: 204)

¹⁷ Independent samples t-test is also called a between-subjects t-test. The samples come from “unrelated” individuals. The independent samples t-test compares the mean scores of two groups on a given variable (Carroll, 2005).

However, this result does not tell us whether there is a significant difference between the target items and distracters within each group of subjects. Therefore, I ran a paired sample t-test to compare the means of two item groups within each subject group.¹⁸ First, let us examine the native speakers. If we refer to the means of native speakers on the two groups of items, we can see that the means of target items (9.4) is the same as the means of distracters (9.4); there is no difference between the native speakers' performance on the target items and the distracters. The L2 learners, in contrast, were more variable when responding to the target items (mean = 8.45) and distracters (mean = 6). A paired sample t-test on the L2 learners ($t = 6.563$, $p < 0.001$) revealed this difference to be significant. The independent samples t-test in the above section showed that the L2 learners responded differently on the distracters than the native speakers. In this section, the results of the paired sample t-test confirm that the L2 learners have a problem with the distracters. Table 6b and 6c summarizes the results of two groups of subjects.

Table 6b A summary of the results of native speakers and L2 learners

	Native speaker	Non-native speaker	Significant?
Container Verbs	9.4	8.45	No
Distracters	9.4	6	Yes

¹⁸ The paired sample t-test is also called a within-subject t-test. The samples come from "related" individuals. A paired sample t-test is used to determine whether there is a significant difference between the average values of the same measurement made under two different conditions (Carroll, 2005).

Table 6c The results of native speakers and L2 learners on different response types

	Native speaker	Non-native speaker	Significant?
Both Grammatical	5.3 (out of 7)	4.4 (out of 7)	No (0.123)
Only “a” is grammatical	3.7 (out of 4)	3.2 (out of 4)	No (0.083)
Only “b” is grammatical	2.9 (out of 4)	2 (out of 4)	Yes (0.036)
Both Ungrammatical	6.9 (out of 8)	4.85 (out of 8)	Yes (0.000)

5.3.4 *The Results of Chi-square Tests*

The t-test results in the previous sections confirm that there is a significant difference between the native speakers and L2 learners on the distracters but not on the target items. Although the distracters were not of central interest in this study, the unexpectedly good results of the Chinese L2 learners on the target items raises the question as to whether these subjects were atypical in their English language proficiency, or whether, their performance on the target items reflected some kind of special knowledge, or some particular facility with the conversion items. To tease the question apart, I decided to explore the subjects' knowledge of the distracters further. Apart from the significant difference between the native speakers and L2 learners on the distracters, I also found that there was a significant difference between the target items and distracters for the L2 learners in the above section. Nonetheless, the t-test results do not report which subclass(es) of response types (i.e. TA, TAB, TB, TC, DA, DAB, DB, DC) cause problems for the L2 learners. Hence, I used the chi-square tests to examine the relationship between the subject groups and the eight subclasses of response types.

Chi-square is an approximate test of the probability of getting the frequencies we actually observe if the null hypothesis is true. It is based on the expectation that within any category, sample frequencies are normally distributed about the expected population value.¹⁹ When expected frequencies are large, there is no problem with the assumption of normal distribution, but the smaller the expected frequencies, the less valid are the results of the chi-square test. Therefore, if the cells in the bivariate table show very low raw observed frequencies (5 or below), the expected frequencies may also be too low for chi-square to be appropriately used. The data of native speakers in this study is from a small sample and there are some cases in which the expected count is less than five. Since all the tables used for chi-square tests in this study are 2×2, I accept that one cell (25%) has an expected count less than five. However, if 2 cells (i.e. 50%) have an expected count less than five, I do not refer to the results of that chi-square test. In the following, I first report all the cases that can use the chi-square tests.²⁰

5.3.4.1 *Items which Allow the Chi-square Tests*

Table 7 shows the score (in terms of percentage) of native speakers and L2 learners on each item, the percentage difference between the two groups of subjects in each item, as well as the significance value. The null hypothesis of the chi-square tests is that there is not any relationship between the two groups

¹⁹ Expected population value refers to the underlying population probability, or the number of observations. The following minimum frequency thresholds should be obeyed: for a 1 X 2 or 2 X 2 table, expected frequencies in each cell should be at least 5; for a 2 X 3 table, expected frequencies should be at least 2; for a 2 X 4 or 3 X 3 or larger table, if all expected frequencies but one are at least 5 and if the one small cell is at least 1, chi-square is still a good approximation.

²⁰ Please refer to Appendix 5 for a detailed report of the chi-square test results.

of subjects on each item. As Table 7 shows, there are four item types that indicate a significant difference. They are D1 (DC), D5 (DC), D10 (DAB) and D12 (DC) because their significance value is less than 0.05 (Please refer to Appendix 4 for the exact items). Therefore, the null hypothesis of items D1 (DC), D5 (DC), D10 (DAB) and D12 (DC) can be rejected. For the rest of items, their null hypothesis cannot be rejected since their significance value is greater than 0.05. Among the four types of items that show significance, D1 (DC) demonstrates the biggest difference (60%) between the native speakers and L2 learners and D12 (DC) has 55 percent difference between the two groups of subjects. D5 (DC) and D10 (DAB) both show a 45 percent difference. The target items, as expected, do not show any significant difference.

Table 7 The results of items that permit the Chi-square tests

Item number (Stimulus type)	Native speakers' score (%)	L2 learners' score (%)	Differences of scores between native speakers and L2 learners	Significance Value (if any)
T1 (TB)	80	70	10	0.682
T4 (TC)	80	50	30	0.235
T7 (TAB)	70	70	0 (no test is required)	Nil
D1 (DC)	70	10	60	*0.002
D2(DAB)	70	75	5	1.000
D3 (DC)	80	65	15	0.675
D5 (DC)	90	45	45	*0.024
D7 (DAB)	70	40	30	0.245
D10 (DAB)	70	25	45	*0.045
D11 (DB)	60	80	20	0.384
D12 (DC)	90	35	55	*0.007

5.3.4.2 Items which Do Not Allow The Chi-square Tests

Table 8 summarizes the results of items that do not allow the Chi-square tests. In this case, I can only refer to the scores of the native speakers and L2 learners, as well as the percentage differences between the two groups of subjects. For items T10 (TC), D4 (DA), the L2 learners only got 65% correct and this creates a 35% difference between the native speakers and L2 learners. In the above section, the chi-square test shows that 30% is not big enough to report a significant difference. However, a 45% difference is “big enough” to show up as a significant difference on the chi-square tests. Therefore, 35% to 45% is the cut-off point for the significant performance difference. Since there is a 35% difference between the native speakers and L2 learners for items T10 (TC), D4 (DA) and a 70 % difference for item D8 (DB), I categorized these three items as showing significant performance difference.

