

The Acquisition of the BA Construction by English-speaking Learners of Chinese

BY

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ABSTRACT

This study examined the acquisition of the BA construction by English-speaking learners of Chinese. The BA construction is a unique yet important grammar phenomenon in Chinese. Whether second language (L2) learners of Chinese are able to understand and use this construction correctly and appropriately may affect the overall success of their communication in the target language. Previous studies on the acquisition of the BA construction showed that L2 Chinese learners did better with certain types of BA sentences than with others. However, those studies are mainly descriptive in nature, without fitting themselves into the framework of any existing SLA theory. This study systematically examined L2 Chinese learners' knowledge of various linguistic properties of the BA construction within the framework of the Interface Hypothesis (Sorace, 2005; 2009), comparing the acquisition of core syntactic properties vs. properties at the interfaces of syntax-semantics and syntax-discourse. Specifically, this study examined whether L2 Chinese learners' acquisition of those properties differs in terms of the knowledge that each property requires, comparing core syntax properties with interface properties, as the IH predicts.

Fifteen intermediate low and 17 intermediate high English-speaking learners of Chinese and 20 native speakers of Chinese completed three tasks: a grammaticality judgment task, a contextual acceptability preference task, and a paired grammaticality judgment task. Their responses were measured both in accuracy rates and acceptance rates. Repeated measures ANOVAs were conducted to compare the mean acceptance rates each group

achieved across the properties and sentence types (grammatical vs. ungrammatical). Repeated measures ANOVAs were also conducted to compare the mean acceptance rates of each property across the groups. The results indicated that the native speakers consistently achieved high accuracy across properties although there was more variance with the syntax-discourse properties. Both L2 groups scored significantly higher with core syntax properties than with the interface properties. The IH was partially supported in this study, since an advantage over the core syntax properties was observed. The observed distinction provides instructional implications for the teaching of the BA construction to students of Chinese a foreign language, e.g. when presenting a construction like BA, a better and more effective way might be to distinguish the properties in terms of the knowledge they call for. Those that call for knowledge from other domains such as semantics or pragmatics other than syntax should be emphasized and more time and effort should be devoted to these properties. In practicing the BA construction, students should be provided with contexts in which this construction will be used appropriately and authentically.

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Chapter 1 INTRODUCTION

1.1. Statement of the Problem

More and more students are learning Chinese as a foreign language in the United States. At the K-12 level, the AP Chinese Language and Culture course was designed and implemented in 2007. According to the score distribution report released by College Board, 7,970 students took the AP Chinese exam in 2011, an increase of 25% from 2010. At the college level, more students than ever are taking Chinese either as their major or as a language course to fulfill their language requirement. According to a survey conducted in 2006 by Furman et al. from the MLA among 2,795 higher education institutions, 51,582 students were enrolled in Chinese (p.10). There was an increase of enrollment as high as 51% over the period from 2002 to 2006, which represents the second biggest increase in foreign language enrollment (p.13). According to the MLA resources, the enrollment increased to 60,976 in 2009.

Unfortunately, studies on the acquisition of Chinese as a foreign language do not seem to be keeping pace with the increased enthusiasm for the study of Chinese as a foreign Language. Since the 1990s, there have been only a few studies along this line conducted by scholars in the U.S. The limited number of studies employed different perspectives and arrived at different conclusions. More studies are needed before a better understanding of the acquisition of Chinese can truly be arrived at. A good understanding of the learning process provides teachers with concrete information about what to teach and how to teach it. Teaching based on this information will certainly facilitate the learning process. Findings

from studies on acquisition of foreign languages can undoubtedly contribute to more effective teaching.

This study focuses exclusively on the acquisition by English-speaking learners of Chinese of a unique linguistic construction: the BA construction (*Ba zi ju* in Chinese). As with studies on the acquisition of Chinese in general, studies on the acquisition of the BA construction in Chinese are also scarce. The BA construction was chosen as the subject of this study due to the important role it plays in Chinese and its importance in the acquisition of Chinese as well as in the classroom instruction of Chinese. It was also examined in order to better understand and deconstruct the notorious difficulties encountered by the L2 Chinese learners in learning this construction.

The BA construction is a very important construction unique in Chinese. An example of the BA construction follows:

- 1) Ta ba shu fang zai zhuo shang.
 He BA book put at desk up
 ‘He put the book on the desk.’

The BA construction gets its name from the fact that the character *ba* always appears. The BA construction developed from a serial verb construction and was first used around 1000 A.D. The BA construction was listed by the well-known Chinese linguist L. Wang (1958) as one of the five major historical changes in Chinese grammar.

In order to be grammatical, the BA construction must abide by many constraints. Some constraints are purely syntactic. For example, the word order differs from the regular word order in Chinese. Regular Chinese sentences follow a subject + verb + object word order. However, the BA construction follows a subject + BA + noun phrase + verb + other elements word order. Other constraints are at the interfaces between syntax and semantics or syntax

and discourse. For example, the verb used in the BA construction must be complex, which means the verb must have a complement after it or an adverb before it. In the BA construction, the noun phrase that follows BA (the BA NP) must be affected as a result of the action indicated by the verb and its complement. Moreover, the use of the BA construction is preferred when the BA NP is a secondary topic in the discourse.

The BA construction plays an important role in Chinese. As A. Li (2001) puts it: “it (the BA construction) is an extremely prominent pattern in Chinese, very commonly used in daily speech.” (1) As is cited in Du (2004), Erbaugh (1982) estimates that 8% -24% sentences in adult native Chinese speakers’ speech use the BA construction. Ren (1998) collected over 4,000 sentences whose predicates include a verb and its complement, and she found that over 500 sentences employed the BA construction.

The usage of the BA construction depends on different factors. Under certain circumstances, the use of the BA construction is syntax-driven and is thus obligatory. In Chinese, the number of arguments that can follow a verb is limited. When a verb is followed by a prepositional phrase, which is closely related to the verb in semantic meaning, the argument position is occupied by the prepositional phrase. The real object, in this case, is forced to move to a preverbal position. In other cases, different patterns can be used to express a similar meaning. The use of a BA sentence is optional and is discourse-driven: when the BA NP is known information and the secondary topic, and the sentence is describing the effects on the BA NP, the BA construction is preferred.

With so many constraints in form and usage, it is not surprising that the BA construction is difficult to acquire –even among native speakers: studies on the acquisition of the BA

construction among native Chinese children indicate this construction is acquired at what might be considered a late age. Fahn (1993) claims that children acquiring Chinese as a native language start to produce and comprehend the BA construction at the age of three, and their mastery become adult-like around the age of five (p. 90), which is late compared with the stages at which other grammar patterns are acquired. Jespon (1989) also claims that Chinese children do not show adult-like performance of the BA construction until a late stage of acquisition.

It should come as no surprise, then, that the BA construction is notoriously difficult for L2 learners of Chinese, especially those who are learning it as a foreign language (A. Li, 2001; S. Zhang, 2002, Du, 2004; B. Li, 2004 among others). This researcher's own teaching experience also indicates that learners of Chinese make plenty of errors using this construction.

What makes the BA construction so difficult for L2 learners of Chinese to acquire? Is it due to the fact that this construction has too many constraints? Do these constraints pose equal difficulty to L2 learners of Chinese? In spite of the consistent observation that the BA construction is extremely difficult for L2 learners, there are, unfortunately, only a few studies that have systematically examined its acquisition by teasing the construction's multiple linguistic properties apart.

The few studies found in the literature on L2 acquisition of the BA construction by English-speaking learners examined this issue from different perspectives. Jin (1992) examined the acquisition of the BA construction as a process of pragmaticization from learners' subject-prominent L1 (English) to the topic-prominent L2 (Chinese). Zhang (2002)

examined the developmental patterns of the BA construction among English-speaking learners of Chinese. Du (2004) examined the acquisition of two specific constraints of the BA construction. Wen (2010) looked into the usage of a sub-category of the BA construction under explicit and implicit task instructions. Most of the studies found that L2 learners of Chinese produced fewer BA sentences than native speakers and with a lower accuracy rate.

Most of the previous studies on BA acquisition, especially those conducted by scholars in Mainland China, examined L2 Chinese learners' performance on the specific forms that the BA construction can take. It was observed in those studies that L2 Chinese learners did better on some BA sentences than others. Is there any generalization that can be made from these findings? Can the acquisition of the BA construction be examined from a different perspective other than the form-based perspective? A look at the frameworks developed on the basis of studies in second language acquisition in general may provide some ideas.

One of the most important issues in second language acquisition (SLA) is whether second language learners (L2 learners) can attain native-like proficiency in L2 grammar. It is beyond any doubt that almost every child can acquire his/her native language without much apparent effort. It is also observed that children can utter very complicated sentences long before they can perform other daily routines (tying their shoes, for instance). Their unconscious knowledge about their native language (aka language competence) seems to go far beyond the input they get from their surroundings. The seemingly contradictory situation of children's quick and successful acquisition of their native language and the limited and fragmentary input they receive constitutes the so-called logical problem of language acquisition (aka the poverty of stimulus problem) (Mitchell & Myles, 2004). What can bridge

the gap between inadequate input and successful acquisition of one's native language (L1 acquisition)? Chomsky (1986) proposes that children must be equipped with some innate abstract knowledge about language form, which constrains what languages can look like. This innate abstract knowledge about language that can be applied to any human language is known as Universal Grammar (UG). UG consists of a set of principles and parameters that regulate the linguistic representations of human languages.

Based on the framework of UG, a basic question that comes up in SLA is whether L2 learners have access to UG. This question, as White (2009) sees it, constitutes "the focus of generative SLA research in the 1980s and 1990s" (p. 50). There are three basic answers to this question: no access (Meisel, 1997, cited in Mitchell & Myles, 2004), full access (Flynn, 1996; White et al., 1992; Schwartz & Sprouse, 1996), and partial access (Hawkins & Chan, 1997; Bley-Vroman, 1990; Hawkins, 2005; Tsimpli & Dimitrakopoulou, 2007). The no access hypothesis claims that L2 learners, rather than resort to UG, make use of other cognitive strategies in L2 learning. The full access hypothesis proposes that UG remains accessible to L2 learners and that their L2 grammar is constrained by UG. While the partial access hypothesis agrees that L2 grammar is UG-constrained, it also claims that L2 learners do not have direct access to UG: they only have access to UG via their first language. In other words, only the subset of UG that has been instantiated in their L1 is accessible to them in L2 learning.

The UG-based SLA research concerns itself with the acquisition of the abstract representation of linguistic knowledge in L2 grammar. In other words, they focus on the core syntactic knowledge common to all L2 learners. However, there are cases where successful

acquisition of abstract syntax is evident but still divergence from native-like attainment is observed. Why is it so? Where does this kind of divergence originate? The answer seems to lie outside the domain of core syntax. Some research tries to investigate the interface domains, which, as White (2009) defines it, “center(s) on how different modules of the interlanguage grammar relate to each other” (p. 50). The main goal of research along this line is to investigate whether the divergence from native-like grammar originates from the interfaces between core syntax and other domains.

One contribution to this area of research has been made by Sorace’s (2005; 2009; 2011) Interface Hypothesis. The Interface Hypothesis splits the properties of syntax into “narrow” syntactic properties and “interface” syntactic properties. It predicts that those “narrow” or “pure” syntactic properties can be fully acquired by L2 learners. However, the properties that require the incorporation of syntactic knowledge and knowledge from other domains (e.g. semantics, discourse) can possibly never be completely acquired in L2 contexts. Sorace (2009; 2011) further claims that the nature of different interfaces poses different challenges and creates different attainment patterns in L2 acquisition. Properties at syntax-semantics interfaces are acquirable whereas properties at syntax-pragmatics interfaces are problematic. Sorace claims that this split can be found among near-native L2 learners who have arrived at the final attainment state of their interlanguage. The present study investigates if this split can be observed among L2 learners that are less advanced. In other words, can this split be observed in the mid phases of the interlanguage development process of L2 learners’ acquisition of grammar?

The studies that examined the properties at various interfaces do not arrive at conclusive

findings as far as the Interface Hypothesis is concerned. Some studies provide evidence for the “split” proposed in the Interface Hypothesis, claiming that the properties at the interfaces between syntax and other domains are extremely difficult and thus result in L2 divergence from native speakers’ grammar (Belletti & Leonini, 2004; Hopp, 2004; Sorace, 2004; Tsimpli & Sorace, 2006; Belletti et al, 2007 among others); whereas other studies claim that even interface properties are acquirable and can achieve native-likeness (Dekydspotter & Sprouse, 2001; Dekydspotter, et al, 2001; Borgonovo et al., 2005; Ivanov, 2009). Still other studies suggest that the divergence at interfaces is not domain-wide, but variable-dependent (Yuan, 2010).

Belletti & Leonini (2004) examined the use of the postverbal subject within appropriate contexts by L2 Italian learners with different L1 backgrounds: French, German, Russian, Polish, etc. In Italian, the postverbal subject order is believed to fulfill a discourse function: to highlight the subject as focus, which provides new information. It was found in their study that the use of the postverbal subject by L2 learners, when it is preferred in the discourse, was at a chance level, which diverges from the performance of the native speakers of Italian. However, those L2 learners’ use of required null subjects was more consistent. The researchers thus claim that properties at interfaces (in this case, at the interface between syntax and discourse) are more difficult to acquire.

Dekydspotter & Sprousem (2001) examined tense-dependent interpretations by English-speaking learners of French when adjectival restrictions of quantifiers were involved. The interpretation of the interrogative phrase varies as a result of the position of the adjective modifier. In other words, they examined a property at the interface of syntax and semantics.

Their results indicate that both intermediate and advanced L2 French learners show their knowledge of the subtle difference in interpretation between the constructions when the interrogative word (*qui*: who) and the adjectival restriction quantifier stay together (the continuous case) or separate (the discontinuous case). Similar results were obtained when Dekydtspotter, et al (2001) examined a different interrogative word (*combien*: how many) in similar situations (continuous vs. discontinuous).

Yuan (2010) investigated the acquisition of wh-words as existential polarity words (EPWs) by L2 learners of Chinese who are native speakers of English and Japanese. There are semantic and syntactic restrictions on the use of wh-words as EPWs in Chinese. The results indicate that the L2 learners' acquisition of these syntactic and semantic constraints on the use of wh-words as EPWs is not consistent across all situations. There are variations in their acquisition. He thus proposed that the acquisition of properties at interfaces is "variation-specific" rather than "domain-wide".

The studies that examine the acquisition of the properties at interfaces or compare the acquisition of the "core" syntactic properties with properties at interfaces seem to arrive at different conclusions. Moreover, the target languages in those studies (with the exception of Yuan, 2010) are mainly Romance languages such as Italian, German, French, and so forth. The target properties examined mainly focus on the null-subject parameter and the clustered properties within this parameter, such as the postverbal subject word order. How about the acquisition of a target language other than a Romance language? How about the acquisition of another property? More research is needed along this line to extend the range of investigation so that more evidence can be provided to attest the generalizability of the

Interface Hypothesis.

As a framework recently developed, the Interface Hypothesis needs more empirical evidence from a variety of combinations of L1 and L2. Nonetheless, it seems to be an appropriate framework to examine what is missing in the literature of the BA construction acquisition. It enables us to predict the pattern of acquisition of the BA construction or to explain the discrepancy in terms of the nature of the properties to be acquired.

A clearer picture of the acquisition of the BA construction is needed. The interface perspective might bring us closer to the nature of the difficulties that L2 Chinese learners encounter in learning the BA construction. Only when the exact difficulties of the BA construction are identified can our understanding of the acquisition issue deepen. More effective pedagogical strategies can thus be accordingly developed. To this researcher's knowledge, no study has thus far examined the acquisition of the BA construction from the perspective of "core" syntactic properties vs. properties at interfaces. The present study takes this on so that different components of the BA construction can be examined.

1.2 Significance of the study

This study aims to contribute to improving classroom instruction on the BA construction by providing data on L2 Chinese learners' knowledge of its different properties. The perspective employed in this study will expand our understanding of how the BA construction is acquired by English-speaking learners, whose native language lacks a construction like this. More specifically, it will provide teachers with evidence on the difficulties L2 Chinese learners face in understanding this unique construction so they can tailor their lessons to facilitate L2 learners' acquisition. The findings of this study will also

provide some suggestions for the authors of Chinese textbooks to aid them in their presentation of the BA construction. It will also provide some implications on teaching Chinese grammar in general.

In Zhao (2011)'s review article of the studies on L2 Chinese acquisition, he pointed out that some studies were descriptive in nature, without fitting themselves into the SLA literature. He also suggested the significance of placing L2 Chinese studies under the framework of SLA theories. The present study can be taken as a case study on how to explore L2 Chinese acquisition within the framework of recently developed SLA theories. A closer connection between these two should be beneficial to both. Evidence from L2 Chinese acquisition studies will help develop SLA theories. At the same time, to examine the acquisition of Chinese by applying newly developed SLA theories to it can help us gain a better understanding of L2 Chinese acquisition and can facilitate the teaching of Chinese in the end.

All of the constraints on the BA construction make it a perfect testing ground for the Interface Hypothesis. Thus this study also contributes theoretically to testing the applicability of the Interface Hypothesis in explaining or predicting L2 learners' convergence and divergence from the target grammar. This is done by providing empirical data from L2 Chinese learners' acquisition on the constraints of the BA construction. Although Sorace (2011) excludes intermediate L2 learners from the scope of what the Interface Hypothesis will predict, many scholars (White, 2011; Lardiere, 2011) question the wisdom of doing so. White (2011) encourages researchers to extend and test "the IH in domains where it was not originally intended to apply" (p. 110). The present study took this advice and investigated

whether or not the Interface Hypothesis can be extended to the area of L2 development as well.

The recent new trend in generative research in second language acquisition indicates that L2 learners' acquisition of properties that are outside the "core" syntax has aroused much attention. It is a reasonable shift given that an explanation other than access to UG is needed to explain the divergence among L2 learners, even when their access to UG has been displayed. Most studies that are concerned with the Interface Hypothesis focus on a limited number of western target languages and linguistic properties. It is highly desirable that more non-western target languages and properties be examined. The acquisition of the BA construction in Chinese is a good case study along this line.

1.3 Purpose of the study and research questions

The purpose of this study was twofold. Firstly, it investigated whether L2 Chinese learners' acquisition of the linguistic properties of the BA construction differs when the target properties are purely syntactic from when the target properties involve the integration of knowledge from other domains. Specifically, this study examined the performance of college-level learners of Chinese who are native speakers of English. Four target properties were examined:

one purely syntactic constraint:

1. the word order constraint;

two constraints at the syntax-semantics interface:

2. the complex verb constraint;
3. the affectedness on BA NP constraint;

one involving the interface at syntax-discourse:

4. the BA NP as a secondary topic constraint.

All of the target properties will be introduced in detail in Chapter 2. Two syntax-semantics properties were examined instead of one because Yuan(2010) claimed that there is variance within the same interface. The present study attempted to examine if a similar finding would be obtained regarding the BA construction constraints. The results of this study will help us gain a better understanding of the divergence from native speakers that students show in learning the BA construction.

To that end, two tasks were designed: a grammaticality judgment task, and a contextual preference judgment task. The first task aimed to measure learners' knowledge of the "core" syntactic properties and the syntax-semantic interface properties. The accuracy rates of their judgments and the acceptance rates of the sentences of each target property were designed to give us an indication of their knowledge on these constraints. The second task aimed to measure their knowledge of the discourse constraint: the topicality of the BA NP. Their accuracy rate in choosing the right response to the contexts, and their acceptance of the BA construction under different contexts were measured, thus providing an indication of their knowledge of the discourse constraint.

Secondly, as an extension of the knowledge on the discourse constraint on BA, this study also examined L2 learners' awareness of a sub-set of BA sentences whose usage is obligatory, regardless of contexts. In other words, there is no corresponding structure in the regular SVO word order to express the same meaning. The obligatory usage of the BA construction is triggered by a syntactic constraint. In Chinese the number of arguments that can follow a verb

is restricted (A. Li, 2001; Chao, 1968; Sybesma, 1992). To this end, a third task was designed to test learners' knowledge of the obligatory usage of the BA construction. In this task, the L2 learners were presented with sentences in pairs: one in the BA construction, one in the regular SVO word order. They were asked to decide if both sentences were grammatical or only one (either BA or SVO) was grammatical.

According to the studies (Sorace, 2000; 2003, for example) from which the Interface Hypothesis grew, English-speaking learners of Italian always provided an overt subject when it required. However, they showed divergence from the native speakers of Italian in situations when a null subject would be preferable. The Interface Hypothesis argues that it imposes a heavier processing load on the speaker when the use of the structure requires the "coordination of syntax with other domains" (Sorace, 2006). L2 learners, who are believed to be less efficient in processing syntax, may lack sufficient "processing resources" to carry out the processing task. As for the BA construction, the preferred usage within certain contexts requires the integration of knowledge at the syntax-discourse interface, and thus imposes a heavier processing load. However, the obligatory usage only requires the knowledge of the syntactic constraint.

Sorace (2009) also claims that the quantity and quality of input play a role in the acquisition of properties at interfaces. As for the BA construction, there are reasons to believe that the obligatory BA sentences appear more frequently in the input, whereas those BA sentences only used under certain contexts appear less frequently in the input. Previous studies (W. Lu, 1994; Jing-Schmidt, 2005) also provide evidence for this.

Both the Interface Hypothesis and the theory of input predict that L2 Chinese learners

will do better with obligatory BA sentences than those optional BA sentences whose use is contextually dependent. Would this prediction be observed among the L2 Chinese learners in this study? This question was worth investigating, since the obligatory BA sentences are so important that lack of awareness of their obligatory usage and the failure to use them can affect learners' communication in real life situations.

The questions addressed in this study include:

1. In acquiring the BA construction in Chinese, does L2 Chinese learners' acquisition of the properties differ when the properties are purely syntactic from when they involve integration of knowledge from other domains?
2. How well are L2 Chinese learners aware of the obligatory usage of the BA construction when it is triggered by syntactic constraints? Does their awareness differ from the awareness of those optional BA sentences whose use is triggered by discourse constraints?

According to the Interface Hypothesis, the following general hypotheses are made concerning the research questions listed above (more specific hypotheses to be made in Chapter 3):

1. The L2 Chinese learners have acquired a better knowledge of the core syntactic constraints on the BA construction than of the constraints at the interfaces between syntax and other domains by achieving a significantly higher accuracy rate in the former than in the latter constraints (accuracy measured in percentage of correct responses out of possible correct responses).
2. The L2 Chinese learners have acquired a better knowledge of the

syntax-semantics properties than of the syntax-discourse properties by achieving a significantly higher accuracy rate in the former constraint than in the latter one.

3. The L2 Chinese learners will be more aware of using a BA sentence when it is triggered by syntactic constraints than when it is triggered by discourse constraints by achieving a higher accuracy in judging the former ones than the latter ones.

1.4 Organization of the study

Chapter 1 discusses the context into which this proposed study fits, the theoretical as well as practical significance and purpose of this study, and research questions to which this study attempts to seek answers. Chapter 2 first reviews the studies in the field of second language acquisition that examined the acquisition of properties at interfaces of syntax and semantics or of syntax and discourse/pragmatics. The linguistic properties of the BA construction are also discussed in this chapter. Since the BA construction is complex and has constraints, only the studies that build up the linguistic framework of this study are reviewed. Moreover, the previous studies on the acquisition of the BA construction are reviewed. Chapter 3 discusses the tasks to be used in collecting data, data collecting procedures (including pilot tests), the data coding methods, and data analysis methods. Chapter 4 presents the data collected from the three tasks and the statistical analysis results using the analysis methods discussed in Chapter 3. Chapter 5 provides an overview and a summary of the important conclusions drawn from the data presented in Chapter 4. It also discusses the implications for classroom instruction and for future research.

Chapter 2 LITERATURE REVIEW

In this chapter previous studies will be reviewed. There are mainly three sections in this chapter. In the first section, the studies that have been done to examine the acquisition of linguistic properties that require the integration of syntax and knowledge from other domains (mainly syntax-semantics and syntax-discourse) will be introduced. In the second section, previous studies that explored the linguistic properties of the BA construction will be introduced. However, due to the numerous literature in this area, only those concerning the target properties examined in the present study will be introduced. In the last section, previous studies that directly examined the acquisition of the BA construction by L2 Chinese learners will be introduced.

2.1 Acquisition of interface properties among L2 learners

As has been introduced in Chapter I, recently the generative-based L2 acquisition research has undergone a shift of focus. The previous studies were concerned about the core syntactic properties, and they explored the issue of accessibility to UG among L2 learners and the final attainment of L2 grammar. However, acquisition data indicates that there are areas where divergence from native-like grammar shows even though UG accessibility is present. How to account for these acquisition data? Over the last decade, more and more researchers started to consider if this kind of divergence can be attributed to the problem with L2 learners in acquiring the knowledge that is at the interfaces between syntax and other domains. Different constructions in different L2s at different interfaces have been investigated, and different conclusions were arrived at, with different proposals. One of the

most representative proposal: the Interface Hypothesis, was proposed by Sorace (2000, 2005, 2006a, 2006b, etc). In this section, some representative studies which explored the L2 acquisition of syntactic-semantic, and syntactic-pragmatic/discourse are reviewed. The Interface Hypothesis is introduced with more details and the studies that provide evidence either for or against it are reviewed.

2.1.1 Acquisition of syntactic-semantic interface properties

Studies on the acquisition of syntactic-semantic interface indicate that there is relatively high convergence to L2 grammar. Dekydtspotter and Sprouse, as is pointed out by Slabakova (2006), are the forerunners in this area. They have conducted quite a few studies on the acquisition of the syntax-semantics interface in L2 French among native speakers of English. They target at situations where the word-order options in L2 French will result in a subtle distinction in interpretation, and where L1 (English) lacks such syntactic alternations. For example, Dekydtspotter and Sprouse (2001) investigate tense-dependent interpretations when adjectival restrictions of quantifiers are involved, which is illustrated in the following example:

- 2) a. Qui de célèbre fumait au bistro dans les années 60 ?
 who of famous smoked in the bar in the 60s?
 b. Qui fumait de célèbre aubistro dans les années 60 ?
 who smoked of famous in the bar in the 60s?
 ‘Which famous person smoked in bars in the 60s?’
 (Dekydtspotter & Sprouse, 2001, p. 3)

In 2)a, when the interrogative word *qui* is moved to the specifier of CP, its adjectival restrictions *de célèbre* moves along with it. This is the case of continuous interrogative construction. In 2)b, when the interrogative word *qui* is moved to the specifier of CP, it leaves its adjectival restriction quantifiers *de célèbre* in situ. This is the case of discontinuous

interrogative construction. For the continuous interrogative construction, there are two possible answers: an answer involving a past celebrity or an answer involving a celebrity at the speech time. However, for the discontinuous interrogative construction, the one that involves a past celebrity is the only possible answer. In other words, one possible interpretation (a celebrity of the speech time) of the adjectival restriction quantifier is reduced in the discontinuous construction.

Two groups of L2 French learners (intermediate and advanced) were presented with a context in English and then were given a question in French. Their task was to judge if a given sentence is the correct answer to the question. Their result indicates that both intermediate and advanced learners' acceptance of a speech time interpretation of the adjectival restriction quantifier is significantly different in the continuous interrogative construction than in the discontinuous construction; whereas their acceptance of a past time interpretation is not significantly different in the two constructions. Interestingly, the native speakers group does not show a significant difference in their acceptance of the speech time interpretation in the two constructions, which, to some extent, messed up the baseline for comparison. Dekydtspotter and Sprouse attribute L2 learners' knowledge of this subtle difference in interpretation to the application of general principles from a language-specific faculty.

Dekydtspotter and colleagues also investigated other similar cases where the alternations of word order result in difference in interpretations. Dekydtspotter, Sprouse, and Swanson (2001) investigate the interpretation of the interrogative cardinality determiner *combine* 'how many' among L2 learners of French under the continuous constituent case vs. the

discontinuous constituent case. The continuous case allows two readings of *combine*, whereas in the discontinuous case, *combine* has only one reading. Again, the change of word order results in loss of interpretation. Their results show that the missing reading in the discontinuous case is much less accepted than it is in the continuous case, which indicates knowledge of this interface property can be acquired by L2 French learners.

Borgonovo et al (2005) investigated knowledge of mood (subjunctive vs. indicative) in Spanish relative sentences by learners of Spanish (advanced vs. intermediate) who are native speakers of English. In Spanish, the choice of mood is determined by the specificity of the DP. If the noun of the DP is specific, the indicative mood is used; whereas the subjunctive mood is used when the noun is non-specific. The specificity status of the DP is interpreted in contexts. In other words, the choice of mood involves the knowledge at the syntactic/semantic interface. A grammaticality judgment task and a truth-value judgment task were used in their study. The results indicate that the advanced learners managed to distinguish between the subjunctive mood from the indicative mood in various contexts. A parallel is observed between the native speakers and the advanced L2 Spanish learners. They thus conclude knowledge at syntactic/semantic interface is attainable. However, it is also observed that the advance learners did better in “subjunctive appropriate” contexts than in “indicative appropriate” contexts. Moreover, an unexpected result was obtained among the native speakers’ performance in the “indicative appropriate” contexts. The subjunctive mood was actually preferred in some contexts where a preference for the indicative mood was expected. This inconsistency messed up the baseline of their experiment. Their conclusion would be more convincing if the result of the “indicative appropriate” contexts was more

consistent.

The studies cited above treat knowledge of the syntactic/semantic interface as a holistic item, though Borgonovo et al's (2005) study does indicate that L2 learners' knowledge of 'specificity' is not very consistent across different contexts when compared with native speakers. Could there be some variation at the syntactic/semantic interface as far as L2 learners' acquisition of this area is concerned? Yuan (2010) made an investigation along this line. He investigates the acquisition of wh-words as existential polarity words (EPWs) by L2 learners of Chinese who are native speakers of English and Japanese.

Wh-words in Chinese are multifunctional: they can be used as interrogative words, universal quantifiers, and EPWs, as in 3):

- 3) a. Ni xiang mai shenme (ne) ?
You want buy what (wh-Q)
'What do you want to buy?' 1)2)
- b. Wo shenme dou xiang mai.
I what each want buy
'I want to buy everything.'
- c. Wo bu xiang mai shenme.
I not want buy what
'I don't want to buy anything.'
- (Yuan, 2010, p. 220)

In 3)(a), the wh-word *shenme* is an interrogative word; in 3)(b), it works as a universal quantifier; whereas in 3)(c), *shenme* is a EPW. There are syntactic as well as semantic constraints for the wh-words in Chinese to work as EPWs. There are different situations where these constraints are satisfied. The results indicate that L2 Chinese learners' acquisition of the wh-words as EPWs is not equally good or bad across situations. Instead, variation is observed. Yuan thus proposes a 'variation-specific' other than a 'domain-wide' perspective on the issue of syntactic/semantic interface acquisition. Besides, Yuan also proposes several

possible factors that are interfering with or facilitating L2 learners' acquisition of the syntactic/semantic interface properties, including cross-linguistic influence, input, the categorical nature of elements involved, etc. Yuan's study is one step further along the line of research in this area. The factors that he attributed to the observed variation also provide us with hypotheses to start with in investigating what is working under this variation.

To sum up, most studies which investigate the acquisition of the syntactic/semantic interface properties seem to indicate that these properties, subtle as they might be, are also acquirable and native-like attainment is possible. However, more properties from L2s other than Romance languages such as French or Spanish are needed before a clearer picture can be obtained.

2.1.2 Acquisition of syntactic-discourse interface properties

Unlike the results that most syntax-semantics interface studies obtained, those results obtained from the syntax-discourse interface studies show more divergence in L2 learners' interlanguage from the grammar of the native speakers. Quite a few studies (Sorace, 2003; Belletti et al, 2007; Lozano, 2006; Hopp, 2004 among others) observed that interfaces between syntax and discourse exhibit more instability and vulnerability than the narrow syntax properties.

One category of discourse or the information structure that is most frequently investigated along this line is topic and focus. Topic conveys the old information known to the speaker and the hearer. It indicates what the utterance is about. Focus is the new information that the speaker wants to present. It advances the discourse. The information structure is realized in different ways in different languages. Sometimes they are realized

syntactically. In the following section, some studies that investigated L2 learners' knowledge on the interface of syntax/topic and syntax/focus will be reviewed.

2.1.2.1 How the topic of discourse is realized syntactically

The topic of a discourse can be realized in different ways. What has been investigated most is the presence or absence of the subject in null subject languages like Spanish and Italian. In a null subject language, the presence of a subject is optional. However, the choice of an overt subject or a null subject is by no means at random. It is governed by some discourse constraints. When the subject is known information and there is no shift of the topic, a null subject is preferred; on the other hand, when there is a shift of topic or when a contrast is intended, an overt subject is preferred.

Sorace (2005) discussed the investigation on English-speaking L2 Italian learners' acquisition of the main feature of the "null subject parameter". In English, the subject is always overt regardless of any discourse constraints on the topic. It is found in her study that when there is a shift of topic and the overt subject is required, the L2 Italian learners behaved native-like and always used an overt subject, as the following example illustrates (example from Sorace, 2005):

- 4) a. Perchè Maria non ha parlato con nessuno?
 why Maria not has talked to anyone?
 b. * \emptyset (= Gianni) non l'ha neanche guardata
 \emptyset (= Gianni) didn't even look at her

The L2 Italian learners never produced 4)b when an overt subject is preferred. However, when there is no shift of topic and a null subject is thus preferred, the L2 learners' behaviour diverged from native speakers of Italian by optionally using an overt subject, as the following example illustrates (example from Sorace, 2005):

- 5) a. Perchè Maria non ha parlato con nessuno?
 why Maria not has talked to anyone?
 b. Perchè lei è troppo timida.
 because she is too shy
 c. Perchè è troppo timida.
 because is too shy

Native speakers always produced 5)c, whereas L2 learners of Italian showed some residue optionality by producing 5)b sometimes. An overuse of overt subjects among L2 Italian learners is claimed to be partly due to the influence of their native language: English, in which an overt subject is used under all circumstances.

Similar results (Belletti & Leonini, 2004; Belletti, et al., 2007) were obtained concerning another aspect of the null-subject parameter: the relative position of the subject and the verb in Italian. In Italian, the subject can occupy either the preverbal position or postverbal position. However, the postverbal position is believed to fulfill some discourse-related functions, such as the focus, which gives new information, as the following example illustrates (example from Belletti & Leonini, 2004):

- 6) a. Chi è partito?
 who is left
 'Who has left?'
 b. E' partito Gianni.
 is left Gianni
 'Has left Gianni.'
 c. * Gianni è partito.
 Gianni is left
 'Gianni has left.'

In this context, Gianni is the focus of new information and thus the postverbal position 6)b is preferred. 6)c is a grammatical sentence, but is odd in this context.

Belletti & Leonini (2004) investigated L2 Italian learners' knowledge on this aspect. The subjects in this study have different L1 background: French, German, Russian, Polish, etc.

Production data was collected by means of a PowerPoint presentation of short videos, which

set the pragmatic conditions. The results show that the use of the preferred postverbal subject (VS order) was at a chance level among L2 Italian learners. However, those subjects' use of null subject whenever it is necessary was more consistent. They thus claim that syntactic properties at the interface level are more difficult to acquire. Instead, the L2 learners tend to transfer the ways how the discourse feature is realized in their L1s to L2.

Belletti et al. (2007) investigated near-native speakers of Italian, who are native speakers of English. Their study examined the interpretation and production of both postverbal subjects, null subjects and overt subjects. Their results indicated that the L2 Italian learners produced and interpreted null subjects correctly. However, they overused overt subjects when the context calls for a null subject. Those near-native speakers also showed difficulty in using postverbal subject structures (VS structures) appropriately. It is concluded in their study that the positive null subject parameter has been reset in those L2 Italian speakers' interlanguage. However, the aspects related to discourse factors remain problematic.

Tsimpli & Sorace (2006) investigated the performance of a similar discourse-related structure among the Russian-speaking learners of Greek. Like Italian, Greek is a null-subject language, and the use of an overt subject is a "marked" option governed by discourse factors. Russian allows both null and overt subjects, however, the distribution of the use of overt or null subjects is not regulated in the same way as a typical null-subject language, like Greek, does. Data from a corpus indicates that the L2 learners show a preference for null subjects, however, they also show a divergence from the native speakers in their overuse of overt subjects. This trend does not show a developmental pattern in terms of the length of residence in the target community.

However, the results in Ivanov's (2009) study indicate a different conclusion from those introduced above. Ivanov (2009) explores how well a syntax-discourse property in Bulgarian was acquired by English-speaking learners of Bulgarian. In Bulgarian, when the object becomes the topic, clitic doubling is used, and 'undoubled' object topics are infelicitous. The results show that intermediate L2 learners did not distinguish between the felicitous and infelicitous options and thus failed to show native-like convergence in this respect. However, the advanced L2 learners did show native-like performance on this property.

To sum up, the studies on the L2 performance of structures related to the discourse factor of topic mainly focus on the use of null or overt subject in null subject languages. Ivanov's (2009) study is one of the few studies that explore properties other than the null subject parameter. Most studies seem to arrive at the conclusion that the L2 learners have difficulty acquiring the discourse-related distinction to a native-like level. However, a few studies (Ivanov, 2009, for example) arrive at a different conclusion. More studies need to be conducted to explore other discourse-relevant properties in other target languages before any consensus can be reached.

2.1.2.2 How the focus of discourse is realized syntactically

Another discourse factor that has drawn some attention along this line is focus, which carries the new information in the discourse. Like topic, the realization of focus also varies across languages. The languages that have been mostly studied are also those Romance languages.

Lozano (2006) explores the acquisition of focus-related properties in L2 Spanish by English-speaking and Greek-speaking advanced learners. In Spanish, the distribution of word

order (subject and verb) is both governed by syntactic constraints and discourse constraints. In an unfocused context, the word order is constrained by the Unaccusative Hypothesis. The SV order is preferred if the verb is unergative; whereas the VS order is preferred if the verb is unaccusative. In a presentationally focused subject context, the word order distribution is governed by the syntax-discourse interface constraint. The VS order is preferred regardless of the verb type. The results show that the L2 Spanish learners performed native-likely in the unfocused contexts; however, they diverged from natives speakers in the presentationally focused subject by randomly accepting either SV or VS order.

Hopp (2004) investigates the acquisition of scrambling in German by Japanese-speaking and English-speaking learners. German, as a SOV language, licenses argument-adjunct or argument-argument reordering, as the following example shows (example from Hopp (2004)):

- 7) a. ...dass John gestern das Buch kaufe.
 that John yesterday the book bought
 ‘that John bought the book yesterday.’
 b. ...dass John das Buch gestern kaufte.
 that John the book yesterday bought
 c. ...dass das Buch John gestern kaufte.
 That the book John yesterday bought

Scrambling, as an option in German, is preferred under certain information-structural and semantic constraints. When the object is known information and needs to be ‘defocused’, scrambling is usually employed, which is referred to as the “focusing constraint”(Hopp, 2004, p.70). Semantically, scrambling usually involves definite NPs, which is referred to as the “definiteness constraint” (Hopp, 2004, p.70). Hopp examines if the L2 German learners have acquired the knowledge of syntactic, pragmatic, and semantic constraints on scrambling. A grammaticality judgment task was employed in the investigation. The results show that both

L1 English and L1 Japanese learners have the knowledge of the syntactic constraint on scrambling. However, both L1 English and L1 Japanese learners show divergence from native German speakers in their knowledge at interfaces: informational-structural and semantic constraints. The divergence is partially claimed to be due to L1: L1 Japanese learners performed better under some pragmatic contexts than L1 English learners.

To sum up, studies investigating the discourse factor of focus also arrived at a conclusion similar to those examining the discourse factor of topic: L2 learners, advances as they are, show some divergence from native speakers in their knowledge of constraints at syntax-pragmatics interface.

2.1.3 The Interface Hypothesis

Most of the studies reviewed above show that there is an asymmetrical pattern in L2 learners' interlanguage: there is a convergence in their knowledge of syntactic constraints of a parameter or a particular construction; however, there is a divergence from native grammars when the knowledge at the interfaces between syntax and pragmatics/discourse is involved.

Sorace (2005) proposed a generalization on the asymmetrical pattern observed from studies in L2 acquisition and in L1 attrition. She claimed that a focus on the differences between end-state L2 grammar and native grammar can help us learn how far L2 acquisition can go. It is argued that there is difference between end-state L2 grammar and native grammar. However, the difference is not cross board but selective, some areas remain stable whereas other areas are more vulnerable, which is referred to as the Interface Hypothesis. The Interface Hypothesis claims

constructions that belong to the syntax proper are fully acquired in L2 acquisition.... In

contrast, constructions that require the integration of syntactic knowledge and knowledge from other domains present residual optionality in L2 (Sorace, 2005, pp. 55-56)

Sorace (2005) also emphasized that the Interface Hypothesis does not claim syntactic aspects are easier to acquire. What it claims is that the aspects of grammar which require an integration of syntactic knowledge and knowledge from other domains are acquired later or never completely acquired.

Sorace (2009) gives a refined version of the Interface Hypothesis. It makes a distinction between the syntax-semantics interface and the syntax-discourse/pragmatics interface. The syntax-semantics interface “involves formal features and operations within syntax and Logical Form”; whereas the syntax-discourse/pragmatics interface “involves pragmatic conditions that determine appropriateness in context”. (Sorace, 2009, p.197) It further claims that the different nature of the interfaces poses different challenge on L2 learners. The syntax-semantics interface structures are acquirable. However, structures that involve the syntax-discourse/pragmatics interfaces are problematic for L2 learners. The recent development in the Interface Hypothesis seems to better accommodate the findings from the studies that explored the acquisition of syntax-semantics interface properties.

As for the possible reasons for this residual optionality at interfaces, Sorace (2009) systematically discussed most of the possible factors: underspecification of interpretable features, cross-linguistic influence in representation, processing limitations, and the quality and quantity of L2 input. After citing the results from two recent studies (Serratrice, et al. 2009; Sorace, et al. 2009), Sorace claims that the influence from these factors varies according to the nature of the interface. Syntax-discourse/pragmatics interface structures are less sensitive to cross-linguistic influence. Instead, they are “more vulnerable to processing

costs” (p.204). Sorace proposes that L2 speakers’ grammar is less “automatic” and their ability to integrate syntactic knowledge with knowledge from other domains is thus also “sub-optimal”, which may causes them to use the “default strategies” or turn to the more “economical” option. The cross-linguistic influence plays a more important role in the acquisition of syntax-semantics interface structures. Moreover, both interfaces are sensitive to the quantity of input of L2. Reduced input will “increase the magnitude of the effect” (p. 207).

Sorace (2011) wrote a keynote article for the first issue of *Linguistic Approaches to Bilingualism*, in which she reviews more recent research on the Interface Hypothesis, further clarifies the scope its predication extends, and addresses “some common misinterpretations” of the Interface Hypothesis. Sorace tries to give a more precise definition of “interface” in her article. She claims that interface “refers to syntactic structures that are sensitive to conditions of varying nature” (p. 6). These conditions must be satisfied for the structure to be grammatical or felicitous. While insisting that “not all interfaces are created equal”, Sorace seems to limit the Interface Hypothesis to the prediction and explanation of syntax-pragmatics interface optionality. In this article, she spends more effort in discussing the reasons for the observed syntax-pragmatics interface optionality. She claims that the processing account may better explain the problem than the representation account. Bilinguals (including near-native L2 learners, first stage L1 attrition, and L1 acquisition in a bilingual setting) are less efficient than monolinguals in integrating information from different sources, because they have “fewer general cognitive resources to deploy” (p.15): with some cognitive resources spared to inhibit the language that is not in use. She also

proposes that the concept of “a gradient” may better differentiate structures than “a rigid dichotomy”.

Over the development and revision of the Interface Hypothesis, it is now limited to predict the processing difficulty that bilinguals encounter in integrating information from different recourses, especially syntax and pragmatics. The latest version of the Interface Hypothesis has not been accepted without controversial issues raised. However, the perspective that this theory takes to study acquisition is quite insightful and has aroused much research along this line.

2.1.4 The BA construction in Chinese: a good testing ground of the Interface Hypothesis

Sorace (2006 a) points out that there are remaining questions in interpreting the Interface Hypothesis. One of the questions is the nature of different interfaces. Sorace (2009; 2011) claims that the difficulty an interface poses varies: syntax-semantics interface is not problematic but syntax-pragmatics is. However, few of the studies she cited studied a structure that involves both interfaces. Hopp (2011) points out that to study one particular construction that involves one interface is somewhat limited, and he suggests that different interfaces of the same grammar phenomenon should be examined.

The BA construction involves syntactic, as well as syntax-semantic, and syntax-pragmatic constraints, which provides a good testing ground to explore the nature of different interfaces. Besides, most studies investigating the acquisition of properties at interfaces studied Roman languages as the target languages, such as Italian, German, French, Spanish and so forth. Few studies explored east-Asian languages, such as Chinese. In terms of the target constructions or parameters examined, most studies focused on the null-subject

parameter, including the realization of overt subject and the position of overt subject and verb, and the split of intransitivity. Few studies focus on a construction that is absent in L2 learners' native language. More target constructions need to be examined in order to test the generalizability of the Interface Hypothesis.

