

# Subjacency Violations in Second Language Acquisition: Some Evidence from Chinese Mandarin Speakers of L2 English

Xia Dai<sup>1,\*</sup>

<sup>1</sup>School of Foreign Languages, Southwest University of Political Science and Law, China

\*Correspondence: School of Foreign Languages, Southwest University of Political Science and Law, China. E-mail: daixia@swupl.edu.cn

Received: April 7, 2017

Accepted: August 7, 2017

Online Published: September 17, 2017

doi:10.5430/wjel.v7n3p1

URL: <https://doi.org/10.5430/wjel.v7n3p1>

## Abstract

The literature review shows that many previous studies have used Subjacency to test the availability of Universal Grammar (UG) in second language acquisition. Schachter (1989) claimed that L2 learners do not have access to UG principles, while Hawkins and Chan (1997) suggested that L2 learners had partial availability of UG, for they found there was a strong difference between the elementary L2 learners and the advanced L2 learners in judging the ungrammaticality of Subjacency violations; that is, the elementary L2 learners owned the highest accuracy. Under the hypothesis of partially availability of UG in second language acquisition, L2 learners are only able to acquire the properties instantiated in their L1s. Although they may accept violations of universal constraints, it is only at face value; rather the L2 learners develop different syntactic representations from the native speakers. This study has been undertaken as a follow-up study of Hawkins and Chan (1997), and tested on L1 Mandarin speakers of L2 English in judging the grammaticality of their Subjacency violations. The results of the Grammaticality Judgement Test show that the accuracy of Chinese speakers in judgement increased with English proficiency and that they rejected resumptives inside islands as a repair. Contrary to the previous findings, this study provides evidence that UG is available in adult second language acquisition.

**Keywords:** *subjacency; wh island; island constraint; UG; L2*

## 1. Introduction

A general assumption of generative grammar is that the L2 learners have some innate linguistic knowledge of L1 acquisition, or Universal Grammar (UG). Studies have been undertaken to explore what properties of language fall within UG, meaning that L2 learners do not have to learn these. Nonetheless, recent findings show that many principles of UG need to be parameterized to account for the language variations across languages. The topic discussed here relates to adult L2 English learners. Learning English at this stage is supposed to be more complicated than L1 acquisition or L2 acquisition before a critical age. Previous studies demonstrate that besides the linguistic cognitive principles, the input concerning “poverty of the stimulus” also remains a problem, and that sometimes a change of linguistic environment can alter the process of second language acquisition.

Concerning UG principles in Second Language Acquisition, constraints on *wh*-movement have frequently been used to test whether interlanguage grammars are UG-constrained or not. *Wh*-movement is constrained by a principle of UG known as Subjacency (Chomsky 1981, 1986a), which prevents a *wh*-phrase from crossing more than one bounding node or barrier at a time (DP and IP are bounding nodes in English). Since English has *wh*-movement, with a focus on Subjacency condition as a test case, studies are mainly interested in L2 English learners whose L1s are generally regarded as [-*wh* movement]. Chinese is regarded as such a language with [-*wh* movement], but where normally *wh*-phrase remains in-situ.

- (1) a. ni xihuan shei?  
You like who  
“Who do you like?”

- b. Zhangsan xiangxin shei mai-le shu?  
 Zhangsan believe who buy-ASP books  
 “Who does Zhangsan believe bought books?” (Huang, 1982, p. 371)

The English sentences below, in (2a), are regarded as bad sentences because of Subjacency violations, whereas their Chinese counterparts in (2b) are regarded as good ones with syntactically unmoved *what*:

- (2) a. \*What did you wonder who bought?  
 \*Who did you wonder what bought?  
 b. Who bought what?  
 Who wonders where we bought what? (Huang, 1982, p. 383-384)

The hypothesis is that such a constraint is universal, even for languages lacking *wh*-movement such as Chinese. In other words, if interlanguage grammars are constrained by UG, the Chinese learners of English should have Subjacency regardless of whether Chinese has *wh*-movement or not. Moreover, if UG is available in second language acquisition, the L2 learners should be able to reject Subjacency violations if they have learned that the L2 employs *wh*-movement.

Results from some studies show that adult L2 learners fail to reject Subjacency violations, which supports claims for the non-availability of UG (Johnson & Newport, 1991; Schachter, 1989, 1990); while some other studies report adult L2 learners' success in recognizing Subjacency violations (White & Juffs, 1998). Studies involving Chinese people as experimental subjects (Schachter 1989, 1990 and Johnson & Newport 1991) claim that adult L2 learners do not have full access to UG. The L2 learners could acquire *wh*-movement but could not apply the constraints. White and Juffs (1998) argue that their results support the theory that interlanguage grammars are constrained by UG. Hawkins and Chan's study (1997) also looks at the Grammaticality Judgement Test (GJT) on Subjacency violations among L1 Chinese speakers of L2 English. Hawkins and Chan conducted GJT in HongKong (HK) among L1 Cantonese speakers of L2 English, and their results claim that the Chinese subjects fail to detect the ungrammaticality of sentences with Subjacency violations. Moreover, their data indicate that "...the advanced Chinese subjects were significantly less accurate at detecting *wh*-island and complex NP violations than all the other subjects, including the elementary Chinese group" (Hawkins & Chan, 1997, p.211).

Thus, this study has been undertaken on the basis of the findings and analysis of Hawkins and Chan (1997). However, whereas the speakers of L2 English in Hawkins and Chan's research (1997) were all Cantonese, the subjects involved this time are all Chinese Mandarin speakers. Some are Chinese post-graduate students studying in the University of York and others are language-learning students attending the University for a summer course. All of them, together with the native speaker as the control group, took a Cloze test and a GJT, the results of which were supposed to provide further evidence from L1 Chinese Mandarin learners of L2 English on subjacency violations.

The results of the present study are incompatible with those in Hawkins and Chan's study (1997). In the present study, as the Chinese subjects' proficiency increases, they are able to detect the grammaticality of Subjacency violations and repair sentences with Subjacency violations using a reparative resumptive pronoun as well. The Chinese subjects also reveal an asymmetry in the acquisition of null subjects and null objects. This paper argues that L1 Chinese learners of L2 English are able to acquire some properties in L2 which are lacking in their L1s. This supports the argument that UG is available in second language acquisition. However, the L2 learners' performance in this study also reveals that even advanced L2 learners struggle to acquire some of the properties of speech as native English speakers can. We will consider the implications of the findings from this GJT, and analyze the results using a Full Transfer Full Access hypothesis, in order to find how syntactic knowledge has been acquired in second language acquisition.

## 2. Syntactic Differences

### 2.1 *Wh*-movement in English Restrictive Relative Clauses

In relation to the topic of island constraints (Ross, 1967), it has traditionally been observed that L1s and L2s differ in terms of the operation of principles like Subjacency. There are many examples among Chinese L1 learners of English, for English has a *wh*-movement which is not available in Chinese. These studies (Johnson & Newport, 1989, 1991,

Schachter, 1989; White, 1992) were conducted on the assumption that L1 Chinese learners of English should not “reveal knowledge of constraints on *wh*-movement in English”, unless UG is available (White, 1998, p.113)

In English, two kinds of *wh*-movement are generally accepted: one is local movement –that is movement of *wh*-phrases (who, what, how, etc.) within one clause; the other is long distance movement –that is movement out of an embedded clause.

(3) a. Who does John like?

[<sub>CP</sub> Who<sub>i</sub> does [<sub>IP</sub> John like t<sub>i</sub> ] ]?

b. Who does John believe that Mary likes?

[<sub>CP</sub> Who<sub>i</sub> does [<sub>IP</sub> John believe [ t<sub>i</sub> that [<sub>CP</sub> Mary likes t<sub>i</sub> ] ] ] ]? (White, 1998, p. 113)

## 2.2 *Wh*-movement in Chinese Mandarin Restrictive Relative Clauses

Many researchers have accepted that Chinese is a language without *wh*-movement. In many cases, the *wh*-phrase remains in-situ in Chinese as is shown in the following examples from Xu (1990). The examples demonstrate that the object *wh*-phrase remains in-situ, and that the subject *wh*-phrase remains in-situ in the embedded sentence.

(4) Zhangsan xihuan shei?

Zhangsan like who

“Who does Zhangsan like?”

(5) Ni xiang shei lai?