Table 8 The results of items that do not permit the Chi-square tests

Item number (Stimulus type)	Native speakers' score (%)	L2 learners' score (%)	Differences of scores between native speakers and L2 learners
T2 (TC)	90	100	10
T3 (TC)	80	85	5
T5 (TC)	100	80	20
T6 (TA)	80	95	15
T8 (TA)	90	75	15
T9 (TAB)	80	75	5
T10 (TC)	100	65	*35
D4 (DA)	100	65	*35
D6 (DA)	100	85	15
D8 (DB)	70	0	*70
D9 (DAB)	80	75	5

In conclusion, four items were found to show significant difference with the chi-square tests. They are D1, D5, D10 and D12. Three items are found to indicate a significant performance difference. They include D4, D8 and T10. In terms of stimulus type, there are one TC item, one DA item, one DAB item, one DB item and three DC items. Put another way, the four subclasses of response types of the distracters (i.e. DA, DAB, DB and DC) are found to show significant performance differences and the response type DC is the most problematic for L2 learners among the other distracter item types. There are three DC items which show significant performance differences and the correct percentages of L2 learners on these items are rather low, 10 %, 45% and 35%. The analysis of the distracters reveals significant differences between the L2 learners and the native speakers. It suggests that the L2 learners are not performing at uniformly high levels of proficiency. This, in turn suggests that the comparatively good performance of the L2 learners on the target items is due to these items being especially easy.

5.3.5 *Qualitative Analysis*

Overall, the responses of the subjects are rather consistent except Subjects 1 and 6 (native speakers) who got comparatively few correct items (17 and 13 out of 23 respectively). Ignoring these two subjects, the rest of them got at least 19 correct items out of 23 (i.e. over 80% accuracy). However, none of the L2 subjects got more than 19 items correct. In other words, all the L2 subjects got less than 80% total correct percentage.

Tables 9a, 9b, 10a and 10b group the subjects according to the number of incorrect items.

Table 9a The Relative Frequency of Errors of Native Speakers for
Target Items

NATIVE SPEAKERS (TARGET ITEM)		
	Group (according to number of errors)	Number of Subjects (out of 10)
1	0	2
2	1	5
3	2	1
4	3	1
5	6	1

Table 9b The Relative Frequency of Errors of L2 Learners for
Target Items

L2 Learner (TARGET ITEM)		
	Group (according to number of errors)	Number of Subjects (out of 20)
1	1	4
2	2	5
3	3	7
4	4	4

Table 9a shows that most of the native subjects make no errors at all or only one error on the target items. Only three subjects made more than one error. One subject did very poorly and is clearly an “outlier”. Table 9b reveals that the L2 learners exhibit more errors. No L2 learner gets all items correct, four subjects make a single error; five subjects make two errors; seven subjects make three errors and four subjects make four errors. In brief, the native speakers accept the grammatical target items almost all of the time. There is more variability among the L2 learners but they are still performing better on the target items.

Let us now turn to the relative frequency of errors on the distracter items.

Table 10a The Relative Frequency of Errors of Native Speakers for Distracters

NATIVE SPEAKER (DISTRACTER)		
	Group (according to number of errors)	Subject (out of 10)
1	1	2
2	2	4
3	3	4

Table 10b The Relative Frequency of Errors of L2 Learners for Distracters

L2 LEARNER (DISTRACTER)		
	Group (according to number of errors)	Subject (out of 20)
1	4	3
2	5	3
3	6	7
4	7	6
5	9	1

Table 10a shows that native speakers are divided into three groups according to the number of errors. No one scores perfectly; two subjects have a single error, four subjects make two errors and four subjects make three errors. L2 performance is, not surprisingly, more variable. No L2 learner makes less than three errors, three subjects only make four errors, three subjects make five errors; seven subjects get only one-half of the responses correct, six subjects make seven errors and one subject does very poorly with nine errors. These tables provide a clearer picture of the greater heterogeneity of the L2 learners, as well as showing that their performance as a group is just lower.

5.4 Correlational Analysis

In section 5.1 to 5.3, I analysed the data of the questionnaire and the acceptability judgment task. In this section, I combine the subjects' results in the two sets of tasks and look for correlations. This information provides further insight into the relationship between learners' proficiency and their English learning.

The results show that the number of hours of exposure to English per week varies among the subjects.²¹ It ranges from two to thirty hours and I have already reported the mean hours of exposure to English per week. The number of hours of exposure to English does not correlate with the score of the L2 learners. For example, subject 3 is exposed to English for only two hours outside the classroom, but the subject's score is fairly good (correct percentage = 83). Similarly, subject 20 obtained an accuracy rate of 83% for the target items though his/her exposure to English is only three hours per week in a non-classroom environment. In contrast, subject 11 spent thirty hours on English per week and he/she only received 73 as his/her accuracy percentage. Certainly, there are some exceptions. Subject 8 spent relatively little time (one hour) on English and he/she had a comparatively low score (64%). Other subjects, for example, 6 and 9 spent 20 and 30 hours on English, respectively. They obtained excellent results (91%). To examine the correlation of the L2 subjects' scores and their hours of exposure, I ran the correlation coefficient test called Pearson's correlation coefficient, which calculates the correlation coefficient between two measurement variables when measurements on each variable are observed for each of N subjects. The correlation value (0.25) is near zero and this indicates that the values of both variables tend to be unrelated.²² Therefore, this result suggests that there is no correlation between the scores of the L2 subjects and the hours of exposure to

²¹ Appendix 6 presents a summary of the correlational result of L2 learners.

²² The value of any correlation coefficient must be between -1 and +1 inclusive.

English. This result is consistent with my claim that acquisition of knowledge of conversion does not result from exposure to relevant words or to instruction.