For the reasons stated above, this study attempts to examine the acquisition of the BA construction by English-speaking learner of Chinese. Hopefully, this study will yield some interesting results to contribute to the research along this line.

2.1.5 Summary

To sum up, this section briefly reviewed the recent trend in second language acquisition, which starts to focus on pinpointing the observed divergence in L2 grammar from native grammar by splitting the grammar into “core” syntax and “interface” syntax. Different interfaces have been examined: the interface at syntax-semantics and syntax-pragmatics/discourse. Studies exploring the syntax-semantics interfaces seem to arrive at a similar conclusion: L2 learners show convergence in their performance concerning the knowledge at the syntax-semantics interface. However, studies which investigated the syntax-pragmatics/discourse interfaces seem to arrive at a quite different conclusion: L2 speakers show divergence or residual optionality in their knowledge at the syntax-pragmatics/discourse interface. The Interface Hypothesis proposed by Sorace (2005) was also briefly introduced, and two alternative accounts for the observed divergence were also introduced.

The review of the studies along this line also indicates that there is a lack of studies on target languages other than Romance languages and on target constructions other than the null-subject parameter and related constructions.

2.2 Linguistic properties and constraints of the BA construction in Chinese

In Mandarin Chinese, the BA construction is one of the most well-known constructions in Chinese linguistics. In his book *The History of Chinese Grammar*, the well-known Chinese linguist Li Wang (1958) lists the BA construction as one of five major changes in Chinese grammar over history.

The BA construction is a frequently used construction in Chinese, especially in spoken Chinese. It is acquired late among children who speak Chinese as their native language (Fahn, 1993). However, the unique word order (SOV) and the subtle constraints on the elements of the construction make the BA construction an interesting phenomenon. For similar reasons, the BA construction in Chinese is notoriously difficult for L2 Chinese learners (Li, 2001; Du, 2004; Li & Thompson, 1981).

Basically, the BA construction is used to emphasize the notion of “affectedness” (A. Li, 2001; Liu, 2008 among others), that is, something or someone (the NP introduced by BA) is affected due to the action upon it. For example, in 8)a, the apple is gone due to Zhangsan’s action of eating. However, a regular SVO sentence (as in 8)b) doesn’t emphasize the notion of the apple being affected. In 8)b, it only indicates that Zhangsan did some eating on the apple, but it doesn’t indicate the state of the apple. The apple in 8)b could be finished, or there could be some part of the apple left.

- 8) a. Zhangsan ba pingguo chi le.
 Zhangsan Ba apple eat Asp Le¹
 ‘Zhangsan ate the apple.’

¹ *le* is an aspect marker in Chinese. When it appears after the verb, it indicates that the action the verb denotes is completed.

- b. Zhangsan chi le pingguo.
 Zhangsan eat Asp Le apple
 ‘Zhangsan ate the apple.’ (or more precisely, Zhangsan’s eating of the apple
 Is finished).

Besides the unique word order (SOV), the BA construction also has various constraints for it to be acceptable. The acquisition of those constraints constitutes the key part of the acquisition of the BA construction. Some of the constraints are purely syntactic features; whereas others are more of the interface syntactic features.

In this section, the historical development of the BA construction will be briefly introduced. The focus is on the discussion of the syntactic properties of the BA construction, the constraints on the BA construction that are at the interfaces of syntax and semantics, syntax and discourse will be discussed and illustrated with examples.

2.2.1 The development of the BA construction in Chinese: a brief introduction

Most scholars (e.g. Xu, 2006; Shi, 2002; L. Wang, 1988; M.Wang, 1987) agree that the BA construction developed from a serial verb construction and did not come into being until the Tang Dynasty (around 1000 A.D.). BA was originally used as a verb, which means ‘to take, hold’ (A.Li, 2001; Shi, 2002; L.Wang, 1988). For example,

- 9) xiang dai shen hou, lin bie ba bi yan shi.
 Towards treat very good just before part hold arm say oath
 ‘(a person) was very well-treated, at parting, he held the host’s arm and swore an
 oath’
 (from Houhanshu Lubuzhuan, cited in L. Wang 1988, P. 537)

Later on, BA underwent a grammaticalization process and became a functional word (M. Wang, 1987; Shi, 2002). The following is an example from a poem of the Tang Dynasty:

- 10) mo ba hangzhou cishi qi
 Not BA a place an officer deceive
 ‘Don’t deceive the Cishi (the chief executive officer) of Hangzhou’
 (from Bai Juyi, cited in L. Wang 1988, P. 540)

However, scholars disagree on the motivations for the appearance of the BA construction. Xu (2006) argues that the appearance of the BA construction is motivated by the needs of Chinese to shift from “a language in which different devices coexisted into a language in which syntactic devices became a dominant and almost unique device in indicating grammatical functions.” (P. 138). Both Shi (2002) and L. Wang (1988) claim that the grammaticalization of BA and the appearance and development of the BA construction is closely related to the formation of the resultative construction in Chinese.

Whatever the reasons are, the BA construction was finally established around the twelfth century (Shi, 2002). From then on, the BA construction started its journey as a unique construction in Chinese and has undergone development through history. When the BA construction was originally used, the predicate could be a bare verb. Later on, there came a constraint: the predicate must be a complex one, which is usually realized in a verb with a resultative complement (a VR phrase). The BA construction also became more frequently used as the use of VR phrases became more frequent. Cui (1995) collected examples of the BA construction from two novels, one written more than 250 years ago, and the other being contemporary. The occurrences of the BA construction were calculated and it was found that there was a big increase in the occurrence the BA construction.

2.2.2 Syntactic properties of the BA construction in Chinese

Li (2001) summarized the forms of a BA sentence as in 11). A BA sentence has an optional subject, followed by *Ba* and the noun phrase (NP), followed by the verb (V) and an

X element, as in 11)a. The X element can be realized in different forms: a resultative complement, an aspect marker (e.g. *Le*), a locative complement, etc. In some cases, the X element can go before the verb, as in 11)b.

11) a. (NP) + Ba + NP + V + X

b. (NP) + Ba + NP + X + V

12)a is an example of 11)a, in which the subject *wo* is followed by a BA phrase, and then followed by a complex verb phrase (V+X). The X element in 12)a is postverbal and is realized by a resultative complement: *wan* (to finish). 12)b is an example of 11)b, in which the X element is preverbal and is realized by an adverb *yi* to indicate the briefness of the action. When the X element takes the preverbal position, it is usually realized as an adverb (A. Li, 2001).

12) a. Wo ba na ben shu kan wan le.
 I Ba that CL book read finish Asp. Le
 ‘I finished reading that book.’

b. Ta ba wo yi tui, jiu zou le.
 He Ba I one shove, then leave Asp. Le
 ‘He gave me a shove, then (he) left.’

Although the X element can occupy either the postverbal or preverbal position, in real use, the X element occupies the postverbal position in most BA sentences. Jing-Schmidt’s (2005) corpus-based study of the BA construction shows that among all of the BA sentences, only 1% of them has a preverbal X element. For this reason, this study will only focus on the BA sentences with a postverbal X element.

The purely syntactic constraints of the BA construction are not very complicated. The most obvious syntactic constraint is its non-canonical word order (the word order constraint). In the following section, these two constraints will be discussed respectively.

2.2.2.1 The word order constraint

A regular Chinese sentence takes the SVO order: the subject goes first, followed by a verb phrase, and the object takes the postverbal position. However, in a BA sentence, the noun phrase introduced by BA (the Ba-NP) always goes before the verb. 13)a is an example of a regular Chinese SVO sentence, in which the object *his car* follows the verb phrase *mai le*. However, in a BA sentence, the object *his car* cannot stay in the postverbal position, as in 13)b, but must move to the preverbal position as in 13)c:

- 13) a. ta mai le ta de che.
He sell Asp Le he POSS car
'He sold his car.'
- b. *ta mai le ba ta de che.
He sell Asp Le BA he POSS car
- c. ta ba ta de che mai le.
He BA he POSS car sell Asp Le
'He sold his car.'

2.2.3 Semantic properties of the BA construction in Chinese

Although most BA sentences have a non-BA counterpart, that is, a regular SVO sentence, they are not interchangeable under certain contexts. The BA construction implies some semantic properties and there are semantic constraints for a BA sentence to be acceptable. Like there is no agreement on the forms that the X element can take, there has also been debate on the semantic properties that the BA construction indicates. Some of the most well-known accounts include the disposal account, the causation account, and more recently, the displacement account. Each account attempts to cover as many types of BA sentences as possible, and each one seems to claim that it has the most strong explanatory power in

explaining the constraints on the BA construction. However, each account seems to have its strength and weakness. In the following section, the most discussed accounts will be reviewed.

2.2.3.1 Semantic properties of the BA construction – a disposal account

The disposal account or the “executive” account, initially proposed by the well-known Chinese linguist Li Wang (1945), is the first account on the BA construction. Wang calls it “the disposal form” (*chuzhi shi*, in Chinese), and states that “the disposal form states what a person is handled, manipulated, or dealt with; how something is disposed of; or how an affair is conducted” (translated by Y.-C. Li, 1974). This proposal was made on the original meaning of *ba*, which means “to hold and to handle”. H. Wang (1984) supports the disposal account, but points out that the term disposal should be understood in a broader sense: disposal indicates the relationship between the verb and the object, which does not necessarily involve a purpose from the subject. She claims that under the influence from the action denoted by the verb, the noun phrase introduced by BA undergoes some change and is in a certain state. Li & Thompson (1989) further claims that this kind of influence the verb has on the BA NP does not have to be physical, it can be abstract influence as well.

A. Li (2001) proposes the notion of “affectedness” and points out that the BA construction can be understood as a “highly transitive” construction, in which the verb extends “a high degree of affectedness” on the object. She also illustrates her idea of “affectedness” with the following example (14):

14) a. wo ba guozi zhuang le shui.
 I BA pot fill Asp Le water
 ‘I filled the pot with water.’

b. wo ba shui zhuang zai guozi li.
 I BA water fill at pot in.
 ‘I filled the water into the pot.’

In 14)a., the pot, which is the BA NP, is affected in the sense that now it has water; whereas in 14)b, the water is affected in the sense that its location has changed: now it is in the pot.

H. Wang (2003) agrees that the semantic meaning the BA construction should be “disposal”, but he also clarifies that “disposal” means “controlled causation” in this case, in which the BA NP is under the control of the subject and is affected by the action conducted by the subject. The sense of “control” does not have to be true in the real world, but only needs to true from the speaker’s perspective.

To sum up, both the original disposal account and the extended or modified disposal account emphasizes the affectedness on the part of the BA NP as a result of the action denoted by the verb phrase. The disposal account (whose name sounds a bit confusing), under some modification since it was first proposed, catches the basic meaning of the BA construction, as well as the constraints on the BA constraints. It also distinguishes the BA construction from other SVO constructions. However, the notion of disposal or affectedness is still vague in some sense. A more well-defined notion is expected along this line.

2.2.3.2 Semantic properties of the BA construction – a causative account

Sybesma (1992) attempted to give a well-defined notion on the meaning of the BA construction by analyzing it as a variety of the causative construction, in which “the subject causes the *ba*-NP to undergo the event denoted by the VP.” (p. 178). In his proposal, there is

no actual distinction between the BA construction and the causative construction

(accomplishment sentences). It is true that some BA sentences do indicate a causative meaning, as the following example shows:

15) na jian shi ba wo ji huai le.
That CL event BA I worry bad Asp Le
'That issue made me feel so worried.'

However, most linguists (D. Zhu, 1982; H. Wang, 1984; H. Wang, 2003; among others) agree that this type of BA sentences is not so frequently used as the ones that indicate the meaning of disposal or affectedness.

Liu (1997) gives examples in which an accomplishment sentence cannot occur in the BA construction, in which a BA sentence does not indicate accomplishments. A. Li (2001) also points out another problem of Sybesma's proposal concerning the relationship between the BA NP and the resultative complement. Sybesma proposes that the BA NP and the resultative complement form a small clause. The BA NP is always the subject of the small clause. A. Li (2001) gives examples of BA sentences in which the subject of the small clause is the subject of the whole sentence instead of the BA NP. It is illustrated in the following example

(example from A. Li, 2001):

16) ta ba ni xiang de fan dou bu ken chi.
He BA you miss De² food even no will eat
'He misses you so much that he won't even eat his meals.'

In 16), it is the subject of the whole sentence *he* who does not want to eat meals, not the BA NP *you*. Moreover, there are cases in which the BA sentence does not have a small clause as the verb complement. For example,

² *de* is a particle that indicates that what follows is the result of the action

17) ta ba na ge pingguo chi le.
 He BA that CL apple eat Asp Le
 ‘He ate that apple.’

In 17), the verb eat is followed by the aspect marker *le* to indicate the completion of the action, which implies that the apple is now gone. It does not make sense to take the BA NP *that apple* as the subject of the aspect marker *le*.

To sum up, the causative account makes an attempt to give a more clear-cut meaning of the BA construction by using a structural analysis. It works for most of the BA sentences that indicate a causative relationship between the subject and the object. However, this account leaves a majority of BA sentences out.

2.2.3.3. The complex verb constraint

However, what each account agrees is that a verb must take another grammatical unit (the X element) to form a grammatical BA sentence (F. Li, 1971; M. Wang, 1987; A. Li, 2002; Shi, 2002 among others), which is referred to in the present study as the complex verb constraint. In a BA sentence, the predicate cannot be a verb by itself (also referred to as a bare verb), but must take another grammatical unit (the X element, as was mentioned in the previous sections) (S. Lu, 1980; Liu, 1997; Sybesma, 1992; A. Li, 2001) . This constraint did not originate with the BA construction, but developed with the formation of the resultative construction in Chinese (Shi, 2002).

As has been mentioned before, the postverbal X element in a BA sentence can be realized in different forms. However, there is no consensus on the number of forms that the X element can take, which has been a very important topic in the literature on the BA construction. Moreover, most research on this topic is descriptive by listing the possible

forms. S. Lu (1955) listed 13 patterns, whereas Sybesma (1992) listed 10 patterns on Lu's basis. A. Li (2001) discussed the forms that the X element can take in details. Some of the most frequently used forms of the X element will be illustrated with some examples in the following part.

One of the most typical forms that the X element takes to follow V is a resultative complement. As is pointed out by Shi (2002), a resultative complement in Chinese is different from the resultative used to refer to phenomenon in other languages. In Chinese, the resultative complement is itself a verb or an adjective. Shi (2002) thinks that the term *resultative* should be understood to "refer to the state, degree, accomplishment, achievement, or effect of the action." (p. 29) Li and Thompson (1989) define the resultative complement and the verb preceding it as:

A two-element verb compound is called a resultative verb compound (RVC) if the second element signals some result of the action or process conveyed by the first element. (p. 54-55)

The RVC phrases are very common in Chinese. Shi (2002) claims that the formation of RVC phrases has a very profound impact on Chinese grammar. As a result, many syntactic constructions need a RVC phrase as its predicate to be grammatical, among which the BA construction is one of them. 18) is an example in case:

18) qing ba shu fang hao.
Please BA book put good
'Please put the book away.'

In the example above, the main verb is *fang*, and *hao* is the resultative complement to go with the verb to indicate the result of the action. Without the resultative complement *hao*, 18) will become ungrammatical.

The resultative complements in Chinese, especially some of them, are very productive, and they can technically, as Shi (2002) points out, go with any verb as long as the RVC

phrase makes sense.

Another form that the X element frequently takes is complements of place, which is a propositional phrase. Usually, a verb that denotes the meaning of displacement (or the “placement verbs” as A. Li (2001) calls them) will go with a complement of place to indicate the destination of the displacement, as the following example 19) illustrates:

19) ta ba shu fang zai zhuo shang.
He BA book put at desk on
‘He put the book on the desk.’

In 19), the proposition *zai* takes *zhuo shang* to form the complement of place, and goes with the verb *fang* to indicate the destination of the action of putting. Prepositions that can take a place to form a complement of place include: *dao* (to/ towards), *wang* (towards).

Other forms that the X element can take include an indirect object or a retained object, an aspect marker (in most case, the aspect marker *Le*), etc. In this study, the focus will be put on the two forms introduced in the previous part: the resultative complement or the RVCs and the complement of place. The resultative complement is investigated because it is a typical form to go with the main verb. As Jing-Schmidt (2005) reported in her corpus-based study, the resultative complements are frequently used to form a verb phrase in the BA construction (25.7%). The complement of place or the propositional phrase is investigated because in this case the BA construction is obligatory, which will be discussed in detail in the sections to follow.

2.2.4 Pragmatic/ discourse properties of the BA construction in Chinese

Compared with studies on the syntactic and semantic properties of the BA construction, studies on the BA construction with a focus on its pragmatic or discourse properties are much

fewer in number. Some of these studies investigate the logical relationship between a BA sentence and the clause before or after it. Others investigate the discourse function that the BA construction achieves. In the following sections, some of the proposals will be reviewed.

2.2.4.1 Discourse properties of the BA construction as a whole

W. Zhang (1991) examines the BA construction within its context. He claims that Chinese is a language that largely relies on the “combination of underlying meanings”, it is extremely important to understand the logical relationship between clauses. He collected 1188 BA sentences from Modern and Contemporary Chinese literature in different genres. It was found that more than half of the BA sentences (58.67%) are closely related to the clauses either before or after them or both. Based on the data from his corpus, Zhang claims that the core pragmatic property of the BA construction is to indicate a purpose-related meaning. He thus proposes the “standard pattern” in which a BA construction occurs:

Clause 1 (to indicate cause) + the BA construction (means) + Clause 2 (to indicate purpose)

He argues that the BA construction indicates that something is done out of a particular reason and the completion of that action will fulfill a purpose (p. 91). He claims that there is either a cause and effect relationship or a means and ends relationship in the context. If these logical relationships are to be emphasized, the BA construction is preferred (p. 99).

Zhang also generalizes the pragmatic aspect of the BA construction when it is used “independently”. When the purpose of the action, the result of the action, or the subjectivity of the action is to be emphasized, the BA construction is preferred (p. 95). Zhang’s (1991) study is one of the earliest ones to emphasize the contextual meaning of the BA construction, and proposes a core pragmatic property of the BA construction. However, his study is

descriptive and more empirical evidence is needed to test the explanatory power of his proposal.

Jing-Schmidt (2005) explores the pragmatic function of the BA construction from the perspective of how it helps to realize the speaker's communicative intent. She made a corpus-based discourse analysis of the BA construction and proposes that the BA construction is a discourse strategy to achieve high dramaticity. By discourse dramaticity, Jing-Schmidt refers to "the effect produced by utterances that impresses the perception and/or activates the imagination and the emotion in communication" (114). When a speaker intends to achieve high discourse dramaticity, the BA construction is used; otherwise, a non-BA construction will be used. One of the examples she uses to illustrate her point is the following:

- 20) a. -- ni zenme zheme gaoxing?
-- you why so happy?³
'You look so happy, why?'
-- wo ba zhangsan da le.
-- I BA Zhangsan hit Asp Le
'I hit Zhangsan.'
- b. -- ni haoxiang xin li you gui, gan shenme huaishi la?
-- you seem heart in have ghost do what bad thing Q⁴
'You have a guilty look, what crap did you do?'
-- wo da zhangsan le.
I hit Zhangsan Asp Le
'I hit Zhangsan.'

Jin-Schmit claims that 20)a and 20)b fulfill different communication intents. In 20)a, where the Ba construction is used in the reply, the speakers wants to highlight his action of hitting Zhangsan since he is proud of doing so, and he wants to draw the listener's attention to the fact that he hit Zhangsan. On the other hand, in 20)b, when replying the question, the speaker

³ Glossing added by the researcher

⁴ *la* is a fusion of *le* and *a* to express interrogation

does not want to emphasize what he has done to Zhangsan and may even to hide from that fact, and he thus used a Non-BA construction.

Jing-Schmidt's (2005) study is the first attempt made to investigate the pragmatic and discourse functions that the BA construction fulfills in a book-length account. It provides a new perspective to study the BA construction's discourse function within a theoretical framework of communication and human psychology, the system of discourse dramaticity, to be specific. However, the notion of "discourse dramaticity" is not so well-defined. Moreover, this discourse dramaticity account cannot exclude the use of other constructions such as the passive construction or the topic comment construction to achieve a similar discourse function. Take (20)a for example, in order to achieve the sense of "bragging" or "proudness", a passive construction can be used as well.

N. Li & X. Wang's (2001) corpus-based study investigated the pragmatic functions of the BA construction within the framework of speech act. After a quantitative analysis of the BA sentences, they claim that the main pragmatic functions of the BA construction are: exposition, instruction, expression, and declaration.

All these proposals contribute to the BA construction research in that they provide new perspectives of looking at the BA construction as a whole unit and also call researchers' attention to the discourse role the BA construction plays within its contexts.

2.2.4.2 Discourse/ pragmatic properties of the elements in the BA construction

Another branch of discourse study on the BA construction focus on a particular element of the BA construction and examines the discourse role that particular element plays within the context. The element that has been studied the most is the BA NP.

L. Jin's (1997) data-driven analysis of the BA construction in contexts found that the BA NP in many BA sentences co-referents with the noun phrase in the previous sentence. Jin thus claims that that a BA sentence is preferred when the BA NP co-referents with the object of the previous sentence. 21) illustrates his proposal (example from Jin, 1997):

21) a. *baba mai le yi pen hua, ta zai yangtai shang fang
 dad buy Asp Le one CL flower he at balcony on put
 zhe zhe pen hua.
 Asp⁵ this CL flower
 'Dad bought a pot of flower and put it on the balcony.'

b. baba mai le yi pen hua, ta ba zhe pen hua
 dad buy Asp Le one CL flower he BA this CL flower
 fang zai yangtai shang.
 put at balcony on
 'Dad bought a pot of flower and put it on the balcony.'

Native speakers consider 21)a an awkward sentence and will prefer 21)b. Jin explains this preference in terms of discourse cohesion. In order to shorten the distance between the two co-referring elements, speakers are likely to prepose the object by using the BA construction.

There is also some debate on the focus of the BA construction. X. Cui (1995) claims that the verb phrase in the BA construction is the focus, and the focus of the verb phrase is the complement that modifies the verb. His point of view is illustrated in the following example:

22) ta ba jingzi da sui le.
 He BA mirror hit smashed Asp Le
 He broke the mirror.

According to Cui's proposal, the focus of the 22) is the verb phrase: *da sui*, in which *da* is the verb, and *sui* is the resultative complement. Cui holds that the complement *sui* is the focus instead of the verb *da*, because the BA construction describes the change that occurs to the BA NP, not the process of the action. F. Xue (1987) goes even further along this line by

⁵ *Zhe* is an aspect particle to indicate the continuation of an action or a state.

addressing the complement as the “head” of the verb phrase, whereas the verb is treated as a modifier or adverbial of manner to indicate how the state comes into being.

L. Jin (1997) disagrees with Cui (1995) and Xue (1987) on this issue. Instead, he claims that the BA NP is the focus of the construction. When the BA NP is to be focused, the BA construction will be used.

Both accounts can explain some BA sentences but not all of them. Focus thus does not seem to be a typical pragmatic function of the BA construction. What seems to be a more typical pragmatic property is the discourse feature of topic.

Some scholars claim that the BA NP is the topic in the BA construction (F. Xue, 1987; F. Tsao, 1987; G. Chen, 1985). F. Xue (1987) proposed a unified definition on the BA construction:

23) A + BA + B + VP

He claims that the BA construction describes the state of B (the BA NP), with A (usually the subject) as the direct (in most cases) or indirect cause that leads to the current situation of B (p.16). He also claims that VP must be “a descriptive statement about B’s condition as a result of a certain action” (p. 6). In this aspect, he shares the “causative account” with Sybesma (1992) on the relationship between the BA NP and the VP, though their views on the internal structure of the VP differ.

Based on his analysis of the syntactic and semantic properties of the BA construction, Xue thus claims that B in his BA format must be the main topic of the construction (12). The part A is optional in the construction, and can only be a secondary topic (p. 14).

G. Chen (1985) shares with Xue (1987) in saying that the BA NP is a topic. The VP in the

construction serves as a comment to describe what has happened or will happen to the BA NP. The subject in the BA construction is not the most important element, which differs from a SVO sentence, which usually describes what the subject has done or will do. Chen also points out that the topic-comment account on the pragmatic property of the BA construction is a key element in helping learners of Chinese to understand and to use the BA construction appropriately.

F. Tsao (1987) agrees with Chen (1985) and Xue (1987) that the BA NP acts like a topic, and he goes into more details by comparing the properties a regular topic has in Chinese with the properties a BA NP has. It is found that that the BA NP shares with a regular topic almost all the properties except for the one that a BA NP allows, under special circumstances, a specific reading; whereas a regular topic does not. (Is it necessary to list all the properties here?) With caution, Tsao takes the BA NP as a special kind of topic, and named it as “the ba topic” (p. 11). Some of the properties that a BA NP has include:

- 24) a. the BA NP can extend its semantic domain to more than one sentence.
- b. the BA NP is in control of all the pronominalization and coreferential NP deletion processes in a BA topic chain.

These properties are illustrated in the following example (example from Tsao, 1987):

- 25) a. Wang xiaojie ba shu zhang le jia zai mai gei women.
 Wang Miss BA book raise Asp Le price then sell to we
 ‘Miss Wang raised the price of the book before she sold it to us.’
- b. Wang xiaojie ba shu_i zhang le jia zai ba ta_i mai
 Wang Miss BA book raise Asp Le price then BA it sell
 gei women.
 to we
 ‘Miss Wang raised the price of the book before she sold it to us.’

In 25)b. the first BA NP (the book) is the head of topic chain, and controls the distribution or

appearance of the second BA NP (it). The second BA NP is in co-references with the first BA NP and can be omitted without any change in meaning. This also indicates the BA NP is a topic because it extends its role to the following clauses.

F. Li (1977) explains the discourse property of the BA construction in terms of “communicative value” or the information structure:

By moving the informationally-light definite objects into the Topic position of the sentence, *ba* makes room for the verbal elements to occupy the communicatively prominent sentence-final position. (p. 8, cited in M. Wang, 1987)

To sum up, among the limited research on the pragmatic properties of the BA construction, quite a few studies claim that the BA NP of the BA construction acts as the topic of the sentence, or as the topic in the discourse. This study will test on this particular property for the following reasons. First of all, this property can explain most of the typical BA sentences. The properties of a topic in Chinese are well-defined and are thus more testable than other proposals from a communication and cognition perspective or a logical relation perspective.

2.2.5 Usage of the BA construction

The previous section briefly reviewed the linguistic properties that the BA construction has. In other words, the core syntax properties and semantic properties restrict what a good BA sentence should like. As for the issue of when to use a BA sentence, the usage is triggered by different factors. These factors do not work simultaneously, but at different levels. When a particular meaning is to be expressed, in some cases, a BA sentence is the only option to fulfill the task. In other words, the usage of the BA construction is obligatory.

Among the studies reviewed above, quite a few (M. Wang, 1987; W. Lu, 1994; L. Jin,

1997; A. Li, 2001; P. Liu, 2008 among others) observed that the BA construction is obligatory under some circumstances. As a matter of fact, some accounts on the linguistic properties of the BA construction are based on this observation (D. Zhu, 1982).

By obligatory, it refers to the fact that some BA sentences do not have a corresponding SVO sentence in Chinese. For example:

26) a. ta ba shu fang zai zhuozi shang.
 He BA book put at desk on
 ‘He put the book on the desk.’

b.* ta fang shu zai zhuozi shang.
 He put book at desk on
 ‘He put the book on the desk.’

26)a. is a BA sentence, in which the object of the verb *shu* (book) is moved to a preverbal position and becomes the BA NP. As a matter of fact, the object cannot stay at the postverbal position in this case, which makes the corresponding SVO sentence 26)b. ungrammatical. In other words, if one wants to express the meaning ‘He put the book on the desk’, a BA sentence will be the only possible way to use unless considered otherwise from the context.

Unlike the obligatory BA sentences, other BA sentences have corresponding SVO sentences and are thus optional. For example:

27) a. ta ba ta de che mai le.
 He BA he POSS car sell Asp Le
 ‘He sold his car.’

b. ta mai le ta de che.
 He sell Asp Le he POSS car
 ‘He sold his car.’

27)a. and 27)b. are both grammatical. The next question is when is a BA sentence like 27)a preferred and when is a SVO sentence like 27)b. preferred? What makes some BA sentences obligatory and others optional in the first place? In the following sections, studies on these

issues will be reviewed.

2.2.5.1 Obligatory BA sentences

S. Lu (1955) might be the first one to notice the distinction between the obligatory BA sentences vs. the optional BA sentences. Lu's study mainly focuses on the usage of the BA construction: when is a BA sentence obligatory? When is it optional? When is it ungrammatical?

Lu proposes that three factors that are working under the usage of the BA construction: the semantic meaning of the verb, the definiteness of the object, and the structure of the whole sentence. He agrees with L. Wang (1945) in claiming that only those verbs that denote a kind of "disposal" or "manipulation" can appear in a BA sentence. He also proposes that the object (or the BA NP) must be definite to be used in a BA sentence by referring to the observation made by Mullie (1932). However, Lu also points out the difference between the notion of definiteness in a language like English and in Chinese. For example:

- 28) a. Ba na bei cha na lai.
BA that CL tea bring come
'Bring that cup of tea over.'
- b. Ba cha na lai.
BA tea bring come
'Bring the tea over.'

In 28)a., the definiteness of the object is explicitly realized by using a determiner (*na*) and a classifier (*bei*). However, this is not necessary in Chinese. Sometimes, a bare noun like the one in 28)b. also indicates a kind of definiteness. When the speaker makes a request like 28)b., both he/she and the listener know which cup of tea is referred to. It cannot be any cup of tea.

However, Lu claims that the factors discussed above, i.e. the semantic properties of the verbs, and the definiteness of the objects, are both “passive” factors that only rule out unacceptable BA sentences. It is the third factor: the structure of the sentence, or more specifically, the elements that either follow or go before the verb that is the “driving force” in the usage of the BA construction. The elements before or after the verb determine whether a BA sentence is obligatory or optional. Lu put the elements that could appear in the BA construction into two categories: before the verb, and after the verb. Since this study only focuses on the BA sentences that have an element after the verb, only the second category will be reviewed here. The post-verbal elements are further grouped into three sub-categories: extra objects, complements of result, and other complements. Lu claims that a BA sentence is obligatory when the post-verbal element acts as one of the following:

- a. the retained object
- b. the indirect object, and the direct object is definite
- c. complement of place, and the object is definite
- d. multisyllabic complement of result
- e. complement of result with the resultative marker *de*

However, counter examples to some of these categories were given by other researchers. The category that seems to give the most agreement is the one which claims that when the post-verbal element is a complement of place, and the object is a definite noun, the BA sentence is obligatory (W. Lu, 1994; Q. Lu, 2006; M. Wang, 1987 among others). For example:

29) a. ta ba shu fang zai zhuo shang.
He BA book put at desk on
'He put the book on the desk.'

b. * ta fang shu zai zhuo shang.
He put book at desk on

In 29), what is meant to be expressed is that a particular book was put at a certain place (so there is a change of placement). The complement of place (on the desk) closely follows the verb. In this case, the corresponding SVO order as in 29)b. is ungrammatical. Instead, the BA construction is the only possible way to express the meaning.

S. Lu(1955) gives a detailed discussion on the different elements that can go with a verb in a BA sentence as well as how obligatory each situation is to use a BA sentence. However, his discussion is based on some fictions from the Ming Dynasty and Qing Dynasty, which were over 300 hundred years ago. As a result, some sentences that are good at that time are not accepted as grammatical in modern Chinese. Moreover, most part of his discussion is descriptive without giving any generalization or explanation on the factors that are working underneath the surface structure to make a BA sentence obligatory or optional.

M. Wang (1987) made one step further by proposing the internal object constraint on the BA construction. By internal object, Wang refers to “an object, other than the direct object, which forms a semantic unit with the verb, i.e., the object forms with the verb a unit which affects the syntactic direct object just as if it were a single transitive verb.” (p. 61) He goes on to point out that this verb unit is different from a transitive verb in that “it cannot take a direct object after it because the object position is already filled syntactically by the internal object...” (p. 61). As a result, the direct object is forced to move to a pre-verbal position, and the BA construction becomes obligatory. It does not mean that to be the BA NP is the only

choice to move an object. The object could be moved to the sentence initial position to form an OSV sentence. However, in that case, the object is topicalized, which, in Chinese, is used to indicate a contrast or contrary to the listeners' expectation (Li & Thompson, 1981).

Without any pragmatic meaning added, a BA sentence is used to host the object which is forced to move.

In the case of the BA sentences that have a complement of place (a propositional phrase) to follow the verb, Wang claims that the proposition forms with the verb a unit and does not allow any element to insert in between, not even the aspect marker *le*, which usually follows the verb:

30) a. ta ba shu fang zai le zhuo shang.
He BA book put at Asp Le desk on
'He put the book on the desk.'

b. * ta ba shu fang le zai zhuo shang.
He BA book put Asp Le at desk on

30) illustrates how closely the verb and the preposition has connected. Moreover, the internal object is occupied by the object of the proposition (the desk), in which the direct object (book) is forced to move.

In fact, other researchers (Chao, 1968; Sybesma, 1992; A. Li, 2001) make a similar observation on this issue. They claim that Chinese restricts the number of elements that can occur at the post-verbal position, referred to as the "postverbal constraint" by A. Li (2001).

In this study, the BA sentences with a complement of place (propositional phrases introduced by *zai* (*at*), *dao* (*towards*) etc) will be used to examine L2 learners' knowledge of the obligatory BA sentences or of the internal object constraint on the BA construction.

2.2.5.2 Optional BA sentences

Unlike the situations under which the usage of a BA sentence is obligatory, there are cases when a BA sentence and its corresponding SVO sentence can express similar meanings. These BA sentences are referred to as an optional BA sentence. The following is an example of an optional BA sentence:

31) a. ta ba niunai da fan le.
He BA milk hit over Asp Le
'He spilt the milk.'

b. ta da fan le niunai.
He hit over Asp Le milk
'He spilt the milk.'

There is some difference between 31)a. and b. though they are both grammatical. 31)a. emphasizes the fact that the milk was affected by his action of spilling and is undrinkable now. On the other hand, 31)b. only states the event that 'He spilt the milk' in a neutral way. It is a pity that the meaning of the BA NP's affectedness as a result of the action is lost in the English translation.

Structurally, S. Lu (1955) lists the types of verb phrases with which a BA sentence is optional. When the complement that follows the verb falls into one of the following types, the BA sentence is optional:

- 32) a. partitive object (the object retained after the verb bears a part-whole relationship with the BA NP)
- b. quantitative object (also referred to as duration/frequency phrases, which can be realized in measurement expressions to indicate the extent of the action)
- c. complement of direction and aspect

d. monosyllabic complement of result without *de*

Since this study only focuses on BA sentences with post-verbal elements, Lu's observations on those BA sentences with pre-verbal elements are not listed here. Due to the fact that situations like 32)a. and 32)b. are much less frequently (Jing-Schmidt, 2005), and that they are much less presented in the input, this study will only focus on the situations in 32)c. and 32)d. to investigate L2 Chinese learners' knowledge on the optional BA sentences.

M. Wang (1987) does not discuss the situations under which the BA sentences are optional when the hypothesis of the internal object constraint is proposed. However, he does claim that whether the internal object position is fulfilled or not is the key factor in determine whether a BA sentence is obligatory or optional. It can be assumed that if the internal object is not fulfilled, the BA NP has the freedom to either stay post-verbal or move to the preverbal position, which makes the BA sentence optional in a syntactic sense. The NP will remain post-verbal if it is not motivated by some pragmatic and discourse consideration. This is the occasion when the pragmatic properties of the BA construction play an important role.

2.2.6 Summary

To sum up, in this section, the linguistic properties of the BA construction was briefly introduced and reviewed. As a unique construction that was innovated and developed over the history of Chinese language, it is not surprising that the BA construction has aroused so much interest among Chinese linguists and other linguists in general. As A. Li(2001) put it, there seems to be "rich and endless literature" on the BA construction, ranging from the syntactic feature, semantic meaning, and discourse function of the BA construction as a whole, to each element of the BA construction, to the constraints on the BA construction. The studies and

accounts reviewed in this section are by no means exhaustive.

General observations have been made on the linguistic properties of the BA construction, such as the unique word order; the complements going together with the verb etc. However, there is comparatively much less explanation given to these phenomena observed than the detailed description and listing of examples from Chinese literature works. The explanations available, based on different theoretical frameworks, claim to cover or attempt to cover the whole set of BA sentences possible. Unfortunately, each account seems to have left some BA sentences uncovered. This may not be surprising when considering the complexity of the construction, which “seems to be subject to a myriad of difficult-to-characterize, fuzzy constraints.” (A. Li, 2001)

The primary goal of this study is to examine the acquisition of the BA construction by L2 Chinese learners from the “core” syntax vs. “interface” syntax, which can hopefully narrow down the difficulties that the L2 learners have in acquiring this construction. It will focus on the properties that are typical to those most frequently used types of the BA construction. These BA sentences are what L2 Chinese learners get exposed to the most and are also the most important ones for them. It will not involve in the debate on the linguistic study of the BA construction, but instead, it will try to unify the claims made in the literature on the “core” syntax properties and properties at the interface of syntax-semantics and syntax/pragmatics.

Those accounts that can explain the most frequently used BA sentences and the ones that the L2 learners have exposure to will be taken as the linguistic basis for this study. For this purpose, the following properties or constraints of the BA construction will be investigated.

The “core” syntactic properties include the word order constraint, and the complex verb constraint. The syntax-semantics property to be explored is the affectedness on the part of the BA NP. The syntax/pragmatic property to be examined is the topic role the BA NP plays in a topic chain.

2.3 Previous studies on acquisition of the BA construction among L2 learners of Chinese

Compared with the rich literature on the linguistics properties of the BA construction, studies on the acquisition of the BA construction are few. Studies on the acquisition of the BA construction among L2 learners are fewer. On the other hand, the number of students who are learning Chinese as a foreign language is increasing dramatically. The new development in learning Chinese as a foreign language calls for more studies to explore the acquisition of Chinese as a foreign language. The BA construction, as an important construction in Chinese grammar, is of no exception.

In this section, the limited studies on the acquisition of the BA construction will be reviewed. In the first part, the studies that mainly explore the acquisition of the syntactic properties of the BA construction will be reviewed. The second part will deal with studies on the semantic properties of the BA construction. The third part is on the studies that focus on the acquisition of pragmatic properties. The last part will report the findings of studies that analyzed error patterns and investigated acquisition order of the BA construction.

2.3.1 Acquisition of syntactic properties of the BA construction

Jin (1992) is the first study on the acquisition of BA by English-speaking learners of Chinese that could be found by the researcher. Jin’s (1992) study is based on her dissertation

(1989), in which the BA construction is one of the target constructions.

Her study concerns the process of typological interaction between subject-prominent languages and topic-prominent languages. Previous studies indicate that learners whose native language is topic-prominent underwent a process of syntacticization while learning a subject-prominent language. Jin wants to know if the opposite is also true: native speakers of a subject-prominent language (such as English) will undergo a process of pragmaticization in learning a topic-prominent language (such as Chinese). The BA construction is considered as a construction that characterizes the topic-prominent feature in Chinese based on Tsao's (1989) proposal.

Jin argues that the use of the BA construction is determined by pragmatic meaning of the sentence more than by its grammatical structure. She did not give clearly-defined pragmatic and grammatical features of the BA construction. She claims that viewing the BA NP can take different syntactic as well as semantic roles, it is not possible for the L2 learners to master the BA construction by only referring to grammatical features. She argues that the likelihood of using a BA sentence is based on three factors: the definiteness of the NP, the topicality of the BA NP, and the disposability of the VP. She seems to indicate that the use of the BA construction is a continuum: the more typical the above features, the more likely the usage of the BA construction.

Specifically, Jin examined the following questions in her study: a) Is there a process of pragmaticization that the L2 learners go through in learning the BA construction? b) If yes, what are the stages of this process? c) What are the predicated difficulties in this process?

Three tasks were used in exploring the above mentioned questions: a grammaticality

judgment task, a translation task, and a picture-elicited story-telling task. The first task focuses on L2 learners' comprehension, whereas the latter two focus on their production.

Thirty sentences were used in the grammaticality judgment task, with manipulation in terms of the definiteness of the BA NP, the disposability of VP, and the syntactic roles of the BA NP. The result shows that there are three clusters of BA sentences in terms of L2 learners' performance on this task. Subjects across proficiency levels did well in Cluster I of BA sentences. Subjects' performance in Cluster II of BA sentences indicates a correlation with their proficiency levels. Subjects from a higher proficiency level did better. As for Cluster III of BA sentences, the results indicate that there is no significant difference among subjects at different proficiency levels. Jin summarizes that the linguistic features shared by the BA sentences in Cluster I: the BA NP is the object of the VP, the VP is strongly disposable, and the usage of the BA sentence is most likely. Some of the BA sentences in Cluster II and III are less likely to be used, in which the VP is not as strongly disposable, and the BA NP plays a syntactic role other than object. However, it is not explained why some BA sentences that have the same linguistic features and likelihood of occurrence as those in Cluster I are found in Cluster II or III. Moreover, each sentence in the grammaticality judgment task possesses several target properties. It is hard to tease apart L2 Chinese learners' acquisition of these properties by looking at their judgments.

In Task 2, the L2 learners were explicitly instructed to do the translation by using the BA construction. Similar results were obtained in terms of the three clusters: all subjects did well in Cluster I, proficiency-related performance in Cluster II, and equally poor performance in Cluster III. In the story-telling task, the result also indicates a developmental trend in the

occurrences and accuracy of the BA sentences.

Jin concludes that the L2 learners do undergo a process of pragmaticization in learning the BA construction: from equaling the BA NP to a preposed object, to extending the BA NP to a topic, which plays a different syntactic role than an object, then to realizing the pragmatic meanings of the BA construction.

It will not be discussed here if this study does provide evidence for the process of pragmaticization in learning a topic-prominent language. What is more related to this study is the acquisition of the BA construction. As an early investigation, this study gives us some insights on the way to look at the acquisition of the BA construction. However, the properties discussed are not well represented in the tasks. For example, it is mentioned that the BA NP plays the pragmatic role as a topic (the notion was not defined) however, this factor is not investigated in any of the tasks. There seems to be an assumption that to extend the syntactic roles or semantic roles the BA NP from object/patient to others indicates a switch from structural reliance to pragmatic reliance. More explanation is needed before such an association can be drawn. Moreover, the subjects were explicitly asked to use the BA construction, which does not tell anything about their knowledge on the pragmatic meaning of the BA construction. In spite of the limitations, Jim's study does show that there is variation in the acquisition of the BA construction, students perform better in some types of BA sentences than in others. It is necessary and appropriate to investigate this issue by breaking the construction down. However, more studies are needed to find a good perspective to identify L2 learners' performance and their difficulties.

Zhang(2002) explored the acquisition of six properties of the BA construction by adult

English-speaking learners of Chinese across three proficiency levels. The main purpose is to find out the developmental process in the acquisition of the BA construction. The properties examined by Zhang include:

- a. Word order of the BA construction
- b. The selection of the verb in the BA construction
- c. The use of resultative complements in the BA construction
- d. The use of directional complements of the BA construction
- e. The use of aspect marker *Le* in the BA construction
- f. The reduplication of the verb in the BA construction

A grammaticality task (GT), a translation task (TT), and a picture-cue production task (PP) were designed to test L2 learners interlanguage knowledge about the above properties. A detailed analysis of the GT results was reported. The L2 learners' performance did not converge to the native speakers (11.1 vs. 35.95 in score). No detailed analysis of the other two tasks was given, but judging from the graphs, the L2 learners seemed to do better in those tasks. In terms of L2 performance on the six properties, they did the best on word order, followed by aspect marker *Le*, then verb selection. They did the worst on directional complements, verb reduplication, and resultative complements. Zhang also claims that a U-shaped developmental pattern is identified across the proficiency level with all properties combined or with each individual property.

Zhang's study contributes to the literature in that it explores the process the BA acquisition. This study indicates that the L2 Chinese learners acquire some properties earlier than others. However, she did not justify her choice of the six properties examined in her

study. Do they represent different aspects of the construction? What do they represent? As for the U-shape of the acquisition process, Zhang based her conclusion on the scores of each level. The result would be more informing if an error analysis of the L2 learners at each level were conducted. As discussed by Zhang, the U-shape development theory claims that the seemingly backward deviation in the process is actually a sign of rule internalization and overgeneralization. No evidence is presented to show that Level III students' poor performance is due to internalization of those properties.