You think who come

“Who do you think will come?” (Xu, 1990, p. 364)

However, many other studies on Subjacency with a focus on *wh*-questions, have reported that Chinese do involve a [+wh] feature although it is weak. It is admitted that there is limited evidences of Subjacency in Chinese. According to Huang (1982a), *wh*-movement can occur in English relativization or topicalization, but the *wh* island constraint does not seem to obtain in Chinese under relativization or topicalization.

(6) a. [<sub>NP</sub> [<sub>S</sub> ni xiang-zhidao [<sub>S</sub> wo xiang shei mai t<sub>i</sub> ] de shu<sub>i</sub> ] zai zher

you wonder I from who buy DE book at here

“? The book<sub>i</sub> that you wonder from whom I bought is here.”

b. neiben shu<sub>i</sub> [<sub>S</sub> wo xiang-zhidao [<sub>S</sub> ni shenmeshihou yao t<sub>i</sub> ] ]

that book I wonder you when want

“That book, I wonder when you want.” (Huang, 1998, p. 327)

## 2.3 Resumptive pronouns in Chinese Mandarin

Chinese has been generally known as a [+null subject] language, but a resumptive pronoun in subject position in Mandarin can be overt or null, as can be seen in example (7)a. However a resumptive pronoun in object position in Mandarin is obligatory, as can be seen in examples (7)b. While under relativization in Mandarin the resumptive pronoun can either be overt or null, as in example (7)c and (7)d which were illustrated as (14) in White (2003, p. 122).

(7) a. Ta lai-le.

He come

“He comes.”

Lai-le.

come

“(he) comes.”

b. Ta wen wo.

he kiss me

“He kissed me.”

- \* Ta wen.  
 he kiss  
 \*”He kissed.”
- c. Wo xihuan ta de neige nuhai.  
 I like her COMP that girl  
 “the girl that I like”
- d. Wo xihuan de neige nuhai  
 I like COMP that girl  
 “the girl that I like”

Therefore, a resumptive pronoun in Chinese Mandarin can be overt or null in subject position, but it is obligatory in object position. And the resumptive pronouns under relativization in object relatives can be overt or null.

#### 2.4 The parametric difference between Mandarin and Cantonese

Some aspects of relative clauses are similar between Mandarin and Cantonese, say DPs containing relative clauses are head final; relative clauses are introduced by complementizers rather than by *wh*-phrases (*de* in used in Mandarin while *ge* in Cantonese). However, a resumptive pronoun in Cantonese has to be null in subject relative and object relative, that is, gaps in Cantonese are possible in subject and object position (as instantiated in examples (9a) and (9b)). Whereas in sentences (9a), a gap is obligatory in subject position in Mandarin; while a gap is optional in (9b) because that “a gap in object position alternates freely with a resumptive pronoun” (see Hawkins and Chan, 1997, p.192). Moreover, in the relativization of embedded subject position and object position, a resumptive pronoun is obligatory in Mandarin as well as in Cantonese.

- (8) a. **ec/ \*ta** gongzuo qinglao de neige nuhai. (Mandarin)  
**ec/ \*she** work hard C the girl  
**ec** zo6 je3 ho2 kan4 lik6 (ge3) go2 go3 nui3 zai2 (Cantonese)  
 “The girl who works hard.”  
 (subject relative)
- b. Wo xihuan **ec/ta** de neige nuhai (Mandarin)  
 I like **ec/ta** C the girl  
 go2 go3 ngo3 zun1 ji3 **ec** ge3 nui3 zai2 (Cantonese)  
 “The girl who I like”  
 (object relative)
- c. Wo jiao **ta/\*ec** lai de neige nuhai (Mandarin)  
 I ask **her** come C the girl  
 ngo3 giu3 **kui5** lai4 ge3 go2 go3 nui3 zai2 (Cantonese)  
 “The girl who I asked to come.”  
 (Embedded subject relative)
- d. Wo sung liwu get **ta/\*ec** de neige nuhai. (Mandarin)  
 I give present to **her** C the girl  
 go2 go3 ngo3 sung3 lait3 mat6 bei2 **kui3** ge3 nui3 zait2 (Cantonese)  
 “The girl who I gave a present to”  
 (Indirect object relative)

### 3. Literature Review

#### 3.1 Subjacency: Strong Islands vs. Weak Islands

UG consists of a number of different principles which rule out various types of ungrammatical sentences. Subjacency dictates how far a *wh*-phrase can move. In Government and Binding theory, the formulation of Subjacency was expressed in terms of bounding nodes, where DP and IP are bounding nodes in English (Chomsky 1981); then the constraint was expressed as *barriers* (Chomsky 1986a). In both cases, the idea concerning Subjacency is that whenever a *wh*-phrase moves, it cannot cross more than one bounding node or barrier at the same time. Haegeman(1993:365) has illustrated this condition as “Movement cannot cross more than one bounding node, where bounding nodes are IP and NP”. Structures from which a phrase cannot be extracted are known as islands.

A distinction is often made between strong and weak islands (Cinque, 1990). These are determined by the number of barriers that have to be crossed: crossing one barrier gives rise to a weak Subjacency violation, while crossing two barriers causes a greater reduction in acceptability, and results in a stronger island. Strong islands block movement of both arguments and adjuncts; while weak islands block movement of adjuncts. Usually, *wh*-islands are seen as weak islands; while subjects and adjuncts (including relative clauses) are regarded as strong islands. If this theory, with its distinction between strong and weak islands, is adopted, then we can have a better understanding of the different experimental results on Subjacency from previous studies in second language acquisition.

Not all the L2 learners treated the Subjacency violations alike, for the reason that they were tested by either strong islands or weak islands. For instance, the L2 learners in Schachter’s research (1989, 1990) were better at rejecting extractions out of relative clauses and subjects (strong violations) than out of noun complements and *wh*-islands (weak violations). The L2 learners in White and Juff’s research (1998) were more accurate in judging Subjacency violations than L2 learners in other studies, because all violations tested were strong violations. Consequently, the finding of Hawkins and Chan’s study (1997) that L1 Chinese learners of English performed inaccurately on Subjacency violations can be explained by the fact that the test sentences are extractions out *wh*-islands and noun complements, which are all weak islands. Nevertheless, White suggests that “If relative clauses (and other *wh*-structures) are not derived by movement but by base-generated topics associated with null resumptive pronouns, L2 learners should not treat strong and weak violations differently, since all ‘violations’ would be grammatical” (2003, p.126).

#### 3.2 Brief in Previous Studies

Huang (1982a) proposed in his early research that Chinese lacks *wh*- operator movement in overt syntax, and allows constructions with *wh*-phrase movement which would violate Subjacency in English. Moreover, Chinese does not allow relative pronoun extraction from certain constructions (complex noun phrases and sentential subjects but not embedded questions) and topic extraction. The following example shows that the subject of a relative clause is construed as bound to an NP (nageren) outside the complex NP containing the relative clause.

(9) \*<sub>S</sub> [<sub>NP</sub> [<sub>t<sub>i</sub></sub> kanjian t<sub>j</sub> ] de xuesheng<sub>j</sub> ] lai-le] de neige ren<sub>i</sub>  
 See DE student come-ASP DE that man

“\*The man<sub>i</sub> that the student<sub>j</sub> who t<sub>i</sub> saw t<sub>j</sub> come.”

It thus shows limited evidence of Subjacency at the level of S-structure:

“...[there is] little doubt that some sort of locality condition is required in the grammar of Chinese, as of any other language”, “...[it is] easy to demonstrate that Chinese has to obey the complex NP constraint” (1982a, p. 324).

Nonetheless, the Wh island constraint does not seem to obtain in Chinese under relativization and topicalization”(1982a, p.327):

(10) neiben shu<sub>i</sub> [<sub>S</sub> wo xiang-zhidao [<sub>S</sub> ni shenmeshihou yao t<sub>i</sub>]]  
 that book I wonder you when want

“That book, I wonder when you want.”

Schachter (1989) discusses whether and to what extent UG is reactivated in post-puberty in second language acquisition. She admits that “Chinese L1 can and do learn to communicate in English, and English does have a *wh*-fronting rule together with the Subjacency constraint on its applicability”; therefore she takes a Grammaticality Judgement Test (GJT) among Chinese native speakers on the hypothesis that “If Subjacency exists as a constraint in the psychological knowledge-state of these individuals, it might be detectable through their English grammaticality judgements”(1989, p.78). The test results of L1 Chinese subjects show that some of them are quite successful in

establishing mental grammar for English which obey Subjacency constraints, while some others are not. She reports that the L2 learners show low accuracy on Subjacency violations, and fail to detect its ungrammaticality: "...It would appear that these subjects had difficulty either in generalizing their knowledge to new cases, or in accessing their knowledge reliably" (1989, p.85). Although the Chinese speakers have Subjacency in L1s with a limited form, they are only able to access properties of UG which are instantiated in their L1s. She also argues that UG is partially available after puberty and the L2 learners like Chinese can hardly achieve full success in L2 English acquisition. "...These results constitute a major difficulty for...those who believe that all the principles of UG are available and accessible to postpuberty language learners" (1989, p.85).