Now, let us consider the learners' self-estimation of their English proficiency. With a 1-5 scale (from very poor to very good), most of the subjects rated themselves 3 or 4. The mean is 3.4. I ran the correlation coefficient test to find out whether there is a correlation between the score of the L2 subjects and their self-estimation of English proficiency. The correlation value (-0.16) suggests that small values of one variable tend to be associated with large values of the other. If we refer to the data, it is clear that the lower the level of proficiency the subjects reported, the higher the score on the acceptability judgement task they got. Those subjects who got a comparatively high score (78% and 73%) rated their English as 2 or 3. Some subjects (Subjects 8, 9, 10, and 11) who rated themselves as 4 only maintained a 65% accuracy. Similarly, subjects 14, 17 and 18 rated themselves as 4 but their accuracy is 56%. To sum up, this result indicates that the higher score the subjects obtained, the lower level of English proficiency they estimated themselves as.

This negative correlation between the self-reports and the performance on the target items is surprising since self-reports of L2 proficiency are usually pretty good. This means that the learners are not aware of their knowledge and abilities on conversion, and it is not entering into their perception of their proficiency. This suggests that conversion has a special status.

5.5 Results of Textbook Examination

In this study, I also carried out an examination of the L2 subjects' textbook to provide a piece of evidence which supports the claim that container verbs are not common in the L2 subjects' language input. We may refer to Table 11 below.

Table 11 The result of examination on the L2 learners' English textbook

Book	Total	N	V	A	N & V on same section	N & V on diff. section
2A	39	23	13	3	3	7
2B	57	25	30	2	11	5
3B	36	11	26	2	5	4
4A	49	20	27	5	4	3
4B	35	12	24	0	3	3

Remarks: N means the container word appears as a noun in the text

V means the container word appears as a verb in the text

A means the container word appears as an adjective in the text

N & V mean the container word appears as a noun as well as a verb in the same section of the text

N & V means the container word appears as a noun and verb in different sections of the text

The textbook analysis was carried out before the questionnaire and acceptability judgement data were collected. The analysis was conducted on a sample of selected textbooks. For each grade, two textbooks in a year are used, so that ten books in all are used over the five years of secondary school education. Textbooks were chosen as the basis of the sample because they are the easiest way of accessing the L2 learners' language input. The Form 6 and Form 7 students no longer use textbooks but mainly receive intensive training on practical writings so as to deal with the A-level syllabus (a public examination for students at the matriculation level). For this reason, it is comparatively difficult to access the teaching material of these students because teachers design specific handouts for these students. That means Form 6 and 7 students in each class use different materials. Another reason for me not examining these students' reading materials is that vocabulary is not taught as frequently as at the lower levels (Form 1 to 5). Therefore, I decided

to examine the textbooks my participants were likely to have used and find out the relative frequency of container verbs.

The sample was randomly chosen from fifteen chapters of five textbooks. Three chapters were selected to be examined in each of these five textbooks (2A, 2B, 3B, 4A and 4B). Concerning these English textbooks, there are five chapters for each and each chapter has approximately twenty pages. Thus, there are approximately one hundred pages for each textbook.

Table 11 shows that there are not many conversion items in the L2 learners' textbooks. Among the 300 pages analysed (60 pages in each textbook $\times$ five), only 35 to 57 conversion items were found (there are approximately 300 words per page). This low frequency indicates that conversion items do not commonly occur in the textbooks. Also, the number of conversion items that occur as a noun as well as a verb in the same section of the textbook is even smaller. This suggests that L2 learners are not exposed to the conversion pairs very often. But do container words appear in the textbooks of L2 learners?

The analysis revealed that there are just a few container words in the text. They include *store* (appears twice as a verb), *jail* (appears once as a verb) and *pot* (appears twice as a noun). From these figures, we may conclude that container words occur once in a while in the L2 learner's textbook and conversion items are also very uncommon. Hence, the textbook analysis is consistent with the general claim that conversion corresponds to a poverty-of-stimulus phenomenon for these Chinese learners of English.

5.6 A Summary of The Findings

The findings of this study are summarized below:

- 1) The results of the questionnaire show that the L2 learners (14 female and 6

male, aged 17 to 19) share a similar language background. They spoke Cantonese as their first language and learned English as their second language. The mean hours of exposure to English per week was 11.65. The mean of self-reported English proficiency was 3.4 (for a 1-5 scale). The ten native speakers consisted of six females and four males and they were aged seventeen to nineteen, in other words, of the same age group as the L2 learners of English.

2) The results of the independent samples t-test showed that there is a significant difference between the L2 learners and native speakers on the distracters. However, I did not find any significant difference between the two groups of subjects on the target items.

3) The results of the paired sample t-test indicated that there is a significant difference in the L2 learners' performance on the target items and the distracters. According to the descriptive statistics, the L2 learners performed much better on the target items. Therefore, the paired sample test confirmed that the L2 learners' had greater knowledge of the conversion items while the distracters caused them difficulties.

4) According to the results of the chi-square tests, seven items were found to show significant differences in performance. This means that there is a significant difference between the native speakers and L2 learners on these items (D1, D4, D5, D8, D10, D12 and T10). Item analysis revealed items with option "c" as the correct answer caused the L2 learners more difficulties. I will briefly discuss this result in the next chapter.

- 5) The correlational analysis showed that there are no correlations between the subjects' performance and the hours of exposure to English. However, there was a slight negative correlation between the L2 learners' estimates of their proficiency in English and their scores on the acceptability judgement task.
- 6) The results of the textbook analysis suggested that container verbs are very infrequent in the L2 learners' language input.

To summarise these results briefly, my data suggests that the Chinese learners performed very well on the conversion target items but this result cannot be attributed to the presence of conversion verbs in their English input. In the next chapter, I discuss the implications of the findings for the main hypotheses and theoretical issues raised in the first chapter.

In this chapter, I shall discuss the results of L2 learners mainly on the target items and the implications of the results to the problem of poverty of the stimulus as well as my research question, as put forward in Chapter One.

6.1 Implications to the Research Question of This Study

As the results show, English container verbs do not pose great problems for these Chinese L2 learners. The t-test results in 5.3.3 indicated that there is no significant difference between the L2 learners and native speakers on the target items. This result is unexpected given the greater knowledge of the native speakers and the intermediate level of proficiency indicated by the self-estimations.