Du (2004) explored the acquisition of two constraints on the BA construction by English-speaking learners of Chinese: the BA NP must be specific (the BA-NP constraint), and the VP in the BA construction must be complex (the VP constraint). Since the VP can be complex in many different ways, this study specifically explored two situations: the verb is followed by a resultative complement, or the verb is followed by the aspect marker *Le*. Two tasks were employed to investigate the acquisition on these two constraints by L2 Chinese learners across three levels (the levels are decided in terms of time of exposure to the target language): a grammaticality judgment task and a video-cued production task. The results indicate that L2 learners produced fewer BA sentences than the native speakers, however, their judgments on the grammaticality of the sentences were not significantly different from those of the native speakers'. For the VP constraint, when L2 learners did produce a BA sentence, they did conform to the constraint most of the time by using a complement after the verb. However, in the grammaticality judgment task, they did better in accepting grammatical sentences than in rejecting ungrammatical sentences, especially when the complement is a resultative verb complement. Due to some problem in experimental design, the subjects (L2

learners as well as native speakers) produced the BA sentences when the BA NP appeared for the first time, which fails to tell whether the L2 learners have acquired the constraint on the BA NP.

This study enriches our understanding of the acquisition of the BA construction, especially on the acquisition of the BA sentences with a resultative verb complement. The exploration of this constraint covers both comprehension and production. It also brings to our attention an interesting phenomenon: the L2 learners did not do as well in rejecting the ungrammatical sentences as in accepting the grammatical ones. More research can be conducted regarding this phenomenon. As for the constraint on the BA NP, different tasks need to be designed to examine how it is acquired by L2 learners, though it must be a hard one to design.

To sum up, all the studies reviewed above investigate to some extent the acquisition of some syntactic constraints on the BA construction, such as the verb complex constraint, the word order constraint, as well as the syntactic properties of some elements in the BA construction. However, they explore those syntactic properties with different concerns: the developmental pattern, the pragmaticization process, etc. This study will explore some of the syntactic constraints from the “core” syntax vs. interface syntax perspective.

2.3.2 The acquisition of the semantic properties of the BA construction

W. Xiong (1996) explores the acquisition of the BA sentences with different semantic meanings by analyzing the written texts from an interlanguage corpus. The semantic meaning of the BA construction is generalized into the change that an entity related to another entity undergoes. He further divided it into four types: change of location, change of ownership,

change of state, and change of properties. A comparison is made between the distribution of these semantic types in the Chinese textbooks with that in L2 Chinese learners' written texts. It is found that their distribution is significantly different. He thus proposes that L2 learners may have their own "built-in syllabus". In other words, there may be a developmental pattern in acquiring those semantic types.

Xiong also investigates the possible factors that are correlated with L2 learners' performance. It is found that the learners' native language plays a role. In terms of occurrence, L1 English learners of Chinese used the BA construction less than the L1 Korean or L1 Japanese learners. However, when it comes to accuracy, there does not seem to be a difference. Xiong proposes that this finding might be due to the pragmatic property of the BA NP, which is considered a topic and represents the feature that Chinese is topic-prominent language. However, English is a subject-prominent language, and L1 English learners of Chinese may thus have more difficulties. It is also found that both the occurrence and accuracy in using the BA construction is correlated with their proficiency level.

This study contributes to the literature by describing us a more general picture of learners with different L1 and different proficiency levels in acquiring the semantic properties of the BA construction. However, it does not explain why L2 learners' performance is compared to a set of textbooks, instead of to the native speakers. A textbook is usually compiled for instructional purposes, and may sometimes not reflect the frequency of usage in the natural language. Moreover, Xiong did not specify the number of sample texts he obtained from L1 English, L1 Korean, and L1 Japanese learners of Chinese. It is not sure if the samples are comparable.

W. Yu (2000) did an experimental study on L2 Chinese learners (with different L1s)' acquisition of some semantic types, which are realized by different complements which follow the verb. Specifically, six types of BA sentences which indicate three semantic types are investigated. Six role-plays were played to the subjects, and then they were asked to read a paragraph based on each role-play and make the paragraph complete by filling in the blanks with sentences. Later on, the subjects were asked to revise what they had written with the hint that the BA construction can be used in some sentences. If a BA sentence was not used for the first time, but for the second time, the subject is believed to avoid using the BA construction. If the BA construction was not used either in the original version or the revised version, the subject is believed to not know how to use the BA construction.

It is found in Yu's study that in spite of different L1s (English, Korean, and Japanese), all subjects did well on the BA sentences which have a propositional phrase following the verb to indicate a displacement of the object. Similarly, they all did poorly on the BA sentences which have a retained object after the verb. However, the types of BA sentences that learners tried to avoid vary among learners with different L1 background. Moreover, the non-BA sentences they used to substitute the BA-sentences also vary according to different L1s.

This study explored the production of different types of BA sentences as well as the strategies employed by learners when they encountered a situation in which a BA sentence is preferred. However, due to the small samples of each group, more subjects need to be recruited to increase the reliability of the results. Moreover, the way to decide when a BA sentence is preferred needs to be improved. Instead of decided by the researcher, the decisions made by a control group of native speakers of Chinese would be more convincing.

Wen (2010) examined the acquisition of a sub-set of the BA construction: those BA sentences that indicate the displacement of the BA NP cross L2 Chinese groups at different proficiency levels. The results indicate both frequency and accuracy of the BA construction usage increase with the proficiency levels. Explicit task instructions elicited more production of the BA construction. Wen took a new perspective on the acquisition of the BA construction. However, the results would be more informative if more tokens were used in each task to elicit “spatial displacement” BA sentences with different locative particles.

To sum up, these two studies cited above both noticed the semantic meanings the BA construction indicates. Lists of semantic types and corresponding types of BA sentences are given and the acquisition of these types of BA sentences is examined. However, there is not a one-to-one correspondence between the types of BA sentences and the semantic types. The picture becomes vague when learners do well on one type of BA sentences but not on the other, though both of them realize the same semantic type. Moreover, the semantic types listed in their studies can further be generalized into the affectedness on the BA NP. For this reason, only the most general semantic constraint will be explored in this study, that is, the BA NP is always affected as a result of the action conducted.

2.3.3 The acquisition of the pragmatic properties of the BA construction

There are fewer studies on the acquisition of the pragmatic properties of the BA construction. Jin (1992) claims that the BA NP is a topic, and the more topicality the BA NP indicates, the more likely a BA sentence is used. However, it is a pity that the factor of topicality on the BA NP was not manipulated in her tasks and thus nothing could be concluded on L2 learners’ knowledge on the pragmatic property of the BA NP.

Zhang (2002) examined L2 Chinese learners' pragmatic knowledge on the BA construction by using a translation task. The subjects were asked to decide if an English sentence should be translated into Chinese by using the BA construction. Nine English sentences were given, which fell into three categories: only a BA sentence (3), only an SVO sentence (3), either a BA or an SVO (3). However, it is not reported if the subjects can distinguish these categories. Even if it is examined, it is still hard to tell subjects' knowledge on when to use the BA construction appropriately, since a situation is needed when the BA construction is optional so that the subjects can decide on their own if a BA sentence is preferred.

S. Liu & Y. Wang (2003) investigated what is missing in Zhang's study: L2 learners' knowledge on when to use the BA construction. They examined the pragmatic knowledge of the L2 learners on the BA construction by using an interview. During that interview, the researcher described sixteen situations to the subjects (the subject was also given these situations in written form), and then the subjects were asked to produce a response to each situation. Later the subjects were asked to give their responses again, but they were explicitly instructed to use the BA construction. The results in their study show that there is no significant difference in occurrence of the BA construction in the natural responses between L2 learners and native speakers of Chinese: both groups had an equally low frequency of occurrence (around 30%). However, the BA sentences produced by the L2 learners are much less accurate. Their findings seem to be contrary to what most teachers feel: it is really hard for L2 learners to decide when to use or not to use the BA construction. All the situations in the study were designed to elicit a BA sentence. Unfortunately, these situations failed to elicit

a natural response in a BA sentence. The equally low frequency of occurrence among the L2 group and the native speaker group does not necessarily indicate they are equally good. A different set of situations may come to very different results. On the other hand, no situations was designed to use a regular SVO sentence instead of a BA sentence. The picture is not complete if only the knowledge of using the BA construction is examined, without their knowledge to reject using a BA sentence.

To sum up, there are not as many studies on the acquisition of the pragmatic properties of the BA construction. The limited ones available focus on if L2 learners use the BA construction under certain situations without specifying what pragmatic properties these situations embody and thus call for a BA sentence. In the present study, all of the situations that are intended to elicit a BA sentence share a common feature: the BA NP gains the status of topic under those situations. Moreover, some non-BA situations are also designed to examine L2 learners knowledge on rejecting using a BA sentence, which is the other side of the coin of their knowledge on the pragmatic properties.

2.3.4 Other studies

The studies reviewed above examine the acquisition of the syntactic, semantic and pragmatic properties of the BA construction from different perspectives and arrive at different conclusions. Quite a few studies done by researchers in China explore the acquisition of the BA construction by using error analysis. Data was collected either from a corpus, learners' writings, or experiments. The learners vary in their native languages as well as their proficiency levels. In this section some studies that are long this line will be reviewed. Besides, a couple of studies that examine the acquisition order of the BA construction will

also be introduced.

B. Zhang (2010) analyzed data from the corpus of learners' written texts from HSK. HSK (Hanyu Shuiping Kaoshi), the Chinese Proficiency Test, is a national standardized test to assess the Chinese proficiency of non-native speakers of Chinese. It was first launched in 1984, and is now taken by learners of Chinese from all over the world. His analysis is based on 10,740 written texts from HSK examinees since 1992. It is found in the study that the accuracy of using the BA construction is 87.48%, and the error rate is 12.52%. Among the errors, avoidance of the BA construction accounts for 35.79%, overgeneralized usage 34.92%, and other errors 29.28%. Zhang claims that the problems of acquiring the BA construction may have been overemphasized to some extent. However, it is not specified in Zhang's study the proficiency levels of those examinees. Judging from the fact that there are only 461 ungrammatical sentences from 10740 written texts, the examinees may be at a very high proficiency level.

M. Zhang (2009) collected a much smaller data from picture-elicited essays and analyzed learners' performance on five types of BA sentences with high frequencies in usage. The subjects of her study are intermediate Chinese learners who are native speakers of Uyghur. It is reported in her study that the overall accuracy of the BA construction is 66.5%, and the accuracy of the five high frequency BA sentences is 69.9%. Similar errors as those reported in B. Zhang (2010) were found in this study as well: avoidance of BA, overuse of BA. Syntactic errors that occur within the BA construction include: word order (negation and BA NP, verb and its complement, verb and object, etc), missing elements (missing verbs, missing complements, etc), and indefinite objects. This study gives supporting evidence for the

present study that it is meaningful to investigate the acquisition of those syntactic properties.

H. Wei (2006) examined the acquisition of four types of BA sentences by Tai-speaker of Chinese learners. The data was collected from three experiments: sentence conversion, sentence making, and sentence judgment. Several error types with high occurrences were identified: the errors on verbs, on complements, on BA NPs, and the word order with negation or adverbs. A specific analysis was made on the sub-types of each error type. For example, for the errors on the verbs, subjects used bare verbs, intransitive verbs, stative verbs in the BA sentences. However, this study did not specify the number of sentences that were collected. It is thus not clear how representative these errors are.

Some studies explored the acquisition order of the BA construction on the basis of a list of BA sentences with the complement that follows the verb varies. L. Cheng (2006) examined the acquisition order of ten types of BA sentences by L1 Japanese learners of Chinese at beginning level. Three tasks were used to elicit data: multiple choices, sentence completion, and error spotting and correcting. Each task has ten items to represent each type of BA sentences. The results indicate that the subjects did the best with the BA sentences in which the verb is followed by an aspect marker *le*. They did the most poorly on the type of BA sentences in which the complement is realized by a reduplication of the verb. In Chinese, an action verb may be repeated to indicate that the action is conducted “a little bit” and is claimed by Li & Thompson (1981) to signal the “delimitative aspect”. A BA sentence with a reduplication of the verb is like the following:

33) ni zai ba zhe ge wenti xiang xiang ba.
 You again BA this CL issue think think SA*
 ‘Wouldn’t you think about this issue again?’

SA*: to solicit “agreement from the hearer with regard to the information contained in the

sentence. The whole sentence indicates the speaking is giving advice.

This type of BA sentences is much less frequently used by native speakers in their daily speech. It is not clear if the subjects have been exposed to this type of BA sentences.

G. Lu (2008) examined the acquisition order of 17 types of BA sentences by intermediate-advanced L1 Vietnamese learners of Chinese. Two tasks were used to collect the data: multiple choices and translation. Similar to Cheng (2006), each type is represented by one item in each task. The results show that the learners did the best in the BA sentences in which the verb is followed by a prepositional phrase as the complement. However, the learners did very poorly on the BA sentences with the aspect marker *le* as the verb complement, which is contradictory to what is found in Cheng (2006).

To sum up, the studies reviewed in this section tried to analyze the errors in L2 Chinese learners' production or comprehension, and to find the error patterns in acquiring the BA construction. These studies all point to the phenomenon that L2 Chinese learners, whatever their proficiency levels, and their native languages are, do better in some types of BA sentences than others. However, most of the studies based their conclusions on very limited data, especially those studies that investigate a lot of types of BA sentences. With so few tokens for each type, chances are that learners' performance is affected by other factors rather than the structure of BA, such as their vocabulary. None of the studies mentioned how these possible confounding factors are controlled.

2.3.5 Summary

In this section, the previous studies on the acquisition of the BA construction were reviewed. Compared with the studies on the linguistic properties of the BA construction, the

studies on the acquisition of this structure are much fewer, especially those that focus on the English-speaking learners of Chinese. Most of the studies reviewed in this section were conducted by researchers in China, who teach Chinese to non-native speakers of Chinese in China. As can be seen from the review, most of the acquisition studies were done after 2000, it can be due to the fact that more and more learners from all over the world are learning Chinese in China.

The review was done according to the properties of the BA construction that each study was focused on. The acquisition of some syntactic constraints on the BA construction has been examined. Du (2004) examined L2 Chinese learners' acquisition of the complex verb constraint and found that their performance on this constraint is not significantly different from the native speakers of Chinese. Zhang (2002) investigated the word order constraint, and found learners of Chinese did well on this constraint. Jin (1992) examined L2 Chinese learners' knowledge on the different syntactic roles the BA NP can play, and found that they did better when the BA NP is the object of the verb than it plays a syntactic role other than an object (an attributive or an adverbial of place, for example). Quite a few studies conducted by researchers in China explore the sub-types of the semantic meaning that a BA sentence indicates: the displacement of the BA NP, the change of state of the BA NP, the transfer of ownership of the BA NP, etc. It is found that L2 learners did better on some semantic types than on others. However, complications arise when L2 learners' performance on a certain semantic type is not consistent when that semantic meaning can be realized in different sub-types of BA construction. It indicates that the sub-semantic types may not be the best way to explain L2 learners' performance. Very few studies explore L2 learners' knowledge on

the pragmatic properties of the BA construction. The studies available either failed to design highly-preferred contexts for the BA construction(Liu & Wang, 2003), or did not report in detail their findings (Zhang, 2002). The error-analysis studies on the BA construction found some error patterns among the L2 Chinese learners: error in using the appropriate verb, or appropriate verb complement, word order when the BA sentence is in negation or has an adverbial. These studies did give us some ideas on the most frequently occurred mistakes among L2 Chinese learners. However, the limited data keeps these studies showing us a clear picture that has higher generalizability. Zhang's (2010) study does have a large data, however, his concern is on the more general strategies L2 Chinese learners' employ in dealing with the BA construction, without going to details on the specific error patterns.

The review also indicates that the studies on the acquisition of the BA construction are far from adequate. What most of the studies have in common is that they were not done within any theoretical framework of second language acquisition. The theories and hypotheses in second language acquisition provide us with different perspectives to explore and explain L2 learners' behavior. The acquisition of Chinese as a foreign language should be explored by referring to some theoretical frameworks, just like what has been done by researchers in exploring the acquisition of other languages such as English, Spanish, French, Italian and so forth. The benefits of doing so is two-folded: it can help us better understand the acquisition process and result among L2 Chinese learners; it can also attest the applicability of those second language acquisition theories to East Asian languages like Chinese.

The BA construction is considered and observed by most teachers of Chinese as one of

the most confusing construction to L2 Chinese learners. However, our understanding of L2 Chinese learners' acquisition of this construction is still very limited. The findings from the previous studies are not consistent. If the acquisition of this construction can be explored within a SLA theoretical framework, it may offer us a new understanding of L2 learners' knowledge on this construction, and help us pinpoint the hard part and provide implications for pedagogical purposes.

The present study will make such an attempt: to explore the acquisition of BA construction within the framework of the Interface Hypothesis, which is proposed by Sorace (2005). The Interface Hypothesis splits the properties of syntax into "core" syntactic properties and "interface" syntactic properties. Sorace(2005) argues that L2 learners can successfully acquire those "core" or "pure" syntactic properties, but can hardly or even never completely acquire those syntactic properties that belong to the interface between syntax and other domains. She claims that this split can be found among near-native L2 learners who have arrived at the final attainment state. The present study will investigate if this split can be observed among L2 learners that are less advanced. In other words, can this split be observed in the process of L2 learners' acquisition of grammar? The main purpose of the study is to explore L2 Chinese learners acquisition of "core" properties vs. the "interface" properties of the BA construction. It will also investigate L2 learners' acquisition on obligatory BA sentences vs. optional BA sentences. The obligatory BA sentences are driven by "pure" syntactic constraints, whereas the optional BA sentences are driven by pragmatic constraints. It is also the goal of this study to test how well the Interface Hypothesis can be applied to explore the acquisition of a language that is typological different from the languages that

have been studies within this theoretical framework. The specific research questions that this study tries to answer are:

Is there any difference between L2 Chinese learners' knowledge of the core syntactic properties of the BA construction and the properties at syntax-semantics interface and those at syntax-discourse interface?

In terms of usage, is there any difference between L2 learners' performance when the usage is syntax-driven and when it is discourse-driven?

2.4 Chapter summary

This chapter reviewed three parts that are closely related to the present study. First, it reviewed the studies in the area of second language acquisition that explored the acquisition of "pure" syntactic properties and those that are at the interfaces between syntax and other domains. Specifically, it reviewed the studies that examined the acquisition of properties at the syntax-semantics interface and those that examined the properties at the syntax-pragmatics/discourse interface. The findings from most of the studies indicate that L2 learners can successfully acquire the properties at syntax-semantics interface; whereas they cannot achieve native-like attainment at syntax-pragmatics/discourse interfaces.

Second, this chapter reviewed the linguistic studies that explore the linguistic properties of the BA construction: the syntactic properties, the semantic properties, the pragmatic/discourse properties. Viewing that there are so many studies in the literature, the studies reviewed in this chapter are by no means exhaustive. Only the studies that are closely related to the present study are reviewed. As a study on acquisition, it is not the intention of this study to investigate the linguistic properties of the BA construction. Instead, this study

will adopt the viewpoints of certain researchers and take them as the linguistic framework.

This does not mean that the linguistic perspectives adopted in this study are perfect in explaining all observation of the BA construction. They are adopted because they can propose comparatively well-defined properties of the BA construction, and can explain most frequently-used BA sentences, to which L2 Chinese learners are better exposed.

Third, this chapter reviewed the previous studies that have been done on the acquisition of the BA construction by speakers of other languages. The studies along this line are recent and yet limited in amount. Very few studies have been done by researchers in the U.S. on how the construction is acquired by native speakers of English. Most of the studies done by researchers in China examined the acquisition by native speakers of East Asian languages: such as Japanese, Korean, Vietnamese, Thai, etc. Some of the studies are descriptive. For those that are experimental, the designs of the experiments are usually not introduced in detail. It is hard to tell if any possible confounding factors have been taken into consideration and been controlled. Moreover, some experimental studies have very limited tokens for each factor, which may also affect the validity of their findings. In spite of the limitations, these studies contribute to the literature by providing evidence of the whole picture of the BA acquisition and are a good start for further research.

Chapter 3 METHODS

The main goal of this study is to investigate L2 learners' acquisition of the BA construction by examining their knowledge on the "core" syntactic properties and properties at the interfaces between syntax and semantic domains, and between the syntax and discourse domains. It also examines L2 Chinese learners' awareness of the usage of the BA construction in terms of the factors that trigger it. The research questions of this study are restated as the follows:

- In acquiring the BA construction in Chinese, does L2 Chinese learners' acquisition of the properties differ when the properties are purely syntactic from when they involve integration of knowledge from other domains? More specifically, the following three questions are asked:
 - Does L2 Chinese learners' acquisition of the core syntax domain differ from that of the syntax-semantics interface domain?
 - Does L2 Chinese learners' acquisition of the core syntax domain differ from that of the syntax-discourse interface domain?
 - Does L2 Chinese learners' acquisition of the syntax-semantics interface domain differ from that of the syntax-discourse domain?
- How well are L2 Chinese learners aware of the obligatory usage of the BA construction triggered by syntactic constraints? Does their awareness differ from the awareness of the preferred usage of the BA construction triggered by discourse constraints?

In order to address these questions, three tasks were designed to collect related data,

including two grammaticality judgment tasks and a contextual acceptability preference task. Two grammaticality judgment tasks were used instead of one because they served different purposes. The first one focused on the core syntax and semantic properties of the BA construction; whereas the second grammaticality judgment task focused on the usage of an obligatory BA sentence vs. an optional BA sentence. In this chapter, the selection of participants, the design of each task, the procedure used in data collection, and the methods of data analysis will be discussed.

3.1 Participants and group design

Thirty-eight native speakers of Chinese and 32 English-speaking learners of Chinese participated in this study. Eighteen native speakers of Chinese participated in the pilot tests, which were conducted to test the validity of the tokens used in each task. They were all adults in China. Twenty native speakers of Chinese participated in the real experimental study as a control group. They were undergraduates at a university in China.

The 32 L2 Chinese participants were students enrolled in Chinese classes at different levels at a large Mid-Western university at the moment when this study was conducted. Most of the L2 Chinese participants were enrolled in Level II or Level III Chinese classes.

More detailed demographic information about the participating groups will be reported in the following section.

3.1.1 Selection of participants

This study used a convenience sample. The L2 learner groups were recruited on a voluntary basis from students enrolled in college-level Chinese classes. The native speaker

group was recruited from undergraduates at a university in Mainland China, also on a voluntary basis. The reason why this group was not recruited from native speakers of Chinese in the U.S. is that a pilot test indicated that these native speakers of Chinese showed some linguistic behavior different from those in China, which may be due to their long-lasting exposure to English. In order to get the most intact competence of a native speaker of Chinese, the participants were all recruited from mainland China. All groups of participants were recruited after approval had been granted by the Human Subjects Committee of Lawrence (HSCL) at the University of Kansas.

For all of the groups, the demographic factors such as age and gender were not controlled for the following reasons: first, no literature indicates the acquisition of the BA construction is correlated with any of them. Second, limited subjects availability makes it unrealistic to put them into sub-groups with all those factors controlled. With that said, the researcher still tried hard to recruit participants from roughly comparable populations in terms of age and education level. Demographic information of the participants was collected with questionnaires.

The survey for the L2 group tries to gather some basic personal information such as age and gender. However, the survey is mainly about their language learning experience such as age of first exposure to Chinese, length of study, time spent on learning Chinese, extra exposure to Chinese, etc (see Appendix I for details). The survey for the native speakers also gathers personal information similar to the one given to L2 learners with the difference that its main purpose is to find out their linguistic background, such as the dialects used before school age, the use of Mandarin in their daily lives, etc (see Appendix II for details).

A brief summary of the L2 participants' demographic information is presented in Table 3-1.

Table 3-1: Demographic Features of the L2 Chinese Participants

Demographic features	Mean (range in parenthesis)	S.D.
Gender	F=16; M=16	n/a
Age	22.7 (19-40)	4.2
Age of onset of learning	19.6 (14-27)	3.1
Length of learning	3.1 years (1-8)	4.2
Residence in a Chinese-speaking region	0.5 years (0-7)	1.4

Among all of the L2 participants, 19 (59.4%) were students who enrolled in Level II Chinese at a mid-west university at the time when this study was conducted; 10 (31.2%) were students enrolled in Level III Chinese; 3 (9.4%) were enrolled in Level IV Chinese.

Twenty-nine of them (90.6%) started to learn Chinese after 18. In other words, they started to learn Chinese after they entered college. Twenty-five participants (78.1%) did not have any experience of living in a region where Chinese is spoken as a native language. Among the seven (21.9%) participants who once lived in a Chinese-speaking area, four participants once stayed in Mainland China to study Chinese; two for one semester and two for one year. One participant was born in Taiwan and stayed there until he was seven. Two participants worked in Mainland China as English teachers for four years and for one year respectively.

A brief summary of the native speakers of Chinese participants' demographic information is presented in Table 3-2:

Table 3-2: Demographic Features of the Native Speakers of Chinese Participants

Demographic features	Mean (range in parenthesis)	S.D.
Gender	F=18; M=2	n/a
Age	20.9 (19-22)	1.0
Age of onset of Mandarin	5 (3-7)	1.3
Use of Mandarin every day	10.9 hours (3-14)	2.5
Dialects	1.1 (0-2)	0.6
Use of dialects every day	0.6 hour (0-2)	0.6

Most of the native Chinese speakers started to speak Mandarin since preschool or kindergarten. They used Mandarin most of the time in their daily life since they lived on campus with students from different places. Interestingly, when asked whether they preferred to use Mandarin or their dialects if they had the choice, 70% of the participants chose Mandarin; 25% of the participants had no preference; and only 5% of the participants prefer using dialects. 90% of the participants know at least one dialect. However, they reported that their use of dialects every day was very limited. They usually used their dialects when they talked to their parents over the phone. The demographic information collected indicate that although most of the participants learned a dialect of Chinese when they first started to speak, they can be considered as native speakers of Mandarin Chinese.

3.1.2 Group design

There are three groups in this study: the group of native speakers of Chinese (the NS Group hereafter), the L2 group with higher proficiency level (the L2 High Group hereafter), and the L2 group with lower proficiency level (the L2 Low Group hereafter).

The literature has not arrived at any consensus about the correlation between the proficiency level and the acquisition of the BA construction. However, in this study the

proficiency level is still included as a factor. It was so designed for two reasons. Firstly, there is a lot variance among all the L2 participants recruited. A better picture of acquisition can be obtained when the participants are grouped according to their proficiency levels. Secondly, groups at different levels can help us see the development or part of the process of the acquisition of the BA construction properties.

A cloze test (Yuan, 2010) was given to all of the L2 participants as a measurement of their proficiency level. The cloze test consists of two short stories, in each of which there are 20 blanks. The participants were asked to fill in each blank with an appropriate character so that the whole story becomes complete. The total possible score for the cloze test is 40. The L2 participants were given two versions of the stories: one with characters, and one with Pinyin (phonetic notation of Chinese characters). They were allowed to fill in the blanks with Pinyin if they were not sure how to write those characters. They got one score for each correct answer, and they got zero if they provided an incorrect answer or left it blank. The L2 participants scored an average of 22.7 out of 40, with a standard deviation of 7.33. According to the criteria set up by Yuan (2010), the number of L2 participants that fall into each category is presented in Table 3-3.

Table 3-3: Proficiency Scores within the L2 Participants (N=32; average score=22.7)

Category	Score range	Mean	Number of participants /(%)	Years of learning	Years of Residence in a Chinese-speaking region
Post-beginner	7-15	11.2	5 (15.6%)	2.10	0
Intermediate	16-25	21.9	19 (59.4%)	2.95	0.71
Post-intermediate	26-34	30.5	6 (18.8%)	3.83	0.08
Advanced	35-39	36	2 (6.2%)	5.5	0.5

As shown in Table 3-3, the majority (59.4%) of the L2 participants fall into the intermediate level, according to Yuan's (2010) criteria. A few participants (15.6%) fall into the post-beginner level; whereas 18.8% and 6.2% of the participants fall into the post-intermediate and advanced level respectively. Ideally, there should be four groups of L2 participants with approximately equal number of participants. However, the BA construction was not provided until the end of Level I Chinese classes, it is thus impossible to test true beginners. Moreover, there were not so many advanced L2 participants that could be recruited. As a result, the L2 participants were regrouped into two groups: the participants that scored above average score (22.7) were put in the L2 High Group (n=17); the participants that scored below average score (22.7) were put in the L2 Low Group (n=15).

The same proficiency test was given to the NS Group as well. However, only the version with characters was provided. They scored an average of 38.9 out of 40, with a standard deviation of 1.02. The NS Group achieved the ceiling level at the proficiency test.

3.2 Instruments

In order to answer the research questions stated at the beginning of this chapter, three tasks were used in this study. Task 1 is a grammaticality judgment task, in which the participants were presented an individual sentence each time and they were asked to judge if the sentence was grammatical or ungrammatical. Task 2 is a contextual acceptability preference task, in which the students were presented a context in English, and then they were asked to pick one sentence that they thought was more appropriate in the context. Task 3 is also a grammaticality judgment task, in which the participants were presented paired sentences and were asked to judge the grammaticality of the sentences in each pair. The

designing and preparation of the tokens in each task are discussed in details in the following sections. .

3.2.1 Task 1: the Grammaticality Judgment Task

The purpose of this task is to answer the first part of research question 1 restated here: in acquiring the BA construction in Chinese, does L2 Chinese learners' acquisition of the properties differ when the properties are purely syntactic and when they involve integration of knowledge from other domains? The data collected from this task provide information on L2 learners' acquisition of 1) the "core" syntactic property of the BA construction: the word order constraint; 2) the "interface" constraints at the interface of syntax and semantics: the complex verb constraint, and the affectedness on BA NP constraint.

The grammaticality judgment task was used for a couple of reasons. First, it allows us to get a whole picture of L2 learners' knowledge of a particular syntactic property by testing their acceptance of the grammatical sentences and rejection of the ungrammatical ones. The collecting of spontaneous speech may not tell us anything about whether the learners can reject an ungrammatical sentence or not. As the example given by Mackey & Gass (2005), if a learner always produces a sentence like *The man walks down the street*, it does not necessarily mean that particular learner has the knowledge of the third person singular -s. The conclusion can be drawn only when the learner rejects a sentence like **The boys walks down the street*. This kind of rejection can best be elicited from a grammaticality judgment task. Second, it allows us to collect sufficient data within a short period of time by forcing L2 learners to judge if a given sentence is grammatical or ungrammatical. This is an advantage over collecting data from spontaneous speech.

However, the use of grammaticality judgment task has never been applied without questioning and controversies. A frequently cited problem with this task is that it is not certain what is really being tapped in the process of L2 learners' judgment. In other words, the validity of the task is questioned. It is true that compared with native speakers, L2 learners' interlanguage system is more unstable. Sometimes guesswork may involve in their judgment. However, some studies (Mandell, 1999; Cowan & Hasta, 1994), argue for the validity of the grammaticality judgment task. Cowan & Hasta (1994) claim that the invalidity that this task has been criticized for may be due to some confounding factor left uncontrolled, for example, the complexity of the sentences being judged. Mandell (1999) compared the results obtained from a grammaticality judgment task and a dehydrated sentence task (a task in which the subjects were asked to make a sentence with a series of words given) on a set of grammatical items (V-movement in Spanish) among adult learners of Spanish. It was found that there was no significant difference between the results. Gass (1994) examined the reliability of the grammaticality judgment task by using it on two different occasions and found that in spite of some variation, the "overall picture is one of consistency." (320) All of the studies indicate that the grammaticality judgment task is a valid and reliable method of collecting data among L2 learners as long as some possible confounding factors are taken care of.

The first grammaticality judgment task used in the present study consists of one syntactic constraint and two syntax/semantic interface constraints on the BA construction, all of which are independent variables of the experiment. There are altogether 80 sentences (tokens) in this task. The distribution of all the tokens in task is shown in Table 3-4.

Table 3-4: Distribution of Tokens of the Grammaticality Judgment Task

Target properties	Grammatical tokens	Ungrammatical tokens
Word order constraint	8	8
Complex verb constraint	8	8
Affectedness constraint	8	8
Distracters (regular SVO)	16	16

Each independent variable has eight minimal pairs of sentences. A minimal pair refers to a grammatical sentence and an ungrammatical sentence which are identical except for the target property. For example, a minimal pair that tests the word order constraint is as follows:

34) a. ta ba wo de che xiu hao le.
 He BA I POSS car fix good LE
 ‘He fixed my car.’

b. * ta xiu hao ba wo de che le.
 He fix good BA I POSS car LE

34)a. and 34)b. use exactly the same phrases. The only difference lies in the word order of the BA phrase and the verb phrase. If a participant correctly accepts the grammatical sentence and rejects the ungrammatical one in a minimal pair, it is assumed that the target property is acquired. Thirty-two sentences which are in the regular SVO order were used as distracters so that hopefully the real target of the BA construction could not be identified by the participants. The vocabulary used in this task as well as the following tasks was controlled by trying to limit the words to those presented in the textbooks that the participants had learned by then. For some words that might be new to the subjects, a brief definition in English was given. It was also the researcher’s intention to control the length of each sentence. However, since that one of the target properties to be tested is the complex verb constraint. It was thus unavoidable that the grammatical sentences were longer than the ungrammatical sentences. If the length of the ungrammatical ones was to be extended, some extra elements (like an

adverb, or a modifying phrase) must be added, which may pose a heavier processing load on the participants. Fortunately, not every constraint has this problem, in which the length of the sentences can be controlled.

The tokens were divided into two blocks (Block A and Block B), with each block having 40 sentences (20 grammatical ones and 20 ungrammatical ones). The sentences in each minimal pair were put in different blocks so that the participants' judgment on one sentence of the minimal pair would not be affected by their judgment on the other sentence since it was unlikely that they would be able to memorize and compare the two sentences in each pair. The sentences in each block were presented in random order. When the subjects did the judgment task, they were randomly assigned to start with either block. Half of the subjects started with Block A and the other half started with Block B. Each subject had a randomized order with the sentences in each block. This design avoided any bias towards the results caused by the subjects' attention or fatigue. It counterbalanced the possible effects caused by the fixed order in which each sentence was presented.

All the sentences were presented in Chinese characters, with Pinyin above each sentence. Two versions of Chinese characters were used for each set of sentences: one version used the simplified characters, and the other version used the traditional characters. The subjects got to choose which version of Chinese characters they wanted to use. This way, the possible impact from students' unfamiliarity with the characters was eliminated.

Task 1 was an untimed task. It is claimed (Akakura, 2009) that timed grammaticality judgment task is more likely to tap on L2 learners' implicit knowledge. However, viewing that there is big variances among the L2 participants, it would be hard to set an appropriate

interval that would give every participant enough time to process the whole sentence but not enough to recall what they had been taught in class. The participants were asked to read each sentence and make their judgments as soon as possible.

3.2.2 Task 2: the Contextual Acceptability Preference Task

This task is to answer the second part of research question 1, which is restated here: does L2 Chinese learners' acquisition of BA properties differ when the properties involve core syntax domain from those that involve the interface of syntax and discourse. Specifically, it was examined how accurately L2 Chinese learners distinguish contexts that call for a BA sentence from those that do not. Data collected from this task provides information on L2 Chinese learners' knowledge of the discourse constraints on the BA construction: the BA construction is preferred when the BA NP plays the discourse role of secondary topic. Since this is a property at the interface of syntax-discourse/pragmatics, a context is necessary to set the discourse. This is the reason why a separate task is designed to investigate this constraint.

This task is shown in Table 3-5:

Table 3-5: The Design of the Contextual Preference Task

	BA-preferred context	SVO-preferred context
BA sentences/ SVO sentences	8 / 8	8 / 8
model verbs/ potential complement (distracters)	4 / 4	4 / 4

In this task, a context was presented in English to set the discourse chain before the target sentences were presented in Chinese. For each context, a BA sentence and a non-BA sentence (in SVO order) were presented. An example of this task is as follows:

35) Wang has traveled in China for three weeks and is now going back to the U.S. At the airport, when he was checking in his luggage, the attendant noticed that one of his

bags was locked, which is not allowed. The attendant said:

- a) qing nin ba suo da kai.
Please you BA lock open unlock
'Please unlock the bag.'
- b) qing nin da kai suo.
Please you open unlock lock
'Please unlock the bag.'

35)a. is a BA sentence and 35)b. is a SVO sentence, both of which are grammatical sentences in Chinese. In the context given, the locked luggage is the topic and the attendant requested that some activity be conducted to change the state of the lock. 35)a. is thus preferred.

The participants were asked to decide which sentence was the more appropriate response in the context. There are sixteen target contexts as well as eight distracters in this task. The target sentences were presented with its context on one slide on the computer screen so that the participants did not have to memorize what the context was. This task is also untimed. The participants were also asked to read each context carefully and then to make the decision as soon as possible.

Unlike tokens in the grammaticality judgment task, the tokens in this task were not divided into blocks. Instead, all the contexts were put in random order. Each subject was presented with the contexts in a randomized order so that each context had equal possibility of being presented in any position. Like the grammaticality judgment task, the Chinese sentences were presented with Pinyin above each character, which was either in simplified version or traditional version. The participants got to pick either one version.

3.2.3 Task 3: the Paired Grammaticality Judgment Task

The purpose of this task is to answer research question 2 restated here: how well are L2 Chinese learners aware of the obligatory usage of the BA construction triggered by syntactic

constraints? Does their awareness differ from the awareness of those optional BA sentences whose use is triggered by discourse constraints? The subjects were presented Chinese sentences in pairs: one BA sentence and one SVO sentence. The subjects were asked to judge if the sentences in each pair were both grammatical or only one of them was grammatical. Specifically, it was examined how accurately the L2 Chinese learners rejected those SVO sentences that were ungrammatically converted from the obligatory BA sentences. I also examined how well the L2 Chinese learners correctly accepted the grammatical corresponding SVO sentences converted from the optional BA sentences. Only when they accepted both, the optional BA sentences and their corresponding SVO sentences as grammatical, can their accuracy of Task 2 be solely attributed to their knowledge of the discourse properties of the BA construction.

There were three sub-sets of tokens in this task: one in which only the BA sentence was grammatical, one in which both the BA sentence and the SVO sentence were grammatical, and one in which only the SVO sentence was grammatical. The target was the first two sub-sets. The last sub-set was included in order to eliminate the possibility of strategy usage. Moreover, another sub-set of paired sentences were used as distracters. The distribution of all of the sub-sets is shown in Table 3-6:

Table 3-6: Distribution of Sentences in the Paired Grammaticality Judgment Task

	Grammatical	Ungrammatical
Sub-set 1	8 (obligatory BA sentences)	8 (SVO converted from obligatory BA sentences)
Sub-set 2	8 (optional BA sentences) 8 (SVO converted from optional BA sentences)	
Sub-set 3	8 (SVO sentences)	8 (BA sentences)
Distracters	16	8

An example of sub-set 1 in which an obligatory BA sentence is paired with an ungrammatical SVO sentence converted from it is illustrated in 36):

- 36) a. ta ba na pen hua fang zai yangtai shang.
 He BA that CL. flower put at porch up
 ‘He put that pot of flower on the porch.’
- b. * ta fang na pen hua zai yangtai shang.
 He put that CL. flower at porch up
 ‘He put that pot of flower on the porch.’

An example of sub-set 2 in which an optional BA sentence and a SVO sentence converted from it is illustrated in 37):

- 37) a. ta ba wo de che xiu hao le.
 He BA I POSS car fix good LE
 ‘He fixed my car.’
- b. ta xiu hao le wo de che.
 He fix good LE I POSS car
 ‘He fixed my car.’

The sentence in 36)a is an obligatory BA sentence, and it does not have a counterpart in SVO orders, 36)b is thus ungrammatical. 37)a is an optional BA sentence, and 37)b is its grammatical counterpart. Subjects are expected to accept both a) and b) in 37). However, they are expected to accept only a) in 36).

This task was designed as a separate task so that it could focus on the L2 Chinese

learners awareness on the constraints of the usage of the BA construction. The main concern of the task was to examine if the L2 learners were aware that the usage of the BA construction is obligatory as a result of the syntactic constraint (the internal argument constraint).

The arrangement of the paired sentences in this task was the same as what was done in Task 2. A total of 36 pairs of sentences were presented in a random order for each participant. Task 3 was not timed either. The participants were instructed to read both sentences in each pair and make their judgments as soon as possible by clicking the corresponding button on the computer screen.

3.2.4 Pilot testing

In order to establish the validity of the tasks used in this study, two rounds of pilot testing were conducted among native speakers of Chinese after all the tasks were designed. An item analysis was done on each token in each task after every round of pilot testing. As was cited in Kang (2001), Schachter (1990) suggests that if a consistency of 90% is achieved among native speakers on the grammaticality of a sentence, then it is an ideal token to be used in the real experiment. For the grammaticality judgment tasks, the same criterion was followed in deciding which sentences to be kept in the final version of the tasks. However, since Task 2 targets at the discourse constraint, which is less clear-cut than the syntactic and semantic constraints, a less “strict” criteria of 75% consistency was followed. The items that failed to meet those criteria were revised or discarded. New items were designed to replace the discarded ones.

Two pilot tests were conducted with two different groups of native speakers of Chinese.

There were nine participants in each group. They live in Mainland China and all have received college-level education. These participants were not included in the NS Group of the study.

The pilot tests used more sentences than they were included in the study so that the ones that failed to meet the criteria of consistency would be discarded. The distribution of the tokens used in the first pilot test is shown in Table 3-7.

Table 3-7: Distribution of Tokens in the First Pilot Test

Task 1		Grammatical	Ungrammatical
Grammaticality judgment task	Word order	12	12
	Complex verb	12	12
	Affectedness	14	14
Task 2		BA preferred	SVO preferred
Contextual acceptability preference task	Contexts	8	8
Task 3		Grammatical	Ungrammatical
Paired grammaticality judgment task	Obligatory use of BA	10 (BA sentences)	10 (SVO sentences)
	Optional use of BA	10 (BA) & 10 (SVO)	n/a

In the second pilot test, some tokens that failed to elicit a high consistency among native speakers in the first pilot test were either revised or discarded and new target tokens as well as distracters were added. The tokens that had not met the criteria of consistency were not included. The distribution of the tokens used in the second pilot test is shown in Table 3-8:

Table 3-8: Distribution of Tokens in the Second Pilot Test

Task 1		Grammatical	Ungrammatical
Grammaticality judgment task	distracters	16	16
Task 2		Ba-preferred	SVO-preferred
Contextual acceptability preference task	Contexts	5	6
	Distracters	8	
Task 3		Grammatical	Ungrammatical
Paired grammaticality judgment task	Obligatory use of BA	9 (BA sentences)	9 (SVO sentences)
	Distracters	13	18

Task 1 examines if native speakers will accept and reject BA sentences in terms of word order constraint, verb complex constraint, and the affectedness constraint on the BA NP. The results of the pilot test indicate that the native speakers made very consistent judgments on the sentences in Task 1. Sixty-seven sentences out of the 76 sentences have achieved a consistency of over 90%.

Task 2 examined whether different contexts would elicit preference over a BA sentence or a regular SVO sentence. In other words, it was to test if the native speakers are sensitive to the discourse constraint on the BA construction. The results of Task 2 indicate more variation than Task 1: some contexts, either BA-preferred or SVO-preferred, elicited 100% consistency among native speakers; some contexts achieved a consistency over 75%; whereas six contexts failed to elicit a consistent response. After an analysis of those contexts, it was found that in some contexts, the discourse role of the BA NP has not been clearly established. The native speakers may thus have supplied their own assumed discourse roles for those NPs and opted for their preferences accordingly. In the second pilot test, after some new contexts were added and some existing contexts were revised, the results showed a higher consistency than

in the first pilot.

Task 3 examined if native speakers would reject the SVO sentences that are converted from the obligatory BA sentences and would accept the SVO sentences that are converted from the optional BA sentences. The results of Task 3 indicated a consistency lower than Task 1, but higher than Task 2. Most SVO sentences converted from optional BA were invariably accepted by native speakers. However, unexpected results came up on their judgments of the SVO sentences converted from obligatory BA sentences. They consistently rejected sentences which have a preposition *zai* and a locative complement to follow the verb. For example:

- 38) *Kuai cha zhexie hua zai na ge huaping li.
Quick put these flower at that CL vase in
'Put these flowers into that vase at once.'

However, they accepted some but not all sentences that have a preposition *dao* and a locative complement to indicate the destination. For example:

- 39) ?Wo wang le dai wo de shu dao xuexiao lai le.
I forget Le bring I POSS book to school come Le
'I forgot to bring my book to school.'

The results seem to support a corpus-based study conducted by Zhou (2003), which claims that there is actually a hierarchy of “obligatoriness” among the types of BA sentences that have always been considered as “obligatory”. In most of the obligatory BA sentences, the verb is followed by a prepositional phrase, which functions as the internal argument of the verb (Wang, 1987). In the proposed hierarchy, prepositional phrases introduced by the proposition “*zai*” (a proposition in Chinese to indicate the location) occupy a higher level than those introduced by the proposition *dao* (a proposition in Chinese to indicate destination). Less “obligatory” indicates more reliance on the contexts. After some interviews with some of the native speakers and a closer examination and comparison between the

accepted *dao* sentences and rejected *dao* sentences, it was noted that the participants seem to assign a focus on the sentence unconsciously: if the focus is on what has been done to the topic, the *dao* sentence was rejected, if the focus is on what the subject has done, the *dao* sentence was accepted.

This part was revised by limiting all of the obligatory BA sentences to the ones which has a locative complement introduced by *zai*. Those original ones with the proposition *dao* were removed. The results of the second pilot test indicated that these SVO sentences were more consistently rejected.