However, Schachter fails to explain why the Indonesian subjects do not perform better than the Chinese subjects, for Subjacency is observed in Indonesian (Indonesian has *wh*-movement of subject only) but only partially observed in Chinese. Consequently, in Schachter (1990), she reports that the L2 learners cannot access the principles of Subjacency after development of the L1s, and UG principles are only available where they are instantiated in the L1s. However, some ambiguous phenomena in Schachter's case need further explanations. For instance, Korean is a language without *wh*- movement, and both Indonesian and Chinese groups performed better as a whole than did the Korean group. But some Korean subjects individually performed like native-speakers in the Grammaticality Judgement Test, which means that UG may still be operative in the L2 acquisition.

Research in the 1990s with adult L2 learners living in the L2 countries indicates that L2 instruction given prior to immigration has little effects on their success in learning L2 (Johnson & Newport, 1991; Schachter, 1989, 1990). Schachter found that adult Chinese learners of English performed quite poorly on judging Subjacency violations in English. Similarly, Johnson and Newport (1991) reported that the L2 learners were significantly worse than the native speaker on Subjacency violations; but they had better judgement on Subjacency violations with relative clauses than clausal complement and *wh*-islands. Therefore, Schachter (1989, 1990) and Johnson & Newport (1989, 1991) argued that there are maturational effects, such that adult L2 learners' access to UG is reduced. Johnson & Newport (1991) claimed that after puberty, UG is partially available; that is, the 'window' for syntax acquisition is partially closed. Even the L2 learners who have lived in the L2 country for years and use their L2s in their daily life are in the same situation.

Furthermore, White and Juffs (1998) applied the Grammaticality Judgement task to their Chinese subjects in the context of questions about whether the competence of adult learners shows evidence of unconscious knowledge of UG principles; and whether living in the L2 country helps the L2 learners achieve success in the UG domain. The subjects are Chinese speakers from two groups: the first comprises Chinese-speaking learners of English who have learned English in China as adolescents through traditional classroom instruction. They are regarded as adult learners of L2 English in a Chinese university (the China group). The second group comprises Chinese who have emigrated to Canada as adults (the Canada group). Results from White & Juffs Grammaticality Judgement task looking at the sentences of islands violations show that the China group is highly accurate in rejecting ungrammatical sentences of islands: "With the exception of *that*- trace violations, they get five out of six judgements correct on average...their accuracy is no significantly different from the native speakers..."(1998, p.119). The Canada group (L1 in Chinese) is somewhat less accurate, and their mean accuracy is no different from the China group but significantly different from the control group.

By contrast, Li (1998) conducted an experiment on L1 Chinese learners of L2 English to investigate whether the L2 learners are differentially sensitive to the extraction of *wh*-phrases from "strong" and "weak" islands. The China group (students in university in China) performed less accurately than the native speaker control group. Moreover, they had a tendency to reject strong island violations over weak island violations. The performance of the graduate group (graduate students and visiting scholars in the U.S. for at least three years) was more like native English speakers, but the native speaker control group rejected *wh*-island violations more strongly. These findings conflicted with the results of earlier studies (Schachter, 1990; Newport, 1991)

### 3.3 Full Transfer/Full Access

Schwartz and Sprouse (1994, 1996) proposed that the initial state in L2 acquisition is a particular grammar, which requires full involvement of the entire L1 grammar. And they suggested that all the syntactic properties of the L1 are initially transferred into the L2 grammar in second language acquisition, which means L1 in the initial state determines the set of representations of L2 learners. However, they also made the hypothesis that the initial grammar would be changed or restructured on the basis of the L2 input. If there are no such properties in L1, then properties from the L1 may be transferred into the initial L2 grammar or new syntactic representations may be built. This process is called "full access". Therefore, Schwartz and Sprouse suggest, the initial state is "full transfer", and "full

access” is the subsequent grammar restructured during the course of development. Furthermore, they distinguish L1 and L2 learners according to their different starting points: L1 learners start from the open parameter values made available by Universal Grammar, while L2 learners start with their L1 syntax.

### 3.4 Present Study

Hawkins and Chan (1997) have found out that Chinese learners of English who have acquired English restrictive relative clauses (RRCs) have an obligatory [CP...gap] pattern and their mental grammars clearly develop with proficiency.

In order to test if the Chinese subjects' L2 grammars are constrained by principles of UG, they make use of ungrammatical sentences which contain Subjacency violations. If the Chinese subjects are constrained by principles of UG, then they should treat these test sentences as ungrammatical. The four test include violation of the *wh*-island constraint and four sentences with the complex NP constraint. Since the two kinds of test sentences got similar results, we will only consider *wh*-island constraint in this paper.

(11) \*This is the man [<sub>CP</sub> who<sub>i</sub> (m) [<sub>IP</sub> Mary told me [<sub>CP</sub> when [<sub>IP</sub> she will visit t<sub>i</sub> ]]]]. (1997, p.226)

Their results relating to the L1 Chinese learners of L2 English are represented in Table 1 which is illustrated as Table 6 in Hawkins and Chan (1997).

**Table 1.** Accuracy of Judgement (%) as ‘Ungrammatical’ of Sentences Violating the *wh*-island and Complex NP Constraints, and Accuracy of Corrections (%)

Groups	Wh-island		Complex NP	
	judgement	corrections	judgement	corrections
	%	%	%	%
<b>Chinese elementary</b>	<b>63</b>	<b>30</b>	<b>71</b>	<b>31</b>
<b>Chinese intermediate</b>	<b>54</b>	<b>21</b>	<b>61</b>	<b>18</b>
<b>Chinese advanced</b>	<b>41</b>	<b>14</b>	<b>38</b>	<b>1</b>
French elementary	59	36	72	33
French intermediate	66	46	79	44
French advanced	85	76	90	51
English controls	98	95	85	60

According to Hawkins and Chan's data (1997) concerning the *wh*-island violations, there are striking differences among their Cantonese speakers, that is, "...one way ANOVAs indicated significant differences between groups, both on judgements and corrections (judgements:  $F_{6,285}=29.71$ ,  $p<0.001$ ; corrections:  $F_{6,285}=39.39$ ,  $p<0.001$ )". Perhaps the "most remarkable result was that the advanced Chinese subjects were significantly less accurate at detecting *wh*-island violations than all the other subjects, including the elementary Chinese group (The correction scores showed a similar patter" (1997, p. 211).

The study of island constraints has been one of the most persistent topics in generative studies. Besides the development of theory, a lot of experiment, such as the GJT has been undertaken to test these locality conditions on L2 English learners. According to data from the GJT, Hawkins and Chan (1997) proposed the Failed Functional Features Hypothesis, that is, that adult L2 learners are unable to acquire properties differing from those found in their L1s. However, other studies in this field show that Chinese learners of high-proficiency L2 English do acquire the relevant properties of English (e.g. White and Juffs (1998)). These results suggest that the *wh*-feature had been acquired, and so are quite different from those reported by Hawkins and Chan (1997).

In the later decades, subsequent studies have sprung up. Juffs (2005) studies on the process of the *wh*-movement on L2 English, which recruits subjects mainly Chinese, Japanese and Spanish L2 English adult learners. Juffs draw conclusion that it is possible for L2 English learners to acquire island constraints in L2 English, and it also point out that L2 English learners may rely on their L1 knowledge in the process, especially before the final L2 grammar steady-state. Hawkins and Hattori (2006) have claimed that there is a critical period for the selection of uninterpretable syntactic features for the L2 mental grammar construction, that is, even the L2 English learners has demonstrated some target-like performance, the underlying grammatical representations still bear tremendous difference from those of L1 learners. Usha Lakshmanan et al., (2009) have found that knowledge of *wh*-movement constraints on the part of L2 learners who do not have overt *wh*-movement in their L1. Tayyebi (2012) studies the UG availability among Persian learners via their sensitivity towards Subjacency, which prove that UG is accessible

to L2 learners and their interlanguage grammars are not impaired.