What might be the proper explanation of the comparatively good performance of the Chinese learners on the target items? There are various reasons that one might invoke to explain it. One might hypothesise, for example, that this result might be due to the fact that the L2 learners are very high proficiency learners, possibly even near-native-like in their linguistic competence. However, given their low mean score (6) on the distracters, and the mean score of the self-reported English proficiency (3.4), this hypothesis is unlikely. Moreover, the t-test results indicated that there is a significant difference in the scores of the L2 learners on the target items and distracters. This result shows that L2 learners do not respond to the distracters in the same way as they respond to the target items. If the L2 learners were, in fact, high proficiency learners, they should do equally well on both. Comparison of the L2 learners' scores on the

distracter items and those of native speakers showed a significant difference. The lower mean score of L2 learners for the distracters, together with the t-test results therefore clearly demonstrate that L2 learners have not yet reached native-like proficiency in their target language. It may be more reasonable for us to conclude that the L2 learners perform surprisingly well on the target items and that their relative success is not a reflection of their overall proficiency in English. Rather, it seems that conversion has a ‘special’ status in that it is comparatively easy, despite the fact that container verbs are not common in Chinese and are rarely taught in second language classrooms. This is confirmed by the item analysis. When we refer to each specific target item, there are only two items that receive a correct response rate that is less than 70% (items number 8 and 18 in the task). The L2 learners performed very well on the rest of the target items. They can verify most of the container verbs and the sentence structures in which they occur: in the task, items (1b), (8b), (13b), (16b) and (21b) are correct sentences in which container verbs appear in a transitive structure. Except for (8b), the majority of L2 learners (above 70 percent) obtained the right answer for the other items. In contrast, items (4b), (6b), (10b), (12b), (15b) and (18b) are incorrect sentences, in which container verbs are put into an intransitive structure. Here too, more than 70 percent of L2 subjects were able to identify these items as incorrect, excluding (18b).

The high scores of L2 learners on the target items also indicates their good understanding of the basic frame. Items (1a), (4a), (6a), (10a) and (18a) are sentences in which container nouns occur in an incorrect syntactic structure. The L2 subjects obtained more than 70 percent accuracy on these items, except (18a). This suggests that the L2 subjects in general are able to reject container nouns in incorrect structures. On the other hand, items (8a), (12a), (13a), (15a), (16a) and (21a) are sentences wherein container nouns appear in a correct

syntactic structure. The L2 subjects also achieved an accuracy rate above 70 percent. This also implies that L2 learners can figure out the correct syntactic environment of container nouns.

In accordance with these results, it is reasonable to believe that L2 learners are able to notice and infer the relationship between container nouns and container verbs and ‘cognise’ the relevant syntactic structure. This is in line with Clark & Gerrig’s (1983) point of view. The listener or reader is assumed to know the denominal verb if they know the parent noun. In terms of the container verbs in this study, the L2 learners may figure out the meaning of container verbs based on their knowledge of container nouns. The learners are supposed to recognize the noun in any case before understanding the verbs. With no understanding of the noun, the possibility of knowing the verb is much lower.

However, the knowledge of container nouns alone will not activate the syntactic and semantic structures of container verbs. Is there any other mechanism that facilitates the L2 learners’ arriving at the conceptual and syntactic representations of these verbs?

One possibility is to transfer an accurate noun-to-verb derivational rule to the interlanguage from the L1. In Chapter Three, I showed that container verbs occur in Chinese, even though they are not as common as they are in English. In addition, I also demonstrated that the syntactic and semantic representations of some Chinese container verbs are identical to the English ones. It is possible that this knowledge is the basis from which Chinese L2 learners infer the noun/verb relationship in English. In other words, the Chinese container verbs may provide the appropriate syntactic (occurs in transitive sentences) and lexical (see 3.3.5) information when Chinese L2 learners interpret the relationship between nouns and verbs in English.

In conclusion, the answer to the research question of this study is that the Chinese L2 learners studied in this thesis are indeed aware of the relationship between English container nouns and container verbs.

6.2 Difference in Performance between the Target Items and Distracters

The results of Chapter Five revealed that both native speakers and L2 learners obtain better results on the target items than the distracters. The t-test results also suggested that there is a significant difference in mean score between the L2 learners and native speakers on the distracters but not on the target items. I concluded from this interesting result that the target items pose fewer problems to the L2 learners. In contrast, the distracters are more difficult to them. What is the proper explanation of these findings? It is never easy to explain why learners perform less well on some items but not on others. The discussion in Chapters Two and Three suggested that container verbs have a more straightforward lexical conceptual structure, which would help L2 learners to correctly answer the instrument once the learners knew the meaning of the corresponding noun. The presence of an agent and of an affected entity would lead a participant to assume a transitive verb frame (with the agent mapping onto the subject and the affected entity mapping onto a direct object). All the learners had to learn, given the assumptions of Lexical Conceptual Semantics, is how to incorporate the meaning of the noun into the verb to express “putting an object into a container”. But as discussed above, this structure also exists already in Chinese. Therefore, knowledge of the incorporation option is potentially transferable from the L1. With the appropriate interpretation of the context and understanding of the parent noun, it is presumably not difficult for the L2 learners to extract a general

noun-to-verb rule for interpreting the relationship between nouns and verbs, such as bottle. In short, universal mapping options between a lexical conceptual structure and a syntactic frame, as well as an L1-extant incorporation option would make the relationship between English container nouns and English container verbs “transparent”. This would be so even when there is no specific container verb in Chinese to transfer to the interlanguage.

6.3 Implications for the UG Theory and the Problem of Poverty-of-stimulus

This study aimed to investigate the knowledge of Chinese L2 learners on English container verbs. Chinese has few of these verbs. At the same time, these verbs are not usually taught in their second language classes. My analysis of the textbooks typically used in the English classes of such learners revealed that there are few cases of container verbs. I concluded from this analysis that container verbs are infrequent in the learners’ language input. Nevertheless, except for a few items, they performed well on the container items. It seems to suggest that these learners’ knowledge of the container noun-verb relationship is not based on the linguistic input alone. They are able to infer the appropriate syntactic frame (transitive) and make correct generalizations (e.g. incorporated the noun and the idea of putting an object into a container to the verb), etc. Although a few container verbs exist in Chinese, they are not as common as in English. As mentioned, the *ba*-structure is far more popular and it is used to express containerization in Chinese more often. Even though the occurrence of some container verbs in Chinese probably prepares the learners to acquire English container verbs to some extent, a reasonable explanation of my results cannot

be based on lexical transfer, viz. transfer of the morphological, syntactic and conceptual properties of a Chinese verb to a form with an English pronunciation or spelling. Moreover, generalizing by analogy will not explain why conversion is not always possible (the pre-emption effects discussed previously). It is highly likely UG that supplies that part of knowledge of language. The results of this current study appear to support the role of UG in second language acquisition.