In short, two main revisions were made in the second pilot test. One was to revise the contexts used in Task 2. The length of the contexts was roughly controlled and the contexts were described in a way that the discourse topic chain was clear but without much linguistic hint. The second revision was on the ungrammatical SVO sentences in Task 3.

The results from both pilot tests seemed to indicate that the tasks designed to examine the acquisition of the properties of the BA construction work well in eliciting target knowledge from the native speakers of Chinese. This sets a good baseline for the examination of the performance of L2 learners of Chinese. Any difference in the data elicited from these two groups may largely be due to the divergence of L2 Chinese learners from the native speakers of Chinese rather than to the validity of the tasks.

3.2.5 Internal reliability

Internal consistency reliability, Cronbach's Coefficient Alpha tests were computed for each domain of properties: core syntax, syntax-semantics, and syntax-discourse. Furthermore, Cronbach's Coefficient Alpha tests were also computed for the two sub-categories within the

core syntax domain: the word order constraint, and the complex verb constraint. The results of all these tests conducted with L2 group data are presented in Table 3-9:

Table 3-9: Internal Consistency Reliability for Properties from Different Domains

Properties	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Word order	.352	.164	11*
Complex V.	.699	.689	15**
Affectedness	.372	.255	12***
Secondary topic	.557	.496	16

*: 5 items have zero variance and are removed from the scale.

** : 1 item has zero variance and is removed from the scale.

***: 4 items have zero variance and are removed from the scale.

The results in Table 3-9 indicate the L2 group's performance across the items in each category is not very consistent, especially in the interface domain of syntax-semantics. Their performance is more consistent in the core syntax domain. However, a further examination of the two sub categories of the core syntax domain indicates that their performance in the complex verb category is more consistent than that in the word order category.

3.3 Data collection procedures

3.3.1 Pilot testing procedures

The two pilot tests were both conducted via e-mails. Participants received the tasks together with a brief questionnaire and a letter of introduction. They were encouraged to finish all the tasks once. They then emailed the whole packages back. After their answers were reviewed, several interviews were conducted through the instant message program: MSN. Participants were questioned on their choices and judgments on particular sentences.

The first round of pilot testing was conducted in December of 2010. The second round was conducted in February of 2011.

3.3.2 Formal study procedures

Data collection among the L2 Chinese learners began in April of 2011 and was completed by May. Participants signed the form of consent after they read the form and asked questions. Once they signed the form, they were assigned a study code. It was made clear to them that they would use the study code from then on and their name would not be mentioned in any case in this study. The proficiency test was completed with paper and pen in class. The participants were asked to finish the test on their own, without consulting any reference materials, such as dictionaries, or textbooks. The proficiency test was not timed. The participants could take as much time as possible. Most of them finished it within 25 minutes.

The data collection was conducted in Wescoe 2125 of the University of Kansas. All the participants did the tasks on the researcher's laptop. Most of the participants spent about an hour to finish the tasks. Drinks and snacks were provided to keep the participants' energy level. Each participant was paid \$15 for participating in this study except for some participants who insisted that they would like to participate for free.

The three tasks were completed on computer by using Paradigm, a software program designed for experimental studies in behavioral science. The data was collected on an individual basis. Each participant made an appointment with the researcher. The participants were asked to complete the demographic survey first. This helped them calm down and get ready for the tasks. Each participant was then randomly assigned to do the tasks in either of the following sequences: Sequence 1: Task 1 (Block 1, Block 2), Task 3, and Task 2; or

Sequence 2: Task 3, Task 1 (Block 2, Block 1), and Task 2. Task 2 was placed in the last part in both sequences because it was stated in the instructions that both sentences given were grammatical, which would interfere with the participants' judgments in Task 1 and Task 3.

The number of participants in each sequence was balanced: 16 participants in Sequence 1 and 16 participants in Sequence 2.

The participants read the instructions for each task, and were given two practice trials before they started the task, during which they could ask questions. The tasks were untimed, and the tokens remained on the screen until the participants provided an answer by clicking the corresponding answer on the screen. The participants were forced to take a break between each task, as well as between the two blocks of Task 1. The length of the break was not fixed. Once the participants felt they were ready to go on, they could go on with the next task by pressing a particular button.

The data collection among native speakers of Chinese was conducted in China in July of 2011. I first contacted Ms. Qiongwei Jiang at Hangzhou Normal University. After she agreed to recruit participants for me, I emailed her a flyer about my study (in Chinese). She then had the participants sign up an appointment with the researcher. After the researcher got the sign-up sheet, she assigned each participant a study code. The data collection was completed at a conference room provided by Ms. Jiang. Like the L2 participants, the native speakers also met with the writer individually. When they came, they first signed the informed consent form (in Chinese). They also completed the demographic survey (in Chinese) before they started the tasks. The procedure of completing the three tasks was exactly the same as that with the L2 participants. After they finished the tasks, they were asked to do the proficiency

test. Most native speakers finished the whole process in 30 to 40 minutes. Each native speaker got a small gift for participating in this study.

3.4 Data analysis

In this section, the methods that were employed to code the data and analyze the data will be discussed.

3.4.1 Data coding

In Task 1, participants got one point for each correct judgment and get zero for each incorrect judgment. Similarly, in Task 2, participant got one point for choosing the appropriate sentence preferred in a particular context. They got zero if they make the incorrect decision. In Task 3, participants got one point when their judgment was correct. They got no point for any incorrect judgment. The points they got for each task were summed and divided by the total possible points for each task. The participants thus got a percentage score for each task as the accuracy rates. More than that, the acceptance rates for each task was also calculated by summing up the number of sentences each participant accepted within a particular category (the grammatical sentences of the word order constraint, for example) and divided by the total number of sentences of that category. Ideally, the acceptance rate of grammatical sentences is 100%; whereas the acceptance rate of ungrammatical sentences is 0%. Two coding methods were used instead of one because each one fulfilled particular functions. The accuracy rates enable us to get a general picture about how well the L2 Chinese learners performed in each task as compared with the native speakers. The acceptance rates allow us to zoom in and get a more detailed picture on their knowledge of

the grammatical and ungrammatical sentences by looking at the “gap” in their acceptance of the good and bad BA sentences concerning a particular property.

3.4.2 Data analysis

Research question 1 examines L2 Chinese learners’ knowledge of different BA properties in terms of the knowledge these properties call for: core syntax vs. syntax-semantics; core syntax vs. syntax-discourse; and syntax-semantics vs. syntax-discourse. The native speakers’ performances with those properties were used as the baseline for comparison.

To answer the first part of the question, each participant got a score for each target properties: the word order constraint, the complex verb constraint, and the affectedness on BA NP constraint. Means and standard deviations were computed for each property. A repeated measures ANOVA was conducted using SPSS 18.0 to compare accuracy rates and acceptance rates across the independent variables at a significance level $\alpha=.05$.

There were two within-subject independent variables: property and the grammaticality. The property variable has three levels: the word order constraint, the complex verb constraint, and the affectedness constraint. The grammaticality variable has two levels: grammatical sentences, and ungrammatical sentences. The dependent variable was the accuracy rates or acceptance rates. There was one between-subject independent variable: group, which had three levels: the NS Group, the L2 High Group, and the L2 Low Group.

A series of repeated measures ANOVAs were conducted using SPSS 18.0 to compare the acceptance rates across the properties within each group at a significance level of $\alpha=.05$.

These repeated measures ANOVAs all had two within-subject independent variables: property, and grammaticality. The dependent variable was acceptance rate with each property and

sentence type.

A series of repeated measures ANOVAs were also conducted to compare the acceptance rates across the groups within each property at a significance level of $\alpha=.05$. There was one within-group variable: grammaticality, which had two levels: grammatical and ungrammatical. The between-subjects variable had three levels: the NS Group, the L2 High Group, and the L2 Low Group. The dependent variable was acceptance rate.

To answer the second part of the question by comparing the responses from the core syntax constraint and those from the syntax-discourse constraint, each participant got a score for each target property: the word order constraint, and the BA NP as secondary topic constraint. Means and standard deviations were computed for each property. Paired-samples T-tests were conducted using SPSS 18.0 to compare accuracy rates across the constraints at a significance level $\alpha=.05$.

To get more details on participants' performance with Task 2, another repeated measures ANOVA was conducted to compare their acceptance rates of different types of sentences under different contexts across groups at a significance level of $\alpha=.05$. There were two within-subject independent variables: contexts and sentence types. There were two levels with the context variable: BA-preferred context, and SVO-preferred context. There were two levels with the sentence type variable: BA sentences and SVO sentences. The between-group factor had three levels: the NS group, the L2 High Group, and the L2 Low Group.

In order to get a specific picture on how well each group distinguished the contexts, paired-samples T-tests were conducted to compare each group's acceptance rates of each sentence type under different contexts at a significance level of $\alpha=.05$: the acceptance of BA

under different contexts (BA-preferred context vs. SVO-preferred context), and the acceptance of SVO under different contexts.

A series of repeated measures ANOVAs were also conducted to compare the acceptance rates of each sentence type across the contexts across the groups at a significance level of $\alpha=.05$. The dependent variable was acceptance rate. The within-subject factor: context had two levels: BA-preferred context vs. SVO-preferred context. The between-subjects factor: group had three levels: the NS Group, the L2 High Group, and the L2 Low Group.

In order to compare participants' responses with the syntax-semantics constraint vs. the syntax-discourse constraints, similar statistics operations were conducted. First, a repeated measures ANOVA was conducted to compare participants' accuracy rates with the two interface properties across different groups at a significance level at $\alpha=.05$. The within-group independent variable was properties, which had three levels: complex verb constraint, affectedness constraint, and secondary topic constraint. The between-group independent variable, the groups, also had three levels: the NS Group, the L2 High Group, and the L2 Low Group. A series of repeated measures ANOVAs were conducted to compare the accuracy rates across different interface properties within each group at a significance level of $\alpha=.05$.

The second research question examines if the participants are aware that sometimes the usage of the BA construction is obligatory, which is triggered by a syntactic constraint, whereas at other times, it is grammatical to use either a BA sentence or its SVO counterpart. Like with the first research question, a repeated measures ANOVA was conducted to compare the accuracy rates with different subsets of sentences across groups at a significance level of $\alpha=.05$.

Likewise, a series of repeated measures ANOVAs were conducted to compare the acceptance rates of each type of choice in each subset within each group at a significance level of $\alpha=.05$. There were two within-subject variables: subset type and possible choice. The former had two levels: obligatory BA subset, and optional BA subset; whereas the latter had three levels: BA only, SVO only, and both (BA and SVO). Besides, a series of repeated measures ANOVAs were conducted to compare the acceptance rate of each possible across the subsets across the groups at a significance level of $\alpha=.05$.

In summary, this study conducted a series of repeated measures ANOVAs with accuracy rates to get a general picture about participants' knowledge of each target property of the BA construction. A series of repeated measures ANOVAs with acceptance rates were conducted to get a clearer pattern of performance within each group by breaking their performance in terms of the grammaticality of the tokens or the sentence type each token fell into. A series of repeated measures ANOVAs were also conducted to examine the difference among groups concerning their performance with each property and each sentence type.

3.5 Hypothesis

The Interface Hypothesis proposed by Sorace (2005, 2009) is based on the studies on advanced, and native-like learners. However, this study applies this theoretic framework to examine if this distinction is also observed with less advanced L2 Chinese learners (such as intermediate and post-intermediate learners), who are still in the process of acquiring the BA construction. The L2 Chinese learners, especially the L2 Low group in this study, were not predicted to behave native-likely even at the core syntax domain. However, the L2 Higher group was predicted to behave native-likely. In spite of the low proficiency levels of the

participants in this study compared with those in Sorace's studies, it was still predicted that a similar pattern in the differences among the domains would be observed. Based on the Interface Hypothesis proposed by Sorace (2005, 2009), and with all the other factors considered, the following specific hypotheses were made concerning research question 1:

Hypothesis 1: Both L2 High Group and L2 Low Group's accuracy rates of the "core" syntactic constraint (the word order constraint) is significantly higher than their accuracy rates on the linguistic constraints that are at the syntax-semantics interfaces (the complex verb constraint and the affectedness on the BA NP constraint)

Hypothesis 2: L2 High Group's performance in the "core" syntax domain may achieve native-likeness in terms of acceptance rates; however, their performance deviates from the NS Group in the syntax-semantics interface domain

Hypothesis 3: L2 Low Group's performance significantly deviates from the NS Group in both the "core" syntax and the syntax-semantics interface domain

Hypothesis 4: Both L2 High Group and L2 Low Group's accuracy rates of the "core" syntactic constraint (the word order constraint) is significantly higher than their accuracy rates on the and syntax-discourse interface property (the BA NP as a secondary topic)

Hypothesis 5: Both L2 High Group and L2 Low Group deviate significantly from the NS group in the syntax-discourse interface domain

Hypothesis 6: Both L2 High Group and L2 Low Group's accuracy rates of the

syntactic/semantic interface domain are significantly higher than their accuracy rates of the syntactic/discourse interface.

Research question 2 examines L2 Chinese learners' awareness of the obligatory vs. optional usage of BA sentences. The obligatory usage is driven by a syntactic constraint: the "internal object constraint" as proposed by Wang (1987); whereas the optional usage is driven by discourse considerations. The following predications were thus made concerning research question 2:

Hypothesis 7: Both L2 High Group and L2 Low Group's accuracy rates of the obligatory BA sentences is significantly higher than their accuracy rate of the optional BA sentences. The former involves knowledge from the syntax domain, while the latter calls for knowledge at the syntax-discourse domain.

Hypothesis 8: L2 High Group's accuracy rate with the obligatory BA sentences achieve native-likeness; while L2 High Group's accuracy rate with the optional BA sentences is significantly lower than the NS Group

Hypothesis 9: L2 Low Group's accuracy rates of both the obligatory BA sentences and the optional ones are significantly lower than the NS Group

3.6 Chapter summary

This chapter discussed the participants recruitment, the instruments used to collect data as well as the coding and analysis of data. The population with which this study hopes to generalize its findings is adult college-level English-speaking learners of Chinese. The sample of this study was recruited from a convenience sample of the target population. Three tasks were designed to answer the research questions that are restated at the beginning of this

chapter: if L2 Chinese learners' acquisition of BA properties differs by virtue of the knowledge each property calls for; and if their awareness of the usage of the BA construction also differs under syntax-driven context vs. discourse-driven context. The tasks only involve L2 learners' comprehension of the BA construction. Justifications were also given on the employment of grammaticality judgment tasks and their variations, and on the way of data coding and statistic tests conducted in order to answer those research questions.

Chapter 4 RESULTS

This chapter reports the results of the study conducted among L2 English-speaking learners of Chinese on their knowledge of the linguistic properties of the BA construction, which belong to different domains by virtue of the knowledge each property calls for. It also reports the results of the task which examines L2 Chinese learners' awareness of the usage of the BA construction when the usage is syntax-driven (obligatory usage) vs. when it is discourse-driven (optional usage). The results of the data collected among native speakers of Chinese are also reported here in order to serve as a baseline against which the L2 data were compared. The purpose of this study is to identify the particular difficulties that L2 learners are facing while acquiring the BA construction. It is hoped that these findings will improve instructors' understanding of the acquisition of the BA construction by L2 Chinese learners and make their classroom instruction and activities targeted and beneficial.

This chapter is organized in line with the research questions specified in Chapter II and restated in Chapter III. Section 4.1 reports the results of descriptive statistic results and statistical analysis results of L2 learners' performance on the properties from different domains: core syntax, syntax-semantics interface, and syntax-discourse interface. 4.2 reports the results of descriptive statistic results and statistical analysis results of L2 learners' performance on different types of BA sentences in terms of their obligatoriness in usage.

4.1 Research question 1

This section reports the results from the grammaticality judgment task and the contextual acceptability judgment task conducted to address the first research question: does L2 Chinese

learners' acquisition of the properties differ when the properties are purely syntactic and when they involve integration of knowledge from other domains? This research question entails three sub-questions: 1) Does L2 Chinese learners' acquisition of the core syntax domain differ from that of the syntax-semantics interface domain? 2) Does L2 Chinese learners' acquisition of the core syntax domain differ from that of the syntax-discourse interface domain? 3) Does L2 Chinese learners' acquisition of the syntax-semantics interface domain differ from that of the syntax-discourse domain? The results used to answer these questions will be presented in three sections: performance on core syntax property vs. syntax-semantics interface properties; performance on core syntax property vs. syntax-discourse interface property; and performance on the syntax-semantics properties vs. syntax-discourse property.

4.1.1 L2 learners' performance on core syntax properties vs. syntax-semantics interface properties of the BA construction

In this section, the results of Task 1 (the grammaticality judgment task) will be reported. One core syntax property (the word order constraint) and two syntax-semantics interface properties (the complex verb constraint, and the affectedness on the BA NP constraint) were examined in this task. Examples of each constraint were given in sections 2.2.2 and 2.2.3. Each constraint has 8 minimal pairs of sentences, which are identical except for the target property, with one being grammatical and the other ungrammatical (see Appendix III for the whole set of tokens). The L2 participants were presented 48 target BA sentences on the computer screen, and were asked to judge if the BA sentence was grammatical or not by clicking the appropriate button. A spreadsheet was created by Paradigm to record every

participant's judgments: 1 for correct judgment, 0 for incorrect judgment. Their performance was then converted into two measurements: accuracy rates and acceptance rates. An accuracy rate was calculated in terms of the percentage of correct judgments made out of the total judgments. It indicates L2 learners' overall performance on a particular BA property. An acceptance rate was calculated in terms of the percentage of accepting each BA sentence. It gives us a more detailed picture beyond the overall performance by indicating how well the L2 learners do in accepting grammatical tokens and rejecting ungrammatical ones. An expected ideal acceptance rate for the grammatical sentences should be 100%; while the acceptance rate for the ungrammatical ones is expected to be 0%.

Their overall performance of the target properties were measured by accuracy rates. The descriptive statistics of each group's accuracy rates across the target properties is presented in Figure 4-1.

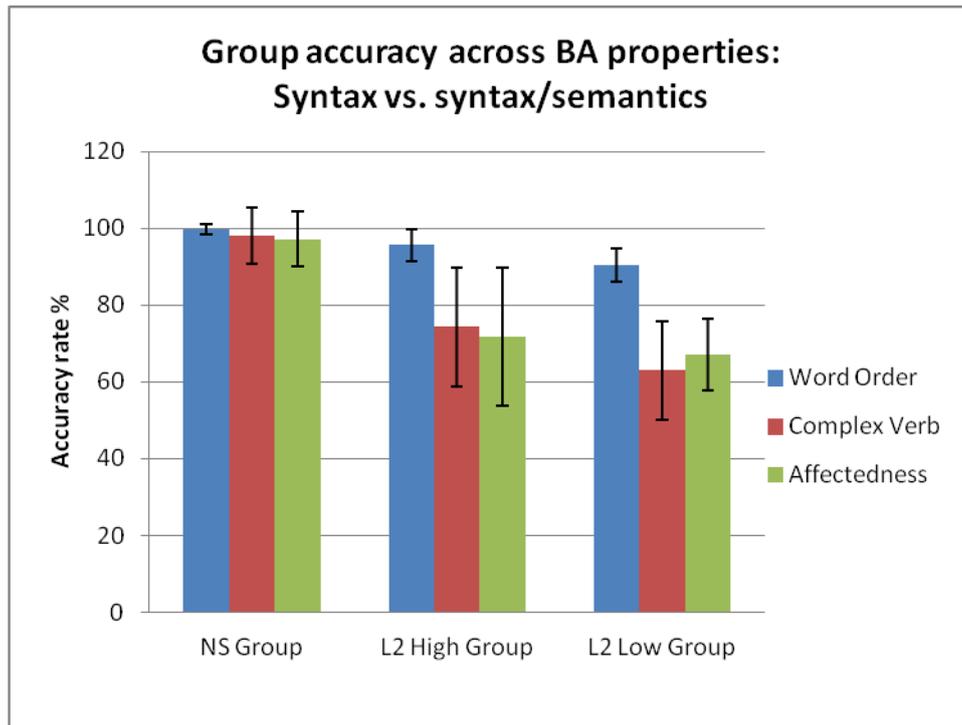


Figure 4-1: Mean Accuracy Rates (%) Achieved by the Groups across the properties: Syntax vs. Syntax-semantics (NS=20; L2 High=17; L2 Low=15)

Native speakers of Chinese in this study scored an overall mean accuracy rate of 99.7% (SD=1.4) on the word order constraint. The mean accuracy rates the NS Group achieved on the syntax-semantics properties are 98.1% (SD=4.1) on the Complex Verb constraint, and 97.2% (SD=4.3) on the Affectedness constraint. The NS Group achieved near-perfect accuracy on their judgment of the BA properties that call for knowledge from either the core syntax domain or syntax-semantics interface domain, with very little variance. A one-way repeated measures ANOVA was conducted to test if there was any significant difference among the NS Group's accuracy rates across the target properties. In this test, the within-subject factor the target properties had three levels. The dependent variable was their accuracy rates. The result indicated that there is no significant property effect at 0.05 significance level [Wilks's Λ =.747, $F(2, 18)$ =3.056, p =.072].

The L2 High Group scored a mean accuracy rate of 95.6% (SD=7.3) with the word order

constraint. Their mean accuracy rates of the complex verb constraint and the affectedness constraint were 74.3% (SD=15.5) and 71.7% (SD=12.9) respectively. The descriptive statistics indicate that the L2 High Group scored much lower accuracy rates with the syntax-semantics interface properties than they did with the core syntax properties. There was a lot of variability within the group. A one-way repeated measures ANOVA was conducted to test if the observed difference in means of accuracy rates was statistically significant. The result of the test showed a significant property effects at a 0.05 significance level [Wilks's $\Lambda=.244$, $F(2, 15)=23.247$, $p<.001$]. In other words, L2 High Group's accuracy rate was significantly affected by the type of property. A post-hoc pair-wise comparisons were conducted to pinpoint the source of the property effect. The results were summarized in Table 4-1.

The results in Table 4-1 indicate that L2 High Group's accuracy rate of the word order constraint was significantly higher than that of the complex verb constraint and the affectedness constraint at a significance level of 0.05. However, their accuracy rates of the complex verb constraint and the affectedness constraint were not significantly different.

Table 4-1: Pair-wise Comparisons of L2 High Group across Syntax and Syntax-semantics Interface Properties (N=17)

Pair	Mean Difference	Std. Error
Word Order-Complex V.	21.3*	3.79
Word Order-Affectedness	23.9*	3.72
Complex V.-Affectedness	2.6	3.83

*. The mean difference is significant at 0.05 level

The L2 Low Group scored a mean accuracy rate of 90.4% (SD=7.0) with the word order constraint. Their mean accuracy rates of the complex verb constraint and the affectedness

constraint were 62.9% (SD=18.1) and 67.1% (SD=9.3) respectively. The descriptive statistics indicate that like the L2 High Group, the L2 Low Group also scored much lower accuracy rates with the syntax-semantics interface properties than they did with the core syntax properties. There was also big variance within the group. A one-way repeated measures ANOVA was conducted to test if the observed difference in means of accuracy rates was statistically significant. The result of the test showed a significant property effects at a 0.05 significance level [Wilks's Λ =.141, $F(2, 13)$ =39.661, $p<.001$]. In other words, L2 Low Group's accuracy rate was also significantly affected by the type of property. A post-hoc pair-wise comparisons were conducted to pinpoint the source of the property effect. The results were summarized in Table 4-2.

The results indicate that L2 Low Group's accuracy rate of the word order constraint was significantly higher than that of the complex verb constraint and the affectedness constraint at a significance level of 0.05. However, their accuracy rates of the complex verb constraint and the affectedness constraint were not significantly different.

Table 4-2: Pair-wise Comparisons of L2 Low Group across Syntax and Syntax-semantics Interface Properties (N=15)

Pair	Mean Difference	Std. Error
Word Order-Complex V.	27.5*	4.22
Word Order-Affectedness	23.3*	3.37
Complex V.-Affectedness	-4.2	5.24

*. The mean difference is significant at 0.05 level

In terms of accuracy rates, the NS Group achieved consistent accuracy rates across the properties that either call for knowledge from the syntax domain or syntax-semantics interface domain. However, both L2 High Group and L2 Low Group achieved higher

accuracy rates with the core syntax dome than with the syntax-semantics interface domain.

In order to get a more detailed picture of participants' performance with the grammatical and ungrammatical BA sentences concerning the target properties, the acceptance rates were used as another measurement. Each group's acceptance rates of the grammatical and ungrammatical sentences across the target properties: the word order constraint, the complex verb constraint, and the affectedness constraint are summarized in Table 4-3.

Table 4-3: Acceptance Rates (%) of Grammatical vs. Ungrammatical Sentences across Syntax and Syntax-semantics Interface Properties across Each Group: NS, L2 High, and L2 Low

	Word Order		Complex Verb		Affectedness	
	G*(S.D.)	U**(S.D.)	G(S.D.)	U(S.D.)	G(S.D.)	U(S.D.)
NS	100(0)	0.6 (2.8)	99.4(2.8)	3.1(6.9)	96.3(7.1)	1.9(6.1)
L2 High	94.9(11.7)	3.7(5.9)	86.0(18.7)	37.5(20.3)	96.3(7.3)	52.9(25.2)
L2 Low	83.3(12.2)	2.5(5.2)	73.3(20)	47.5(26.4)	94.2(6.5)	60.0(20.7)

*. Grammatical

**.. Ungrammatical

A repeated measures ANOVA was conducted with two within-subject factors and one between-subject factor. The two within-subject factors include property (3 levels: word order, complex verb, and affectedness), and grammaticality (2 levels: grammatical and ungrammatical); while the between-subject factor is group (3 levels: NS, L2 High, and L2 Low). The results showed that the acceptance rates were significantly affected by property [Wilks' $\Lambda = .206$, $F(2, 48) = 92.41$, $p < .001$], by grammaticality [Wilks' $\Lambda = .033$, $F(1, 49) = 1414.91$, $p < .001$], and by group [$F(2, 49) = 24.86$, $p < .001$]. The acceptance rates were also affected by the interactions between property and group [Wilks' $\Lambda = .302$, $F(4, 96) = 19.70$, $p < .001$], between grammaticality and group [Wilks' $\Lambda = .260$, $F(2, 49) = 69.79$, $p < .001$], between property and grammaticality [Wilks' $\Lambda = .247$, $F(2, 48) = 73.27$, $p < .001$], as well as an

interaction among all of the factors: property, grammaticality, and group [Wilks' $\Lambda = .427$, $F(4, 96) = 12.72$, $p < .001$]. In other words, the acceptance rates of grammatical and ungrammatical sentences were different across the constraints. The pattern of the difference also differed across groups.

In order to get a clearer picture of each group's accuracy rates of grammatical and ungrammatical sentences across the syntax and syntax-semantics interface properties, the performance of each group is reported separately. The NS Group's acceptance rates were presented in Figure 4-2. As is indicated in Figure 4-2 and in Table 4-3, the NS Group's acceptance rates of the grammatical sentences across the word order constraint, the complex verb constraint, and the affectedness constraint reached 100% ($SD = 0$), 99.4% ($SD = 2.8$), and 96.3% ($SD = 7.1$) respectively. The NS Group's acceptance rates of the ungrammatical sentences across the properties were 0.6% ($SD = 2.8$), 3.1% ($SD = 6.9$), and 1.9% ($SD = 6.1$) respectively. A repeated measures ANOVA was conducted to test if there was significant difference and interaction in their acceptance rates across the properties and sentence types. There are two within-subjects factors: constraint (word order, complex verb, and affectedness), and sentence type (grammatical, and ungrammatical). The results indicated that there is no constraint effect at 0.05 significance level [Wilks's $\Lambda = .826$, $F(2, 18) = 1.898$, $p = .179$]. There is significant sentence type effect at 0.05 significance level [Wilks's $\Lambda = .002$, $F(1, 19) = 10652.667$, $p < .001$]. There is no significant interaction effect between constraint and sentence type at 0.05 significance level [Wilks's $\Lambda = .747$, $F(2, 18) = 3.056$, $p = .072$]. In short, the NS Group behaved consistently in accepting the grammatical sentences as well as in rejecting the ungrammatical sentences targeted at either the core syntax domain or

syntax-semantics domain.

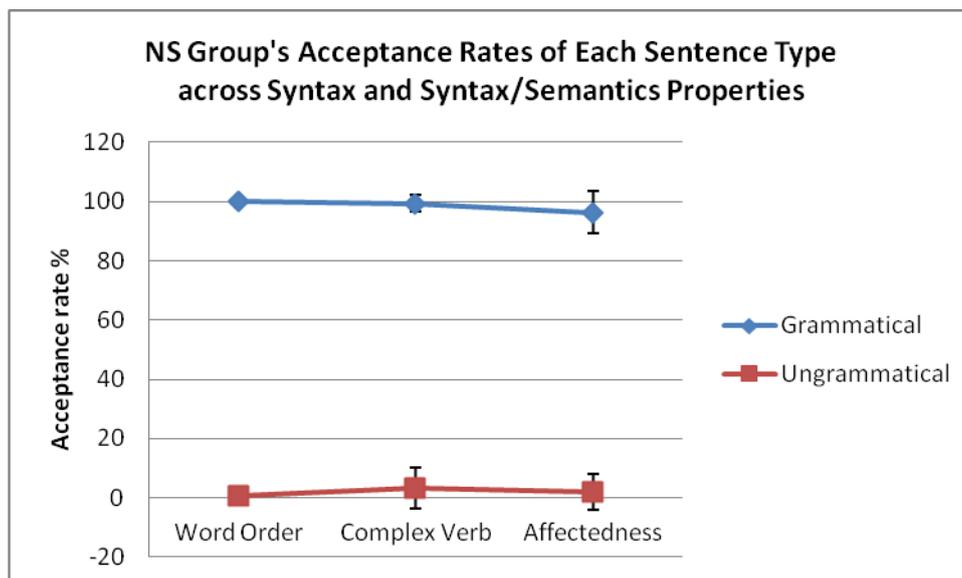


Figure 4-2: The NS Group's Acceptance Rates of Each Sentence Type across Core Syntax and Syntax-semantics Interface Properties (N=20)

The L2 High Group's acceptance rates of grammatical and ungrammatical BA sentences across the properties are presented in Figure 4-3. The L2 High Group's acceptance rates of the grammatical BA sentences across the word order, complex verb and affectedness constraints were 94.9% (SD=11.7), 86.0% (SD=18.7), and 96.3% (SD=7.3) respectively. The L2 High Group's acceptance rates of the ungrammatical BA sentences across the target properties were 3.7% (SD=5.9), 37.5% (SD=20.3), and 52.9% (SD=25.2). Like with the native speakers group, a repeated measures ANOVA was conducted, with two within-subjects factors: constraint and sentence type. The results indicated that there is a constraint effect at 0.05 significance level [Wilks's Λ =.228, $F(2, 15)$ =25.436, p <.001]. There is a significant sentence type effect [Wilks's Λ =.067, $F(1, 16)$ =221.136, p <.001]. There is also a significant interaction effect between the constraint and sentence type [Wilks's Λ =.244, $F(2, 15)$ =23.247, p <.001].

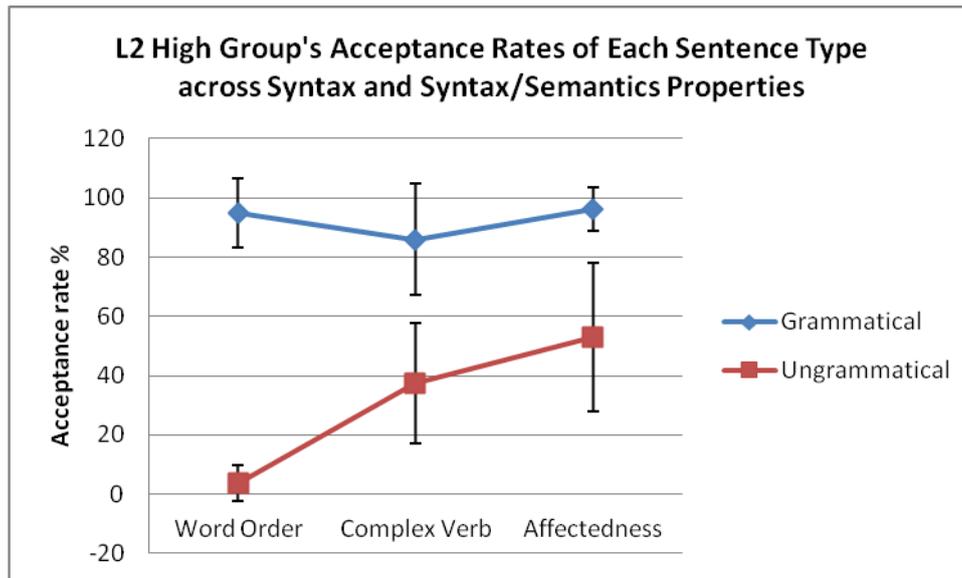


Figure 4-3: The L2 High Group's Acceptance Rates of Each Sentence Type across Core Syntax and Syntax-semantics Interface Properties (N=17)

Post hoc pair-wise comparisons were conducted to identify the source of the significant effects. The results indicated that there is a significant difference between L2 High Group's acceptance rate of the ungrammatical sentences of the word order constraint and that of the complex verb constraint ($p < .001$). There is also a significant difference between the acceptance rate of the word order constraint and that of the affectedness constraint ($p < .001$). However, there is no significant difference between the acceptance rate of the complex verb constraint and that of the affectedness constraint ($p = .073$). In other words, the L2 High Group incorrectly accepted more ungrammatical BA sentences in which the complex verb constraint or the affectedness constraint was violated than they did with the ungrammatical sentences in which the word order constraint was violated. The results of pair-wise comparisons are presented in

Table 4-4.

Table 4-4: Pair-wise Comparisons of L2 High Group's Acceptance Rates of Ungrammatical Sentences across Syntax and Syntax-semantics Properties

Pair	Mean Difference	Std. Error
Word Order-Complex V.	-33.8*	5.55
Word Order-Affectedness	-49.3*	6.47
Complex V.-Affectedness	-15.4	6.21

*. The mean difference is significant at 0.05 level

In short, the L2 High Group's acceptance rates were a result of the constraints, the grammaticality of the sentences and an interaction between them. Their acceptance rates of the grammatical sentences are not significantly different across the constraints. However, they incorrectly accepted more ungrammatical sentences targeted at the complex verb constraint and affectedness constraint.

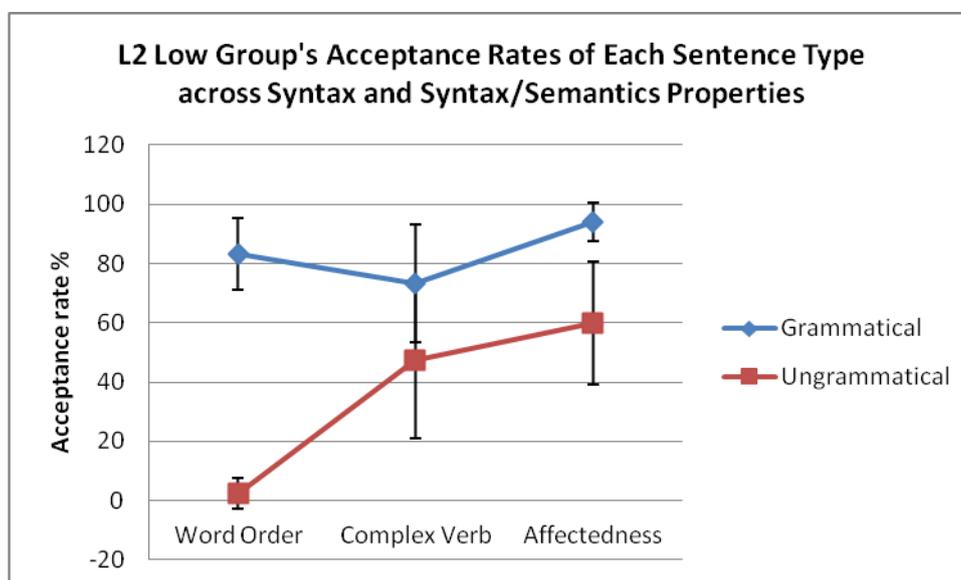


Figure 4-4: The L2 Low Group's Acceptance Rates of Each Sentence Type across Core Syntax and Syntax-semantics Interface Properties (N=15)

The acceptance rates of the L2 Low Group of the grammatical and ungrammatical sentences across the word order, complex verb and affectedness constraints are presented in

Figure 4-4. The L2 Low Group's acceptance rates of the grammatical BA sentences across the word order, complex verb and affectedness constraints were 83.3% (SD=12.2), 73.3% (SD=20.0), and 94.2% (SD=6.5) respectively. The L2 Low Group's acceptance rates of the ungrammatical BA sentences across the target properties were 2.5% (SD=5.2), 47.5% (SD=26.4), and 60.0% (SD=20.7). A repeated measures ANOVA was conducted with two within-subjects factors: constraint and sentence type. The results indicated that there is a constraint effect at a 0.05 significance level [Wilks's Λ =.076, $F(2, 13)$ =79.518, p <.001]. There is a significant effect of sentence type [Wilks's Λ =.092, $F(1, 14)$ =138.167, p <.001]. There is also a significant interaction effect between constraint and sentence type [Wilks's Λ =.141, $F(2, 13)$ =39.661, p <.001].

Post hoc pair-wise comparisons were conducted to identify the source of the significant effects. The results indicated that the L2 Low Group significantly accepted more grammatical sentences with the affected constraint than with the word order and the complex verb constraint (p =.008 and p =.002 respectively). The results of the pair-wise comparisons are presented in Table 4-5.

Table 4-5: Pair-wise Comparisons of L2 Low Group's Acceptance Rates of Grammatical Sentences across Syntax and Syntax-semantics Properties

Pair	Mean Difference	Std. Error
Word Order-Complex V.	10.0	4.26
Word Order-Affectedness	-10.8*	2.96
Complex V.-Affectedness	-20.8*	4.83

*. The mean difference is significant at 0.05 level

Similar to the L2 High Group, the L2 Low Group incorrectly accepted more ungrammatical sentences in which the complex verb constraint or the affectedness constraint

was violated than they did with the word order constraint violation ($p < .001$ for both). The results of the pair-wise comparisons are presented in Table 4-6.

Table 4-6: Pair-wise Comparisons of L2 Low Group's Acceptance Rates of Ungrammatical Sentences across Syntax and Syntax-semantics Properties

Pair	Mean Difference	Std. Error
Word Order-Complex V.	-45.0*	6.88
Word Order-Affectedness	-57.5*	5.56
Complex V.-Affectedness	-12.5	9.13

*. The mean difference is significant at 0.05 level

In short, the L2 Low Group showed a similar pattern in their acceptance rates as the L2 High Group, which was significantly affected by the target constraints, sentence types and an interaction between the two factors.

The previous section presented the acceptance rates that each group scored at grammatical and ungrammatical BA sentences targeted at the word order constraint, the complex verb constraint, and the affectedness on the BA NP constraint respectively. Each group's acceptance rates are significantly higher with the grammatical BA sentences than with the ungrammatical sentences. However, the numerical difference of acceptance rates between the grammatical BA sentences and the ungrammatical ones are smaller with the L2 groups than with the NS Group. In order to identify if the L2 groups have achieved native-likeness in any of the targeted properties (including both sentence types), a series of repeated measures ANOVAs were conducted. These tests all had one within-subjects factor: sentence type (grammatical and ungrammatical) and one between-subject factor: group (NS, L2 High, and L2 Low). These tests used the acceptance rate of each sentence type in each targeted property as dependent variables.

Word order constraint

The acceptance rates of the word order constraint with both sentence types across the groups are presented in Figure 4-5.

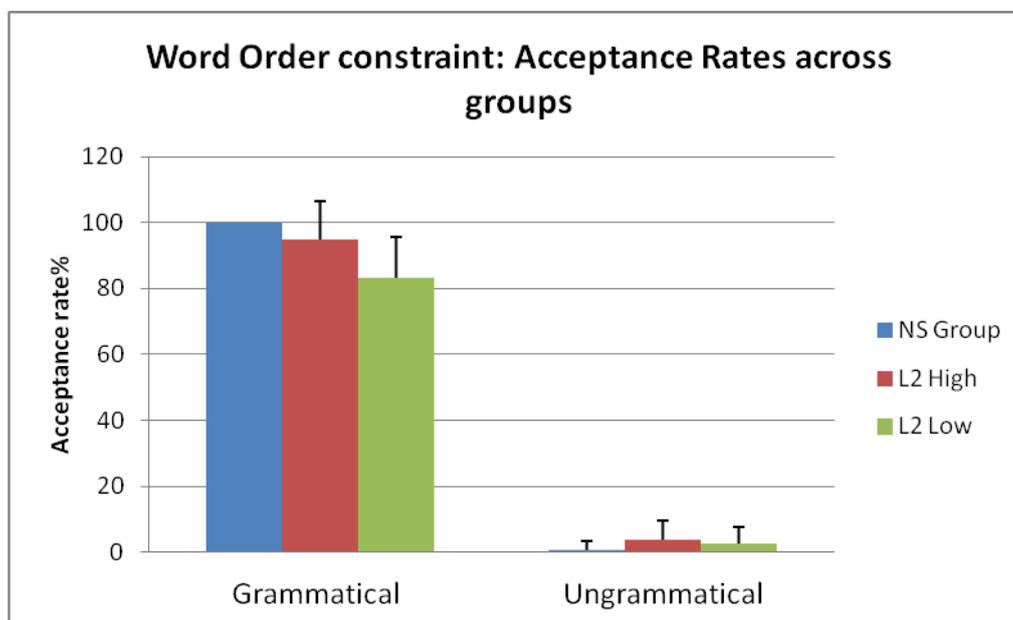


Figure 4-5: Word Order Constraint: Acceptance rates across the groups (NS, L2 High and L2 Low) and sentence types

The results of the repeated measures ANOVA conducted for the word order constraint indicated that there is a significant effect of sentence type on their acceptance rates [Wilks's $\Lambda=.015$, $F(1, 49)=3272.88$, $p<.001$]. The factor of group also has a significant effect on the acceptance rates [$F(2, 49)=11.47$, $p<.001$]. Pair-wise comparisons between the groups indicated that there is no significant difference between the NS Group and the L2 High Group ($md=1.05$, $p=.508$). However, there is a significant difference between the NS Group and the L2 Low Group ($md=7.40$, $p<.001$), and between the L2 High Group and the L2 Low Group ($md=6.35$, $p<.001$). There is also an interaction effect between sentence type and group [Wilks's $\Lambda=.681$, $F(1, 49)=11.49$, $p<.001$]. The L2 Low Group accepted significantly fewer grammatical sentences than the other two groups. However, there is no significant

difference in accepting ungrammatical sentences.

Item analyses were conducted to identify the exact grammatical sentences that L2 groups, the L2 Low Group in particular, did not accept. The accuracy rates scored by each group across the grammatical items within word order constraint are presented in Figure 4-6. No item analysis was conducted on the word order constraint as both L2 groups achieved native-like level of accuracy.

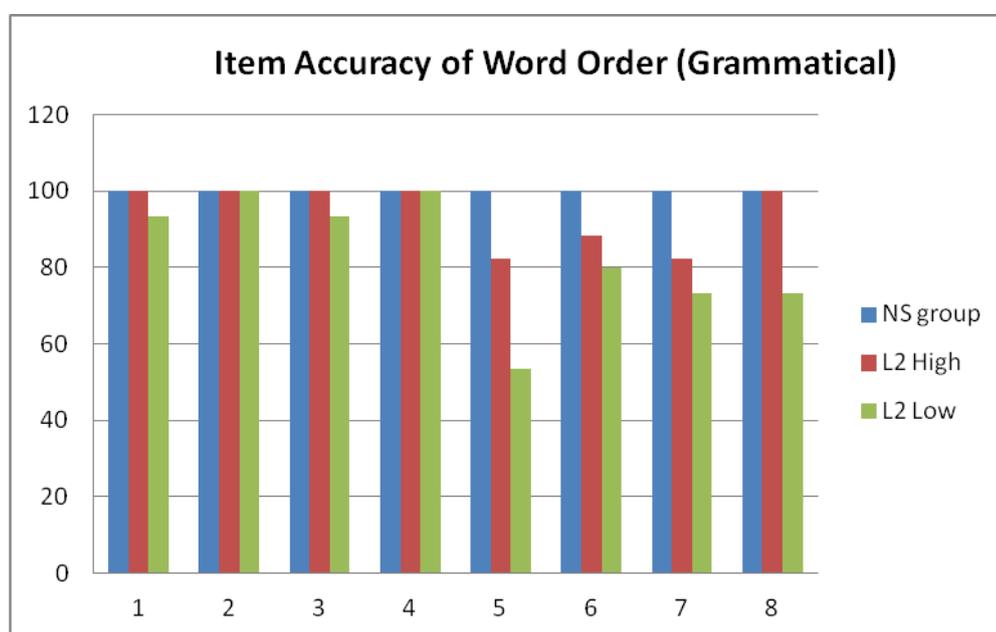


Figure 4-6: Item Accuracy Rates of Grammatical BA Sentences of the Word Order Constraint across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

Figure 4-6 showed that the L2 groups, especially the L2 Low Group scored lower accuracy rates with Item 5, 6, 7, and 8. What these items have in common is that these BA sentences all have a prepositional phrase at the end of the sentence to act as the complement of either location or destination. Take Item 5, reproduced in 39), for example:

- 40) wo ba na pen hua bai zai yang tai shang.
 I BA that pot flower put at porch up
 ‘I put that pot of flower at the porch.’