#### 4. Research Questions

##### 4.1 Reasons to Replicate the Test

Hawkins and Chan were aiming to test L2 learners whose L1 is Mandarin, but their subjects were all Cantonese speakers in Hong Kong, where Mandarin is seldom used in people's daily life, especially before 1997, since Mandarin was not the official language in Hong Kong at that time. Although Hawkins and Chan have explained that the properties of predicative C in Mandarin and Cantonese are syntactically identical, it would be far better to extend the evidence by conducting the experiment among Chinese Mandarin speakers, which will also make the results more convincing.

Moreover, since the 1990s, learning English has become very popular in mainland China where English teaching is rather exam-oriented. For many objective reasons, English proficiency tests such as TOFEL, GRE, and others has become popular in universities. For years, English grammar teaching was of great importance in Chinese speakers' second language acquisition. So, considering the value placed on grammar teaching in mainland China, Hawkins and Chan's conclusion towards Subjacency violations, -that the L1 Chinese advanced English learners failed in detecting the ungrammaticality of Subjacency whereas the L1 Chinese elementary learners of English were more accurate -seems doubtful and unlikely. Furthermore, there are many linguists (such as Schachter 1989) who have used similar tests before, and claimed to find a difference in response between Chinese-speaking L2 learners and English native speakers. However, their data do not reveal differences as striking as those mentioned in Hawkins and Chan's study. Basically, I am not questioning the authenticity of Hawkins and Chan's data, but do believe it would be useful to get the data from native Mandarin speakers. Therefore, a study involving native Mandarin speakers is necessary to enhance the data of previous studies relating Chinese speakers, and to add more evidence with which to study UG in second language acquisition.

##### 4.2 Hypotheses

Although all the Chinese subjects have their English education in mainland China and have only changed their linguistic environment in the last academic year, the hypothesis is made that there is no big difference in the performance between the Chinese MA students and the language learning students in the Grammaticality Judgement Test.

Hawkins and Chan (1997) observe that English learners will typically use "a resumptive pronoun to produce a passable sentence" (1997, p.212). So if a resumptive pronoun is used by the lower level of English learners to repair the ungrammatical sentences produced by Subjacency violations, then the Chinese subjects must show a difference in judgement on ungrammatical sentences with Subjacency violations with and without a resumptive pronoun. That is, the results will demonstrate that the lower level of L2 learners are accurate in judging the ungrammaticality of Subjacency violations, but fail in judging ungrammatical sentences of Subjacency violations with a resumptive pronoun. Because a resumptive pronoun is allowed in their L1s, the lower level of L2 learners used a resumptive pronoun to correct these sentences of Subjacency violations, as in Hawkins and Chan's study. Meanwhile, the upper level of L2 learners will accept the ungrammatical sentences of Subjacency violations, and reject sentences of Subjacency violations with a resumptive pronoun.

In all, three hypotheses will be tested in this study, which are designed following the findings and explanation of Hawkins and Chan (1997).

1. The L2 learners with lower level English proficiency will show greater accuracy in rejecting the sentences of Subjacency violations than those with higher level proficiency. The prediction is that accuracy decreases as their English proficiency increases, and this is compatible with to Hawkins and Chan (1997).
2. The L2 learners with upper level proficiency will reject a resumptive pronoun inside *wh*-islands, while the lower level of L2 learner will accept these sentences as grammatical.
3. Given the complexity of the materials, the L2 learners with upper level proficiency may accept a resumptive pronoun inside *wh*-islands as a reparative resumptive pronoun.



## 5. Experiment

### 5.1 Subjects

This study has been undertaken among second language learners of English in the University of York, U.K. The subjects involved are all Chinese Mandarin speakers who are either current postgraduate students, or students in the Language Centre in the University of York. There were three groups of subjects in the study before the proficiency test was taken: a group of current Chinese MA students, a group of language learning students, and a group of native English speakers as the control group.

Although the Cantonese speakers in Hawkins and Chan's study began learning English from the age of six, Hawkins and Chan described their subjects' early classroom exposure to English as "a poor predictor of the attainment of native-like competence" (1997, p.201). Furthermore, they concluded the early exposure to English did not trigger native-like acquisition, and therefore their Chinese subjects in Hong Kong should be regarded as post-critical-period learners. Hawkins and Chan also assumed that the syntactic structure of RRCs is the same both in Chinese Mandarin and Cantonese. In my study, all the Chinese subjects in this study began to learn English from the age of 12, and their exposure to English was predominantly in a classroom setting before they came to the U.K., which is the common situation for second language learners in mainland China.

### 5.2 Cloze Test

All the Chinese participants in the University of York were current MA students or the MA candidates for 2009. The University's IELTS score requirement for MA application is at least 6.5. Therefore, all the Chinese subjects had taken IELTS test in the last two years with scores that varied from 5.5 to 7.5. The Chinese subjects have been generally regarded as English intermediate to advanced learners according to their IELTS scores. However some were still learning English in the classroom in China while others were already using English for communicative purposes on a daily basis in the U.K. So it was necessary to establish an independent measure of their proficiency.

Since Cloze tests are considered reliable indicators of second language competence (Oller, 1979), a Cloze test was adopted to measure the Chinese subjects' English proficiency. This test was borrowed from the TEM-4 (Test for English Major) in China, an authoritative national test, but with the original multiple-choice part deleted. It involves firstly a passage with a word deleted in each sentence, so the subjects have to guess what the missing words are from the context. Finally, it has one blank in each sentence with a total of 20 blanks in the passage, each of which must be filled in by the subjects. The test was administered right before the GJT.

All the subjects, including the control group, were required to finish the Cloze test. It was scored by the exact guesses as to the missing words, but any reasonable approximations were also counted as correct. The mean score of the control group was 14.2. Consequently, the Chinese subjects were re-grouped to four English levels according to their mean score: Native-like group  $\geq 14$ ; Advanced group  $\geq 11$ ; Intermediate group  $\geq 8$ ; Lower Intermediate group  $\geq 5$ . The total number of subjects in each group were: 21 in Native speakers group; 6 in Native-like group; 10 in Advanced group; 18 in Intermediate group and 7 in Lower Intermediate group.

**Table 2.** Subject Details

Subject group	Number of Subjects	Age range	Average number of years of learning English	Cloze Mean
Native Speakers	21	20-32	Mother tongue	14.2
Native-like	6	23-24	12	16*
Advanced	10	20-24	10.7	11.6
Intermediate	18	22-24	10.6	9.1
Lower-Intermediate	7	21-24	10.6	6.3

\* Some Chinese subjects scored better than the native control group in Cloze test, the reason for this might be that, as mentioned in 4.1, most Chinese students have been immersed in exam-oriented English education in China. Thus, they have acquired specific skills for English test.

Considering the uneven number of each group, the Native-like group and the Advanced group were put together and categorized as the Advanced group. Therefore, in analysis under SPSS, there were four groups together: the Native speakers group; the Advanced group; the Intermediate group; and the Lower-Intermediate group.

### 5.3 The Grammaticality Judgement Test

#### 5.3.1 The Rationale of the Grammaticality Judgement Test

In the GJT of Hawkins and Chan (1997), the Chinese subjects were scored for their ability to detect the ungrammaticality of sentences and to correct them in some form. Over half of their elementary Chinese subjects were able to judge these sentences as ungrammatical, and a third of them could make corrections. Their Cantonese-speaking L2 learners corrected *wh*-island violations "...typically by using a resumptive pronoun to produce a passable sentence" (1997, p.212):

(12)?The man who Mary told me when she will visit HIM. (1997, p.212)

Hawkins and Chan did not think that the elementary subjects in their study had acquired *wh*-operator movement. Instead, their interpretation of the data was that the Chinese speakers had transferred the non-movement [topic...pronoun] pattern of their L1 Chinese into their L2 English grammars and the elementary level L2 learners still had a preference for overt pronouns in relative clauses, as in their L1s.

Consequently, Hawkins and Chan drew the conclusion that "...with proficiency Chinese speakers do not acquire *wh*-operator movement, but analyze the gap as a null resumptive pronoun *pro*." (1997, p.213) That is, the advanced L2 learners do not acquire *wh*-operator movement, but have learned that there is no overt resumptive pronoun in English. Whereas the elementary L2 learners neither acquire *wh*-operator movement nor analyse the gap as null resumptive pronoun *pro*. Conversely, they added a resumptive pronoun inside the sentence as a repair to Subjacency violations.