This chapter answers the research question of this study based on the results of my subjects. Although the linguistic input to L2 learners is insufficient to explain the ease with which Chinese L2 learners accept grammatical sentences containing container verbs and reject ungrammatical sentences, they clearly are able to do this. As I mentioned, one possible explanation is that they make use of what they have in Chinese (conversion, denominal verbs and container verbs) to infer the syntactic and lexical conceptual representations of these verbs in English and the mappings between them. The source of the lexical conceptual representations and these mappings can only be Universal Grammar; it cannot be the input.

This study is an analysis of Hong Kong secondary students' knowledge of English container verbs, a kind of verb derived by conversion from container nouns. The findings suggest that container verbs are easier to learn than other items tested (including other cases of conversion) as the L2 learners have a higher mean score on these verbs. This remarkable result may be attributable to different factors: (i) the fact that conversion exists as a way of deriving new words in Chinese, (ii) the productive nature and high frequency of conversion pairs in English, (iii) the shared lexical conceptual representations for Chinese container sentences with *ba* and the English container verb sentences, and the role of Universal Grammar in constraining how lexical conceptual representations map onto syntactic frames. What is not a factor is the existence of container verbs in Chinese which will transfer onto English sound or graphic forms. In addition, I carried out a textbook examination and correlational analysis of students' results. The first test confirms my claim that container verbs are infrequent in the input these learners get. The result of the second test basically supports the correlation of learners' scores and their self-reported proficiency but this makes their relatively high scores on the container verbs all the more remarkable.

This is a pioneer study investigating the learning of English container verbs by Chinese learners. This study has made a contribution to our understanding of the L2 acquisition of an aspect of English grammar which to date has not been studied. Like all research, this study has its limitations. Areas which are in need of further research are discussed in the following subsection.

7.1 Limitations

This study has provided interlanguage data of English container verbs based on an empirical study using an acceptability judgment task. While I assume that learners must somehow tap grammatical knowledge to make such judgements, it is not known what kind of language processing is actually involved in making acceptability judgements (Gerken and Bever 1986; Schütze 19). Moreover, I collected neither comprehension nor production data because of the time limitation and the scale of this study. It is reasonable to assume that learners' ability to make use of their knowledge will vary with task. Thus, this data presents nothing more than a first step in the analysis of Chinese learners' of English knowledge and use of container verbs. Moreover, the acceptability judgment task tests the learners on only twelve container verbs. There are far more verbs of this type which have not been covered in this study. Therefore, future corpus-based research using L2 speech or writing data, in particular, may bring to light more interesting and yet unknown facts about the container verbs in L2 English.

Concerning my examination of the learners' language input, I could only access the learners' textbooks but not other reading materials, such as handouts, due to the policy of confidentiality. Most secondary schools in Hong Kong disallow exposing teaching materials to people other than student in order to avoid any unnecessary risks (e.g. the copyright issue). Thus, I could only examine the learners' textbooks since they are publicly sold. Again, my limited access to the learners' reading materials might have an effect on the thoroughness of my investigation. Yet, this problem is inevitable. It is hoped that analysis of more data and data of different types (e.g. the English newspapers the learners' usually read) could be collected for future studies to enhance the validity of the results.

Moreover, the sample of this study (ten native speakers, twenty L2 learners) is not unusually small when compared to other SLA studies. The sample size was limited, however, and this proved to be a problem because the data of the native speakers were found to be not normally distributed. Two of the ten subjects had unusually low scores, which made doing statistical analysis difficult. In particular, we might anticipate a significant difference between the native speakers and the L2 learners even on the container items with a larger sample of native speakers. One may also wonder to what extent the results found here will generalize to other groups of Chinese learners. Recall that the L2 sample chosen are the elite students who are at the advanced level. They have learnt English for more than fifteen years. There are also students who study in second and third banding secondary schools in Hong Kong. They represent the medium and low academic achievers and may have serious problems with these container words in English. I would predict that lower academic achievers would do worse on the instrument.

Last but not least, I also mentioned the paucity of denominal verbs in Chinese in Chapter 3. Denominal verbs in Chinese are not as common as and less various than those in English. The relevant reasons for the poverty of denominal verbs have yet been discussed in the literature of derivational morphology and cross linguistic research. There is still much that is not understood about how denominal verbs are produced and processed. This understanding may provide more information about why denominal verbs are highly productive in English or other languages but are relatively limited in Chinese. This current study makes no attempt to investigate this area because of limited time. However, more experiments are needed in order to contribute to our understandings of denominal verb production and the acquisition of English denominal verbs.

7.2 Suggestions For Further Studies

Apart from the suggestions mentioned above, there are two areas that I would like to address here for further improvement of relevant studies. First, we may investigate L2 learners' knowledge about the meaning of English container verbs in the sentence as a whole. In this study, I noticed that L2 learners are able to recognize container verbs such as *bottle* in *John bottled the water*. However, I do not know if they interpret the sentence as "pour water into the bottle until it is full" or "pour water into the bottle even if it is not full". In fact, the sentence means "fill the bottle with water" and *fill*, as we know, means "pour X into the container until it is full". If Chinese learners of English can indeed draw the correct inferences, where does this additional knowledge come from? Certainly, we need further analysis of the learners' L1 and their response on these sentences to answer these intriguing questions.

Second, I only attempted to answer a simple question in this study: if Chinese L2 learners of English are aware of the relationship of container nouns and container verbs. The answer is "yes". Nonetheless, there are a number of other questions and areas related to container verbs that need further attention. How are English container verbs actually acquired? Are there differences to be observed in learners of different proficiency levels? I leave these issues for future research.

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Code: _____

研究目的

本研究是關於以廣東話為母語的學生，如何理解某類型英語句子。當中包括以兩種不同語法來表達同樣意思的句子。例如，在例句1中，我們可以說 *Mary sealed the package with tape*。同時，我們也可以說 *Mary taped the package*。雖然這兩句句子的語法不同，但意思是相同的。

1. Mary sealed the package with tape.
Mary taped the package.

另一方面，如例句2中，我們可以說 *Cecilia mailed a parcel to 100 Main Street*。但是我們不可以說 *Cecilia mailed 100 Main Street a parcel*。

2. Cecilia mailed a parcel to 100 Main Street.
*Cecilia mailed 100 Main Street a parcel.

請儘快將你的答案填寫（請以你閱讀的第一個印象作答，）。因為我們需要你對這些句子的第一印象作為分析標準。謝謝你的幫忙！

Purpose of The Study

I am carrying out a study on how Chinese-speaking learners of English understand English sentences containing alternative ways of expressing the same meaning. For example, in (1) below, we can say *Mary sealed the package with tape*. But we can also say *Mary taped the package*. These two sentences seem to have the same meaning but they alternate.