In 40), the prepositional phrase *zai yangtai shang*, introduced by the locative

complement *zai*, indicates the new location of the flower pot and is obligatory in the BA sentence. In form, this type of BA sentences is more complex than those realized by a single-syllable resultative complement. The L2 Chinese learners seemed to have difficulties processing this type of BA sentences.

Complex verb constraint

The acceptance rates scored by each group with the complex verb constraint across grammatical and ungrammatical sentences are presented in Figure 4-7:

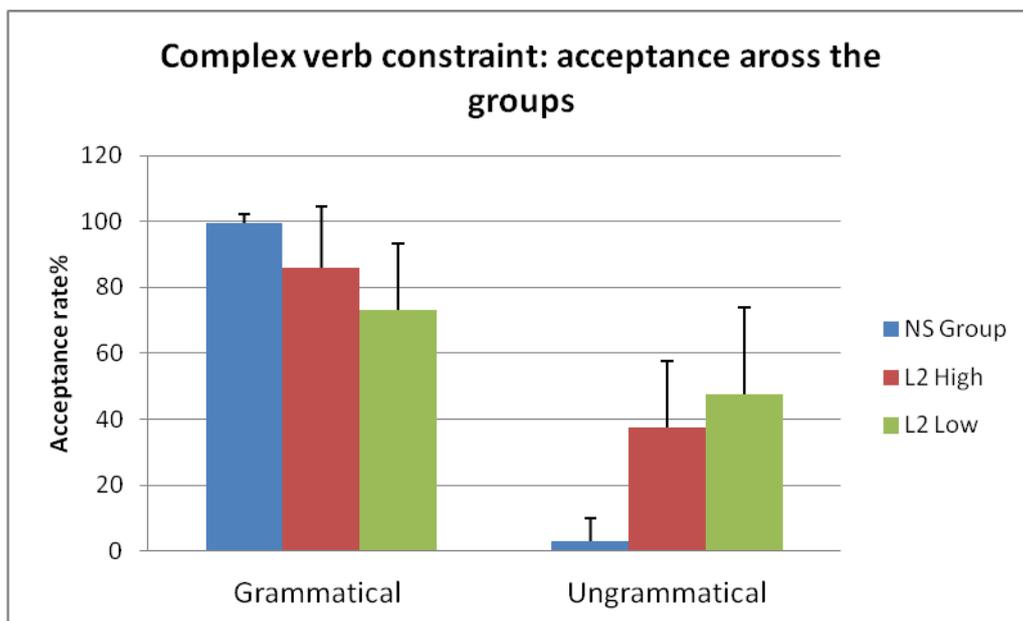


Figure 4-7: Complex Verb Constraint: Acceptance rates across the groups and sentence types

The results of the repeated measures ANOVA indicated that there is a significant effect of sentence type on acceptance rates [Wilks’s $\Lambda=0.174$, $F(1, 49)=233.37$, $p<.001$]. There is also a significant group effect on acceptance rates [$F(2, 49)=11.47$, $p<.001$]. Pair-wise comparisons indicated that there is a significant difference in acceptance rates between the NS group and the L2 High Group ($md=-10.52$, $p=.004$). There is also a significant difference between the NS Group and the L2 Low Group ($md=-9.17$, $p=.015$). However, there is no difference

between between the L2 High and L2 Low groups ($md=1.35$, $p=.722$). There is an interaction effect between sentence type and group in acceptance rates [Wilks's $\Lambda=.431$, $F(1, 49)=32.38$, $p<.001$]. Both L2 groups accepted significantly fewer grammatical sentences than the NS Group, but they accepted significantly more ungrammatical sentences than the NS Group. There is no significant difference between the two L2 groups in their acceptance of either grammatical or ungrammatical sentences. However, numerically, the L2 High Group accepted more grammatical sentences and few ungrammatical sentence than the L2 Low Group.

Like with the word order constraint, item analyses were conducted with both grammatical and ungrammatical sentences targeted at the complex verb constraint. The results are shown in Figure 4-8 and Figure 4-9 respectively.

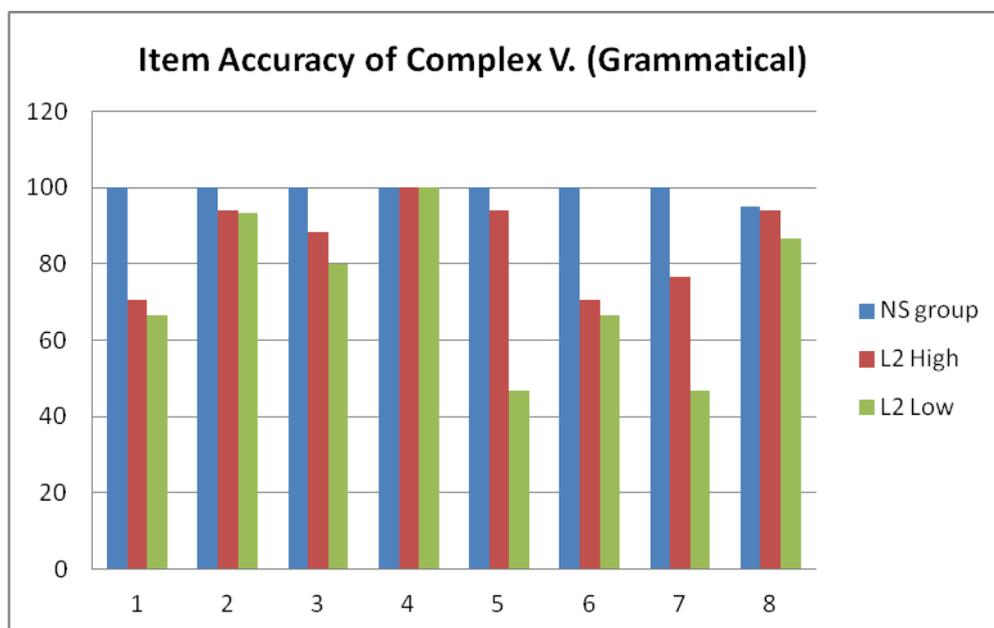


Figure 4-8: Item Accuracy Rates of Grammatical BA Sentences of the Complex Verb Constraint across Groups: NS ($n=20$), L2 High ($n=17$), and L2 Low ($n=15$)

Like what has been observed with the word order constraint, a similar phenomenon was

also observed with L2 groups. The L2 Low Group scored lower accuracy with Item 5, 6, and 7, all of which ended with a phrase introduced by the locative complement *zai* to indicate the new location of the BA NPs as a result of the actions indicated by the verbs.

The item accuracy rates of ungrammatical BA sentences in which the complex verb constraint was violated are presented in Figure 4-9. As was shown in Figure 4-9, both L2 groups scored low accuracy with Item 1, 2, and 3. In other words, they failed to correctly reject these items. It was noted that in all of these items, the verbs had two syllables, while in other items the verbs had only one syllable. For example, in Item 1 (reproduced in 41)):

41)* ni yao ba jipiao baocun
 you should BA plane ticket keep

In 41), the verb *baocun* is a two-syllable word. However, this does not change the requirement that there be a resultative complement to follow the verb *baocun* in order to make 41) grammatical.

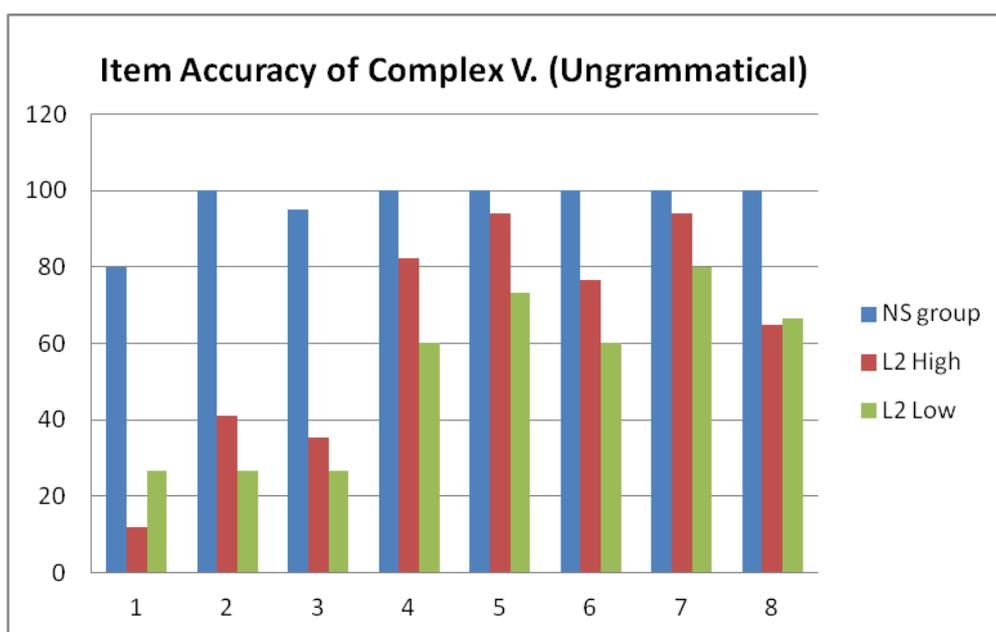


Figure 4-9: Item Accuracy Rates of Ungrammatical BA Sentences of Complex Verb Constraint across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

Affectedness constraint

The acceptance rates scored by each group with the complex verb constraint across grammatical and ungrammatical sentences are presented in Figure 4-10:

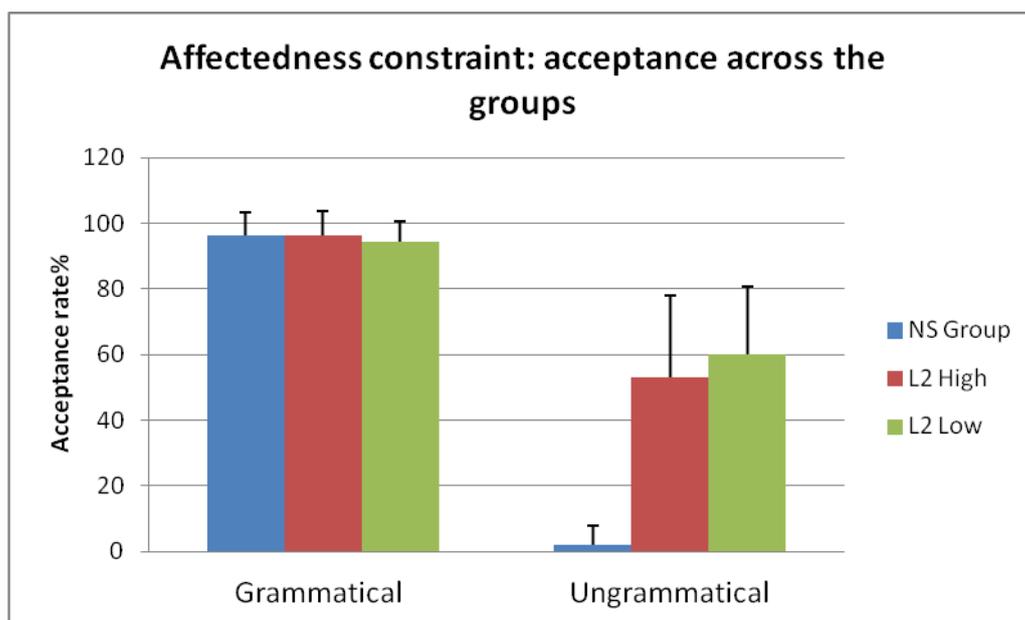


Figure 4-10: Affectedness Constraint: Acceptance rates across the groups (NS, L2 High and L2 Low) and sentence types

The results of the repeated measures ANOVA indicated that there is a significant effect of sentence type on acceptance rates [Wilks's $\Lambda=.091$, $F(1, 49)=488.54$, $p<.001$]. There is also a significant group effect on acceptance rates [$F(2, 49)=39.91$, $p<.001$]. Pair-wise comparisons indicated that there is a significant difference in acceptance rates between the NS group and the L2 High Group ($md=-25.57$, $p<.001$). There is also a significant difference between the NS Group and the L2 Low Group ($md=-28.02$, $p<.001$). However, there is no difference between between the L2 High and L2 Low groups ($md=-2.45$, $p=.514$). There is an interaction effect between sentence type and group in acceptance rates [Wilks's $\Lambda=.306$, $F(2, 49)=55.59$, $p<.001$]. Both L2 groups accepted significantly more ungrammatical sentences

than the NS Group, but there is no significant difference among the groups in accepting the grammatical ones.

The accuracy rates of the items in this section across the groups are presented in Figure 4-11.

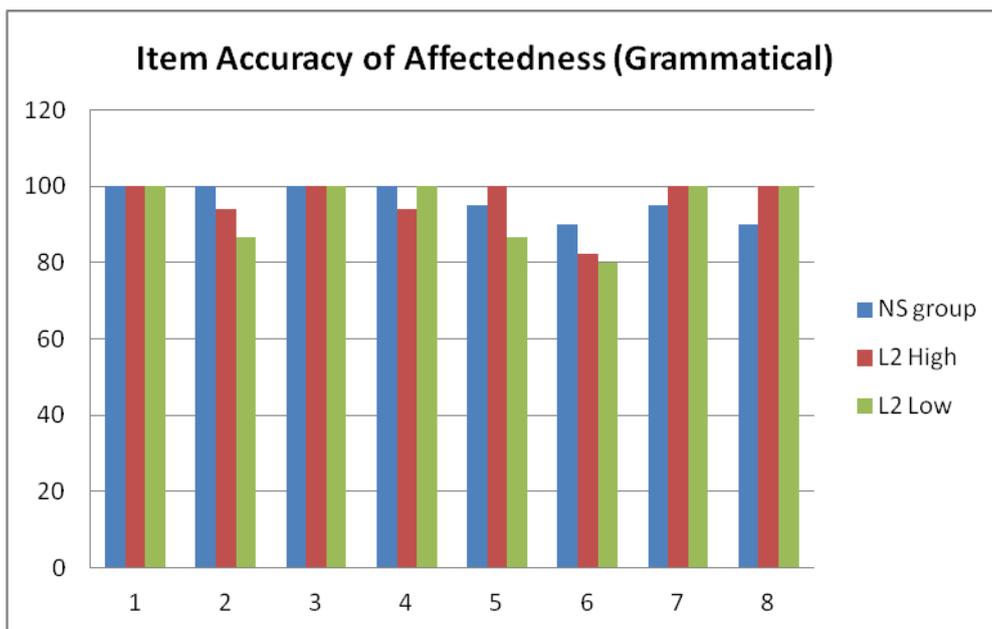


Figure 4-11: Item Accuracy Rates of Grammatical BA Sentences of the Affectedness on BA NP Constraint across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

The L2 groups scored higher accuracy with grammatical BA sentences targeted at the affectedness on the BA NP constraint. The grammatical BA sentences in this section all ended with a verb and a resultative complement. Take Item 1, reproduced in 41) for example:

41) ta ba na ben shu kan wan le
 He BA that CL. book read finish ASP
 'He has finished reading that book.'

The L2 learners, including the L2 Low Group, were more ready to accept grammatical BA sentences like 41).

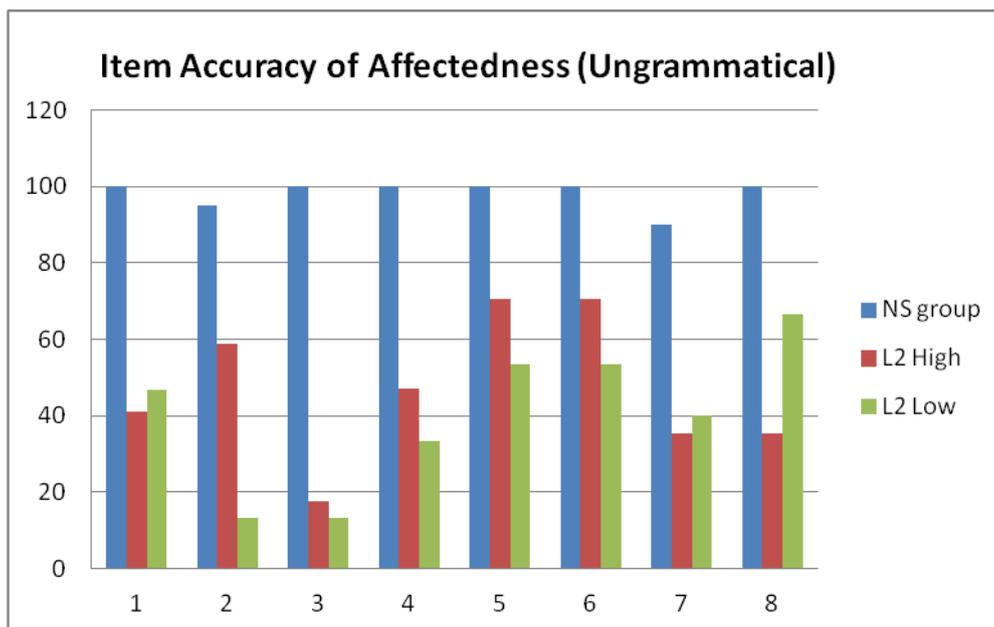


Figure 4-12: Item Accuracy Rates of Ungrammatical BA Sentences of Affectedness on BA NP Constraint across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

The accuracy rates of the ungrammatical BA sentences in which the affectedness on the BA NP constraint was violated are presented in Figure 4-12. The L2 learners, especially the L2 Low Group, scored accuracy rates below chance level (50%) with most items in this section. For example, in Item 2 (reproduced in 42)), the verb *chi* and its resultative complement *bao* did not affect the BA NP *jiaozi*, therefore it was ungrammatical. The L2 Low Group hardly spotted Item 2 and Item 3 as ungrammatical. In these two sentences, the verbs and their resultative complements (*chibao* to be full by eating and *hezui* to be drunk by drinking) are frequently used combinations, which may have prevented the learners from rejecting these ungrammatical sentences.

42) * ta ba naxie jiaozi chi bao le.
 He BA those dumplings eat full ASP

In summary, detailed analyses of L2 Chinese learners' acceptance of grammatical BA sentences indicate that they were better in accepting grammatical BA sentences in which the X element was realized by a resultative complement than those in which the X element was

realized by a locative complement. Item analyses of ungrammatical BA sentences acceptance indicated that L2 Chinese learners were less likely to identify the violation of complex verb constraint when the main verb has two syllables. They were also less likely to identify the violation of affectedness constraint when the combination of the verb and complement is more frequently used in other structures.

Hypotheses Testing

Based on the results of repeated measures ANOVAs and a series of repeated measures ANOVAs. Hypothesis 1 through 5 listed at the end of Chapter 3 are tested as follows:

Hypothesis 1 predicts that both L2 High Group and L2 Low Group's accuracy rates of the "core" syntax constraint are significantly higher than those of the syntax-semantics interface constraints. The L2 High Group showed a mean difference of 21.3 in accuracy rates between the word order constraint and the complex verb constraint, and 23.9 between the word order constraint and the affectedness constraint, both of which were significant at $\alpha=.05$ level. The L2 Low Group showed a similar pattern: the mean differences in accuracy rates between the word order constraint and the complex verb constraint comparison and between the word order constraint and the affectedness constraint comparison are 27.5 and 23.3 respectively, reaching a .05 significance level. Therefore, in terms of accuracy rates, Hypothesis 1 was supported.

Hypothesis 2 predicts that L2 High Group's acceptance rates of the "core" syntax domain are native-like; however, their performance deviates from the NS Group in the syntax-semantics interface domain. The mean differences between the L2 High Group and the NS Group in accepting grammatical and ungrammatical sentences were not significant.

The L2 High Group significantly accepted fewer grammatical sentences of the complex verb constraint and accepted more ungrammatical sentences of both the complex verb constraint and the affectedness constraint than the NS Group. However, in accepting grammatical sentences of the affectedness constraint, there was no significance between the L2 High Group and the NS Group. Hypothesis 2 was mostly supported.

Hypothesis 3 predicts that L2 Low Group's performance significantly deviates from the NS Group in both the "core" syntax domain and the syntax-semantics domain. The L2 Low Group accepted significantly fewer grammatical sentences of the word order constraint and the complex verb constraint than the NS Group. The L2 Low Group accepted significantly more ungrammatical sentences of the complex verb constraint and the affectedness constraint. However, in accepting the ungrammatical sentences of the word order constraint and the grammatical sentences of the affectedness constraint, there was no significance between the L2 Low Group and the NS Group ($md=-1.9$, $p=.427$; $md=-2.1$, $p=.643$). Hypothesis 3 was partially supported.

To sum up, this section reported the results of Task 1, the grammaticality judgment task, which examined L2 Chinese learners' knowledge of "core" syntax properties vs syntax-semantics interface properties. The results indicate that the both L2 groups made more accurate judgments of the sentences targeted at the "core" syntax properties than those at the syntax-semantics properties. The L2 High Group behaved native-likely with the "core" syntax properties, but deviated significantly from the NS Group with the syntax-semantics interface properties. The L2 Low Group deviated from the NS Group with both core and interface domains. However, both L2 groups' deviation was affected by the grammaticality of

the target sentences (grammatical vs. ungrammatical).

4.1.2 L2 learners' performance on core syntax properties vs. syntax-discourse interface properties of the BA construction

In this section, the results of Task 2 (the contextual preference judgment task) will be reported, which answers the second part of Research Question 1. Task 2 examined L2 Chinese learners' knowledge of the syntax-discourse interface property of the BA construction. When the BA NP is a secondary topic in the context, a BA sentence is preferred to a SVO sentence. Examples were given in section 2.2.4. Eight BA-preferred contexts, 8 SVO-preferred contexts, and 8 distracters were used (see Appendix III for the whole set of tokens). Each context was presented in English, together with two sentences (a BA sentence and an SVO sentence) in Chinese on the computer screen. Participants should make a choice by clicking the appropriate button, upon which the next context was presented. A spreadsheet was created by Paradigm to record each participant's choices: 1 for targeted choice, 0 for untargeted choice. Like the coding with Task 1, an accuracy rate was calculated for each participant by dividing targeted choices out of total choices and converting the result into percentage. Moreover, acceptance rates were calculated for each participant's acceptance of BA sentences and SVO sentences respectively under each context. Participants' acceptance rates of the BA sentences and SVO sentences under each context added up to 100%. For example, under the BA-preferred contexts, if a participant preferred BA sentences in 80% of the contexts, his/her acceptance rate of BA was 80%, while his/her acceptance rate of SVO was 20%. The purpose of using acceptance rates is to examine if L2 Chinese learners' acceptance of BA sentences varies with contexts.

In order to get a detailed picture of participants' performance within the syntax-discourse constraint, that is, their preferences of each type of sentence (BA sentences or SVO sentences) across the contexts, the acceptance rates were used. A summary of each group's acceptance rates of the BA sentences and the SVO sentences under the BA-preferred context and the SVO-preferred context are reported in Table 4-7.

Table 4-7: Acceptance Rates(%) of Each Sentence Type across the Contexts across Each Group: Native Speakers, L2 High, and L2 Low

	BA-preferred Context		SVO-preferred Context	
	BA (S.D.)	SVO (S.D.)	BA (S.D.)	SVO (S.D.)
NS	83.8 (15.8)	16.2 (15.8)	5.0 (9.4)	95.0 (9.4)
L2 High	75.7 (22.7)	24.3 (22.7)	19.9 (11.7)	80.1 (11.7)
L2 Low	79.2 (16.1)	20.8 (16.1)	39.2 (23.1)	60.8 (23.1)

A repeated measures ANOVA was conducted with two within-subject factors (context and sentence type) and one between-subject factor (group). The context factor had two levels: BA-preferred context and SVO-preferred context. The sentence type factor also had two levels: BA sentence and SVO sentence. The group factor had three levels: NS Group, L2 High, and L2 Low. The acceptance rate was the dependent variable. The results indicated that there was an interaction effect between sentence type and context [Wilks' Λ =.152, $F(1, 49)$ = 274.081, $p<.001$]. In other words, the participants' acceptance of different types of sentences was affected by the contexts that those sentences would fit it. There was also an interaction effect between sentence type and context and group [Wilks' Λ =.700, $F(2, 49)$ = 10.503, $p<.001$]. This indicates that the patterns of difference in acceptance rates between the contexts were different across the groups. In order to get a complete picture of each group's acceptance of each type of sentence under each context, the results will be reported by groups

in the following section.

The NS Group's acceptance rates of the BA sentences and the SVO sentences under BA-preferred contexts and SVO-preferred contexts are presented in Figure 4-13. As is indicated in Figure 4-13 and Table 4-7, the NS Group's acceptance rate of BA sentences under BA-preferred contexts was 83.8% (SD=15.8), while their acceptance rate of BA sentences under SVO-preferred contexts was 5% (SD=9.4). The NS Group's acceptance rate of SVO sentences under BA-preferred contexts was 16.2% (SD=15.8), while their acceptance rate of SVO sentences under SVO-preferred contexts was 95% (SD=9.4). Paired Samples T-tests were conducted of the acceptance rates of BA and SVO sentences under the two contexts. Results showed that their acceptance rate of BA sentences was significantly higher under the BA-preferred contexts than those under the SVO-preferred contexts ($t=23.993$, $p<.001$). The NS Group's acceptance rate of SVO sentences was significantly higher under the SVO-preferred contexts than those under the BA-preferred contexts ($t=23.993$, $p<.001$).

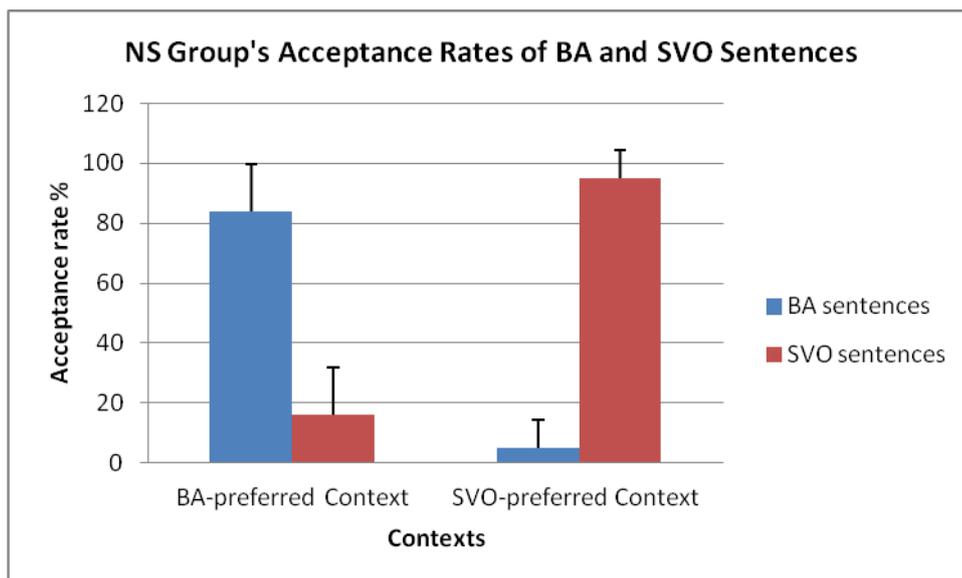


Figure 4-13: The NS Group's Acceptance Rates of BA and SVO sentences under BA-preferred and SVO-preferred Contexts (N=20)

The L2 High Group's acceptance rates of the BA sentences and the SVO sentences under BA-preferred contexts and SVO-preferred contexts are presented in Figure 4-14. As is indicated in Figure 4-14 and Table 4-7, the L2 High Group's acceptance rate of BA sentences under BA-preferred contexts was 75.7% (SD=22.7), while their acceptance rate of BA sentences under SVO-preferred contexts was 19.9% (SD=11.7). The L2 High Group's acceptance rate of SVO sentences under BA-preferred contexts was 24.3% (SD=22.7), while their acceptance rate of SVO sentences under SVO-preferred contexts was 80.1% (SD=11.7). Paired Samples T-tests were conducted of the acceptance rates of BA and SVO sentences under the two contexts. Results showed that their acceptance rate of BA sentences was significantly higher under the BA-preferred contexts than those under the SVO-preferred contexts ($t=9.500, p<.001$). The L2 High Group's acceptance rate of SVO sentences was significantly higher under the SVO-preferred contexts than those under the BA-preferred contexts ($t=9.500, p<.001$).

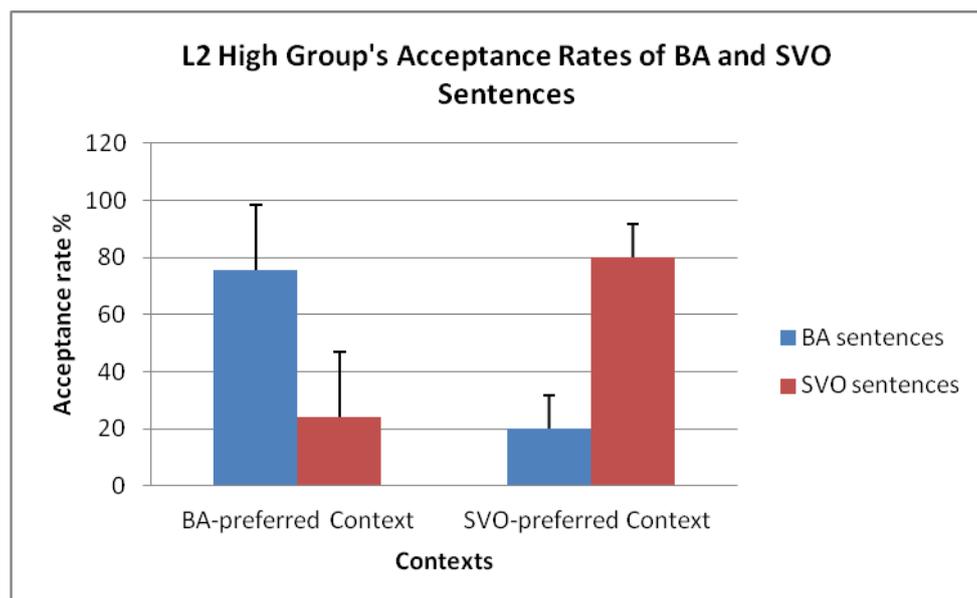


Figure 4-14: The L2 High Group's Acceptance Rates of BA and SVO sentences under BA-preferred and SVO-preferred Contexts (N=17)

The L2 Low Group's acceptance rates of the BA sentences and the SVO sentences under BA-preferred contexts and SVO-preferred contexts are presented in Figure 4-15. As is indicated in Figure 4-15 and Table 4-7, the L2 Low Group's acceptance rate of BA sentences under BA-preferred contexts was 79.2% (SD=16.1), while their acceptance rate of BA sentences under SVO-preferred contexts was 39.2% (SD=23.1). The L2 Low Group's acceptance rate of SVO sentences under BA-preferred contexts was 20.8% (SD=16.1), while their acceptance rate of SVO sentences under SVO-preferred contexts was 60.8% (SD=11.7). Paired Samples T-tests were conducted of the acceptance rates of BA and SVO sentences under the two contexts. Results showed that their acceptance rate of BA sentences was significantly higher under the BA-preferred contexts than those under the SVO-preferred contexts ($t=4.374$, $p=.001$). The L2 Low Group's acceptance rate of SVO sentences was significantly higher under the SVO-preferred contexts than those under the BA-preferred contexts ($t=4.374$, $p=.001$). A paired samples T-test was conducted to compare L2 Low Group's acceptance rates of BA sentences and SVO sentences under the SVO-preferred contexts. The difference was not significant at a .05 level [$t=-1.818$, $p=.091$].

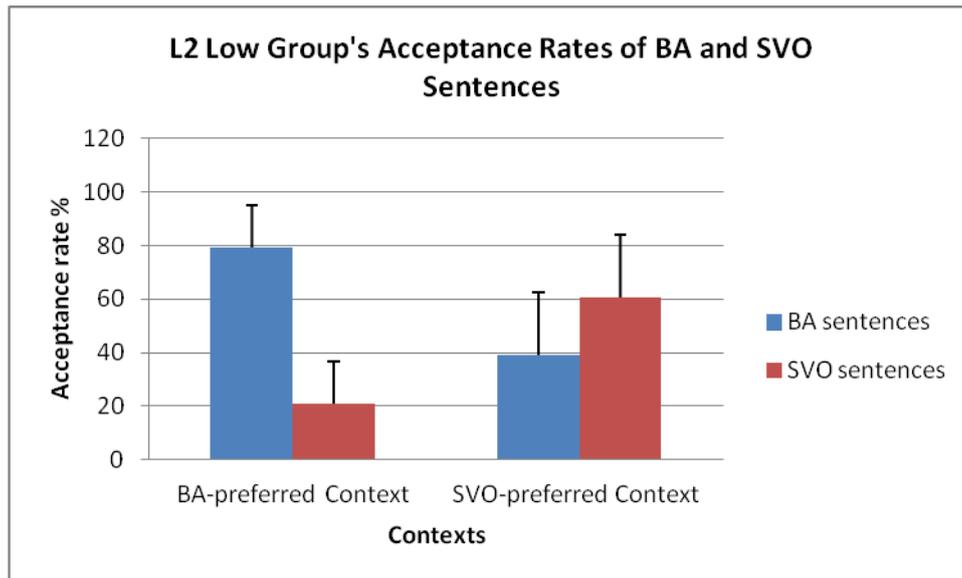


Figure 4-15: The L2 Low Group's Acceptance Rates of BA and SVO sentences under BA-preferred and SVO-preferred Contexts (N=15)

Both L2 groups showed a significant distinction in their acceptance of BA sentences vs. SVO sentences under different contexts. In order to examine if the L2 groups had achieved native-likeness in their preferences of different sentences under different contexts, a series of one-way ANOVAs were conducted. The acceptance rate was the dependent variable. The group, which is the independent variable, has three levels: NS, L2 High, and L2 Low. In all, four one-way ANOVAs were conducted: the acceptance rates of BA sentences under BA-preferred contexts, the acceptance rates of SVO sentences under SVO-preferred contexts, the differences between the acceptance rates of BA sentences under the two contexts, and the differences between the acceptance rates of SVO sentences under the two contexts. Although all of the groups showed significant preferences of BA sentences under the BA-preferred contexts, and SVO under SVO-preferred contexts, to compare the differences of acceptance rates among the groups can show how well each group was able to distinguish the contexts. Ideally, the most clear-cut difference is 100% (when one always prefers BA sentences under BA-preferred context and never prefers BA under SVO-preferred contexts). The results are

summarized in Table 4-8.

Table 4-8: One-way ANOVA Results of Acceptance Rates across the Groups: NS, L2 High, and L2 Low

Dependent Variable (Acceptance rate)	df	F
BA sentences under BA-preferred contexts	2,49	.882
SVO sentences under SVO-preferred contexts	2,49	21.597*
Differences of BA sentences	2,49	10.503*
Differences of SVO sentences	2,49	10.503*

*. The F value is significant at the .05 level.

As Table 4-8 indicates, there is no significant group effect with the acceptance rates of BA sentences under BA-preferred contexts. However, there is a significant group effect with the acceptance rates of the SVO sentences under SVO-preferred contexts. There is also a significant group effect with the difference of acceptance rates of BA sentences under different contexts. The same significant group effect was also observed with the differences in choosing SVO sentences. Post hoc pairwise comparisons were conducted with those in which a significant group effect had been found. As the homogeneity of variance tests indicated unequal variance within each group, and the sample size of each group was unequal as well, Games-Howell tests were conducted. The results are summarized in Table 4-9.

Table 4-9: Games-Howell Tests: Post Hoc Pairwise Comparisons of Acceptance Rates

Dependent Variable	Group	Mean Difference	Etd. Erro
SVO under SVO Contexts	NS-L2 High	14.9*	3.54
	NS-L2 Low	34.2*	6.32
	L2 High-L2 Low	19.3*	6.60
Differences on BA Sentences	NS-L2 High	22.9*	6.74
	NS-L2 Low	38.8*	9.72
	L2 High-L2 Low	15.9	10.87
Differences on SVO Sentences	NS-L2 High	22.9*	6.74
	NS-L2 Low	38.8*	9.72
	L2 High-L2 Low	15.9	10.87

*. The mean difference is significant at the .05 level.

Combined with the results presented in Table 4-8 and Table 4-9, the L2 High Group's preference of BA sentences under BA-preferred contexts was not significantly different from the NS Group ($md=-8.0$, $p=.449$). However, their preferences of SVO sentences under SVO-preferred contexts were significantly lower than the NS Group ($md=-14.9$, $p=.001$). In other words, they overpreferred BA sentences under the SVO-preferred contexts than the native speakers did. As a result, the difference between the L2 High Group's acceptance rates of the BA sentences under BA-preferred vs. SVO-preferred contexts was significantly less distinct than the NS Group ($md=-22.9$, $p=.006$).

Like the L2 High Group, the L2 Low Group's preference of BA sentences under the BA-preferred was not significantly different from the NS Group either ($md=-4.6$, $p=.682$). However, their preferences of SVO sentences under SVO-preferred contexts were significantly lower than the NS Group ($md=-34.2$, $p<.001$). Like the L2 High Group, this group also preferred more BA sentences under the SVO-preferred contexts than the native speakers did. Likewise, the difference between the L2 Low Group's acceptance rates of the BA sentences under the two different contexts (BA-preferred vs. SVO-preferred) was significantly less distinct than the NS Group ($md=-38.8$, $p=.002$).

The L2 High Group and L2 Low Group showed a similar pattern of preferences of BA and SVO sentences under different contexts except that the L2 High Group's preferences of SVO sentences under SVO-preferred contexts was significantly higher than those of the L2 Low Group ($md=19.3$, $p=.022$).

Item Analysis

Item analyses were conducted of the BA-preferred contexts and the SVO-preferred

contexts respectively. The accuracy rates scored with each item were calculated in order to identify the items that the L2 Chinese learners had most difficulty with. The accuracy rates of the BA-preferred contexts are presented in Figure 4-16. As can be noted in Figure 4-16, the two contexts under which the L2 Chinese learners showed the least preference of a BA sentence were Context 4 and 5. In Context 4, a student checked out a over-400-page book from the library yesterday. He finished reading the book overnight and was returning it to the library today. The librarian was a bit surprised and checked with the student if he had finished reading the book. Since the book has been set up as a topic and focus of the discourse, a BA sentence is preferred under this situation. In Context 5, a woman was reading a bedtime story to her child. She noticed that the story was too long to finish in several minutes. She therefore suggested that they stop and go on with the story the next day. However, the child, being so involved in the story, begged his mom to finish the story. A BA sentence is preferred as well. It is interesting to note that the native speakers achieved 100% consistency in their preference of BA under Context 5. On the contrary, both L2 groups scored high preference with Context 8, under which the native speakers showed least preference of a BA sentence. A comparison of the contexts under which the L2 learners scored high vs. low accuracy rates failed to yield any identifiable pattern. A post-task interview should have been done so that some reasons for the L2 learners' preferences might be obtained.

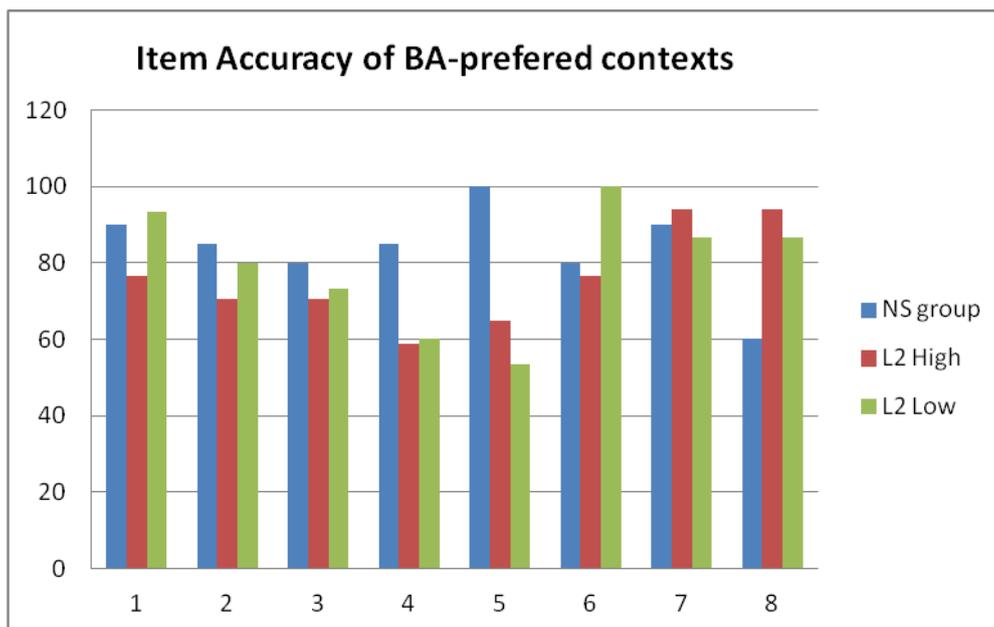


Figure 4-16: Item Accuracy Rates of BA-preferred contexts across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

The accuracy rates of the responses under SVO-preferred contexts are presented in Figure 4-17. In general, the L2 groups, especially the L2 Low Group, scored low accuracy rates with many SVO-preferred contexts. The two contexts under which both L2 groups scored low accuracy rates were Context 2 and 5. The one with high accuracy rates from both L2 groups was Context 7. In Context 2, a person was invited by his colleagues to hang out after work. He declined the invitation because he needed to pick up his child and take him home. Since the focus of that person's response is to give an explanation for his declining of the invitation, rather than to do something to his child, it is preferred that a regular SVO sentence be used instead of a BA sentence. Context 5 was similar to Context 2 in which a student declined his classmate's suggestion of studying together for the test and explained he needed to take his mother to the airport. In Context 7, a person went to his friend's birthday party and had to leave early. His friend wanted to make sure that he was able to drive safely, and checked with

him if he drank. In Context 2 and 5, the potential BA NP *my child* and *my mother* are kinship terms, while in Context 7 it is a common noun *wine*. The former might be more likely to be taken as known information and topics than the latter.

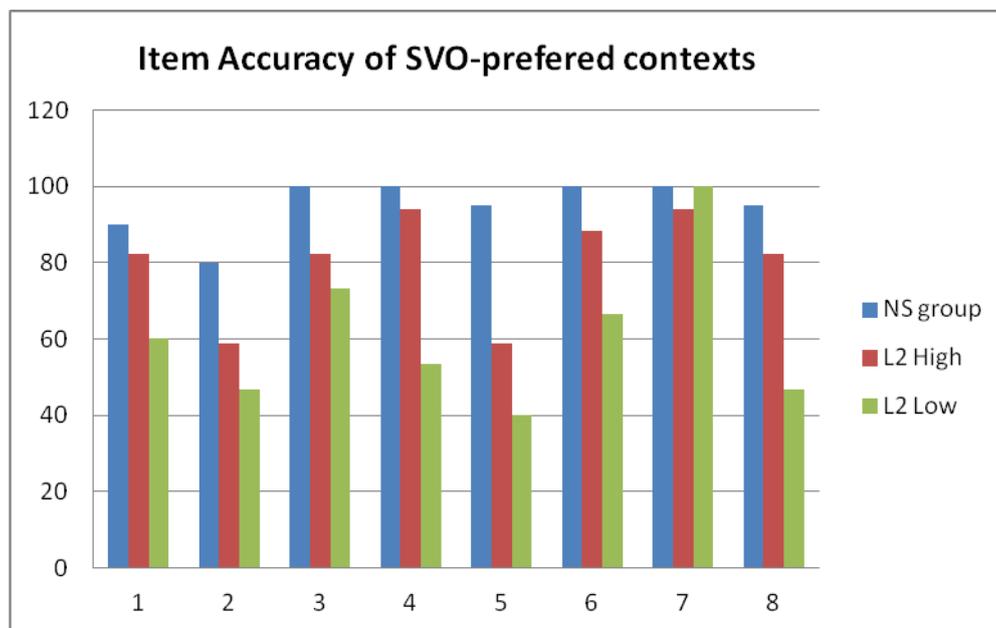


Figure 4-17: Item Accuracy Rates of SVO-preferred contexts across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

In order to compare each group’s performance of the syntax property vs. syntax-discourse property, part of the results from Task 1 (accuracy rates with the word order constraint) was reused here. Each group’s performance of the core syntax property (the word order constraint) and the syntax-discourse property (the BA NP as a secondary topic) is presented in Figure 4-18.