Therefore, based upon what had been done before by Hawkins and Chan, this GJT is a direct test of the acceptability of resumptive pronouns inside *wh*-islands for L1 Chinese learners of L2 English. In line with the explanation of Hawkins and Chan (1997), the upper level speakers may reject resumptive pronouns inside *wh*-islands, whereas the lower level speakers will accept them and treat them as a repair for the sentences of Subjacency violation. Given the complexity of the materials, the upper level speakers may accept resumptive pronoun inside islands as repair resumptive pronouns too.

In this GJT, four test sentences concerning violation of *wh*-island constraint are borrowed from Hawkins and Chan (1997, p.226):

- (13) a. \*This is the man who(m) Mary told me when she will visit.(O)  
 b. \*This is the clerk who(m) Lily told Peter when she will employ.(O)  
 c. \*This is the lady who(m) Richard told me when he will meet.(O)  
 d. \*This is the flat which my mother told me when she will rent.(O)

Changes have been made to alter all four *wh*-pronouns in the original test sentences to *that*. One point made by Hawkins and Chan is that "...Chinese subjects show a preference for overt *wh*-operators over complementizer *that* with subject RRCs..." (1997, p. 207). Another point is, because only *that* has an equivalent structure in Chinese Mandarin, which is *de*, to change all *wh*-pronouns to *that* would make the sentences more L1-like to those Chinese subjects. However, this change may not bring about much difference between the test results in this study and Hawkins & Chan's, for the reason that, as concluded in Hawkins and Chan (1997), the Chinese speakers can acquire the surface morphophonological properties of English predicative CP.

There are two other groups of test sentences: simple relative clauses with extraction from the subject, and direct object position with or without a resumptive pronoun. Filler items were inserted as grammatical sentences with tensed complement to V, and ungrammatical ones with null subjects in an embedded clause introduced by *that*. That is because in English, an overt resumptive pronoun is required in a relative clause, though this can be null in Chinese relative clauses. Examples from English and Chinese are as follows:

- (14) a. \*The girl cried when e lost her way.  
 b. nuhai ku dang e milu shi  
 "girl cried when e lost-way" (dang...shi = "when") (Hawkins and Chan, 1997, p. 215)

Another two kinds of filler items are grammatical sentences with object pronouns and ungrammatical sentences with null objects.

#### 5.3.2 Grammaticality Judgement Test

The test sentences of the GJT were designed with the purpose of testing the acceptability of resumptives inside

islands for Chinese speakers of different levels. The test sentences included 16 *wh*-island violations (four borrowed from Hawkins and Chan's (1997) study) with/without a resumptive pronoun and 32 simple relative clauses with extraction from subject and direct object with/without a resumptive pronoun. The 16 filler items were 4 grammatical sentences with a tensed complement to V; 4 grammatical sentences with object pronouns; 4 ungrammatical sentences with a tensed complement to V, no subject in embedded clause; and 4 ungrammatical sentences with null objects.

Violation of the *wh*-island constraint

(15)1-1\*This is the man that Mary told me when she will visit. (Hawkins and Chan (1997:226) revised)

This is the man that Mary told me when she will visit him.

Simple relative clauses with extraction from subject and direct object with/without a resumptive pronoun

subject relatives

2-1. \*The man that he lives next door has won.

The man that lives next door has won.

direct object relatives

3-1. \*The man that she admires him is a singer.

The man that she admires is a singer.

The test sentences were displayed in two questionnaires with or without a resumptive pronoun alternately. Filler items were the same across the two questionnaires. Therefore, each questionnaire involved 40 randomized sentences, of which 24 were mainly test sentences with/without a resumptive pronoun of each condition, and 16 were the filler items.

#### 5.4 Scoring Procedure

The scoring procedure in the GJT is as follows:

definitely correct	3
probably correct	2
probably incorrect	1
definitely incorrect	0

Although the test sentences were displayed in two questionnaires, there were four sentences for each condition. The scores of each type will be divided by four after scoring. Therefore, the final mean scores of GJT will be put into analysis under SPSS.

## 6. Results

The results of the GJT were arranged according to the importance of the findings. These results were supposed to be the answers to the research questions and to support the argument that the UG principles are available in second language acquisition.

### 6.1 Violation of the *wh*-Island Constraint

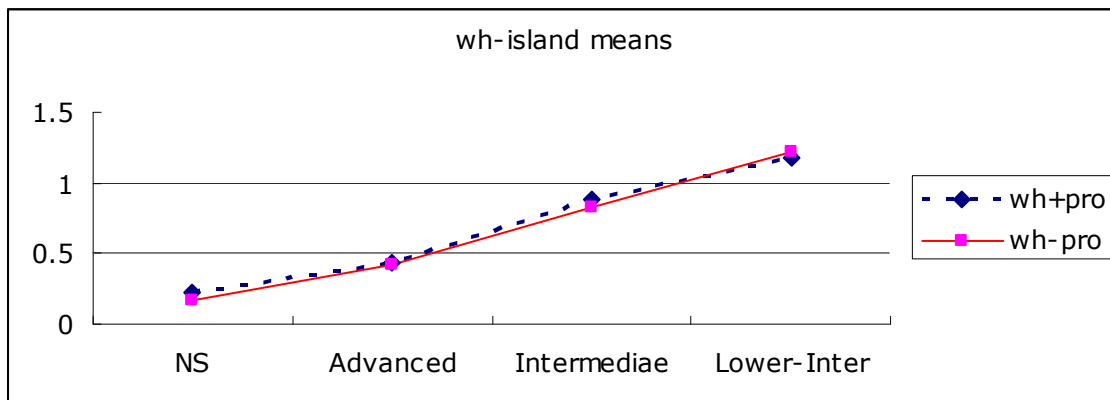
Many studies in Second Language Acquisition (SLA) concerning island constraints agree that if the L2 learners have acquired *wh*-operator movement and their L2 grammar is constrained by UG principles, they should be able to recognize ungrammatical sentences containing a Subjacency violation. Therefore, in this GJT, there are 16 test sentences for this condition: four from Hawkins and Chan's (1997) studies; four made up with the same structure; and another eight created by adding a resumptive pronoun. All test sentences with or without resumptive pronouns are ungrammatical.

According to Table 3 and Graph 1 below, we find that the mean scores of the judgement of Chinese speakers to the sentences of *wh*-island with or without resumptives are displayed in almost the same pattern each time. That is, all the Chinese subjects except the lower intermediate group find the test sentences ungrammatical, which is consistent with the control group. The data –mean score of each condition by each group- were analyzed under SPSS by using “Repeated measures”, but no significance was found: *wh*-island:  $F(1, 58) = 0.100$ ,  $p = 0.754$ ,  $p > 0.05$ ; *wh*-island \* group:  $F(3, 58) = 0.069$ ,  $p = 0.976$ ,  $p > 0.05$ . The data also shows that the more advanced a subject's English proficiency, the more accuracy they can achieve in judging the ungrammaticality of sentences of Subjacency violation; this result

is incompatible with our prediction. The main hypothesis was that the L2 learners with lower level English proficiency would show greater accuracy in rejecting the sentences of Subjacency violations than those with higher level proficiency and the advanced L2 learners were expected to reject a resumptive pronoun inside *wh*-islands while the lower level of L2 learners would accept it as a repair resumptive pronoun.

**Table 3.** Mean Scores of Judgements on Sentences of *wh*-island Violation with/without a Resumptive Pronoun

Group	Wh+pro	Wh-pro
Native Speakers (n=21)	0.2262	0.1667
Advanced (n=16)	0.4375	0.4219
Intermediate (n=18)	0.8889	0.8333
Lower-Intermediate (n=7)	1.1786	1.2143



**Graph 1.** Mean Scores of Judgements on Sentences of *wh*-island Violation with/without a Resumptive Pronoun

\*NS= the Native Speakers group; Advanced=the Advanced group; Intermediate= the Intermediate group; Lower-Inter= the Lower-Intermediate group.