1. Mary sealed the package with tape.

Mary taped the package.

On the other hand, with respect to pairs like (2), we can say *Cecilia mailed a parcel to 100 Main Street* but we cannot say *Cecilia mailed 100 Main Street a parcel*.

2. Cecilia mailed a parcel to 100 Main Street.

*Cecilia mailed 100 Main Street a parcel.

Please give your answers as soon as possible because your first impression to the sentences is significant for this study. Your effort in completing this questionnaire will be greatly appreciated.

Questionnaire

General Instructions:

1. This is a questionnaire, not a test. So, take it easy and just finish it with the help of instructions.
2. This questionnaire has two parts. Part A asks about personal background and Part B is the main part of the questionnaire.
3. Do Part A and Part B in 45 minutes.
4. Do the questionnaire without consulting a dictionary or reference books or anyone else.

PART A

- I. Personal information: Circle the letter you choose.
 1. Name: _____
 2. Sex: a. Male b. Female
 3. Age: a. 13-14 b. 15-16 c. 17-18 d. 19 or above
 4. Place of birth: _____
 5. Native language:
 - a. Cantonese b. Other Chinese languages (e.g. Hakka, Mandarin, etc):
_____ (specify) c. English
 6. Which language do you speak at home with your family?

- II. The following questions ask you about your experience learning English up to now. Please answer each question by circling the letter(s) which is (are) closest to the way you want to respond or just write down the answer in English.
7. I am now studying or I once studied English in (university or college).
 8. There are (were) _____ (give the number) students in my class.
 9. When do you start learning English? _____
 10. How long have you been studying English? _____ (please specify the no. of year)
 11. a. Have you ever lived in an English speaking country? _____
 b. If so, for how long? _____
 c. What was the purpose of your stay (1. travel, 2. study, 3. au pair)? _____
 12. a. For approximately how many hours per week are you exposed to English? _____
 b. Do you read English in other materials or through other channels (e.g. Internet, TV, newspaper) apart from textbooks? _____
 13. Please estimate your English proficiency on a scale from 1 – 5
 (1= very good, 2 = good, 3 = medium, 4 = weak, 5 = poor)
 1 2 3 4 5 (Please circle your answer)

PART B

Multiple Choice: Each of the following sentences is followed by **a**, **b**, **a&b** and **c**. Read these sentences carefully and then choose **a** if you think **a** is more acceptable. If you think **b** is more acceptable than **a**, you may choose **b**. Or if you think both **a** and **b** are equally acceptable, then you may choose **a&b**. And if you think none of them are good, you may choose **c**. Please circle your answer.

Please circle your choice from (1) to (24).

- | | | |
|-----|--|---------------------|
| 1 a | My money deposit in the bank monthly. | |
| | | (a) (b) (a)&(b) (c) |
| b | I bank my savings monthly. | |
| 2 a | The soldiers exposed the wind and rain. | |
| | | (a) (b) (a)&(b) (c) |
| b | The soldiers were exposed to the wind and rain. | |
| 3 a | Her husband prepared a big meal for her. | |
| | | (a) (b) (a)&(b) (c) |
| b | Her husband prepared her a big meal. | |
| 4 a | The aloe put in a pot. | |
| | | (a) (b) (a)&(b) (c) |
| b | The aloe potted. | |
| 5 a | The student fixed the technician a computer problem. | |
| | | (a) (b) (a)&(b) (c) |
| b | The technician fixed the student a computer problem. | |

- 6 a All the goods stored in a warehouse.
(a) (b) (a)&(b) (c)
b All the goods warehoused.
- 7 a We will send the gold to India by ship.
(a) (b) (a)&(b) (c)
b The gold will ship to India.
- 8 a Did the tickets put into his pocket?
(a) (b) (a)&(b) (c)
b He pocketed the tickets?
- 9 a Mr. Wu's artwork donated to the Museum.
(a) (b) (a)&(b) (c)
b Mr. Wu donated the Museum his artwork.
- 10 a The milk poured into a jug.
(a) (b) (a)&(b) (c)
b The milk jugged.
- 11 a My grandmother baked a delicious cake for
my birthday.
(a) (b) (a)&(b) (c)
b My grandmother baked my birthday a delicious cake.
- 12 a Would you put the fish into the can for me?
(a) (b) (a)&(b) (c)
b Would the fish can?
- 13 a She packed the CDs into boxes.
(a) (b) (a)&(b) (c)
b She boxed the CDs.
- 14 a The hunter took the skin off the rabbit.
(a) (b) (a)&(b) (c)
b The hunter skinned the rabbit.

- 15 a Her dog lived in a kennel in the back garden. (a) (b) (a)&(b) (c)
 b The dog kenneled in the yard.
- 16 a Put the wheat into the bag for me, please. (a) (b) (a)&(b) (c)
 b Bag up the wheat for me please.
- 17 a The tanker was fueled in Bahrain.
 b The tanker fueled in Bahrain. (a) (b) (a)&(b) (c)
- 18 a My letters in the drawer put in files. (a) (b) (a)&(b) (c)
 b My letters in the drawer filed.
- 19 a I throw most of the mail that lands on my desk in
 the rubbish bin every morning. (a) (b) (a)&(b) (c)
 b I bin most of the mail that lands on
 my desk every morning.
- 20 a The artist posed his model carefully. (a) (b) (a)&(b) (c)
 b The artist's model is posed carefully.
- 21 a Do you put your fruit into bottles? (a) (b) (a)&(b) (c)
 b Do you bottle your fruit?
- 22 a The chef removed the seeds from the grapes. (a) (b) (a)&(b) (c)
 b The chef seeded the grapes.
- 23 a Patsy sent to a text message to her friend. (a) (b) (a)&(b) (c)
 b Patsy sent her friend a text message.

24 a Hot water conveys from this boiler to every
part of the building.

b Pipes are conveyed hot water from this
boiler to every part of the building.

(a) (b) (a)&(b) (c)

Thank you for your cooperation!