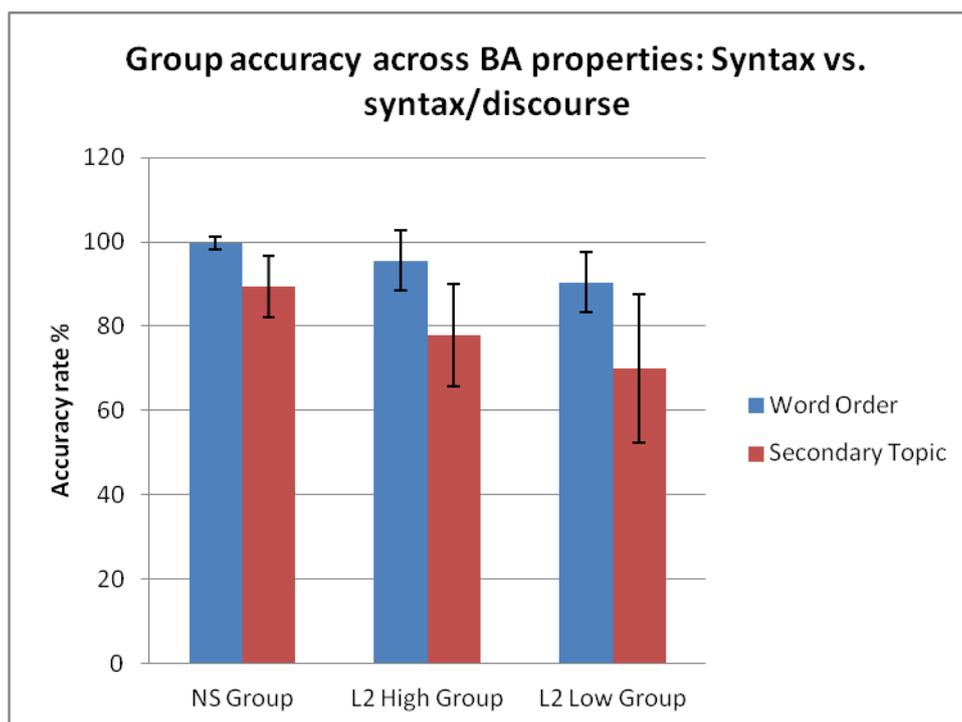


Figure 4-18: Mean Accuracy Rates(%) of Syntax vs. Syntax-discourse Properties across the Groups: Native Speakers, L2 High, and L2 Low

The NS Group in this study scored an overall accuracy rate of 99.7% (SD=1.4) of the word order constraint. They scored an overall accuracy rate of 89.4% (SD=7.3) of the syntax-discourse interface property: the BA NP as a secondary topic. A paired-samples T-test was conducted to test if the mean difference was significant at a .05 significance level. The results indicated that the NS Group achieved a significantly higher accuracy rate of the core syntax constraint than that of the syntax-discourse interface constraint [$t=5.819$, $p<.001$]. There was also more variance within the NS Group of the interface constraint.

The L2 High Group scored an overall accuracy rate of 95.6% (SD=7.2) of the word order constraint, while their overall accuracy rate of the secondary topic constraint was 77.9% (SD=12.1). A paired-samples T-test was conducted. The results indicated that the L2 High Group's accuracy rates were significantly affected by the property factor [$t=5.325$, $p<.001$]. Like the NS Group, their accuracy rate of the core syntax constraint was significantly higher

than that of the syntax/discourse interface constraint: the BA NP as a secondary topic in the discourse.

The L2 Low Group scored an overall accuracy rate of 90.4% (SD=7.0) of the word order constraint, while their overall accuracy rate of the secondary topic constraints was 70.0% (SD=17.7). A paired-samples T-test was conducted and the results indicated that this group's accuracy rates were also significantly affected by property [$t=4.106$, $p=.001$]. Like the pattern of the NS Group and the L2 High Group, the L2 Group also scored significantly higher accuracy rate of the core syntax constraint than the syntax-discourse interface constraint.

Hypotheses Testing

Based on the results of a series of paired samples T-Tests and a series of one-way ANOVA and post hoc comparisons, Hypothesis 4 and Hypothesis 5 listed at the end of Chapter 3 are tested as follows:

Hypothesis 4 predicts that both L2 High Group and L2 Low Group's accuracy rates of the "core" syntactic constraint (the word order constraint) is significantly higher than their accuracy rates of the syntax-discourse interface property (the BA NP as a secondary topic). Paired samples T-Tests showed that the L2 High Group scored a significantly higher accuracy rate of the word order constraint than they did with the syntax-discourse interface constraint ($t=5.325$, $p<.001$). The L2 Low Group' accuracy rate of the word order constraint was also significantly higher than that of the BA NP as a secondary topic constraint ($t=4.106$, $p=.001$). Therefore, Hypothesis 4 was supported.

Hypothesis 5 predicts that both L2 High Group and L2 Low Group deviate significantly from the NS Group in the syntax-discourse interface domain (the BA NP as a secondary topic

constraint). One-way ANOVA test indicated that both L2 High Group and L2 Low Group's preferences of BA sentences under the BA-preferred contexts were not significantly different from the NS Group ($F(2, 49)=.882, p=.420$). However, both L2 group's preferences of the BA sentences under different context were significantly less distinct than those of the native speakers ($t=-22.9, p=.006; t=-38.8, p=.002$). Moreover, both L2 High Group and L2 Low Group's preferences of SVO sentences under SVO-preferred contexts were significantly lower than the NS Group ($t=-14.9, p=.014; t=-34.2, p=.000$). Therefore, Hypothesis 5 was for the most part supported.

To sum up, this section mainly reported the results of Task 2, the contextual acceptability preference judgment task, which examined L2 Chinese learners' knowledge of the BA property which calls for knowledge at the interface of syntax and discourse. The results of this task help to answer part of Research Question 1. The results indicate that both L2 High Group and L2 Low Group participants were aware of the distinction of the contexts in that their preferences of the BA sentences were significantly higher under BA-preferred context than under SVO-preferred contexts. However, their distinction of the contexts was significantly less robust than the native speakers.

4.1.3 L2 Learners' performance on syntax-semantics interface vs. syntax-discourse interface properties of the BA construction

In this section, part of the results of Task 2 (accuracy rates on the syntax-discourse constraint) and part of the results of Task 1 (accuracy rates on complex verb constraint and on affectedness constraint) were reused and compared. This comparison helps to answer the question if L2 Chinese learners' awareness of the BA constraints differ when the properties

call for knowledge from different interfaces: the syntax-semantics interface vs. the syntax-discourse interface. The overall accuracy rates of the interface properties scored by the groups is presented in Figure 4-19.

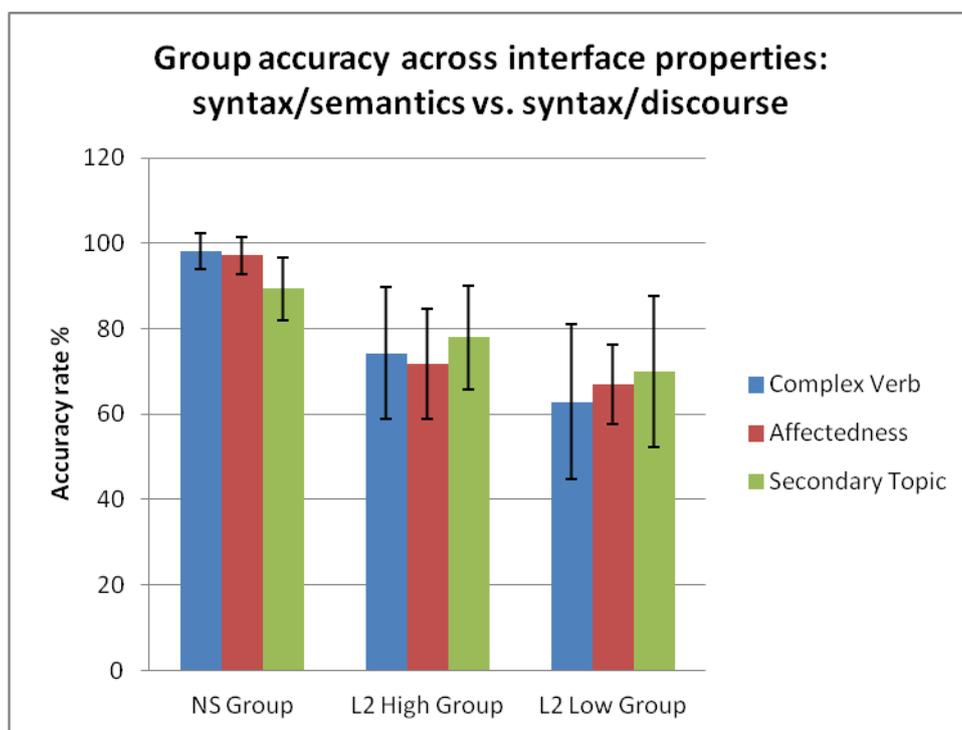


Figure 4-19: Mean Accuracy Rates (%) of Syntax-semantics vs. Syntax-discourse Properties across the groups: Native Speakers, L2 High, and L2 Low

The mean accuracy rates scored by the Native speakers of Chinese of the complex verb, affectedness constraints, and the secondary topic constraints were 98.1% (SD=4.1), 97.2% (SD=4.3), and 89.4% (SD=7.3) respectively. A one-way repeated measures ANOVA was conducted to test if there was any significant difference in the accuracy rates across those interface properties. The within-subject factor had three levels. The dependent variable was accuracy rate. The results indicated the property effect was significant at .05 level [Wilks's Λ =.483, $F(2, 18)$ =9.653, p =.001]. The results of post hoc pairwise comparisons indicated the difference between the accuracy rates of the complex verb and affectedness constraints was

not significant ($md=.938$, $p=1.000$). However, the mean difference between the accuracy rates of the complex verb and secondary topic constraints, and that between the affectedness and secondary topic constraints were both significant ($md=8.8$, $p=.001$; $md=7.8$, $p=.003$). In other words, the natives speakers were more consistent with the syntax-semantics interface constraints than the syntax-discourse constraint.

The accuracy rates scored by the L2 High Group of the interface properties were 74.3% ($SD=15.5$) with the complex verb constraint, 71.7% ($SD=12.9$) with affectedness constraint, and 77.9% ($SD=12.1$) with the secondary topic constraint. Compared with the NS Group, there was more variance within the L2 High Group of their accuracy rates across the interface properties. The results of the one-way repeated measures ANOVA showed that there was no significant property effect in their accuracy rates [Wilks's $\Lambda=.760$, $F(2, 15)=2.363$, $p=.128$]. No post hoc comparisons were conducted. The results means that the L2 High Group's performance of the interface properties was not affected by the nature of the interface, should it be the syntax-semantics interface or syntax-discourse interface.

The L2 Low Group scored an overall accuracy rate of 62.9% ($SD=18.1$) with the complex verb constraint, 67.1% ($SD=9.3$) with the affectedness constraint, and 70.0% ($SD=17.7$) with the secondary topic constraint. Like the L2 High Group, the L2 Low Group also showed large variance of their accuracy rates cross the properties. A one-way repeated measures ANOVA was conducted. The results indicate that there was no significant difference among the interface properties in terms of accuracy rate [Wilks's $\Lambda=.911$, $F(2, 13)=.637$, $p=.545$]. No post hoc comparisons were conducted. The results means that like the L2 High Group, the L2 Low Group's accuracy rates were not affected by the type of interface

properties, be it syntax-semantics interface or syntax-discourse interface.

Hypothesis testing

Hypothesis 6 predicts that both L2 High Group and L2 Low Group's accuracy rates of the syntax-semantics interface constraints are significantly higher than their accuracy rates of the syntax-discourse interface constraint. The results of one-way repeated ANOVAs showed that both L2 groups' accuracy rates of the syntax-semantics constraints were not significantly different from those of the syntax-discourse interface. Therefore, Hypthesis 6 was not supported.

4.1.4 A summary of Findings in L2 Chinese Learners' Performance on BA Properties

Involving Different Domains

In terms of accuracy rates, both L2 groups showed significantly better judgments with the "core" syntax constraints than with the syntax-semantics interface constraints and syntax-discourse interface constraints. Their awareness of the syntax-semantics interface constraints and the syntax-discourse interface constraints was not significantly different. Across the groups, the L2 High Group's performance with the "core" syntax constraints was not significantly different from the NS Group. However, their performance with interface constraints did not reach near-native level. The L2 Low Group's awareness with all the target constraints was significantly different from the NS Group.

In terms of acceptance rates, a more complicated picture was obtained. Some inconsistency was observed in L2 groups' awareness with grammatical and ungrammatical BA sentences. Both L2 groups, performed significantly better in rejecting ungrammatical BA sentences targeted at the "core" syntax constraints than they did with those targeted at the

interface constraints. However, the L2 Low Group performed significantly better in accepting grammatical BA sentences targeted at some of the interface constraints than they did with those targeted at the “core” syntax constraints. Across the groups, both L2 groups’ performance reached near-native level in rejecting ungrammatical sentences of the “core” syntax constraints, as well as in accepting grammatical sentences of the affectedness constraint, targeting at the syntax-semantics interface domain. In their awareness of the syntax-discourse constraint on the BA construction, both L2 groups’ preferences for the BA sentences under BA-preferred contexts were not significantly different from those of the native speakers. However, their preferences for the BA sentences under SVO-preferred contexts were significantly higher than those of the native speakers. In other words, their awareness of the context distinction did not reach near-native level.

4.2 Research Question 2

This section reports the results from Task 3, the paired sentences grammaticality judgment task, which was conducted to examine research question 2: how well are L2 Chinese learners aware of the obligatory usage of BA construction vs. the optional usage of the BA construction. Examples of the usage of the BA construction were presented in section 2.2.5. Chinese restricts the number of elements that can occur postverbally (Lu, 1955; Wang, 1987; Li, 2001). When a particular meaning is to be conveyed (e.g. he put his book on the desk), the phrase *on the desk* forms a “semantic unit” with the verb and occupies the “internal object” position. The real object *his book* is forced to move to a preverbal position. The usage of the BA construction is obligatory in this case. There is no SVO counterpart.

In task 3, the participants were presented with pairs of sentences: one BA sentence, one

SVO sentence. Both sentences use the same words. The SVO sentences are either the grammatical counterpart of optional BA sentences or ungrammatically converted from the obligatory BA sentences. The participants' task was to indicate if 1) both sentences are acceptable; 2) only the BA sentence is acceptable; or 3) only the SVO sentence is acceptable. There were two groups of target BA sentences (see Appendix III for the complete set of tokens). In one group, only the BA sentence is acceptable. The usage of the BA sentences in this group is obligatory. In the other group, both the BA sentence and SVO sentences are acceptable. The usage of the BA sentences in this group is optional. The obligatory usage of BA sentences is syntax-driven. The optional usage of BA sentences is discourse-driven. Research question 2 is to examine if L2 Chinese learners' are aware of the distinction in the usage of these two subsets of BA sentences and if their awareness reaches the native-like level.

4.2.1 Awareness of obligatory BA sentences and optional BA sentences

Like what has been done in the previous section, both the accuracy rates and acceptance rates were used in reporting the participants' awareness of the obligatory and optional usage of the BA sentences. The accuracy rates scored by each group of the obligatory usage and optional usage of the BA construction are presented in Figure 4-20.

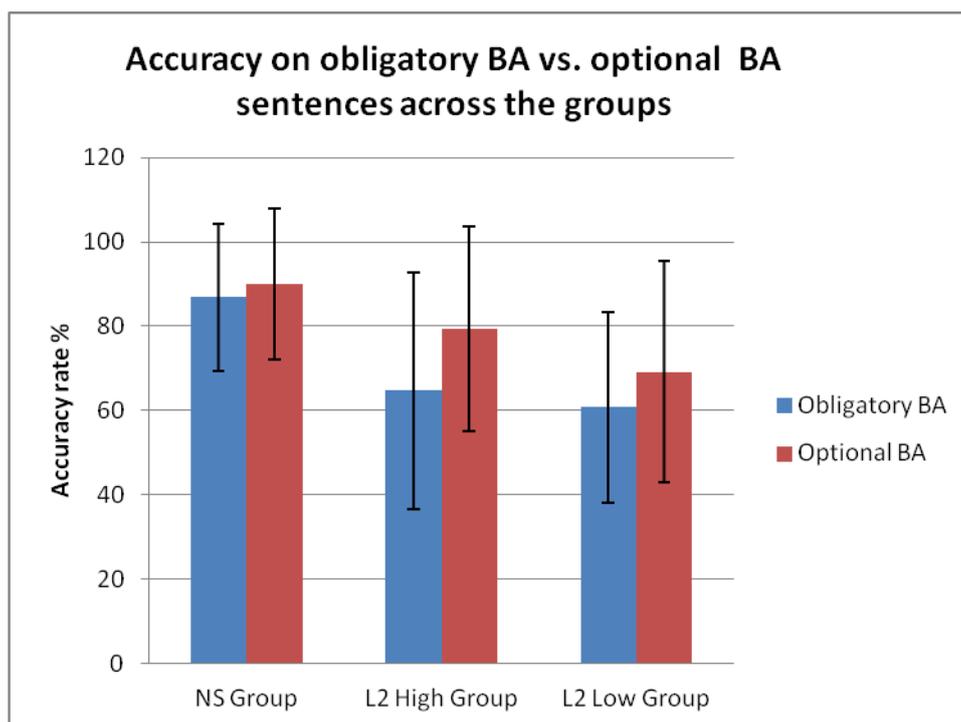


Figure 4-20: Mean Accuracy Rate (%) of Obligatory BA Sentences vs. Optional BA Sentences Across the Groups: Native Speakers, L2 High, and L2 Low

The NS Group scored an mean accuracy rate of 86.9% (SD=17.4) of the BA sentences whose usage are obligatory. Their accuracy rate of the BA sentences whose usage are optional was 90.0% (SD=18.0). Besides, the NS Group also showed a big variance within the group. Some outliers were identified in this task. There were two native speakers who scored an accuracy rate of 25% and 37.5% respectively with the obligatory BA sentences. In other words, those participants thought that only 25% and 37.5% of those BA sentences were obligatory. Two native speakers (different from the two with the obligatory BA sentences) scored accuracy rates of 37.5% and 50% respectively of the optional BA sentences. If those outliers were excluded, the mean accuracy rates of the obligatory and optional BA sentences would be 93.1% and 95.1% respectively. The results of a paired-samples T-Test indicated that there was no significant difference between the native speakers' accuracy rates of the obligatory BA sub-set and the optional BA sub-set ($t=-.539$, $p=.596$).

The L2 High Group's mean accuracy rate of the obligatory BA sentences was 64.7% (SD=28.0). Their mean accuracy rate of the optional BA sentences was 79.4% (SD=24.2). The L2 High Group also showed a very large variance within the group. The range of their accuracy rates was from 0 to 100% of the obligatory BA sentences, and from 12.5% to 100% of the optional BA sentences. The results of a paired-samples T-Test indicated that the accuracy rate scored by the L2 High Group in the obligatory BA sub-set was not significantly different from that in the optional BA set ($t=-1.406$, $p=.179$).

The L2 Low Group scored a mean accuracy rate of 60.8% (SD=22.6) of the obligatory BA sentences. Their mean accuracy rate of optional BA sentences was 69.2% (SD=26.2). The results indicated that there were big variances within the L2 Low Group's accuracy rates. The range of their accuracy rates was from 25% to 100% of the obligatory BA sentences, and from 12.5% to 100% of the optional BA sentences. A paired-samples T-Test was conducted and the results indicated that there was no significance between the L2 Low Group's accuracy rates of the two sub-sets ($t=-.775$, $p=.451$).

The picture of L2 learners' awareness of the obligatory BA sentences vs. the optional BA sentences obtained by means of accuracy rates may be biased in the sense that some L2 learners may have over-accepted optional BA sentences as obligatory or vice versa. It is necessary that the acceptance rates be used to get more specific information on L2 learners' acceptance rates of BA sentences as obligatory or optional under each sub-set (the group of obligatory BA sentences and the group of optional BA sentences). In the following section, each group's acceptance of each option (BA only, SVO only, or both) under each sub-set of BA sentences will be reported.

The acceptance rates scored by the NS Group are presented in Figure 4-21. As Figure 4-21 indicated, with the sub-set which consists of an obligatory BA sentence and an ungrammatical SVO counterpart, the native speakers' acceptance rates of the three options (only the BA sentence is acceptable, only the SVO sentence is acceptable, and both BA and SVO are acceptable) were 86.9% (SD=17.4), 0.6% (SD=2.8), and 12.5% (SD=17.7) respectively. As for the sub-set which consists of an optional BA sentence and its grammatical SVO counterpart, the native speakers' acceptance rates of the three options were 4.4% (SD=11.7), 5.6% (SD=13.1), and 90% (SD=18.0) respectively. Paired-samples T-Tests were conducted to test the significance of the difference between each option with the two sub-sets. The results are summarized in Table 4-10. The results showed that the native speakers' mean acceptance rate of the "BA only" option was significantly higher with the sub-set of obligatory BA sentences than that with the sub-set of the optional BA sentences ($t=17.38$, $p<.001$). The NS Group's mean acceptance rate of the "Both" option was significantly lower with the obligatory BA sentences than that with the optional BA sentences ($t=-14.13$, $p<.001$). Their mean acceptance rates of the "SVO only" option were not significantly different with the sub-set of obligatory or optional BA sentences ($t=-1.63$, $p=.119$).

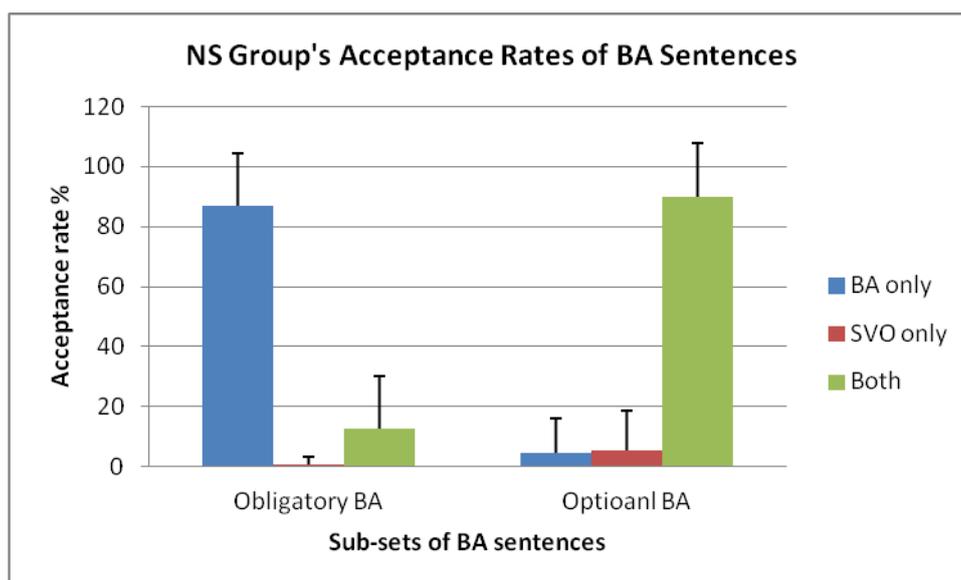


Figure 4-21: The NS Group’s Acceptance Rates of Each Option across the Sub-sets of BA Sentences (N=20)

Table 4-10: Paired-samples T-Tests of the NS Group’s Acceptance Rates across the Sub-sets of BA Sentences

Pair	Mean Difference	Std. Error
BA only (obligatory vs. optional)	82.5*	4.75
SVO only (obligatory vs. optional)	-5.0	3.06
Both (obligatory vs. optional)	-77.5*	5.49

*. The mean difference is significant at .05 level

The L2 High Group’s acceptance rates of the two sub-sets are summarized in Figure 4-22. Figure 4-22 indicated that with the sub-set of paired sentences which consist of an obligatory BA sentence and an ungrammatical SVO counterpart, the L2 High Group’s acceptance rates of the three options (BA only, SVO only, and Both) were 64.7% (SD=28.0), 3.7% (SD=10.6), and 31.6% (SD=26.6) respectively. With the sub-set of optional BA sentences and their grammatical SVO counterparts, their acceptance rates of the three options were 16.9% (SD=23.8), 3.7% (SD=8.6), and 79.4% (SD=24.2) respectively. Paired-samples T-Tests were conducted. The results are summarized in Table 4-11. The results showed that the L2 High Group’s acceptance rate of the “BA only” option was significantly higher with the obligatory

BA sub-set than with the optionally BA sub-set ($t=7.03$, $p<.001$). Their acceptance rate of the “Both” option was significantly lower with the obligatory BA sub-set than with the optional BA sub-set ($t=-7.31$, $p<.001$). The L2 High Group’s acceptance rates of the “SVO only” option were not significantly different with the two sub-sets ($t=.00$, $p=1.00$).

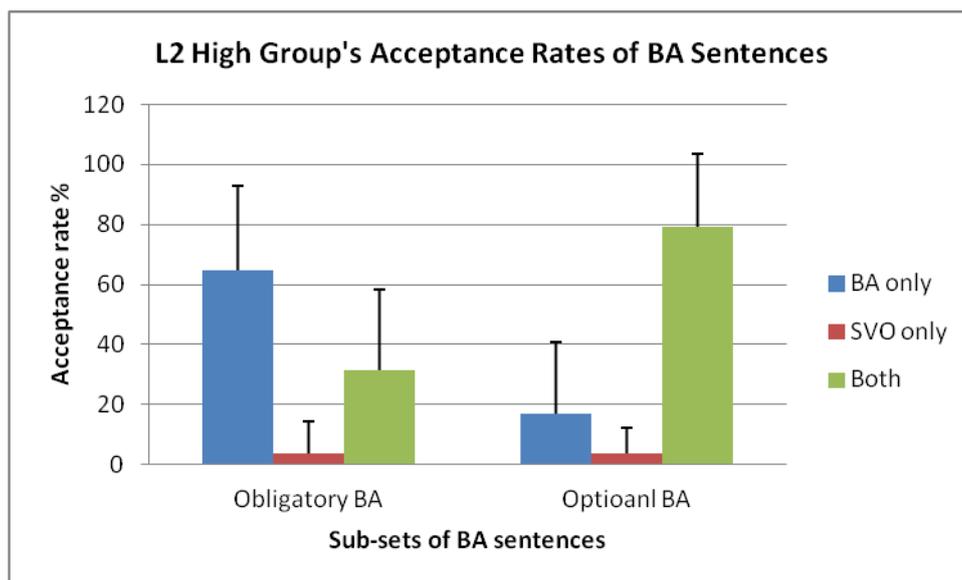


Figure 4-22: The L2 High Group’s Acceptance Rates of Each Option across the Sub-sets of BA Sentences (N=17)

Table 4-11: Paired-samples T-Tests of the L2 High Group’s Acceptance Rates across the Sub-sets of BA Sentences

Pair	Mean Difference	Std. Error
BA only (obligatory vs. optional)	47.8*	6.80
SVO only (obligatory vs. optional)	0	1.87
Both (obligatory vs. optional)	-47.8*	6.54

*. The mean difference is significant at .05 level

The L2 Low Group’s acceptance rates of each option with the two sub-sets of paired sentences are summarized and presented in Figure 4-23. The L2 Low Group’s acceptance rates of the three options (BA only, SVO only, and Both) with the obligatory BA sub-set were 60.8% (SD=22.6), 7.5% (SD=9.2), and 31.7% (SD=22.1) respectively. Their acceptances

rates of the three options with the optional BA sub-set were 24.2% (SD=24.8), 6.7% (SD=9.3), and 69.2% (SD=26.2). Paired-samples T-Tests were conducted to test the differences. The results are summarized in Table 4-12. The results showed that the L2 Low Group’s acceptance rate of the “BA only” option was significantly higher with the obligatory BA sub-set than with the optional BA sub-set ($t=5.84, p<.001$). Their acceptance rate of the “Both” option was significantly lower with the obligatory BA sub-set than with the optional BA sub-set ($t=-5.612, p<.001$). The L2 Low Group’s acceptance rates of the “SVO only” option were not significantly different with the two sub-sets ($t=.32, p=.751$).

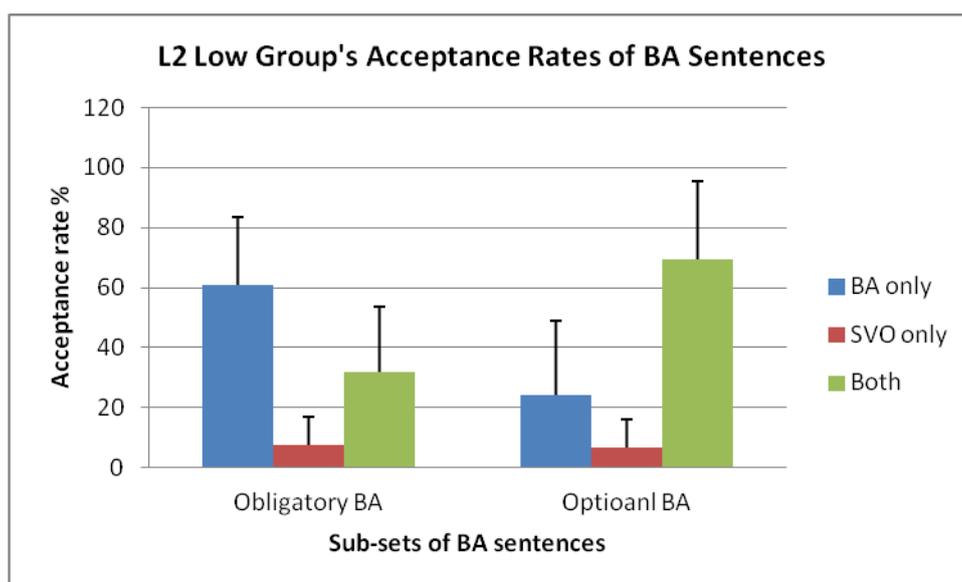


Figure 4-23: The L2 Low Group’s Acceptance Rates of Each Option across the Sub-sets of BA Sentences (N=15)

Table 4-12: Paired-samples T-Tests of the L2 Low Group’s Acceptance Rates across the Sub-sets of BA Sentences

Pair	Mean Difference	Std. Error
BA only (obligatory vs. optional)	36.7*	6.28
SVO only (obligatory vs. optional)	0.8	2.58
Both (obligatory vs. optional)	-37.5*	6.68

*. The mean difference is significant at .05 level

In short, each group showed a similar pattern in their acceptance rates of the three options (BA only, SVO only, and Both) with the two sub-sets of paired sentences: one set consists of a BA sentence and its ungrammatical SVO counterpart; the other consists of a BA sentence and its grammatical SVO counterpart. Each group showed a significantly higher acceptance rate of the “BA only” option with the obligatory BA set; while each group showed a significantly higher acceptance of the “Both” option with optional BA set. For each group, no significant difference was found between their acceptance rates of the “SVO only” option in the obligatory BA and optional BA sub-sets.

In order to examine if the L2 groups have reached a native-like level in their acceptance of the different sets of the BA sentences, a series of one-way ANOVAs were conducted to compare the means across the groups. The acceptance rates of each option with each sub-set across the NS Group, the L2 High Group, and L2 Low Group were compared. Moreover, the differences between the acceptance rates of each option with each sub-set were compared across the groups. It was done to indicate how well each group distinguishes the two sub-sets. The results of the one-way ANOVAs are summarized in Table 4-13. For those dependent variables where significant difference was found among the groups, pair-wise post hoc comparisons were conducted. Since the sample size of each group was not equal and the variances of the three groups of some variable were significantly different, the Games-Howell post hoc comparisons were conducted. The results are summarized in Table 4-14.

Table 4-13: One-way ANOVA Results of Acceptance Rates across the Groups: NS, L2 High, and L2 Low

Dependent Variable (Acceptance rate)	df	F
BA only with Obligatory BA sub-set	2,49	6.919*
BA only with Optional BA sub-set	2,49	4.298*
SVO only with Obligatory BA sub-set	2,49	3.165
SVO only with Optional BA sub-set	2,49	0.324
Both with Obligatory BA sub-set	2,49	4.592*
Both with Optional BA sub-set	2,49	3.658*
Differences in BA only	2,49	17.164*
Differences in SVO only	2,49	1.509
Differences in Both	2,49	11.718*

*. The F value is significant at the .05 level.

Table 4-14: Games-Howell Tests: Post Hoc Pairwise Comparisons of Acceptance Rates

Dependent Variable	Group	Mean Difference	Etd. Error
BA only with Obligatory BA	NS-L2 High	22.2*	7.84
	NS-L2 Low	26.0*	7.02
	L2 High-L2 Low	3.9	8.96
BA only with Optional BA	NS-L2 High	-12.5	6.33
	NS-L2 Low	-19.8*	6.90
	L2 High-L2 Low	-7.3	8.61
Both with Obligatory BA	NS-L2 High	-19.1*	7.56
	NS-L2 Low	-19.2*	6.94
	L2 High-L2 Low	-0.1	8.60
Both with Optional BA	NS-L2 High	10.6	7.11
	NS-L2 Low	20.8*	7.88
	L2 High-L2 Low	10.2	8.96
Difference in BA only	NS-L2 High	34.7*	8.29
	NS-L2 Low	45.8*	7.87
	L2 High-L2 Low	11.1	9.25
Difference in Both	NS-L2 High	29.7*	8.54
	NS-L2 Low	40.0*	8.65
	L2 High-L2 Low	10.3	9.35

*. The mean difference is significant at the .05 level.

Awareness of obligatory BA sentences

The results of the series of one-way ANOVAs combined with the results of post hoc pair-wise comparisons indicated that both groups L2 learners were significantly less likely to

consider the obligatory BA sentences as “BA only”. Instead, they took significantly more BA sentences in this sub-set as “Both”. There was no significant difference between the two L2 groups. In other words, both L2 groups have not achieved native-like awareness of the obligatory usage of this sub-set of BA sentences.

Awareness of optional BA sentences

The results indicated that the L2 High Group considered numerically more BA sentences in the optional sub-set as “Both” than the L2 Low Group, but fewer than the NS Group. Interestingly, neither of the differences has reached a .05 significance level. However, the L2 Low Group chose significantly fewer BA sentences in this set as “Both”. Instead, they considered them as “BA only”.

Similarly, the differences in the choices of “BA only” or “Both” with the obligatory and optional BA sub-sets were significantly less distinct with both L2 groups than with the NS Group.

In general, neither group of L2 Chinese learners has achieved native-like awareness of the distinction between the obligatory usage vs. optional usage of the BA construction. However, numerically, the L2 High Group scored higher acceptance rates of the expected option (“BA only” in the obligatory BA sub-set, and “Both” in the optional BA sub-set) in each sub-set.

Item Analysis

Item analyses were conducted to examine the L2 Chinese learners’ acceptance with each item within each sub-set. In the obligatory BA sub-set, each item consisted of two sentences: a BA sentence and an SVO sentence converted from the BA sentence. The BA sentences in

this sub-set all ended with a prepositional phrases to act as the complement. However, the prepositions which introduced those prepositional phrases were different. Accuracy rates scored by the groups were calculated for each item. The results of the obligatory BA sub-set are presented in Figure 4-24. The L2 High Group scored lower accuracy with Item 2, 3, and 5 than with other items. What the BA sentences in these items had in common was that they all had a prepositional phrase introduced by the preposition *zai* at the end of the sentence to act as the locative complement. For example, in Item 3 (reproduced in 43)a), the verb *fang* was followed by the prepositional phrase *zai keting li*, which indicates the new location of the TV as a result of the action of putting. This BA sentence cannot be converted into a sentence in SVO order as in 43)b). However, the L2 High Group took both 43)a) and 43)b) as grammatical sentences. They scored higher accuracy with those items (Item 4, 6, 8) in which the prepositional phrase were introduced by the preposition *jin* (inside) and *cheng* (into).

- 43) a. ta ba dianshiji fang zai keting li.
 He BA TV put at living room inside
 ‘He put the TV at the living room.’
 b. *ta fang dianshiji zai keting li.
 Heput TV at living room inside

The L2 Low Group’s errors were random compared with the L2 High Group. The items that this group scored lower accuracy rates include those in which the prepositional phrases were introduced by prepositions *zai*, *jin*, and *cheng*, such as Item3 (*zai*), 4 (*jin*), 7 (*cheng*), and 8 (*cheng*).

It is also noted that the native speakers also showed some variance in their judgments with some items. For example, in Item 2 (reproduced in 44)a), the prepositional phrase *zai lubian* introduced by the preposition *zai* acted as the locative complement. 44)b) is the sentence in SVO order converted from 44)a). However, 35% of the native speakers indicated

that both 44)a. and 44)b. were grammatical. On the other hand, the native speakers did not treat other items in which BA sentences had *zai* to introduce the locative complement similarly. For example, only 5% of the native speakers accepted both 43)a. and b. as grammatical.

- 44) a. ni bie ba che ting zai lubian.
 You don't BA car park at road side
 'Don't park your car by the road.'
- b. *ni bie ting che zai lubian.
 You don't park car at roadside

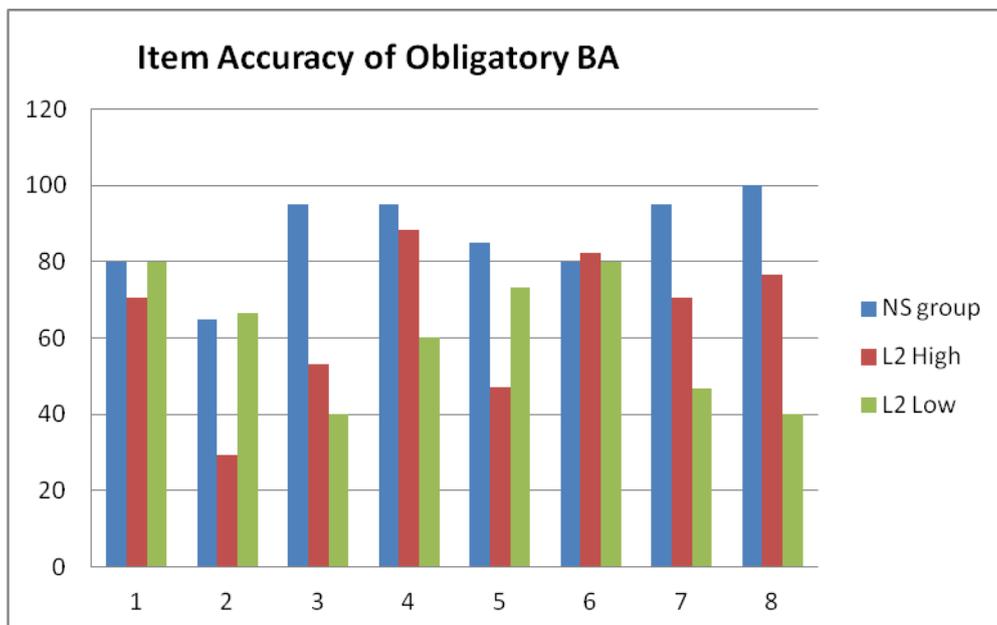


Figure 4-24: Item Accuracy Rates of Obligatory-BA Sub-set across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

An item analysis was conducted to calculate the accuracy rate of each item in the optional BA sub-set. The results are presented in Figure 4-25. In the optional BA sub-section, each item consisted of a BA sentence and its counterpart in SVO order, both of which were grammatical. The BA sentences in this sub-set all ended with a verb followed by a resultative complement. The items that both L2 groups scored low accuracy with were Item 1 and 4. In

Item 1 (reproduced in 45)a.), the verb *xiu* was followed by the resultative complement *hao* to bring about a result: the car is ready for use now. 45)b. was converted from 45)a. and took an SVO order. 45)b. did not focus on the change of the car, but rather focused on what the person did. Structurally, they are both grammatical. However, only 65% of the L2 High Group participants and 53% of the L2 Low Group accepted both sentences, while 95% of the native speakers accepted both of them. The L2 learners scored higher accuracy with Item 2 and 8. When the low accuracy items and the high accuracy items were compared, no pattern was identified.

- 45) a. ta ba wo de che xiu hao le.
 He BA I POSS car repair good ASP
 ‘He fixed my car.’
- b. ta xiu hao le wo de che.
 He repair good ASP I POSS car
 ‘He fixed my car.’

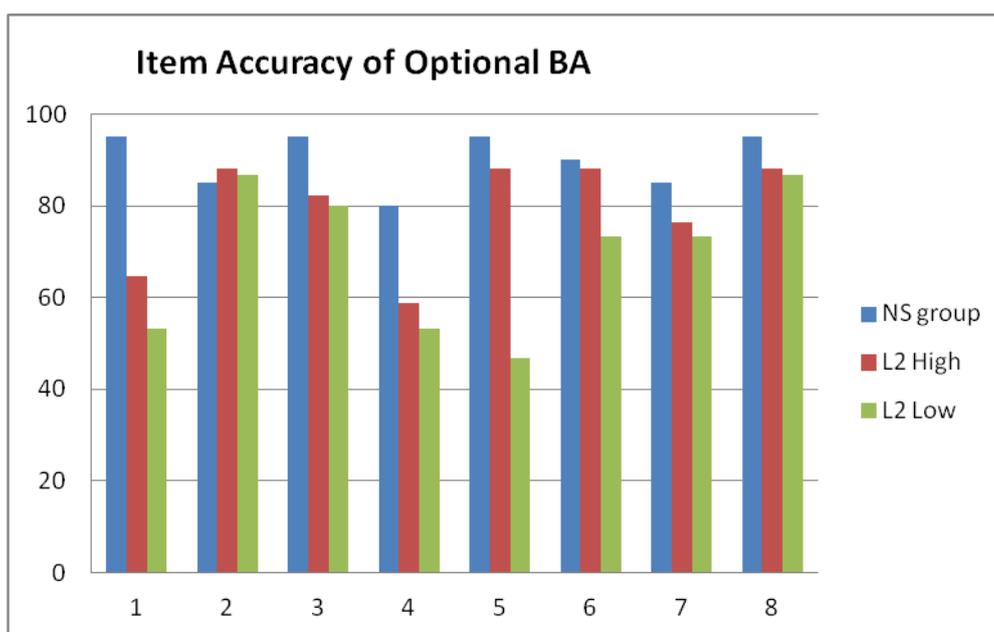


Figure 4-25: Item Accuracy Rates of Optional BA Sub-set across Groups: NS (n=20), L2 High (n=17), and L2 Low (n=15)

Hypothesis Testing

Hypothesis 7 predicts that both L2 groups' accuracy rates of the obligatory BA set are significantly better than their accuracy rates of the optional BA set. For both groups, there was no significant difference in their accuracy rates of the two sets. Actually, the opposite was observed: both groups were more accurate in judging the optional BA set than the obligatory BA set, though the difference did not reach a .05 significance level. Therefore, Hypothesis 7 was not supported.

Hypothesis 8 predicts that L2 High Group's accuracy rate of the obligatory BA set achieves native-like level; while their accuracy with the optional BA sentences is significantly lower than the NS Group. The L2 High Group's accuracy rate of the obligatory BA set was significantly lower than that of the NS Group ($md=-22.2$, $p=.023$). However, there was no significant difference between the accuracy rates of the optional BA set scored by the L2 High Group and the NS Group ($md=-10.6$, $p=.310$). Therefore, Hypothesis 8 was not supported.

Hypothesis 9 predicts that L2 Low Group's acceptance rates of both the obligatory BA set and the optional BA set are significantly lower than those of the NS Group. The accuracy rate scored by the L2 Low Group in the obligatory BA set was significantly lower than that of the NS Group ($md=-26.0$, $p=.003$). There was also a significant difference between the accuracy rates scored by the L2 Low and the NS groups in the optional BA set ($md=-20.8$, $p=.037$). Therefore, Hypothesis 9 was supported.

4.2.2 A Summary of Findings in L2 Chinese Learners' Awareness of Obligatory BA Sentences vs. Optional BA Sentences

In terms of accuracy rates, neither of the L2 Groups showed an advantage in their awareness of the obligatory BA sentences over that of the optional BA sentences. In fact, the opposite was observed: the L2 High Group showed a significant advantage over the optional BA sentences in their accuracy rates. A similar advantage was found with the L2 Low Group, though the advantage did not reach a .05 significance level. Both L2 groups' accepted significantly fewer obligatory BA sentences as obligatory (the "BA only" option) than they correctly accepted optional ones as optional. However, the L2 High Group showed near-native level accuracy in accepting optional BA sentences as optional (the "Both" option). The L2 High Group did not reach near-native level in their accuracy rate. It was also noticed that there was big variance within each group, including the NS Group, which had a few outliers of each sub-set of BA sentences.

In terms of acceptance rates, both L2 groups treated the two sets of BA sentences significantly differently. However, the distinction observed with the L2 groups in their treatment of the two different sets was significantly less robust than what was observed with the native speakers. However, both L2 groups (especially L2 High Group) achieved near-native-like level in accepting (or rejecting) the "SVO only" option in both sub-sets. The L2 Low Group did not reach near-native-like level in either of the sub-set. The L2 High Group's awareness was native-like in the optional BA sub-set.