\**wh+pro*= *wh*-island with a resumptive pronoun; *wh-pro*= *wh*-island without a resumptive pronoun

This study's results are different from those found by Hawkins and Chan (1997), and violate the prediction as well. In this study, the advanced L2 learners, including the intermediate group, totally reject a resumptive pronoun inside *wh*-islands, whereas the lower intermediate group neither totally accept them nor reject them, though their mean score leans more towards rejection. In other words, the upper level L2 learners rejected resumptive pronouns inside *wh*-islands as predicted, but the lower level L2 learner tended to reject resumptive pronouns inside *wh*-islands as well, which goes against our prediction. Moreover, in Hawkins and Chan's study (1997), the elementary L2 learners performed better in judging the ungrammaticality of Subjacency violations than other Cantonese speakers of higher English proficiency. But in this study, there was no significant difference between the mean scores of judgement on sentences of *wh*-island violations with or without a resumptive pronoun by the Lower-Intermediate learners. That is, the lower level of L2 learners could not detect the ungrammaticality of Subjacency violations as well as had been previously claimed, and they did no better when a resumptive pronoun was added. Furthermore, this result is inconsistent with the explanation in Hawkins and Chan (1997): it was assumed that the lower level of L2 learners would accepted such sentences with a resumptive pronoun because they would accept the resumptive pronoun as a repair: "the lower level of English learners prefer using a resumptive pronoun to produce a passable sentence" (1997, p.212).

### 6.2 Simple Relative Clause

Since a resumptive pronoun is obligatory in object position and is optional in subject position in Chinese (see

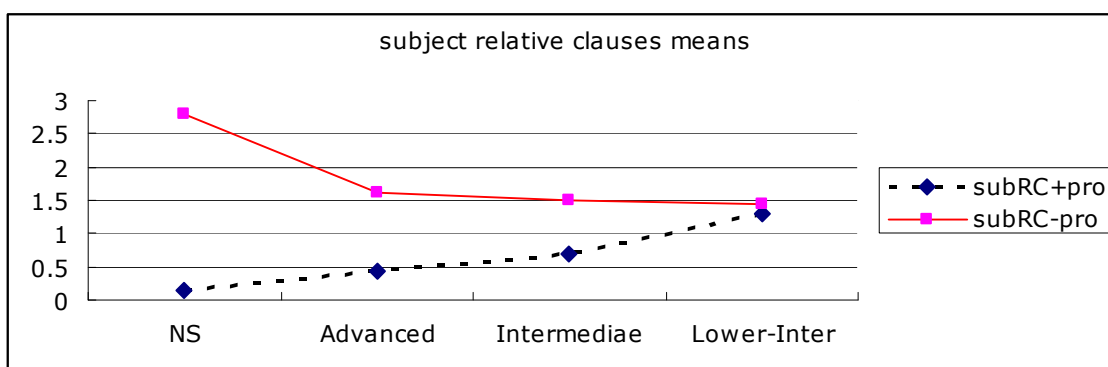
Chapter 2.4, p.7), this part of the GTJ included 32 relative clauses with extraction from subject or direct object position with or without a resumptive pronoun. The purpose was to test whether the Chinese speakers acquired the [CP...gap] properties of English relative clauses or not. It could also test the L2 learners' ability to judge the ungrammaticality of resumptive pronouns.

“Repeated Measures” analysis indicated significant differences on simple relative clauses with extraction from subject with/without resumptives between the groups: *RSsub*,  $F(1, 58) = 64.359$ ,  $p < 0.001$ ; *RSsub\*Group*,  $F(1,58)=14.437$ ,  $p < 0.001$ . Meanwhile, significant differences were displayed on simple relative clauses with extraction from direct object position with/without resumptives as well: *RCobj*,  $F(1, 58)=327.542$ ,  $p < 0.001$ ; *RCobj\*Group*,  $F(1, 58)=9.905$ ,  $p < 0.001$ .

These results concerning ungrammatical resumptive pronouns in simple sentences are compatible with the results demonstrated in Hawkins and Chan's study (1997) that Chinese speakers' mental grammar of English develops with their English proficiency. From Table 4, we find that the L2 learners, except the Lower-Intermediate group, rejected the ungrammaticality of the sentences. It seems that the L2 learners can become aware of and learn that English has an obligatory [CP...gap] pattern in relative clauses, which disobeys their L1 grammar. However, when the L2 learners including the advanced group judged the grammatical sentences without a resumptive pronoun, there was a hesitation between “probably correct” and “probably incorrect” (mean scores of judgement on *subRC-pro* are all between 1 and 2). Especially within the Lower-Intermediate group, they do not seem to acquire the [CP...gap] pattern in relative clauses in English, because they treat the ungrammatical and grammatical sentences similarly.

**Table 4.** Mean Scores of Judgements on Sentences of Simple Relative Clauses with Extraction from Subject Position with/without a Resumptive Pronoun

Group	subRC+pro	subRC-pro
Native Speakers (n=21)	0.1548	2.7976
Advanced (n=16)	0.4219	1.6094
Intermediate (n=18)	0.6806	1.5
Lower-Intermediate (n=7)	1.2857	1.4286



**Graph 2.** Mean Scores of Judgements on Sentences of Simple Relative Clauses with Extraction from Subject Position with/without a Resumptive Pronoun

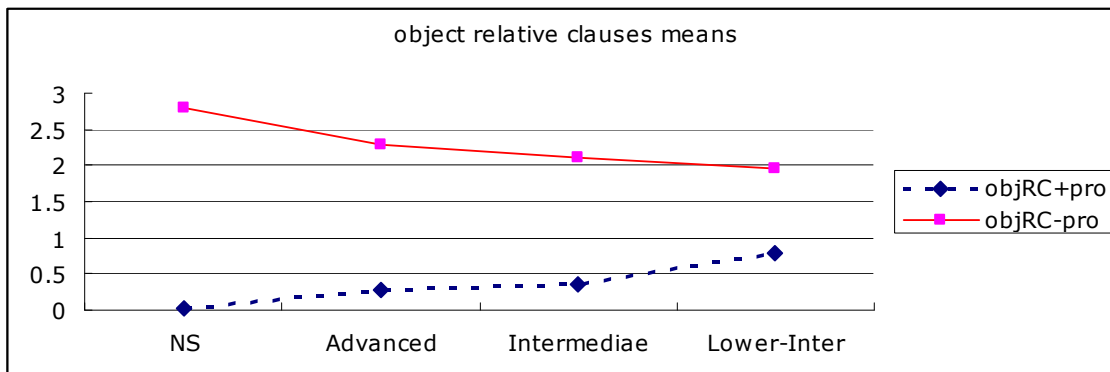
\* NS= the Native Speakers group; Advanced=the Advanced group; Intermediate= the Intermediate group; Lower-Inter= the Lower-Intermediate group.

\*subRC+pro= Simple relative clauses with extraction from subject position with a resumptive pronoun; subRC-pro= Simple relative clauses without extraction from subject position with a resumptive pronoun

In Table 4, all the L2 learners, except the Lower-Intermediate group, rejected sentences of *SubRC+pro* type and few of the L2 learners, including the Advanced group, could achieve the level of Native Speakers on *SubRC-pro*. Nonetheless, the Chinese subjects involved in this study show greater accuracy in judging grammaticality of relative clauses with extraction from direct object positions than from subject positions. Table 5 shows that all the Chinese groups are fairly sure about the grammaticality of *ObjRC-pro* and all the subjects reject sentences of *ObjRC+pro*. By contrast, according to the data of Hawkins and Chan (1997), “22 of their 47 elementary Chinese subjects accepted as ‘correct’ ungrammatical sentences involving resumptive pronouns in 73% or more cases. Of these 22, 18 ‘corrected’ the Subjacency violations by introducing a resumptive pronoun in 75% or more cases” (1997, p.212)(Note 1). So on the basis of these results, Hawkins and Chan concluded that their elementary subjects were able to a rescue Subjacency violation by introducing resumptive pronouns because that is what was also required by their L1s, not because they had recognized the Subjacency violation and this will discussed later.

**Table 5.** Mean Scores of Judgements on Sentences of Simple Relative Clauses with Extraction from Direct Object Position with/without a Resumptive Pronoun

Group	objRC+pro	objRC-pro
Native Speakers (n=21)	0.0357	2.7976
Advanced (n=16)	0.2813	2.2969
Intermediate (n=18)	0.3611	2.1111
Lower-Intermediate (n=7)	0.7857	1.9643



**Graph 3.** Mean Scores of Judgements on Sentences of Simple Relative Clauses with Extraction from Direct Object Position with/without a Resumptive Pronoun

\* NS= the Native Speakers group; Advanced=the Advanced group; Intermediate= the Intermediate group; Lower-Inter= the Lower-Intermediate group.

\*objRC+pro=Simple relative clauses with extraction from direct object position with a resumptive pronoun;

objRC-pro= Simple relative clauses without extraction from direct object position with a resumptive pronoun

In all, the L1 Chinese learners of L2 English can judge the test sentences mostly in accordance with the control group. However, there is an asymmetry of L2 learners in judging relative clauses with extraction from subject and direct object positions. The Chinese speakers performed more like the native English speakers in judging grammaticality when they were tested with the relative clauses with extraction from direct object position with/without a resumptive pronoun. In other words, the Chinese speakers can acquire [CP...gap] pattern of English relative clauses which is lacking in their L1s, and the ability to it develops with their L2 proficiency.