Subjects Wanted for a Second Language Learning Study

I am an international graduate student of the Linguistics Department of University of Calgary, Canada. Currently I am carrying out a study on how Cantonese-speaking learners of English understand English sentences containing alternative ways of expressing the same meaning. The experiment chosen in this study is an acceptability judgment task which will help me to access how these learners understand and interpret a verb type in English.

To contribute to the internal validity of the experiment, I am pleased to invite native speakers of English to do a pilot test. All you need to do is to complete a set of grammaticality judgment task which asks about some personal background information as well as your understanding of some English sentences.

The experiment should take approximately half an hour to complete. Participants must be first-year university students. No personal identifying information will be published so that no one will be able to identify you in the final study. All participants will remain anonymous. In addition, you are welcome to ask any questions, which are related to the ethics issue.

For the results of the study, only group information will be summarized for presentation or publication of results. This study is not only significant for researchers in the field of second language acquisition, but also beneficial for second language education. I appreciate your contribution and help in this study.

If you are interested in contributing your valuable time to this study, please contact Wing Yee So by sow@ucalgary.ca and every participant will receive \$10 after completing the task. I am looking forward to your reply.

Code: _____

研究目的

本研究是關於以廣東話為母語的學生，如何理解某類型英語句子。當中包括以兩種不同語法來表達同樣意思的句子。例如，在例句1中，我們可以說 *Mary sealed the package with tape*。同時，我們也可以說 *Mary taped the package*。雖然這兩句句子的語法不同，但意思是相同的。

1. Mary sealed the package with tape.
Mary taped the package.

另一方面，如例句2中，我們可以說 *Cecilia mailed a parcel to 100 Main Street*，但是我們不可以說 *Cecilia mailed 100 Main Street a parcel*。

2. Cecilia mailed a parcel to 100 Main Street.
*Cecilia mailed 100 Main Street a parcel.

請儘快將你的答案填寫（請以你閱讀的第一個印象作答，）。因為我們需要你對這些句子的第一印象作為分析標準。謝謝你的幫忙！

Purpose of The Study

I am carrying out a study on how Chinese-speaking learners of English understand English sentences containing alternative ways of expressing the same meaning. For example, in (1) below, we can say *Mary sealed the package with tape*. But we can also say *Mary taped the package*. These two sentences seem to have the same meaning but they alternate.

1. Mary sealed the package with tape.
Mary taped the package.

On the other hand, with respect to pairs like (2), we can say *Cecilia mailed a parcel to 100 Main Street* but we cannot say *Cecilia mailed 100 Main Street a parcel*.

2. Cecilia mailed a parcel to 100 Main Street.
*Cecilia mailed 100 Main Street a parcel.

Please give your answers as soon as possible because your first impression to the sentences is significant for this study. Your effort in completing this questionnaire will be greatly appreciated.

Questionnaire

General Instructions:

1. This is a questionnaire, not a test. So, take it easy and just finish it with the help of instructions.
2. This questionnaire has two parts. Part A asks about personal background and Part B is the main part of the questionnaire.
3. Do Part A and Part B in 45 minutes.
4. Place of birth: _____
5. Do the questionnaire without consulting a dictionary or reference books or anyone else.

PART A

- I. Personal information: Circle the letter you choose.
 1. Name: _____
 2. Sex: a. Male b. Female
 3. Age: a. 13-14 b. 15-16 c. 17-18 d. 19 or above
 4. Place of birth: _____
 5. Native language:
 - a. Cantonese b. Other Chinese languages (e.g. Hakka, Mandarin, etc):
_____ (specify) c. English
 6. Which language do you speak at home with your family?

- II. The following questions ask you about your experience learning English up to now. Please answer each question by circling the letter(s) which is (are) closest to the way you want to respond or just write down the answer in English.
7. I am now studying or I once studied English in _____
(university or college).
8. There are (were) _____ (give the number) students in my class.
9. When do you start learning English? _____
10. How long have you been studying English?
_____ (please specify the no. of year)
11. a. Have you ever lived in an English speaking country? _____
b. If so, for how long? _____
c. What was the purpose of your stay (1. travel, 2. study, 3. au pair)?

14. a. For approximately how many hours per week are you exposed to English? _____
b. Do you read English in other materials or through other channels (e.g. Internet, TV, newspaper) apart from textbooks? _____
15. Please estimate your English proficiency on a scale from 1 – 5
(1= very good, 2 = good, 3 = medium, 4 = weak, 5 = poor)
- 1 2 3 4 5 (Please circle your answer)

PART B

Multiple Choice: Each of the following sentences is followed by a, b, a&b and c. Read these sentences carefully and then choose a if you think a is more acceptable. If you think b is more acceptable than a, you may choose b. Or if you think both a and b are equally acceptable, then you may choose a&b. And if you think none of them are good, you may choose c. Please circle your answer.

Please circle your choice from (1) to (24).

- 1 a My money deposit in the bank monthly.
 b I bank my savings monthly.
 (a) (b) (a)&(b) (c)
- 2 a The soldiers exposed the wind and rain.
 b The soldiers were exposed to the wind and rain.
 (a) (b) (a)&(b) (c)
- 3 a Her husband prepared a big meal for her.
 b Her husband prepared her a big meal.
 (a) (b) (a)&(b) (c)
- 4 a The aloe put in a pot.
 b The aloe potted.
 (a) (b) (a)&(b) (c)
- 5 a The student fixed the technician a computer problem.
 b The technician fixed the student a computer problem.
 (a) (b) (a)&(b) (c)

- 6 a All the goods stored in a warehouse.
b All the goods warehoused.
(a) (b) (a)&(b) (c)
- 7 a We will send the gold to India by ship.
b The gold will ship to India.
(a) (b) (a)&(b) (c)
- 8 a Did the tickets put into his pocket?
b He pocketed the tickets?
(a) (b) (a)&(b) (c)
- 9 a Mr. Wu's artwork donated to the Museum.
b Mr. Wu donated the Museum his artwork.
(a) (b) (a)&(b) (c)
- 10 a The milk poured into a jug.
b The milk jugged.
(a) (b) (a)&(b) (c)
- 11 a My grandmother baked a delicious cake for my birthday.
b My grandmother baked my birthday a delicious cake.
(a) (b) (a)&(b) (c)
- 12 a Would you put the fish into the can for me?
b Would the fish can?
(a) (b) (a)&(b) (c)
- 13 a She packed the CDs into boxes.
b She boxed the CDs.
(a) (b) (a)&(b) (c)
- 14 a The hunter took the skin off the rabbit.
b The hunter skinned the rabbit.
(a) (b) (a)&(b) (c)