4.3 Chapter summary

In summary, data collected to answer Research Question 1 indicated the following results:

1) across the properties, each L2 group performed better with core syntax properties than with the properties that involve interface domains, be it syntax-semantics domain or syntax-discourse domain; neither L2 group's responses with the two different type of interfaces were not significantly different; 2) across the groups, the L2 High Group achieved native-likeness with the core syntax properties, but they performed significantly worse than the native speakers with all of the interface properties. However, they generally outperformed the L2 Low Group with all of the properties either statistically significantly (with the word order constraint) or numerically (with interface properties). The L2 Low Group deviated from the native speakers in both core syntax properties and interface properties. Data collected to answer Research Question 2 indicated that both L2 groups were somewhat aware of the distinction between the obligatory BA sentences vs. optional BA sentences in terms of their usage. However, both L2 groups' awareness of this distinction was significantly weaker than that of the native speakers. Contrary to what has been predicted, neither L2 group was better aware of the obligatory usage of a subset of BA sentences. As has been mentioned in the previous sections, the obligatory usage of the BA construction is triggered by a general syntactic constraint in Chinese: the "internal object constraint". However, the L2 groups in the present study had not fully acquired this syntactic constraint.

Chapter 5 DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter provides an overview and a summary of the study and important conclusions drawn from the data presented in Chapter IV. It also discusses the implications for classroom instruction and for future research. There are five main sections in this chapter: summary and discussion of major findings, limitations of the study, implications for teaching, recommendations for future research, and conclusion.

5.2 Summary and discussion of major findings

In this section, the major findings will be discussed in accordance with the research questions they address. The findings will be discussed by relating them to the findings in previous studies. However, the discussion will be preceded by an overview of this study.

5.2.1 Overview of the study

This study examined the acquisition of the BA construction by adult English-speaking learners of Chinese in a formal instruction setting. One main purpose of this study was to identify the particular deviations that L2 Chinese learners show in their knowledge of the BA construction by examining their awareness of the several linguistic properties of this construction which call for knowledge from either the core syntax domain or the interface domains of syntax-semantics, and syntax-discourse. Another purpose of this study was to test the extension of the explanatory or predictive power of the Interface Hypothesis proposed by Sorace (2005, 2009, 2011), which claims that in learning a particular linguistic property of an

L2, learners can achieve native-like attainment only with properties that involve core syntactic knowledge, and will show delayed attainment or optionality with properties that involve knowledge from the interface of the syntax domain and other domains. In particular, this study attempted to answer two research questions:

1) In acquiring the BA construction in Chinese, does L2 Chinese learners' acquisition of the properties differ when the properties are purely syntactic from when they involve the integration of knowledge from other domains?

2) How well are L2 Chinese learners aware of the obligatory usage of the BA construction, which is triggered by syntactic constraints? Does their awareness differ from the awareness of the optional usage of the BA construction, which is triggered by discourse constraints?

Three tasks were designed and conducted to collect data to answer the above mentioned research questions: a grammaticality judgment task (Task 1), a contextual acceptability preference task (Task 2), and a paired-sentences grammaticality judgment task (Task 3). An accuracy rate and an acceptance rate were calculated for each participant for each task. Comparisons were made across the target constraints within each group, and across the groups within each constraint. The results of these tasks indicated that both groups of L2 Chinese learners performed better with BA properties that call for core syntactic knowledge than they did with those properties that call for knowledge at interfaces. In the following sections, the major findings from each task will be discussed by relating them to the previous literature in areas of second language acquisition or the acquisition of the BA construction.

5.2.2 Research Question 1

Research question 1 examined the difference between L2 Chinese learners' performance with the core syntax constraints vs. interface constraints of the BA construction. Two tasks (Task 1 and Task 2) were conducted to collect data. Task 1 collected data on L2 learners' knowledge of the word order constraint (core syntax constraint) and of the complex verb constraint and the affectedness constraint (syntax-semantics interface constraints). Task 2 collected data on L2 learners' knowledge of the syntax-discourse interface constraint of the BA construction: the BA NP acts as a secondary topic in the discourse.

5.2.2.1 Task 1: The grammaticality judgment task

In Task 1, 20 native Chinese speakers, 17 high level L2 Chinese learners and 15 low level Chinese learners were presented with 48 target sentences (targeting the word order constraint, complex verb constraint and affectedness on the BA NP constraint) and 32 distracters on the computer and were asked to indicate whether they thought each sentence presented was grammatical or ungrammatical. An accuracy rate and an acceptance rate were calculated for each property for each participant. Comparisons were made across the properties within each group, and were made across the groups within each property as well.

5.2.2.1.1 L2 learners' performance on core syntax BA properties

This study examined L2 Chinese learners' knowledge of one of the core syntax properties of the BA construction: the unique word order. Both L2 Chinese groups scored better accuracy with this property. The L2 High Group achieved native-like accuracy in judging both the grammatical and ungrammatical BA sentences targeted at this property. The

L2 Low Group achieved native-like accuracy in rejecting ungrammatical BA sentences in which the word order constraint was violated. These findings conform to part of the Interface Hypothesis proposed by Sorace (2005), which claims that L2 learners can acquire properties that entail pure syntactic knowledge. However, the L2 Low Group incorrectly rejected more grammatical BA sentences in which the required complement (the X element) is realized by a prepositional phrase than they did with those in which the X element is realized by a resultative complement. This observed error pattern may be due to some overgeneralization from the fact that in Chinese, when a prepositional phrase acts as an adverbial of place to indicate the place where a certain action takes place, it goes before the verb phrase instead of following it. For example,

- 46) ta meitian zai heiban shang xie zi.
 He everyday at blackboard up write characters
 ‘He writes characters on the blackboard everyday.’

In 46), the prepositional phrase *zai heiban shang* indicates the place where the action *xie zi* occurs, and is thus placed before the verb phrase *xie zi*. This structure was learned earlier than the BA construction by the L2 Chinese learners. They may generalize this rule to BA sentences when they find a similar prepositional phrase. A similar pattern was also found with the L2 High Group, however, their accuracy was much higher than the L2 Low Group in accepting these types of BA sentences.

These findings also conform to the findings some studies conducted on the acquisition of the BA construction. Zhang (2002) found that the performance on the word order of the BA construction task was accurate and similar across different proficiency levels. Some error analysis studies of the BA construction acquisition identified word order errors in the

misplacement of negation markers (Li, 2004; Cheng, 2006; Wei, 2008; Zhang, 2009), in the misplacement of adverbial of time or place (Cheng, 2006) or in the misplacement of modal verbs (Cheng, 2006; Zhang, 2009). However, no errors in basic word order of the BA construction were reported. Jiang (1999) reported that data from HSK (the L2 Chinese proficiency test conducted in China) showed that 23% of the test-takers had a problem with the basic word order constraint. However, his study did not make clear the proficiency level of the test-takers. It could be a problem that L2 Chinese learners encounter at the beginning stage.

5.2.2.1.2 L2 learners' performance on syntax-semantics interface BA properties

This study examined two syntax-semantics interface properties of the BA construction: a) the verb must be complex instead of being a bare verb (without any complement to go with it); b) the NP introduced by BA must be the affected entity as a result of the action conducted upon it. The results from the grammaticality judgment task indicate that both L2 groups performed significantly worse with these two syntax-semantics interface constraints than they did with the core syntax constraint. Specifically, both L2 groups incorrectly accepted significantly more ungrammatical BA sentences in which the complex verb constraint or the affectedness on the BA NP constraint was violated than those in which the word order constraint was violated. Both L2 groups' performances significantly deviated from that of the native speakers of Chinese. These findings support the original "strong" version of the Interface Hypothesis (Sorace, 2005), which claims that L2 learners' acquisition of properties at interfaces is more problematic. The complex verb constraint seems to be represented straightforwardly in syntax by using a complement after the verb, similar to the word order

constraint, which requires that the BA sentence take a unique word order. However, the L2 learners had more difficulty with the former than with the latter. The Interface Hypothesis provides a good explanation for what has been observed: it is due to the fact that the complex verb constraint involves the knowledge of semantics as well: the bare verb must go with a complement to bring about a result. However, the findings do not support the latest version of the Interface Hypothesis (Sorace, 2009; 2011), which predicts that the syntax-semantics interface is acquirable. In other words, the predictions about the syntax-semantics interface properties fail to be extended to L2 development. However, some researchers (Gürel, 2011 for example) point out that the distinction between internal interface (such as syntax-semantics) and external interface is mostly data-driven and *ad hoc*, and they call for “a priori theoretical” framework to predict the difficulty that different interfaces will impose.

On the other hand, both L2 groups made a distinction in their judgment of what is acceptable from what is not acceptable regarding the syntax-semantics properties. Moreover, the L2 High Group outperformed the L2 Low Group in both complex verb constraint and the affectedness constraint, though the differences did not reach a .05 significance level. In other words, the observed deviation from being native-like is dynamic instead of being fossilized. These findings conform to the findings from some studies that examined the acquisition of syntax-semantics interface properties (Dekydtspotter, et al., 1997; Dekydtspotter & Sprouse, 2001; Dekydtspotter et al, 2001). Dekydtspotter et al. (1997) found that L2 French learners’ acceptance of incorrect interpretation of double genitives decreased as their proficiency level increased. Similar developmental patterns were found in other studies, which led Slabokova (2006) to conclude that “it is clear that knowledge of these properties emerges gradually but

surely” (331). More advanced L2 Chinese learners should be included in order to examine if the developmental trend found in the present study will continue and lead to native-like attainment of the syntax-semantics properties of the BA construction.

It was also observed that both L2 groups performed differently in their judgment of grammatical BA sentences and ungrammatical BA sentences targeted at the complex verb constraint and affectedness constraint. Both L2 groups’ judgment, the L2 Low Group in particular, of grammatical sentences were more accurate. Similar findings were reported in Du (2004)’s study. Du reported that L2 Chinese learners’ judgment of grammatical BA sentences ending with a resultative complement achieved native-like level. However, the L2 Chinese learners with lower proficiency levels performed significantly worse than the native speakers in rejecting ungrammatical BA sentences that ended without resultative complements (239).

Moreover, the present study also found that the L2 Groups, especially the L2 Low Group, made more accurate judgments of the grammatical BA sentences when they ended with a resultative complement rather than a prepositional phrase. This finding contradicts some BA acquisition studies. Cheng (2006) found that L2 Chinese learners made more accurate choices of grammatical BA sentences with prepositional phrases than they did with those that had resultative complements. Lu (2008) found that L2 Chinese learners’ production of BA sentences was more accurate with resultative complements than it was with prepositional phrases. When it came to comprehension, on the other hand, it was vice versa. However, the tasks and number of tokens used in these studies were different than those used in the present study. Both studies used multiple choice questions to elicit data, with one token for each type

of BA sentences (resultative complements vs. prepositional phrases). It is hard to exclude the possibility that the contradictory findings are the result of the nature of tasks and limited numbers of tokens.

Both groups of L2 Chinese learners in the present study had more difficulty in rejecting ungrammatical sentences in which the complex verb constraint was violated. This finding conforms to the findings of many studies in this regard. Jin (1992) found that L2 Chinese learners, especially the ones at lower proficiency levels, produced many incorrect BA sentences (55.5%) with bare verbs. Cheng (2006) reported that Japanese-speaking learners of Chinese could not identify the errors in which the verbs were not followed by a complement and correct them. Wei (2006) also reported that L2 Chinese learners had problems with the complex verb constraint. She noted that L2 learners accepted BA sentences that ended with either one-syllable bare verbs or two-syllable bare verbs, without distinguishing which type of verbs introduces more difficulties. The results of the present study indicate that the L2 Chinese learners are less likely to reject two-syllable bare verbs. It seems that L2 learners may have mistakenly taken two-syllable bare verbs as a compound verb (verb + resultative complement) and thus accepted them. Another possibility could be that the violation of the complex verb constraint was more salient when the bare verb had one syllable rather than two syllables.

Similarly, both L2 groups had more difficulty rejecting ungrammatical BA sentences in which the affectedness on the BA NP constraint was violated. For most ungrammatical sentences in this section, the accuracy rates scored by both groups were around or far below chance level. When the ones with the lowest accuracy rates were compared with the ones

with the highest accuracy rates, it was found the compound verbs (verb + resultative complement) in the former had high frequency of occurrence in their classroom input, while those in the latter were less frequently encountered. It could thus be assumed that what the L2 learners may have focused on was the combination of the verb and the resultative complement, and they accepted the ones they were more familiar with. With that said, there were still four participants from the L2 High Group and two from the L2 Low Group who scored accuracy rates of 75% and above in this section. No previous studies could be found that examined the acquisition of this constraint, and thus no comparison could be made.

Comparing L2 learners' performance on the complex verb constraint and the affectedness constraint tokens, no significance difference was observed expect for the L2 Low Group's better performance on grammatical BA sentences in the affectedness section than on those in the complex verb section. However, this difference may not be the result of different constraints, but may be due to the fact the BA sentences in the affectedness section all ended with resultative complements, while some of those in the complex verb section ended with a prepositional phrase, which posed more difficulties for the L2 learners. On the whole, the findings indicate that both L2 groups' knowledge of these two syntax-semantics interface constraints was similar.

5.2.2.2 Task 2: The contextual acceptability preference task

In Task 2, the same participants in Task 1 were presented with 16 targeted contexts (BA-preferred contexts vs. SVO-preferred contexts) and 8 distracters and were asked to indicate their preferred response by picking from two options. An accuracy rate and an acceptance rate were calculated for each context of each participant. Comparisons were made

across the contexts within each group, as well as across the groups within each context.

5.2.2.2.1 L2 learners' performance of syntax-discourse interface BA properties

The present study examined L2 Chinese learners' knowledge of the syntax-discourse interface property of the BA construction: the BA NP acts as a secondary topic in the discourse in which the BA construction occurs. The BA NP is definite, and indicates given, known information. The focus of a BA sentence is on the result or effect that has been or is to be exerted on the BA NP. If the NP is new information and the focus of the whole sentence is on what has happened or is going to happen, the BA construction is not appropriate and instead, a regular SVO sentence is preferred.

L2 Chinese learners were asked to indicate their preference for BA sentences or SVO sentences in different discourse contexts. Both groups of L2 learners showed a significant distinction in their preference of the BA construction or of the SVO structure in different contexts (BA-preferred vs. SVO-preferred). In BA-preferred contexts, both groups showed a significant preference for the BA construction over SVO sentences. In the SVO-preferred contexts, the L2 High Group showed a significant preference for SVO sentences. The L2 Low Group also preferred SVO sentences over BA sentences, but their preference did not reach a .05 significance level.

Both L2 groups achieved a native-like level in their preference of BA sentences in the BA-preferred contexts. However, neither of the L2 groups achieved a native-like level in their preference of SVO sentences in the SVO-preferred contexts. In other words, both L2 groups over-preferred the BA construction in the SVO-preferred contexts. They showed a significantly less robust distinction in their preference of the BA sentence in different

contexts. It could thus be concluded that neither of the groups of Chinese learners has reached native-like level in their knowledge of the syntax-discourse property of the BA construction. Also, their knowledge in this respect is significantly more divergent than their knowledge of the core syntax property. These findings support the Interface Hypothesis (Sorace, 2005; 2009; 2011), which predicts the problem L2 learners have with syntax-discourse interface properties, and the findings from other related studies (Belletti & Leonini, 2004; Sorace, 2005; Bettetti et al., 2007). These studies report that L2 Italian learners acquired the null subject parameter successfully, but show difficulty in using the null subject or postverbal subject structures in order to realize some pragmatic functions of topic or focus. The difference between the findings of the present study and the above mentioned ones is that those studies found under-use of target structures (null subject or the VS structure), while the present study found over-use of the target BA construction. This difference may be due to the nature of the tasks. The abovementioned studies used production tasks, while the present study used a recognition task by asking the learners to indicate their preference in different contexts. The BA construction is marked and may have attracted more attention in comparison with the unmarked SVO sentences. It may also be possible that the participants realized they were being tested on the BA construction and mistakenly assumed the BA construction must be preferred when they did not have a preference. Huang & Yang (2004) reported a similar over-acceptance trend among L2 Chinese learners with the grammaticality judgment task of the BA construction, but this trend decreased with other production tasks. They claimed that when the L2 learners were forced to make a choice among structures which they had not fully acquired, they were likely to overgeneralize the target properties (57).

On the other hand, like what was found with the syntax-semantics interface property, in this section, the L2 High Group showed a clearer distinction between their preferences of the BA construction in different contexts than the L2 Low Group did. With a similar preference of the BA construction in the BA-preferred contexts as the L2 Low Group, the L2 High Group showed a stronger preference of SVO structure in the SVO-preferred contexts. In other words, they showed less overuse of the BA construction. There is a developmental trend towards native-like competence as their proficiency level improves. Similar findings were reported in Ivanov (2009), in whose study, intermediate L2 Bulgarian learners did not achieve a native-like level in the use of clitic doubling with topics, but the advanced learners did. However, this finding is contradictory to the findings of Tsimpli & Sorace (2006)'s study, which claims that L2 Greek learners' non-native-like overuse of overt subjects did not reduce as the length of residence in the target community increased. One reason that the acquisition of the syntax-discourse property was not fossilized in the present study could be due to the fact that Chinese is typologically a topic-prominent language and the discourse property of the BA construction is another example of this typological feature. The L2 Chinese learners' acquisition of this property has thus been facilitated by lasting exposure to structures such as topic-comment sentences. However, no conclusion can be made here about whether L2 Chinese learners can acquire native-like knowledge about this interface property, because the present study did not include advanced learners at near-native proficiency level. What can be concluded here is that the prediction made by the Interface Hypothesis about the difficulty with the syntax-pragmatics property can be extended to L2 development.

No previous studies could be found which examined L2 Chinese learners' knowledge of

the syntax-discourse property of the BA construction in a way similar to the present study's approach. Zhang (2011) reported a trend of L2 learners' overuse of the BA construction when other structures would have been chosen by native speakers. The overuse of the BA construction in place of SVO sentences accounted for 54% of the overuse cases identified. However, what his study reported were only the ungrammatical BA sentences that were overused because the BA sentences were analyzed at the sentential level rather than discourse level. It is possible that some of the grammatical BA sentences would also have been found to be overused if the contexts had been taken into consideration. Yu (2000)'s study which examined the production of BA construction reported that English-speaking Chinese learners were unlikely to use BA sentences ended with resultative complements even when the contexts called for them, with an occurrence rate of 15% (53). Yu claimed that this was due to the fact that this type of BA sentences has a counterpart in the SVO order. In other words, the correct usage of this type of BA sentence relies heavily on the knowledge of the discourse properties of the BA construction. Zhang (2009) reported that BA sentences that ended with a verb and a resultative complement were less frequently used and were used with lower accuracy when compared to other types of BA sentences. However, the data in Zhang's study was from essays written by L2 Chinese learners, and it was not clear if the low occurrence was due to the topics of the essays or the learners' failure to use BA sentences when the contexts called for them. Moreover, since data collected in their studies was from L2 Chinese learners' performances, it is entirely possible that the learners avoided using the structure. In any case, either overuse or underuse indicates that there is a deficit in L2 Chinese learners' knowledge of the syntax-discourse property of the BA construction.

An analysis of the performance of each individual found that 10 (58.7%) participants from the L2 High Group and 5 (33.3%) participants from the L2 Low Group scored accuracy rates of 75% and above in both contexts. One participant (5.9%) from the L2 High Group and 4 (26.7%) participants from the L2 Low Group scored accuracy rates around or below chance level. Another interesting finding was that 4 (23.5%) participants from the L2 High Group, but none from the L2 Low Group showed an over-preference of SVO sentences in the BA-preferred contexts, which may indicate that they were moving away from the overuse trend. These findings provided more evidence that these L2 Chinese learners' knowledge of the syntax-discourse property was still developing.

5.2.2.3 L2 learners' awareness of syntax-semantics vs. syntax-discourse interface properties

The present study compared L2 learners' performance on the BA properties at the syntax-semantics interface vs. the syntax-discourse interface tasks by reusing part of the data sets collected from Task 1 and Task 2. In terms of accuracy rates, there was no significant difference between either the High Group or the Low group's performance on the syntax-semantics interfaces and the syntax-discourse interface tasks. This finding does not conform to the revised latest version of Interface Hypothesis (Sorace, 2009; 2011), which claims that the nature of interface poses different challenges and creates different attainment patterns in L2 acquisition. Properties at syntax-semantics interface are acquirable, while properties at syntax-discourse interface are problematic. However, this split was not observed among L2 learners in the present study, who were less advanced and whose grammar was still developing. It could be due to the fact that Chinese is a topic-prominent language, in which

topic is a crucial notion in understanding how the language works. The L2 learners' understanding and acquisition of the discourse property of the BA NP in the BA construction may have been facilitated. On the other hand, most studies cited by Sorace (2011) examined different structures that either involve the syntax-semantics interface or the syntax-pragmatics interface; whereas the present study examined the same structure that has constraints of both interfaces.

5.2.3 Research Question 2

Research question 2 examined L2 Chinese learners' awareness of the obligatory BA sentences and the optional BA sentences in terms of their usage. It also compared their awareness on these two sub-sets. Task 3 was conducted to collect data on this aspect.

5.2.3.1 Task 3: The paired grammaticality judgment task

In Task 3, the same participants in Task 1 and 2 were presented with 16 pairs of target sentences (obligatory BA sentences vs. optional BA sentences) and 20 pairs of distracters, and were asked to indicate if both sentences in each pair were grammatical or if only one of them was.

5.2.3.1.1 L2 learners' awareness of obligatory BA sentences vs. optional BA sentences

The present study examined how well L2 Chinese learners are aware that the usage of some types of BA sentences is syntax-driven and thus obligatory, while the usage of other types of BA sentences is discourse-driven and thus optional. The former do not have SVO counterparts, but the latter do. L2 learners were asked to indicate if the sentences in each pair were both grammatical or if only one of them was grammatical.

In terms of accuracy, both groups of L2 learners did better with the optional BA sentences set than with the obligatory BA set, but the advantage did not reach the .05 significance level. Specifically, both groups of L2 learners showed a similar pattern in their judgments of paired sentences within each sub-set of BA sentences: their choice of the “BA only” option was significantly higher within obligatory BA sub-set than within the optional BA sub-set, while their choice of the “Both (BA and SVO)” was significantly higher within the optional BA sub-set than within the obligatory sub-set. This indicates that the L2 learners have developed some awareness of the obligatory vs. optional usage of BA sentences. However, their differentiation of these two types of BA sentences was significantly less distinct than the native speakers. Both groups did show some awareness of obligatory BA sentences and optional BA sentences, but their awareness did not reach native-like level.

No previous studies were found which examined whether the L2 learners were aware that a sub-set of BA sentences are obligatory and whether they could, therefore, rule out the ungrammatical SVO sentences converted from the obligatory BA sentences. Previous studies mainly examined L2 Chinese learners’ production of obligatory BA sentences vs. optional BA sentences. Lu (2008) found that L2 Chinese learners (L1 Vietnamese)’ production of optional BA sentences ending with resultative complements was as accurate as their production of obligatory BA sentences that ended with prepositional phrases. Cheng (2006) found L2 learners (L1 Japanese) made fewer mistakes with obligatory BA sentences than with optional BA sentences, though the accuracy rates were both very low (11.64% vs. 9.14%) (44). Zhang (2009) found learners produced obligatory BA sentences more accurately than optional BA sentences (87.7% vs. 48.3%). These findings seem to be contradictory to what

was found in the present study. However, they actually tapped different aspects of L2 learners' acquisition of the BA construction. Previous studies examined if L2 learners can produce the correct form of obligatory BA sentences or optional BA sentences when asked. The present study examined if L2 learners are aware that those BA sentences ending with a prepositional phrase are obligatory and that there are no SVO sentences that can act as their counterparts. Being able to use the correct form of an obligatory BA sentence does not necessarily mean being able to rule out the ungrammatical SVO sentence. The present study found that a large number of L2 learners were actually not aware that those SVO counterparts were ungrammatical. That the L2 learners in the present study failed to rule out the ungrammatical SVO sentences could be due to negative transfer from their native language English, in which the word-for-word translation of the ungrammatical SVO Chinese sentence is, in fact, grammatical, as illustrated in 47):

47) * ta fang dianshiji zai keting li.
 He put TV at livingroom inside
 'He put the TV in the living room.'

The reason that 47) is ungrammatical in Chinese is because it violates the internal object constraint (Wang, 1987). The verb *fang* and the prepositional phrase *zai keting li* form a semantic unit and the prepositional phrase occupies the internal object position so the object *dianshiji* is forced to move to a preverbal position. The internal object constraint involves syntactic knowledge, which the L2 Chinese learners in the present study did not seem to have acquired. The finding does not seem to conform to the Interface Hypothesis, which predicts full attainment of syntactic knowledge by L2 learners. The finding seems to conform to what Gürel (2011) claim: problems with interfaces do not indicate that “pure syntactic properties ... are immune to optionality.” (40) However, this is beyond the scope of the

present study since the internal object constraint does not apply to all BA sentences.

The L2 High Group scored higher accuracy rates than the L2 Low Group in both the obligatory BA and optional BA sub-sets, though the advantage did not reach the .05 significance level. Five participants (29.4%) from the L2 High Group, but only 2 participants (13.3%) from the L2 Low Group scored accuracy rates of 75% and above with both sub-sets of BA sentences. This indicates a developmental trend in L2 learners' awareness of obligatory BA vs. optional BA sentences. More advanced learners need to be included in order to examine if this type of awareness will become native-like as the proficiency level increases.

5.2.4 A word about Chinese native speakers' performance in this study

The main purpose of including a group of native speakers of Chinese is to provide a baseline for comparison. However, since the Interface Hypothesis (Sorace, 2006) also claims that core syntax properties are resilient to gradedness and optionality in native grammar, but properties at interfaces "are subject to gradedness effects" even among native speakers (107), the data collected from the native speakers in the present study allows us to examine this aspect as well. The native speakers' performance on the core syntax BA property task was highly accurate and consistent, except for a particular item or one or two errors of "slip of the hand" (two participants reported that they clicked the wrong button by accident). Their performance on the syntax-semantics properties tokens was a bit less accurate and had a bit greater variance within the group. The difference between these two domains was not statistically significant. However, the native speakers' performance on the syntax-discourse property task was more varied than the other two domains. The difference between core syntax and syntax-discourse, between syntax-semantics and syntax-discourse were both

significantly different. A split between different interfaces was observed among native speakers. These findings support the Interface Hypothesis' claim about "gradedness effect" in native speakers' grammar at interface domains. The gradedness was affected by the nature of the interface. However, in the latest formulation of the Interface Hypothesis, Sorace (2011) did not mention any "gradedness" among the native speakers. Several studies (Lozano, 2006; Belletti, et al, 2007) have found optionality among native speakers as well. Prévost (2011) suggested that some attention should be paid to the dialects that native speakers speak or have been exposed to, which may result in their acceptance of the sentences that they would not necessarily say out loud. The results from the native speakers' demographic survey did not indicate any correlation between the dialects they speak and their judgment variance.

An interesting finding from the native speakers group is that some native speakers considered some obligatory BA sentences optional as indicated by their acceptance of the ungrammatical SVO counterparts of these sentences. No similar findings have been reported in previous studies. No ready explanation can be given so far. However, this poses an interesting question about obligatory BA sentences, or more generally, the "tolerance" with the violation of the "internal object" constraint. Since the present study had a small sample of native speakers, a larger sample from more different regions of China should be collected if this question is to be examined in the future.

5.3 Implications for teaching

The results of the present study provide us with a detailed picture of L2 Chinese learners' developmental acquisition of the BA construction. What classroom instruction should attempt to do is not to change the route of the developmental process, but rather to facilitate the pace

of the development and to prevent the interlanguage from fossilizing too early. In this sense, the present study provides instructional implications that affect both what to focus on in teaching the BA construction and how to teach those aspects of the BA construction.

Specifically, the present study raises the following implications: 1) teachers should spend more time and effort on the properties that require knowledge from interfaces as well as the obligatory usage of the BA construction. 2) Input (including negative evidence input) should be manipulated so that the difficult target properties of the BA construction are highlighted. 3) Students should be given more opportunities to process and comprehend the target properties before producing the BA construction. 4) Contexts should be provided in which students are required to produce the BA construction. These pedagogical implications will be discussed in greater detail in the following sections.

5.3.1 Differentiating efforts in teaching the properties of the BA construction

Most existing textbooks of Chinese list the BA properties such as the unique word order and, the complex verb constraint when they introduce the BA construction; however, they rarely highlight the more subtle constraints that require knowledge from syntax and other domains, such as the affectedness on the BA NP.

The results of the present study indicated that L2 Chinese learners' acquisition of core syntax properties of the BA construction, such as the word order, was better than their acquisition of the interface properties, which require additional knowledge from semantics or discourse. This difference was observed across proficiency levels. In teaching the BA construction, more emphasis should be put on interface properties, such as the complex verb constraint, which requires that in a BA sentence the verb cannot be the predicate by itself

(also known as the bare verb), but must be followed by a complement realized in different forms. Though this constraint is realized in a syntactic form, it is driven by the semantic meaning that the BA construction embodies: to bring about a result or effect on the noun phrase introduced by BA. Moreover, the results or affectedness brought about by the complement must be directed at the BA NP. Otherwise, the BA sentence is not grammatical either. In form, the complex verb constraint is realized syntactically, while the affectedness constraint seems more subtle. However, the study showed that the L2 Chinese learners' knowledge of these two constraints was not significantly different. Thus in classroom instruction, both constraints should be highlighted. In terms of the use of the BA construction, the study indicated that the L2 Chinese learners were not well-aware of the obligatory use of BA sentences when certain semantic meanings are to be expressed. Moreover, their knowledge of contexts in which the use of a BA sentence is preferred vs. those where a non-BA sentence is preferred was deficient as well. Therefore, more class time should be given to the cases when the BA construction is obligatory, or is preferred. In addition, this study also found that the L2 Chinese learners had more difficulties identifying ungrammatical sentences in which the constraints were violated. This indicates that in classroom instruction, teachers should provide more negative evidence input so that the learners' attention can be directed to the particular errors.

5.3.2 Manipulating input to highlight difficult target properties

The present study not only identified the particular aspects that need more attention in classroom instruction, but also provided some insight into how these properties might be presented and practiced in order to facilitate so that L2 Chinese learners' acquisition.

The first important step in acquiring a second language is input (Krashen, 1982; Vanpatten, 1995; Schmidt, 2001). However, learners will not necessarily notice every element of the input. Schmidt (2001) emphasizes the importance of noticing by proposing that “SLA is largely driven by what learners pay attention to and notice in target language input and what they understand the significance of noticed input to be” (p.3) VanPatten (1996) also claims that not all input gets processed by the L2 learners. The learners filter the input they are exposed to by following some default processing principles. Learners prefer processing content words to grammatical items in the input. They prefer processing “more meaningful” grammatical items to “less meaningful” ones (P. 24) For example, when L2 learners read the sentence *I watched a movie yesterday*, they map the meaning of a past event with the lexical item *yesterday*, instead of the past tense of the verb *watch*. Only the part of the input that gets processed will become intake. The intake then gets incorporated into the L2 learners’ developing system through the processes of accommodation and restructuring.

In order for the target properties to be noticed and processed, the input must be manipulated so that the target properties can be highlighted. Different techniques can be employed to highlight different properties of the BA construction.

In order to make students notice the complex verb constraint, teachers can present a series of pictures to indicate the notion of the subject’s initiation of an action and the consequence this has on the object. For example, teachers can present Figure 5-1 with some explanations (a cat was being chased by a dog, and the cat bumped into the vase and broke it) :

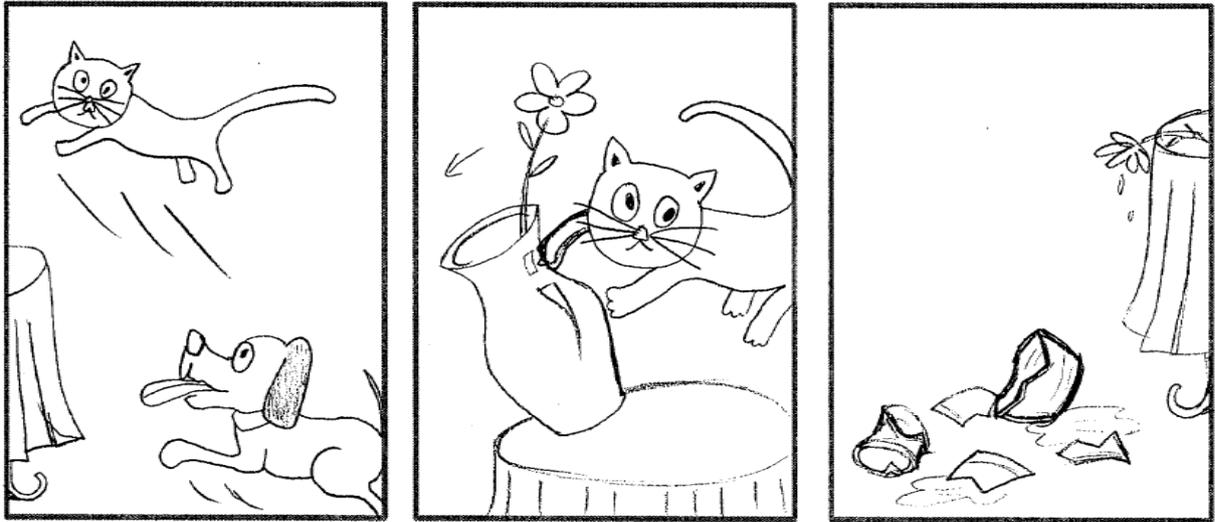


Figure 5-1: Illustration of the Complex Verb Constraint of the BA Construction (Change of State)

Then teachers can present the target BA sentence with the resultative complement

highlighted:

- 48) Na zhi mao ba na ge huaping da **sui** le.
 That CL cat BA that CL vase hit broken ASP
 ‘That cat broke the vase’.

Another example can be the displacement of an object. Teachers can present the pictures in Figure 5-2 with some explanations (a student took out her textbook from her backpack and put it on her desk):

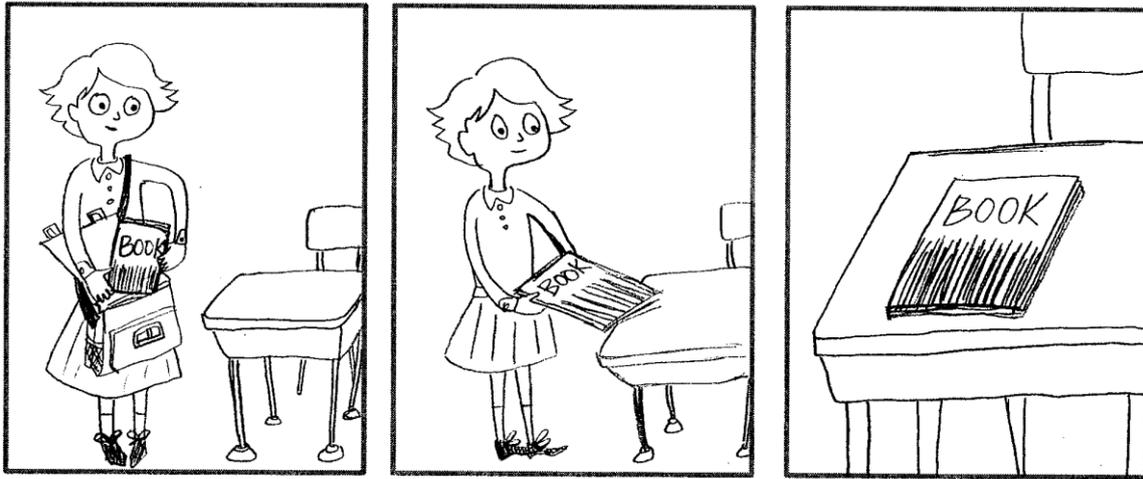


Figure 5-2: Illustration of the Complex Verb Constraint of the BA Construction (Displacement)

Again, teachers present the target BA sentence with the prepositional phrase being

highlighted:

- 49) Ta ba shu fang **zai zhuozi shang.**
 She BA book put at desk up
 ‘She put the book on the desk’.

This will help students notice that there is always some element (a resultative complement or a prepositional phrase, for example) following the verb. It also helps them realize that that postverbal element indicates the result of the action (the vase was broken or the book was now on the desk). In this way, a mapping between the form and meaning begins to establish itself in students’ minds.

The BA construction also has to satisfy the constraint that the postverbal element must be directed at the object introduced by BA but not the subject. When presenting the affectedness constraint, teachers can manipulate the input so that students have to rely on the form of the BA construction to decide which one was affected. The Processing Instruction (PI) technique proposed by Vanpatten (1995) can be applied to serve this end.

The PI technique is “an input-based, psycholinguistically motivated approach to focus on form” (p. 8). Unlike traditional grammar instruction, which is output-oriented in nature and highlights the application of rules in production activities, the Processing Instruction approach puts emphasis on altering L2 learners’ processing of input by manipulating the input and directing their attention to the less salient form-meaning mapping of the target structures. For example, in order to direct learners’ attention to the form of past tense, the input should be manipulated so that there is no lexical item to indicate a past event. A sentence like *I watched a movie* should be presented instead. After the input is presented, some structured activities should be provided to help learners process the target structure. For example, the learners will be presented with two pictures, one indicating that a person is watching a movie now, the other indicating that a person was watching a movie yesterday. They will then be asked to choose the picture that goes well with the sentence presented. In order to choose the right picture, the learners are “forced” to pay attention to and process the verb *watched* and map the past tense *-ed* with a past event.

To direct students’ attention to the affectedness on BA NP constraint, the input should be manipulated so that it is semantically possible for both the subject and the object to have a consequence indicated by the postverbal complement. In this circumstance, only when learners notice which noun phrase is introduced by BA can they decide who has been affected.

For example, in the following sentence:

50) Na ge nūhai ba na ge nanhai ma **ku** le.
 That CL girl BA that CL boy scold cry ASP
 ‘The girl made the boy cry by scolding him’.

Semantically, the complement *ku* (cry) can describe the girl or the boy, however, the

affectedness constraint makes the complement describe the BA NP (the boy) only. Pictures in pairs can be presented with the BA sentence, as illustrated in Figure 5-3:

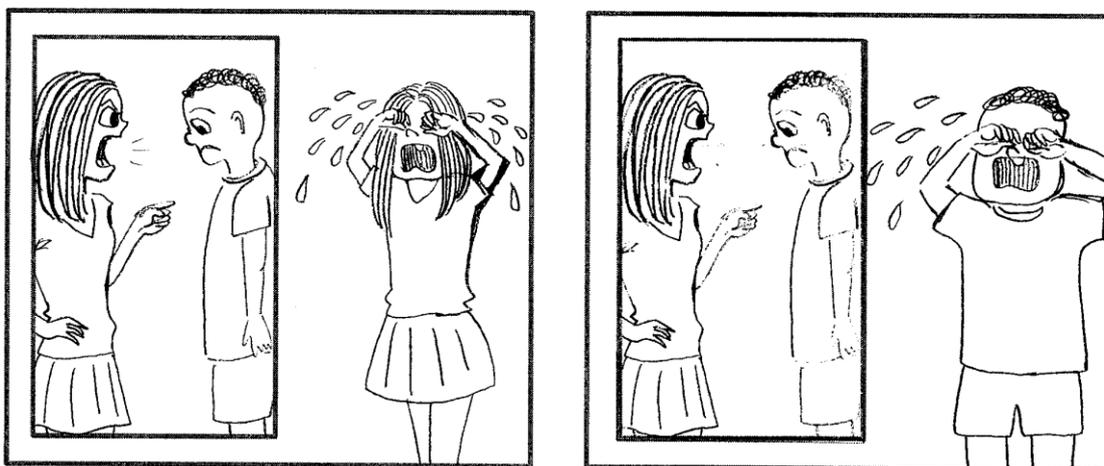


Figure 5-3: Illustration of the Affectedness on BA NP Constraint of the BA Construction

Teachers should show students which picture correctly illustrates what the BA sentence indicates.

As for presenting the syntax-discourse property of the BA construction, different pedagogical treatment should be employed. Since this interface property involves discourse, contexts should be presented in pairs so that students' attention can be directed to the differences between the contexts in terms of topic and focus. Detailed BA-preferred contexts should be provided to establish the discourse chain in which the BA NP is a secondary topic, as is illustrated in the following example:

Tom, a three-year-old boy, is obsessed with stories. One night, his mom was reading him a long bedtime story and could not finish it when it was time for Tom to go to sleep. She suggested that they stop and go on with the story the next day. Tom would not do that and begged his mom to finish the story right then.

In this case, the story has become the topic and a BA sentence is preferred to express

Tom's begging, with the story as the noun phrase introduced by BA. Moreover, students should also be exposed to the situations in which the BA construction is not preferred as illustrated in the following example:

Tom, a three-year-old boy, is obsessed with stories. One night, his parents took him to a performance and got home late. His mom tried to put him to bed by skipping the bedtime story routine. Tom insisted that his mom tell him a story before he went to sleep.

In this case, since the story is not the topic but new information proposed by Tom, a BA sentence is not appropriate. Instead, a regular SVO sentence is preferred. By presenting contexts in pairs, students' attention will be directed to the comparison of the differences in the contexts in terms of the role that the target noun phrase plays. Their awareness of the pragmatic function of the BA construction will be heightened. Besides the deliberately-manipulated contexts, more examples of the BA construction from real communication should be presented as well. For example, short video clips or audio files can be played with transcripts, with some explanation from the instructor if necessary. Some examples from stories or plays can also be used to present the contexts in which the BA construction is used.

In addition to the manipulation of the input of the BA construction, the order of presenting BA sentences in different forms should also be considered. For example, the required postverbal complement can take different forms: a prepositional phrase, a resultative complement, a directional complement, the aspect marker *le*, the repetition of the verb, etc. Most existing textbooks present those BA sentences ending with different forms of complements rather randomly. It might be more helpful if the input followed a particular order. Two of the main factors to be considered while deciding the presentation order should

be frequency of occurrence in native speakers' speech and the difficulty in acquiring the forms. The present study indicated that the L2 Chinese learners, especially those at lower proficiency levels, had more difficulty with complements realized in prepositional phrases. They had trouble both in accepting grammatical BA sentences and in rejecting ungrammatical BA sentences of this type. This type of BA sentence happens to be one whose occurrence is obligatory and thus occurs more frequently in daily speech. Obviously, this type of BA sentence should be introduced earlier than others. The results of the present study also indicated that the L2 Chinese learners were not highly aware that the BA construction is obligatory when a particular semantic meaning is to be expressed, such as displacement. In presenting the BA construction, this type of obligatory BA sentence should be given enough emphasis, since to fail to use them means to fail to express those meanings successfully. While presenting these obligatory BA sentences, instructors should direct students' attention to both the forms of the complement following the verbs and the semantic meanings they express. Pictures can be used to indicate the idea of moving towards a destination or displacement. For example, a series of visuals depicting a person who came back from work, then parked his car in his garage. In the first picture, the person is sitting in his car and the car is in the driveway. In the second picture, the car is in his garage and the person is getting out of his car.

Another implication of the present study is that it is important and necessary to provide negative evidence input. The participants in the present study had more difficulties in rejecting ungrammatical BA sentences than accepting grammatical ones especially when interface properties are involved. This could be due to lack of negative evidence input in

classroom instruction. Some studies have shown empirical evidence on the effect of negative evidence input in second language acquisition. For example, White (1991) claims that form-focused classroom instruction with negative evidence input is more effective in helping French-speaking learners of English to acquire the appropriate placement of adverbs in English. Negative evidence should be provided in the input regarding each target property of the BA construction, including the word order constraint, the complex verb constraint, the affectedness on the BA NP constraint, and the secondary topic constraint. However, the results of the present study indicated that the participants did better in rejecting ungrammatical BA sentences in which the word order constraint was violated. This means that more effort should be put into teaching the interface properties. Teachers can give explicit explanations about the ungrammatical BA sentences presented. For the complex verb constraint, some ungrammatical BA sentences ended in bare verbs without complements. For the affectedness constraint, an ungrammatical sentence can be presented as follows:

51)* Ta ba gongke zuo lei le.
 He BA homework do tired ASP

In 51), the noun phrase *homework* introduced by BA cannot be affected and feel tired as a result of the agent (*he*) doing it. It is thus ungrammatical.

After introducing the obligatory BA sentences, ungrammatical non-BA sentences (in regular SVO order) should also be provided as negative evidence input while teachers explicitly indicate that in these cases, those non-BA sentence are ungrammatical.

5.3.3 Comprehension before production

After the BA construction is presented, the next important step is to design effective exercises and activities to help students practice the BA construction. The purpose of practice

is to give students opportunities to process the properties of the BA construction, including its semantic meaning and pragmatic role in the discourse by using what they have acquired as intake. Exercises that fail to do this may mislead the students and therefore should be avoided. The exercises in existing textbooks are still designed under the framework of traditional grammar instruction: grammar translation or the audio-lingual method. Most of the exercises are output-oriented and seldom involve the contexts in eliciting BA sentences. For example, a typical exercise asks students to change regular SVO sentences into the BA construction, which does successfully call students' attention to the different word order that the BA construction takes. However, this type of exercise may also give students the wrong idea that BA sentences and SVO sentences are interchangeable. The results of the present study indicated that learners had less difficulty with the word order than with other interface properties. Excessive activities on word order should be avoided since they may give the students the wrong impression that there is no difference between a BA sentence and an SVO sentence.

The most important aspect of teaching the BA construction is to help students match the form of the structure with the semantic meanings this construction carries and the pragmatic role it plays in discourse. Solely form-oriented production exercises are not helpful in this regard. Besides, students should be given more comprehension activities to practice their understanding of the properties of the BA construction before they are expected to produce the BA construction correctly.