### 6.3 Filler Items Analysis

The same tokens of filler items were presented towards all the subjects across both the questionnaires. In total, there were 16 tokens and 4 for each condition: grammatical sentences with tensed complement to V; grammatical sentences with object pronouns; ungrammatical sentences with tensed complement to V, with no subject in embedded clause; ungrammatical sentences with null object.

“Repeated Measures” under SPSS was used to analyse the means between groups: first, significant differences were found by analyzing the means from *tensedC* and *tensedC-nosub* between groups,  $F(1, 58)=381.116$ ,  $p<0.001$ ; moreover, significant differences were found between groups towards “objpro” and “null obj”,  $F(1, 58)=151.591$ ,  $p<0.001$ . The Chinese subjects were compatible with the control groups who showed great accuracy in judging grammaticality towards sentences involving overt or null subject in embedded clause.

Sentences with null subjects in an embedded clause introduced by a *wh*-phrase are ungrammatical in English, but this same structure is accepted in Chinese, see example (14). However, compared to the test sentences of Hawkins and Chan (1997), this GJT changed all the *wh*-phrases to *that*. Such sentences with null subjects in an embedded clause introduced by *that* remain ungrammatical in English, for example:

(16) \* The worker saw that e had left.

Crucially, equivalent sentences in Chinese involving an embedded null subject turn to be ungrammatical too:

(17) \* Gongren kanjian e yijing likai.

Worker see e had leave

“The worker saw that e had left”.

From Table 6, we find that with proficiency there is a progressive recognition of ungrammatical null subjects in an embedded clause introduced by *that*. Since an overt subject in an embedded clause introduced by *that* is obligatory both in Chinese and English, the same value in L1 and L2 may lead the L2 learners to succeed in acquiring the same property in second language acquisition.

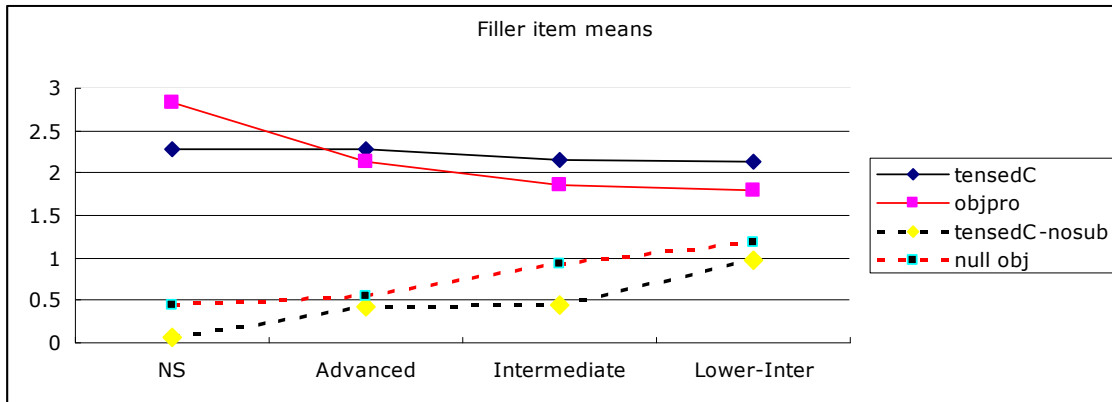
For the resumptive pronoun in object position, the test sentences were using verbs which are obligatorily transitive; resumptive pronouns in object position should be overt in English, see example (18)a. The results show that with an increase in English proficiency, the Chinese speakers accepted the sentences with an object pronoun and tended to reject the sentences with null objects as the control group did; however the Lower-Intermediate group showed a low level of accuracy:

(18) a. After he read the book, John put it back on the shelf.

b. After he used the tool, John put back in the box.

**Table 6.** Mean Scores of Judgements on Filler Items

Group	tensedC	objpro	tensedC-nosub	Null obj
Native Speakers (n=21)	2.2857	2.8214	0.0595	0.4524
Advanced (n=16)	2.2813	2.1406	0.4219	0.5469
Intermediate (n=18)	2.1528	1.8611	0.4444	0.9306
Lower-Intermediate (n=7)	2.1429	1.7857	0.9643	1.1786



**Graph 4.** Mean Scores of Judgements on Filler Items

\* NS= the Native Speakers group; Advanced=the Advanced group; Intermediate= the Intermediate group; Lower-Inter= the Lower-Intermediate group.

\*tensedC=grammatical sentences with tensed complement to V; Objpro =grammatical sentences with object pronouns; tensedC-nosub=ungrammatical sentences with tensed complement to V, no subject in embedded clause; null obj=ungrammatical sentences with null objects.

6.4 Means Scores of GJT before Regroup

The results before regroup and after regroup are similar, and the SPSS analysis shows no significant results between the data change. For example, *wh*-island vs. groups, *before*  $F(1,57)=0.124, p=0.726$ ; *after*  $F(1, 58)=0.100, p=0.754$ ; both  $p>0.05$ , indicating no significant differences were found. Because the only change is to unite Group 2 and Group 3, those are the original “Native-like” and “Advanced” group. As mentioned before, the two groups of advanced L2 learners were united into one group mainly because of they had a very uneven number of subjects. Doing so made for more convenient analysis.

**Table 7.** Means of GJT before Regrouping

G	Wh +pro	Wh -pro	subRC +pro	subRC- pro	objRC +pro	objRC -pro	F tenseC	F objpro	F nosbj	F Null obj
1	.2262	.1667	.1548	2.7976	.0357	2.7976	2.2857	2.8214	.0595	.4524
2	.7083	.6250	.3750	1.5833	.4583	2.1667	2.3750	1.9167	.2917	.9583
3	.2750	.3000	.4500	1.6250	.1750	2.3750	2.2250	2.2750	.5000	.3000
4	.8889	.8333	.6806	1.5000	.3611	2.1111	2.1528	1.8611	.4444	.9306
5	1.1786	1.2143	1.2857	1.4286	.7857	1.9643	2.1429	1.7857	.9643	1.1786

\*G 1=Native speaker group (n=21); G2=the Native-like group (n=6);G3=the Advanced group (n=10); G4=the Intermediate group (n=18); G5=the Lower-Intermediate group (n=7).

**7. Discussion**

In this study I intended to investigate whether the L1 Chinese speakers of L2 English with high proficiency would reject resumptive pronouns inside *wh*-island sentences or accept them as repair resumptives to the sentences of Subjacency violations; the L2 learners with lower proficiency would accept resumptive pronouns inside *wh*-islands. Meanwhile, I wanted to enhance Hawkins and Chan’s conclusion that the accuracy of Chinese-speaking L2 learners in judging ungrammaticality of *wh*-islands decreases as their English proficiency increases. Considering the backgrounds of the Chinese subjects involved, this is a case within post-critical-period second language acquisition. This study was based on the assumption that if Chinese speakers show evidence of knowledge of Subjacency in their English interlanguage grammar, it would be the evidence of the availability of UG in second language acquisition.



The Failed Functional Features Hypothesis in Smith and Tsimpli (1995) suggests that adult L2 learners cannot acquire properties in L2s which are distinct from the L1s; meanwhile, the interlanguage grammars are still constrained by UG and can generate representations accounting for the L2. For example, [+/-wh] in C cannot be reset in L2 acquisition. Hawkins and Chan (1997) followed this assumption that only L1 parameter settings are exemplified in interlanguage grammars; that is, the L2 learners can only acquire the functional features instantiated in their L1s, and the features of functional categories cannot be reset. The findings from the GJT of Hawkins and Chan's Cantonese and French subjects were used to support this hypothesis. Evidence showed that the Cantonese subjects were unable to acquire *wh*-movement, a property which is lacking in their L1s; and they had difficulties in recognizing resumptive pronouns and Subjacency violations as ungrammatical in English. By contrast, the French subjects could acquire *wh*-movement successfully in comparison with the performance of the native speakers group, because French is a language with *wh*-movement.