- 15 a Her dog lived in a kennel in the back garden.
b The dog kenneled in the yard.
(a) (b) (a)&(b) (c)
- 16 a Put the wheat into the bag for me, please.
b Bag up the wheat for me please.
(a) (b) (a)&(b) (c)
- 17 a The tanker was fueled in Bahrain.
b The tanker fueled in Bahrain.
(a) (b) (a)&(b) (c)
- 18 a My letters in the drawer put in files.
b My letters in the drawer filed.
(a) (b) (a)&(b) (c)
- 19 a I throw most of the mail that lands on my desk in the rubbish bin
every morning.
b I bin most of the mail that lands on my desk every morning.
(a) (b) (a)&(b) (c)
- 20 a The artist posed his model carefully.
b The artist's model is posed carefully.
(a) (b) (a)&(b) (c)
- 21 a Do you put your fruit into bottles?
b Do you bottle your fruit?
(a) (b) (a)&(b) (c)
- 22 a The chef removed the seeds from the grapes.
b The chef seeded the grapes.
(a) (b) (a)&(b) (c)

23 a Patsy sent to a text message to her friend.

b Patsy sent her friend a text message.

(a) (b) (a)&(b) (c)

24 a Hot water conveys from this boiler to every part of the building.

b Pipes are conveyed hot water from this boiler to every part of the building.(a)

(b) (a)&(b) (c)

Thank you for your cooperation!

APPENDIX 4

- D1 The soldiers exposed the wind and rain.
- (2) The soldiers were exposed to the wind and rain.
- (a) (b) (a)&(b) (c) D5 Mr. Wu's artwork donated to the Museum.
- (9) Mr. Wu donated the Museum his artwork.
- (a) (b) (a)&(b) (c)
- D10 The chef removed the seeds from the grapes.
- (22) The chef seeded the grapes.
- (a) (b) (a)&(b) (c)
- D12 Hot water conveys from this boiler to every part of the building.
- (24) Pipes are conveyed hot water from this boiler to every part of the0 building.
- (a) (b) (a)&(b) (c)
- T10 My letters in the drawer put in files.
- (18) My letters in the drawer filed.
- (a) (b) (a)&(b) (c)
- D4 We will send the gold to India by ship.
- (7) The gold will ship to India.
- (a) (b) (a)&(b) (c)
- D8 The tanker was fueled in Bahrain.
- (17) The tanker fueled in Bahrain.
- (a) (b) (a)&(b) (c)

APPENDIX 5

Chi-Square Tests of T1 (TB)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.341	1	.559		
Continuity Correction	.021	1	.884		
Likelihood Ratio	.352	1	.553		
Fisher's Exact Test				.682	.452
Linear-by-Linear Association	.330	1	.566		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.67.

Chi-Square Tests of T4 (TB)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.500	1	.114		
Continuity Correction	1.406	1	.236		
Likelihood Ratio	2.647	1	.104		
Fisher's Exact Test				.235	.117
Linear-by-Linear Association	2.417	1	.120		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.00.

Chi-Square Tests of T7

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.000	1	1.000		
Continuity Correction	.000	1	1.000		
Likelihood Ratio	.000	1	1.000		
Fisher's Exact Test				1.000	.669
Linear-by-Linear Association	.000	1	1.000		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

Chi-Square Tests of D1 (DC)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	11.429	1	.001		
Continuity Correction	8.750	1	.003		
Likelihood Ratio	11.431	1	.001		
Fisher's Exact Test				.002	.002
Linear-by-Linear Association	11.048	1	.001		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

Chi-Square Tests of D2 (DAB)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.085	1	.770		
Continuity Correction	.000	1	1.000		
Likelihood Ratio	.084	1	.772		
Fisher's Exact Test				1.000	.548
Linear-by-Linear Association	.082	1	.774		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.67.

Chi-Square Tests of D3 (DC)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.714	1	.398		
Continuity Correction	.179	1	.673		
Likelihood Ratio	.746	1	.388		
Fisher's Exact Test				.675	.344
Linear-by-Linear Association	.690	1	.406		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

Chi-Square Tests of D5 (DC)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.625	1	.018		
Continuity Correction	3.906	1	.048		
Likelihood Ratio	6.353	1	.012		
Fisher's Exact Test				.024	.021
Linear-by-Linear Association	5.438	1	.020		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is

Chi-Square Tests of D7

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.400	1	.121		
Continuity Correction	1.350	1	.245		
Likelihood Ratio	2.451	1	.117		
Fisher's Exact Test				.245	.123
Linear-by-Linear Association	2.320	1	.128		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.00.

Chi-Square Tests of D10

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.625	1	.018		
Continuity Correction	3.906	1	.048		
Likelihood Ratio	5.670	1	.017		
Fisher's Exact Test				.045	.024
Linear-by-Linear Association	5.437	1	.020		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.00.

Chi-Square Tests of D11

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.364	1	.243		
Continuity Correction	.533	1	.465		
Likelihood Ratio	1.319	1	.251		
Fisher's Exact Test				.384	.230
Linear-by-Linear Association	1.318	1	.251		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.67.

Chi-Square Tests of D12 (DC)

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	8.103	1	.004		
Continuity Correction	6.044	1	.014		
Likelihood Ratio	9.056	1	.003		
Fisher's Exact Test				.007	.006
Linear-by-Linear Association	7.833	1	.005		
N of Valid Cases	30				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.67.

APPENDIX 6

The correlational result of L2 learners

Subject	Score (No. of correct item)	Hours of exposure to English per week	Self-estimation of English proficiency (1-5)
1	18 (78.26%)	30	2
2	17 (73.91%)	10	3
3	16 (69.56%)	7	3
4	16 (69.56%)	10	3
5	15 (65.22%)	7	3
6	15 (65.22%)	2	4
7	15 (65.22%)	20	3
8	15 (65.22%)	10	4
9	15 (65.22%)	17	4
10	15 (65.22%)	16	4
11	15 (65.22%)	16	4
12	14 (60.87%)	5	5
13	14 (60.87%)	3	3
14	13 (56.52%)	10	4
15	13 (56.52%)	7	3
16	13 (56.52%)	1	3
17	13 (56.52%)	7	4
18	13 (56.52%)	30	4
19	12 (52.17%)	17	3
20	12 (52.17%)	8	2