In order to help students practice comprehending the complex verb constraint, students can be asked to pick the right verb complement for the BA sentence based on pictures. For

example, the students are first presented with the pictures in Figure 5-4 and then given a BA sentence with the verb complement missing. They are asked to pick an appropriate complement to make the BA sentence complete.

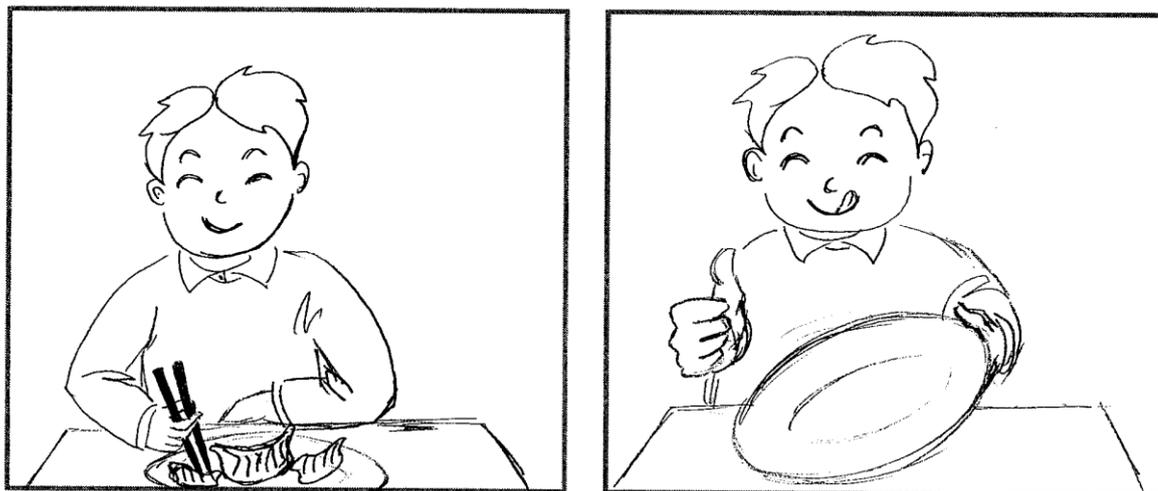


Figure 5-4: Pictures Used to Help Comprehend the Complex Verb Constraint

- 52) Ta ba jiaozi chi _____ .
 He BA dumplings eat
 1. lei (tired) le 2. bao (full) le 3. guang (gone) le 4. None⁶

In order to practice the affectedness constraint, students can be asked to answer questions according to the BA sentences presented. For example, the students will read the following sentence:

- 53) Ta ba meimei ma ku le.
 He BA younger sister scold cry ASP
 ‘He scolded his younger sister (so severely) that she cried.’

Then they are asked the question: “Who cried?”

Another exercise could be to ask students pick the right BA sentence for the pictures given. For example, the students are presented the pictures in Figure 5-5:

⁶ The correct answer is 3: *guang le*.



Figure 5-5: Pictures Used to Help Comprehend the Affectedness on BA NP Constraint

Then the students are asked to pick the right BA sentence that goes with the picture from the following two sentences:

- 54) a. Gege ba meimei ma ku le.
 Older brother BA younger sister scold cry ASP
 ‘The older brother scolded his younger sister (so severely) that she cried.’
- b. Meimei ba gege ma ku le.
 Younger sister BA old brother scold cry ASP
 ‘The younger sister scolded her older brother (so severely) that he cried.’

In order to help students practice identifying the pragmatic role that the BA construction plays in the context, exercises such as Task 2 used in this study can be used, in which students are asked to read the context in English and then they are to choose an appropriate sentence under that context. This comprehension activity “forces” students to process the cues in the context and decide if a BA sentence is appropriate or not in that context. It can also be done the other way round: the students are presented with sentences in pairs: a BA sentence and a sentence in SVO order. Students would then be asked to describe the contexts in which these two sentences would be used respectively.

5.3.4 Production in contexts

After students are given adequate opportunity to practice comprehension activities, they can be asked to progress to producing the BA construction. The most important aspect of this step is to provide contexts that naturally elicit the BA construction instead of using mechanical or isolated exercises. Unfortunately, most exercises in existing textbooks ask students to produce BA sentences without providing appropriate contexts. For example, translation exercises are frequently used in Chinese textbooks. Usually, the students are given isolated English sentences and are asked to translate them into Chinese using the BA construction. These exercises may help students practice using BA sentences in a grammatically correct way, but they fail to train students' awareness of the semantic meanings and pragmatic function of the BA construction. For example, the English sentence "He broke the vase" can be translated using either a BA sentence or a regular SVO sentence. The preference of one over the other depends on the context. However, in the translation exercises, the students were asked to use BA without any context and without considering when to use it. As a result, in real oral or written communication, students may either overuse the BA construction or avoid using it at all.

In order to practice producing the verb complement, the students can be asked to supply the missing complements for the pictures in Figure 5-6. For example, after the following pictures are presented, the students are asked to fill in the blank with a complement.

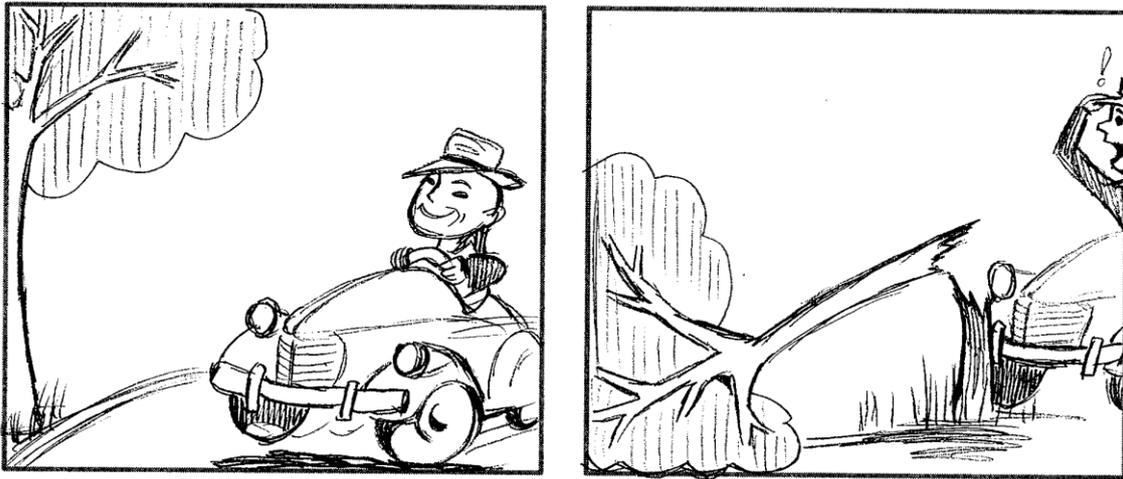


Figure 5-6: Pictures Used to Help Producing the Complex Verb Complement

- 55) Ta ba na ke shu zhuang _____ le.
 He BA that CL tree hit ASP
 'He bumped into the tree and broke it.'

The same type of production exercise can be used to practice the affectedness constraint on the BA NP. Instead of leaving the verb complement out, the agent and the patient (the BA NP) can be left out, and the students can be asked to supply both, as indicated in the following example:

- 56) _____ ba _____ zhuang dao le.
 BA hit down ASP
 'He bumped into the tree and broke it.'

After some guided-production exercises like the ones mentioned above, students can be asked to produce a complete BA sentence on their own. Exercises such as paired-picture-description can be used. In this exercise, students are presented with pictures in pairs, which indicate the doer of the activity (agent), the activity itself, and the result of the activity on the object (patient). The pictures in Figure 5-4 can be used. In one picture the boy is eating dumplings, while in another picture, all of the dumplings are gone. Arrows can be shown pointing to the dumplings in one picture and the empty plate in another. In this way,

students are led to notice the change in the state of the dumplings (on the plate vs. gone).

Students are then asked to describe the change using the BA construction.

Another production activity that can be done in class is to describe an action and its result. Students can be put into pairs. One student is given a situation card with an instruction and is asked to act it out. His/her partner is then asked to describe that event. For example, one student is asked to “Write your Chinese name on the blackboard.” After the student does this, the other student is expected to describe what has happened using a BA sentence. Since the activities that can be performed in the classroom are limited, short video clips can also be played to facilitate practice in describing various activities and their results.

Later on, more task-based activities can be employed. For example, some information-gap activities can be designed to practice producing the BA construction. For example, students A and B are moving into a new apartment and they want to place everything exactly what their decorator suggested. Student A has the stuff to be put in the living room: a dining table, chairs, sofa, TV, etc. Student B has the decorator’s map of the dining room with all the items filled in. B is asked to give A instructions on where to put what. Then A and B switch roles: A will give instructions to B on how to arrange everything in the bedroom by referring to a different decorator’s map. The task is to have the things sorted out as the maps indicate. Both students have to use the BA construction in order to complete this task.

In order for students to practice their awareness of the pragmatic properties of the BA construction, they can be asked to supply an appropriate sentence by themselves under given contexts. Contexts that call for a BA sentence and those that call for a non-BA sentence

should be included, as is illustrated in the following example:

A person was buying a newspaper from a newspaper stand. He took out his wallet and gave a 100-dollar-bill to the newspaper vendor. The newspaper vendor checked with the customer to see if he had any change. In order to show the newspaper vendor that he did not have any change, he reopened his wallet and showed it to the newspaper vendor.

In this example, when the customer takes out his wallet for the first time, the wallet is not the topic, and thus a non-BA sentence is preferred when saying “He took out his wallet”.

After the newspaper vendor checks with customer about smaller bills, the wallet and money in it become the topic and a BA sentence is preferred when saying “He reopened his wallet”.

In addition to practicing the semantic and pragmatic properties of the BA construction, it is also important to make students practice producing those obligatory BA sentences.

Students can be asked to describe paired pictures, which show the movement or displacement of the object. Some pictures which will elicit sentences that do not allow the BA construction should also be included to help students hone their ability to decide in which cases the BA construction is obligatory and in which it is forbidden. For example, in translating the sentence “He put his book on the desk”, the BA construction is the only way to express the idea unless some emphasis is to be put on other elements of the sentence. However, in translating the sentence “He loves books”, the BA construction is not allowed, since this sentence only describes a state, without any change or affectedness involved. Some communicative activities can also be used for intensive practice of obligatory BA sentences. For example, in one task, the students would be put in pairs to arrange items they have been given by following directions. One student is given a picture in which the items are put in a particular order and is expected to tell his/her partner where to put each object. This task involves many examples of displacement and provides a good chance to practice obligatory

BA sentences. It also involves an information-gap and thus provides a real communicative setting.

To sum up, the introduction of the BA construction is important and should be done with good planning. The results of the present study indicated that L2 Chinese learners did better with the word order of the BA construction than with other constraints of this structure. They did not do well in deciding when to use the BA sentence and when not to. They were also not well aware that the use of some types of BA sentences is obligatory, regardless of the contexts in which they occur. With these findings in mind, both the presentation of and exercises on the BA construction should be done in a more meaningful and contextualized way. The input should be manipulated with the more difficult properties highlighted. Adequate meaningful input by using different models (pictures, video clips, act-outs, etc) and contexts can help learners establish the connection between form and meaning and use. Mechanical and decontextualized exercises that only focus on word order should be limited if not eliminated at all, and replaced with meaningful and contextualized exercises such as the ones suggested above.

5.4 Limitations of the study

The present study has some limitations. First of all, the generalizability of the findings of the present study may be limited due to the small sampling and the language proficiency levels of the participants. This study used a convenience sample instead of random sampling. The participants in the present study were college students enrolled in intermediate and advanced Chinese classes at a large public university in the midwest. They may represent the student population in similar institutions, but they may not represent students who enroll in

Chinese classes at small private universities, liberal and arts colleges, or community colleges. Another limitation is that the language proficiency levels in this study are limited to mainly intermediate low and intermediate high, with a limited number of advanced learners. Due to such factors as travel, time, and funding, no advanced Chinese learners were recruited from other universities. A better picture of the development of learners' acquisition of the target properties could have been obtained if more advanced or near-native Chinese learners could have been included in this study. The number of participants in each group was not equal. Although statistics procedures were chosen to eliminate as much as possible the potential effects of this inequality, it would be better overall if each group had an equal number of participants.

Another limitation comes from the tasks. In Task 1, the grammaticality judgment task, due to the time and effort demanded from the participants in order to finish all the tasks, participants were only asked to indicate if the sentences were grammatical or ungrammatical, without being asked to correct the sentences that they thought were ungrammatical. If the participants had been asked to give corrections of the ungrammatical sentences, it might have been possible to check if they spotted the target errors. It would be even more helpful in indicating what made some participants consider the grammatical sentences ungrammatical. It could be possible that the "errors" they spotted were not, in fact, the target properties.

In terms of the scope of the study, this study examined properties of the BA construction. However, only one or two properties from either the pure syntax domain or from the interface domain were examined. More properties from each domain could yet be examined. Additionally, this study only examined L2 Chinese learners' comprehension of and

competence with the target properties. It is not clear whether the distinction observed in the present study in L2 Chinese learners' knowledge of different domains of the BA construction can also be observed in L2 Chinese learners' production of the BA construction.

5.5 Recommendations for Future Research

The limitations of this study can be addressed in future studies. Some unexpected findings also provide food for thought for future research. In addition, based on the findings of the present study, some in-class treatment studies could be done to examine the effectiveness of certain pedagogical methods regarding the teaching of the BA construction.

A future study that investigates the acquisition of the target properties by advanced and near-native speakers is highly desirable to provide more information on the developmental process of the acquisition of the BA construction. Its findings will be more comparable with other acquisition studies that investigate L2 learners within the framework of the Interface Hypothesis.

If possible, a future study can investigate L2 learners in different settings, e.g. , intensive Chinese programs such as the Chinese Flagship program or those who are studying in long-term Chinese programs in China. It may help us understand the effect intensity of exposure has on the acquisition of the BA construction.

Another possible study could investigate L2 Chinese learners' production of the BA sentences regarding those target properties. The findings of such a study could be compared with the results of the present study and would further elucidate whether L2 Chinese learners deviate from native speakers in both comprehension and production or in production only. It would also help us identify the difference in L2 Chinese learners' performances in

comprehension and production.

The present study examined the acquisition of the BA properties within the Interface Hypothesis. It provides a new perspective in investigating the acquisition of linguistic properties of Chinese structures. This study examined a structure that is absent in learners' native language: English. Future studies can investigate other structures whose features are different from learners' native languages or investigate a different learner population whose native language is not English.

The present study identified the particular difficulties L2 Chinese learners have in acquiring the linguistic properties of the BA construction. Some follow-up studies may focus on the pedagogical approaches that may facilitate the acquisition of those properties. For example, the traditional approach in dealing with Chinese structures is to present the form of the structure, giving some examples, and then ask students to do some exercises such as sentence rewriting, connecting words and phrases into sentences, or translation exercises. However, some recent approaches deal with grammar in a different way. For example, the Guided Inductive Approach (Herron & Tomasello, 1992; Adair-Hauck et al., 2005) presents the target structure in a contextualized way, and then directs students' attention to form and meaning and use of the target structure. Instead of giving explicit instruction of the rules, teachers guide students to construct the rules by themselves. Extended activities are used to practice the target structure. A future classroom intervention study could examine the effectiveness of new grammar teaching approaches on the acquisition the BA construction.

5.6 Conclusion

The present study, in an attempt to contribute to a more accurate identification of the

problems L2 Chinese learners are facing, examined the acquisition of some linguistic properties of the BA construction under the framework of the Interface Hypothesis, which predicts that linguistic properties that require knowledge from the domain of syntax are easier to acquire than properties that require additional knowledge from other domains such as semantics or pragmatics. Specifically, this study examined the word order constraint (pure syntax property), the complex verb constraint and the affectedness on the BA NP constraint (syntax-semantics property) and the BA NP as a secondary topic in the discourse (syntax/pragmatics property). The results indicated that there was discrepancy between L2 Chinese learners' performance on the word order constraint and their performance on other constraints. However, no significant difference was found between the syntax-semantics constraints and the syntax/pragmatics constraint. This pattern was found among both the Higher Level Group and the Lower Level Group. These findings indicate that the distinction between the properties on the basis of the nature of the knowledge each property calls for is also observed in the developmental process rather than in the final attainment of L2 alone.

When each group's performance of a particular property was compared, it was found that the Higher Level Group showed native-like knowledge with the word order constraint, while they showed significant deviation from the native speakers in other interface properties. The Lower Level Group performed significantly worse in each property than the native speakers. The Higher Level Group did significantly better than the Lower Level Group in the word order constraint. The former did better than the latter in other properties, but the advantage did not reach a significant level. These findings indicate that those pure syntax properties are easier to acquire since even the intermediate-high level learners can acquire native-like

knowledge, and they can significantly outperform lower level learners. With the participants' proficiency levels available in the present study, it is hard to claim whether the interface properties or whether properties at a particular interface will remain problematic in the final stage. More advanced learners would need to be evaluated before any conclusion can be made. However, the data from a couple of highly advanced learners (whose scores in the proficiency test were very close to the minimum of native speakers) did seem to indicate some remaining errors with the interface properties of the BA construction. These findings indicate that it might be beneficial to include some intervention in the process of acquisition so that L2 learners' grasp of knowledge of the interface properties will be facilitated.

The present study also investigated L2 Chinese learners' awareness of obligatory BA sentences. Results indicated that learners were somewhat aware that some particular BA sentences are obligatory; however, their awareness was far from clear and stable. What's more, they were also more likely to reject some obligatory BA sentences in which the complement after the verb is more complicated. This deficit should be seriously considered, because those obligatory BA sentences are frequently used by native speakers and failing to use them may affect communication in real life. It could be due to lack of adequate input, but the bigger problem lies in the way to present it and to practice it. More effort should be put into directing students' attention to the mapping of obligatory BA sentences and the semantic meanings they entail. Exercises and activities should also focus on the practice on this mapping.

References

- Adair-Hauck, B., Donato, R., & CumoJohanssen, P. (2005). Using a story-based approach to teach grammar. In J. L. Shrum & E. W. Glisan (Eds.), *Teacher's handbook: Contextualizing language instruction* (3rd ed., pp. 189-213). Boston: Heinle & Heinle.
- Akakura, M. (2009). Effect of explicit instruction on implicit and explicit second language knowledge: A empirical study on English article acquisition. (Doctoral dissertation). Available from ProQuest Dissertations and Theses. (UMI No. 3373634)
- Bley-Vroman, R. (1990). The logical problem of foreign language learning. *Linguistic Analysis*, 20, 3-49.
- Belletti, A. & Leonini, C. (2004). Subject inversion in L2 Italian. *EUROSLA Yearbook*, 4, 95-118.
- Belletti, A. Bennati, E. & Sorace, A. (2007). Theoretical and developmental issues in the syntax of subjects: Evidence from near-native Italian. *Nat Lang Linguist Theory*, 25, 657-689.
- Borgonovo, C. Garavito, J. B., & Prevost, P. (2005). Acquisition of mood distinctions in L2 Spanish. *Proceedings of the Annual Boston University Conference on Language Development*, 29(1), 97-108.
- Chen, G. (1985). The Ba construction: A topic and comment approach. *Journal of the Chinese Language Teachers Association*, 18(1), 17-29.
- Cheng, L. (2006). Riben Liuxuesheng bajiju xide qingkuang kaocha yu tanxi. [An investigation on Janpanese-speaking learners of Chinese' acquisition of the Ba construction.]. *Yunnan Shifan Daxue Xuebao*, 4(3), 41-46.
- Chomsky, N. (1986). *Knowledge of Language, Its Nature, Origin, and Use*. New York, NY: Praeger.
- Cowan, R. & Y. A. Hatasa. (1999). Investigating the validity and reliability of native speaker and second-language learner judgments about sentences. In E. Tarone, S. Gass, & A. Cohen (Eds.), *Research methodology in second-language acquisition* (287-302). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Cui, X. (1995). Baziju de ruogan jufa yuyi wenti. [Syntactic and semantic issues of the Ba Construction.]. *Chinese Teaching in the World*, 33, 12-21.
- Dekydspotter, et al. (1997). Anatomical variability in the cortical representation of first and second language. *NeuroReport*, 8, 3809-15.
- Dekydspotter, L., & Sprouse, R. A. (2001). Mental design and (second) language epistemology: adjectival restrictions of wh-quantifiers and tense in English-French interlanguage. *Second Language Research*, 17(1), 1-35.

- Dekydtspotter, L., Sprouse, R. A. & Swanson, K. (2001). Reflexes of mental architecture in second-language acquisition: the interpretation of *combien* extractions in English-French interlanguage. *Language Acquisition*, 9(3), 175-227.
- Du, H. (2004). The acquisition of the Ba construction by adult second language learners (Doctoral dissertation). Available from ProQuest Dissertations and Theses. (UMI No. 3132215)
- Fahn, R-L. S. (1993). The acquisition of Mandarin Chinese Ba-construction. Available from ProQuest Dissertations and Theses. (UMI No. 9416044)
- Flynn, S. (1996). A parameter-setting approach to second language acquisition. In Ritchie, W. and Bhatia, T. (eds), *Handbook of Second Language Acquisition*. San Diego, CA: Academic Press, 121-58.
- Gass, S. (1994). The reliability of second-language grammaticality judgments. In E. Tarone, S. Gass, & A. Cohen (Eds.), *Research methodology in second-language acquisition* (303-322). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.
- Gürel, A. (2011). In search for a unified model of L2 acquisition and L1 attrition: a commentary for the Interface Hypothesis. *Linguistic Approaches to Bilingualism*, 1(1), 39-42.
- Hawkins, R. (2005). Explaining full and partial success in the acquisition of second language grammatical properties. *Second Language Research*, 4, 7-26.
- Hawkins, R. & Chan, C. Y-H. (1997). The partial availability of Universal Grammar in second language acquisition: the “failed functional features hypothesis”. *Second Language Research*, 13, 187-226.
- Herron, C., & Tomasello, M. (1992). Acquiring grammar structures by guided induction. *The French Review*, 65, 708-718.
- Hopp, H. (2004). Syntactic and interface knowledge in advanced and near-native interlanguage grammars. *EUROSLA Yearbook*, 4, 67-94.
- Hopp, H. (2011). Extended patterns and computational complexity. *Linguistic Approaches to Bilingualism*, 1(1), 43-47.
- Ivanov, I. P. (2009). Second language acquisition of Bulgarian object clitics: A test case for the Interface Hypothesis (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3368912)
- Jespon, J. (1989). The ontogenesis of basic word order. *General Linguistics*, 29 (2), 97-111.
- Jin, H. (1992). Pragmaticization and the L2 acquisition of Chinese BA constructions. *Journal of the Chinese Language Teachers Association*, 27(3), 33-52.

- Jin, L. (1997). Bazju de jufa yuyi yujing tezheng. (The syntactic, semantic, and contextual features of the Ba construction) *Zhongguo Yuwen*, 261, 415- 423.
- Jing-schmidt, Z. (2005). *Dramatized discourse: The Mandarin Chinese ba-construction*. Amsterdam, Philadelphia: John Benjamins Publishing.
- Kang, A. (2001). The subjacency principle: Acquisition level facilitated by EFL and ESL settings. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 3100198)
- Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford, UK: Pergamon Press.
- Ladiere, D. (2011). Who is the Interface Hypothesis about? *Linguistic Approaches to Bilingualism*, 1(1), 48-53.
- Li, B. (2004). Hanguo liuxuesheng Baziju pianwu fenxi. [An error analysis of Korean students' Ba sentences.]. *Journal of Liaoning Institute of Technology*, 6(5), 44-46.
- Li, C. & Thompson, S. A. (1981). *Mandarin Chinese: A functional reference grammar*. Berkeley & Los Angeles, CA.: University of California Press.
- Li, F. (1971). Case and Communicative Function in the Use of BA in Mandarin. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 7215419)
- Li, N. & X. Wang. (2001). Baziju de yuyong gongneng diaocha. [An analysis of the pragmatic functions of the Ba construction.]. *Chinese Language Learning*, 1, 55-62.
- Li, Y-C. (1974). What does disposal mean? Features of the verb and noun in Chinese. *Journal of Chinese Linguistics*, 2, 200-218.
- Liu, F. (1997). An Aspectual Analysis of BA. *Journal of East Asian Linguistics*, 6, 51-99.
- Liu, P. (2008). Bajiju buneng bianhuan wei zhudongbingju de zhiyue yinsu. [The factors restricting the Ba sentence being transformed into Subject-predicate-object sentence.]. *Journal of Xinyang Normal University*, 28(6), 131-134.
- Liu, P. (2009). On the syntactic meaning of Ba-construction. *Chinese Language Learning*, 3, 28-33.
- Liu, S. & Y. Wang. (2003). Baziju lianxi sheji zhong de yujing wenti. [Analysis on the contexts in exercises designed for Ba-structure.]. *Chinese Language Learning*, 4, 59-66.
- Lozano, C. (2006). Focus and split-intransitivity: the acquisition of word order alternations in non-native Spanish. *Second Language Acquisition*, 22(2), 145-187.
- Lu, Q. (2006). *Shiyong duiwaihanyu jiaoxue yufa*. (A practical grammar for teaching

Chinese as a foreign language) Beijing: Peking University Press.

Lu, G. (2008). Zhonggaoji jieduan yuenan xuesheng 17 lei baziju de xide shunxu kaocha. [The acquisition order of 17 sub-types of Ba sentences by intermediate-advanced Vietnamese-speaking learners of Chinese.]. *Yuwen Xuekan*, 7, 160-163.

Lu, S. (1955). *Hanyu yufa lunwen ji*. [A collection of essays on Chinese grammar.]. Beijing: Kexue Chubanshe.

Lu, S. (1980). *Xiandai Hanyu Babaici*. [Eight Hundred Words of Modern Chinese.]. Beijing: Shangwu Yinshuguan.

Lu, W. (1994). Baziju yuyi leixing. (Semantic types of the Ba construction) *Hanyu Xuexi*, 82, 26-28.

Mackey, A. & S. Gass. (2005). *Second language research: Methodology and design*. New York, London: Routledge.

Mandell, P. (1999). On the reliability of grammaticality judgment tests in second language acquisition. *Second Language Research*, 15(1), 73-99.

Mitchell, R., & Myles, F. (2004). *Second language learning theories* (2nd ed.). London: Hodder Arnold.

Mullie, J. (1932). *The structural principle of the Chinese language* (Volumn 1.). Beijing: The Bureau of Engraving and Printing.

Prévost, P. (2011). The Interface Hypothesis: What about optionality in native speakers? *Linguistic Approaches to Bilingualism*, 1(1), 79-83.

Ren, Y. H. (1998). Three aspects of the BA construction: An analysis and its implications for teaching Chinese as a foreign language. *Journal of Huadong Normal University*, 6, 83-85.

Schmidt, R. W. (2001). Attention. In P. Robinson (Ed.), *Cognition and second language instruction* (pp. 3-32). Cambridge: Cambridge University Press.

Schwartz, B. and Sprouse, R. (1996). L2 cognitive states and the Full Transfer/Full Access model. *Second Language Research* 12, 40-72.

Shi, Y. (2002). *The establishment of modern Chinese grammar: The formation of the resultative construction and its effects*. Amersterdam, Philadelphia: John Benjamins Publishing.

Slabakova, R. (2006). Is there a critical period for semantics? *Second Language Research*, 22(3), 302-338.

- Sorace, A. (2000). Syntactic optionality in non-native grammars. *Second Language Research*, 16(2), 93-102.
- Sorace, A. (2003). Near-nativeness. In M. Long & C. Doughty (Eds.), *Handbook of second language acquisition* (pp. 130-151). Malden, MA: Blackwell.
- Sorace, A. (2004). Native language attrition and developmental instability at the syntax-discourse interface: data, interpretations and methods. *Bilingualism: Language and Cognition*, 7(2), 143-145.
- Sorace, A. (2005). Selective optionality in language development. In L. Cornips & K. P. Corrigan (Eds.), *Syntax and variation: reconciling the biological and the social* (pp 55-80). Amsterdam: John Benjamins Publishing Co.
- Sorace, A. (2006a). Gradedness and optionality in mature and developing grammars. In G. Fanselow, C. Fery, M. Schlesewsky & R. Vogel (Eds.), *Gradience in grammar* (pp106-123). Oxford: Oxford University Press.
- Sorace, A. (2006b). Interface in L2 development. *Language Acquisition and Development Proceedings of GALA 2005* (pp. 505-521).
- Sorace, A. (2011). Pinning down the concept of “interface” in bilingualism. *Linguistic Approaches to Bilingualism*, 1(1), 1-33.
- Sorace, A. & S. Ludovica (2009). Internal and external interfaces in bilingual language development: Beyond structural overlap. *International Journal of Bilingualism*, 13(2), 195-210.
- Sybesma, R. (1992). *Causatives and accomplishments: the case of the Chinese ba*. Doctoral dissertation, Leiden University.
- Tsao, F. (1987). A topic-comment approach to the BA construction. *Journal of Chinese Linguistics*, 15(1), 1-54.
- Tsimpli, I. M., and Dimitrakopoulou, M. (2008). The interpretability hypothesis: evidence from wh-interrogatives in second language acquisition. *Second Language Research* 23, 215-242.
- Tsimpli, I. & Sorace, A. (2006). Differentiating interfaces: L2 performance in syntax-semantics and syntax-discourse phenomena. *Proceedings of the Annual Boston University Conference on Language Development*, 30(2), 653-664.
- VanPatten, B. (1996). *Input Processing and Grammar Instruction: Theory and Research*. Norwood, NJ: Ablex Publishing Cooperation.
- Wang, H. (1984). *Baziju he beijiju*. [The BA construction and the Bei Construction.]. Shanghai: Xin Zhishi Chubanshe.

- Wang, H. (2003). Baziju de yiyi jiuqing shi shenme. [What does the Ba construction really mean?]. *Yuwen Yanjiu*, 87, 35-40.
- Wang, L. (1945). *Zhongguo Yufa Lilun*. [Theories of Chinese grammar.]. Beijing: Zhonghua Press.
- Wang, L. (1988). *Hanyu shigao* (Vol. 2). [A draft history of Chinese.]. Shanghai: Zhonghua Shuju [Zhonghua Book Company].
- Wang, M. (1987). Transitivity and the Ba-construction in Mandarin. (Doctoral dissertation). Available from ProQuest Dissertations and Theses database. (UMI No. 8702139)
- Wei, H. (2006). Chuji jieduan taiguo xuesheng baziju pianwu fenxi ji jiaoxue celue. [An error analysis of Thai-speaking beginning Chinese learners' Ba sentences and teaching strategies.]. *Yunnan Shifan Daxue Xuebao*, 4(2), 54-58.
- Wen, X. (2010). Acquisition of the displacement BA-construction by English-speaking learners of Chinese. *Journal of the Chinese Language Teachers Association*, 45(2), 73-100.
- White, L. (1991). Adverb placement in second language acquisition: some effects of positive and negative evidence in the classroom. *Second Language Research* 7(2), 133-161.
- White, L. (2009). Grammatical theory, interfaces and second language acquisition. In Ritchie, W. and Bhatia, T. (eds), *The New Handbook of Second Language Acquisition*. UK: Emerald, 49-68.
- White, L. (2011). The Interface Hypothesis: How far does it extend? *Linguistic Approaches to Bilingualism*: 1(1), 108-110.
- White, L. et al. (1992). The acquisition of wh-question formation by Malagasy learners of English: evidence for Universal Grammar. *Canadian Journal of Linguistics* 37, 341-68.
- Yuan, B. (2010) Domain-wide or variable-dependent vulnerability of the semantics-syntax interface in L2 acquisition? Evidence from wh-words used as existential polarity words in L2 Chinese grammars. *Second Language Research*, 26(2), 219-260.
- Xiong, W. (1996). Liuxuesheng Bazijiegou de biaoxian fenxi. [An analysis on Chinese learners' performance on the Ba construction.]. *Shijie Hanyu Jiaoxue*, 35, 80-87.
- Xu, D. (2006). *Typological change in Chinese syntax*. New York: Oxford University Press.
- Xue, F. (1987). Shilun Baziju de yuyi texing. (On the semantic meaning of the Ba construction) *Yuyan Jiaoxue Yu Yanjiu*, 1, 4-22.
- Yu, W. (2000). Liuxuesheng shiyong Baziju de tiaocha baogao. [An investigation on Chinese Learners' use

of the Ba construction.]. *Chinese Language Learning*, 5, 49-54.

Zhang, B. (2010). Huibi yue fanhua: Jiyu HSK dongtai yuliaoku de baziju xide kaocha. [Avoidance and Overgeneralization: An investigation of acquisition of the Ba-sentence based on the HSK dynamic composition corpus.]. *Shijie Hanyu Jiaoxue*, 24(2), 263-278.

Zhang, M. (2009). Shaoshu mingzu daxuesheng baziju shumian shiyong qingkuang diaocha. [An investigation on the use of Ba by minority college students.]. *Yuyan Yu Fanyi*, 99, 64-68.

Zhang, S-L. (2002). Second language acquisition of the Ba-construction in contemporary mandarin Chinese (Master's thesis). Available from ProQuest Dissertations and Theses. (UMI No. 1414860)

Zhang, W-X. (1991). Bazi jiegou de yuyi jiqi yuyong fenxi. [A semantic and pragmatic analysis of the Ba construction.]. *Yuyan Jiaoxue Yu Yanjiu*, 3, 88-103.

Zhao, Y. (2011). Review article: A tree in the wood: A review of research on L2 Chinese acquisition. *Second Language Research* 27(4), 559-572.

Zhao, Y. (1968). A Grammar of spoken Chinese. Berkeley: University of California Press.

Zhu, D. (1982). *Yufa Jiangyi*. [Lectures on grammar]. Beijing: Shangwu Yinshuguan.

Zhou, S. (2003). Baziju qiangzhixing dijian xulie. [A hierarchy of obligatoriness of the BA construction.]. World Chinese Language Association (Ed.), *Di qi jie shijie huayuwen jiaoxue yantaohui lunwenji*.

Furman, N., Goldberg, D., & Lusin, N. (13 Nov. 2007). Enrollments in Languages Other Than English in United States Institutions of Higher Education, Fall 2006. Modern Language Association. Retrieved from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/37/0f/1e.pdf

Li, A. Y-H. (2001). The Ba Construction. Retrieved from <http://www.usc.edu/dept/LAS/ealc/chinling/audreyL.htm>

Appendices

Appendix I: Survey for English-speaking Learners of Chinese

BACKGROUND INFORMATION

All personal information you will provide is confidential. Feel free to use the back of the sheet if you need more room.

Participant No.:

Age: Sex: male female

City/Country of birth:

Are you a student? yes no

If yes, please indicate your current level of education:
(For example: high school- first year; college-third year; graduate school-first year)

If no, what is your current occupation?

Is English your native language? yes no

What language(s) does your mother speak? your father?

What Chinese class are you currently enrolled in?
.....

How old were you when you started to learn Chinese?

How many years have you studied Chinese?

Briefly describe where you have studied Chinese and for how long:

- Length of time
- junior high school _____
 - high school _____
 - university _____
 - other language school _____
 - language classes in an Chinese-speaking country _____
 - other _____

Have you ever lived in a Chinese-speaking country? yes no

If Yes, what country did you live in?

How many years did you live there?

In a given week, how much of your time do you spend using Chinese outside of class?

- I use Chinese everyday.
- I use Chinese a few times a week.
- I use Chinese at least once a week.
- I use Chinese at least once a month.
- I do not use Chinese more than a few times every year.

Which of the below activities do you engage in at least twice a month?

- reading a newspaper or magazine in Chinese
- reading a book in Chinese
- watching television in Chinese
- watching movies in Chinese
- listening to music in Chinese

How many of your friends speak Chinese with you?

- all of my friends
- the majority of my friends
- about half of my friends
- a few of my friends
- none of my friends

Rate yourself according to the following categories (circle one):

How would you rate your overall comprehension skills in Chinese?
very good somewhat good so-so somewhat poor very poor

How would you rate your overall speaking ability in Chinese?

very good somewhat good so-so somewhat poor very poor

How would you rate your overall reading ability in Chinese?

very good somewhat good so-so somewhat poor very poor

How would you rate your overall writing ability in Chinese?

very good somewhat good so-so somewhat poor very poor

Could you pass as a monolingual speaker of Chinese on the telephone with someone who doesn't know you?

always almost always sometimes almost never never

Do you know any additional language? yes no

If yes, what language is it?

Please rate your proficiency in that language:

- I speak it fluently I speak it somewhat well I have studied it, but I don't speak it well I speak it a little

Have you spent any time longer than two months living in an environment where a language other than English or Chinese is the majority language?

- No.
 Yes. Describe briefly where, when, and for how long:

Thanks for your cooperation!

Please take a moment now to make sure that you have filled in all the blanks.

Appendix II: Survey for Native Speakers of Chinese

This is the English translation of the survey that were done in Chinese.

Thank you so much for sparing your time to participate in this survey, which will help us gain a better understanding of the difficulties that foreign language learners of Chinese have in their learning process. The following is a brief survey about your personal information and your language background and daily use of Mandarin Chinese. Please be sure that your identity will be kept confidential all the time. Again, thanks for your participation!

Research Code: _____

Age: _____ Education background: _____

Place of birth: _____

Dialect used before elementary school: _____

Language/dialect(s) used at work: _____

Dialect(s) used at home: _____

Foreign languages that you have ever learned and your proficiency level of those languages:

Foreign language learned

Proficiency level

Thank you!

Appendix III: Tokens used in Task 1: The Grammaticality Judgment Task

Word Order Constraint

No.	Grammatical	No.	Ungrammatical
1	他把我的车修好了。	1	*他修好把我的车了。
2	请把这个箱子打开。	2	*请打开把这个箱子。
3	我把他的地址写错了。	3	*我写错把他的地址了。
4	我们把那个小偷抓住了。	4	*我们抓住把那个小偷了。
5	我把那盆花摆在阳台上。	5	*我摆在阳台上把那盆花。
6	老师把他的电话号码写在黑板上。	6	*老师写在黑板上把他的电话号码。
7	妈妈把礼物寄到我的公寓了。	7	*妈妈寄到我的公寓把礼物了。
8	他把那个男孩推到门外去了。	8	*他推到门外去把那个男孩了。

Complex verb constraint

No.	Grammatical	No.	Ungrammatical
1	你要把机票保存好。	1	*你要把机票保存。
2	他把房间打扫干净了。	2	*他把房间打扫。
3	我想把书房整理干净。	3	*我想把书房整理。
4	我把电脑装好了。	4	*我把电脑装。
5	我们把电视机放在客厅里吧。	5	*我们把电视机放。
6	你应该把钱存在银行里。	6	*你应该把钱存。
7	快把这些花插在花瓶里。	7	*快把这些花插。
8	你把蛋糕切成六块。	8	*你把蛋糕切。

Affectedness on the BANP constraint

No.	Grammatical	No.	Ungrammatical
1	他把那本书看完了。	1	他把那本书看累了。
2	他把那些饺子吃光了。	2	他把那些饺子吃饱了。
3	他把那瓶酒喝光了。	3	他把那瓶酒喝醉了。
4	他把功课做完了。	4	他把功课做累了。
5	我把那部电影看完了。	5	我把那部电影看哭了。
6	他把肚子吃坏了。	6	他把肚子吃完了。

7	他把那个人打伤了。	7	他把那个人打累了。
8	老虎把狐狸抓住了。	8	老虎把狐狸抓累了。

Appendix IV: Tokens Used in Task 2: The Contextual Acceptability Preference Task

Ba-preferred contexts

No.	Context	Options
1	It was windy last night. This morning, Mary found there was a billboard on the ground. She asked John: What happened to that billboard (广告牌)? John answered:	a) 大风吹倒了那块广告牌。 b) 大风把那块广告牌吹倒了。
2	Josh and Sally are colleagues and they share the same office. One morning, when Josh went into their office, he found a cup of coffee on his desk. He thought it was left by someone who didn't want it. He threw it into the trash can. When Sally came in and found the coffee was gone, she asked: "Where is my coffee?" Josh answered:	a) 对不起, 我把你的咖啡扔了。 b) 对不起, 我扔了你的咖啡。
3	Emily has been in China for a year. Her Chinese friend Lily is teaching her how to make a Chinese dish: stir-fried tomato with scrambled eggs. Lily took three eggs out of the refrigerator and said:	a) 先把鸡蛋打碎。 b) 先打碎鸡蛋。
4	Ethan loves reading books. He checked out a 400-page book yesterday, and he returned it today. The librarian was very surprised and asked:	a) 你这么快就把这本书看完了? b) 你这么快就看完这本书了?
5	Erin was telling her child a bed-time story, but the story was too long and it was already very late. She suggested that she finish the story the next day. The child, so obsessed with the story, wouldn't stop, and begged:	a) 你把故事讲完吧。 b) 你讲完故事吧。
6	Daniel and Bill are roommates. Last weekend, Daniel made himself a plate of dumplings. When he was about to eat, he heard his cell phone ringing in his bedroom. He rushed in to answer it. After he hang up and walked out of his bedroom, he found half the dumplings were gone. He asked Bill, who was sitting on the couch, watching TV: "Where are half of my dumplings?" Bill, with a guilty look, said:	a) 不好意思, 我把那些饺子吃掉了。 b) 不好意思, 我吃掉了那些饺子。
7	Jacob traveled in China for three weeks and is now going back to the U.S. At the airport, when he was checking in his luggage, the attendant noticed that one of his bags was locked, which is not allowed. The attendant said:	a) 请您把锁打开。 b) 请您打开锁。
8	Sophia was in the middle of doing something when she heard someone knocking at the door. When she found	a) 请放下盒子, 你可以走了。 b) 请把盒子放下, 你可以走了。

	out it was the UPS person to deliver a box. Sophia replied:	
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SVO-preferred contexts

No.	Context	Options
1	Emma is complaining to her neighbor about her cat, Sylvia, who likes going out all the time. A always has to look around for her cat during meal times. This morning is no exception. It took her 15 minutes to get Sylvia back for lunch. Now she is out again.	a) 你看,她一吃完饭吃完就又出去了。 b) 你看,她一吃完午饭就又出去了。
2	When Nathan was invited to a party, he said he would love to, but he had something else to do. Nathan then explained:	a) 我得先送孩子们回家。 b) 我得先把孩子送回家。
3	When Matt is about to have dinner last night, he heard someone at the door. It was Ryan, his neighbor, who has already had dinner. Matt invited Ryan to have dinner with him. Ryan explained:	a) 我已经吃完饭了。 b) 我已经把饭吃完了。
4	Alex and Lizzy are roommates. They went to see a movie together tonight. When they went back home, Alex tried to find her key, then she said:	a) 哎呀,我忘了带钥匙了。 b) 哎呀,我把钥匙忘了带了。
5	Jake and Taylor are in the same Chinese class. They will have a test tomorrow. After class, Jake asked Taylor if she feels like studying together this afternoon. Taylor said:	a) 对不起,下午我得送我妈妈去机场。 b) 对不起,下午我得把我妈妈送去机场。
6	Michael and Logan are studying Mathematics together, which meets at 3:00 every afternoon. Logan always feels tired and less energetic at that time. Michael wants to share with Logan his way of keeping himself energetic and he said:	a) 我每次都喝了咖啡才来上课。 b) 我每次都把咖啡喝了才来上课。
7	Today is Ava's birthday. She invited several friends to celebrate it, including Samantha. They had a really good time: watching movies, eating cakes, playing games. Samantha was the first to leave, since she has to work tomorrow. Ava wanted to check if Samantha is good to drive. She asked:	a) 你喝酒了吗? b) 你把酒喝了吗?
8	Linda asks her son to drink milk every day. She is out of town this week. She called her son this afternoon and asked:	a) 你今天喝牛奶了吗? b) 你今天把牛奶喝了吗?

Appendix V: Tokens Used in Task 3: The Paired Grammaticality Judgment Task

Obligatory BA Sub-set

No.	BA Sentence	SVO Sentence
1	我把那盆花摆在阳台上。	我摆那盆花在阳台上。
2	你别把车停在路边。	你别停车在路边。
3	他把电视机放在客厅里。	他放电视机在客厅里。
4	她把中文书放进书包里。	*她放中文书进书包里。
5	老师把电话号码写在黑板上。	*老师写电话号码在黑板上。
6	妈妈把饺子放进冰箱。	*妈妈放饺子进冰箱。
7	我把“大”写成了“太”。	*我写“大”成了“太”。
8	他把蛋糕切成了八块。	*他切蛋糕成了八块。

Optional BA Sub-set

No.	BA Sentence	SVO Sentence
1	他把我的车修好了。	他修好了我的车。
2	我把你的苹果吃了。	我吃了你的苹果。
3	我把那本书看完了。	我看完了那本书。
4	他把饭吃完了。	他吃完了饭。
5	他把我的镜子打破了。	他打破了我的镜子。
6	他把功课做完了。	他做完了功课。
7	我把他的咖啡扔了。	我扔了他的咖啡。
8	他把那个盒子打开了。	他打开了那个盒子。