The key findings of Hawkins and Chan (1997) are: 1) Elementary-level Chinese-speaking learners of L2 English accepted resumptive pronouns in English relative clauses; 2) The L1 Chinese-speaking learners of L2 English become less accurate in dealing with Subjacency violations as their English proficiency increases. Here we must go back to the hypotheses of this study. First, the Advanced L2 learners did perform better in recognizing Subjacency violations than the Lower-Intermediate level of L2 learners. The L2 learners become more like native speakers as their English proficiency increases. This is a different result from that found in Hawkins and Chan's study, which is incompatible with the prediction. Second, as predicted, the L2 learners with upper level proficiency rejected sentences with a resumptive pronoun inside *wh*-islands, but the lower level of L2 learners rejected them too. This accuracy goes along with their English proficiency. From the reflection of mean scores of GJT, the L2 learners performed better than the prediction in judging the ungrammaticality of sentences with Subjacency violations; however Chinese speakers, including those with lower English proficiency, performed against the prediction in not accepting a resumptive pronoun as a repair to sentences with Subjacency violations. In other words, the Chinese subjects in this study could accurately judge the ungrammaticality of sentences with a *wh*-island violation, and their accuracy increased as their English proficiency increased. Moreover, there was no significant difference where the resumptive pronoun had been added in. Therefore, Hawkins and Chan's discussion about "failed functional features hypothesis", including their assertion that Chinese-speaking learners cannot reset the *wh*-movement parameter, turns out to be problematic.

This study has actually demonstrated that the interlanguage grammars of L2 learners are constrained by UG principles; at the same time, their interlanguage grammars show evidence of parameter settings other than those of the L1s. As in White (1988), in cases where L1 and L2 differ along some parameters, the L2 learners may adopt the L1 value. Therefore, the L2 learners may produce or accept those properties which are ungrammatical in L2 but acceptable in their L1s, and which are within the UG framework. Schwartz and Sprouze (1996) later proposed the Full Transfer Full Access hypothesis, arguing that there is nothing incompatible in the assumption that both UG and the L1 grammar are implicated. According to the Full Transfer Full Access hypothesis, the entire L1 grammar constitutes the initial state. When the L1 grammar is unable to accommodate properties of the L2 input, then the L2 learners will reconstruct the interlanguage grammars under UG constraint. In second language acquisition, parameters in interlanguage grammars will initially be set from the properties instantiated in L1s, but if the parameter values are different from those in L1, parameters may be reset appropriately in response to L2 input.

As was discussed before, resumptive pronouns are not an obligatory property in the subject position in Chinese Mandarin, which can either be overt or null; while the resumptive pronouns in the object position are obligatory. However, the test sentences used in this GJT relating *wh*-islands have added resumptive pronouns in the object position. Therefore, if the L2 learners can only acquire the properties instantiated in their L1s, then they would have accepted sentences with resumptive pronouns as correct and rejected those without resumptive pronouns. Nonetheless, in this study, except the lower intermediate group, the Chinese subjects rejected those sentences with resumptive pronouns, which indicated that UG may be available in second language acquisition. Besides, the test sentences on *wh*-islands constraints were sentences with extraction by relativization. In Huang (1982a), *wh*-island constraint is not respected in Chinese under relativization. So if UG is partially available, then the L2 learners can only acquire the properties that were demonstrated in their L1s, which means that they may accept the sentences of *wh*-islands as grammatical. However, the results show that the L2 learners with higher proficiency can make a better judgement as to the grammaticality of a sentence. It is claimed that Chinese has limited Subjacency, but in this case, we find that L1 Chinese-speaking learners of English can learn the properties not instantiated in their L1s. This supports the argument that UG is available in second language acquisition.

According to the data collected, the L2 learners perform better on relative clauses with extractions from the direct

object position than relative clauses with extractions from the subject position. By contrast, when the Chinese subjects were judging the grammatical sentences without resumptive pronouns (*RCsub-pro*), their attitudes, including the Advanced group, were somewhere in the middle. All the Chinese speakers accepted these sentences without resumptive pronouns, though it must be observed that the lower intermediate group, in particular, could not really tell the grammaticality of the relative clauses with extraction from subject position with or without a resumptive pronoun. But the Chinese speakers were good at recognizing the grammatical sentences with extraction from direct object position without a resumptive pronoun. Interestingly, the asymmetry visible in the learners' L1s still transferred to their L2 acquisition. That is, the asymmetry will be visible in their L2 acquisition even to the advanced L2 learners. Since Mandarin has subject and object asymmetry itself, in which the resumptive pronouns are null in subject positions while they can be alternately overt or null in object positions, the fact is that the L2 learners are able to learn that there should be a gap in English, that is, the [CP...gap] properties. So here it appears that adult L2 learners can be successful in acquiring the properties which are not instantiated in their L1s, again, on the evidence of the availability of UG. However, when the L2 learners face the grammatical gap in the subject position in relative clauses, they seem to be in a dilemma. That is, although the L2 learners can learn some properties that are not in their L1s, their interlanguage grammar is more native-like as their English proficiency increases. But it is still hard for them to achieve a native-like level, because of their failure to recognize the grammatical sentences without a resumptive pronoun in subject positions. By contrast, the L2 learners can be rather native-like in judging relative clauses with extraction from the direct object position either with or without resumptive pronouns. As discussed before, resumptive pronouns are sometimes optional in Chinese Mandarin, but obligatory where in embedded subject or object position and this asymmetry can be accounted for as the effect of Full Transfer Full Access.

Furthermore, the Chinese speakers show an asymmetry of null subjects and null objects extracted from relative clauses with or without a resumptive pronoun, which can be compared to the asymmetry of null subjects and null objects detected in the previous study by Yuan (1997) of L1 Chinese learners of L2 English. Yuan (1997) carried out a sentence acceptability judgment test on 159 adult Chinese learners of L2 English, who were divided into seven groups according to their English proficiency, in order to examine L2 learners' judgment about null subjects and null objects. Yuan's data analysis showed that the subjects, except for some elementary learners, did not have much difficulty in rejecting the incorrect null-subject sentences, but all of them had difficulty in rejecting ungrammatical null-object sentences. However, this present GJT is to test resumptive pronouns in simple relative clauses. And the Chinese subjects in this study show a better judgement on extractions from direct null object positions than those from null subject positions with or without a resumptive pronoun. Faced with the ungrammatical sentences with a resumptive pronoun inside relative clauses, the Chinese subjects are able to reject them and be accurate in their use of relative clauses with the extractions from direct object positions. With the grammatical sentences without a resumptive pronoun inside relative clauses, the Chinese subjects, including the advanced learners, were unsure whether to accept or reject them, but were more accurate in dealing with the sentences with extractions from direct object positions. This finding supports the hypothesis that the second language acquisition of Chinese speakers are under UG constraint; it also signals that UG may not be entirely equivalent to the L1, even though the asymmetry can be accounted for within their L1 values.

However, several previous studies have claimed that UG no longer constrains adult interlanguage grammars, and data from these studies gives evidence that L2 learners showed low accuracy on Subjacency violations, often at chance levels, and failed to recognize these violations as ungrammatical (e.g., Schachter, 1989, 1990). Some other studies (e.g. Hawkins and Chan 1997) extended the theory to partial availability to UG in interlanguage grammars. The L2 learners' interlanguage grammars are not UG constrained where functional features in L2 English are not accessible, thus, the L2 learners were assumed to have different underlying syntactic representations. Nonetheless, results from this study show that the L2 learners performed the GJT above chance level, although there was still a difference between them and native speakers. The results can support the argument that the universal principles are still operative in adult L2 learners' interlanguage grammars. UG is still available to adult L2 learners because they can identify the ungrammatical sentences that violate abstract universal principles without being taught formally or informally.

According to Belikova and White (2009), the investigation of island effects has resulted in changes of theory (e.g. from the original island constraints to Chomsky's *Barriers* system), but the question as to whether the UG is L1 based has not been resolved yet: it is "...impossible to distinguish between the effects of the L1 and of UG" (2009, p.219). For example, the L2 learners in this study were able to detect the ungrammaticality of *wh*-island violations, but *wh*-island constraint is not respected in Chinese under relativization. Using the notion of Full Transfer Full Access hypothesis, the L2 learners start from their L1 syntax and the initial grammar would be changed or

restructured on the basis of the L2 input. The L2 learners acquire some properties which do not exist in their L1s, which is definitely under the effect of UG. However, the fact remains that the Chinese-speaking L2 learners in this study maintained the subject and object asymmetry as in their L2 acquisition as well. Thus although a pure UG explanation is needed, as Belikova and White mentioned, the L2 learners' interlanguage grammars in this study appear to have been restricted and fall within UG range.

## 8. Conclusion

The results from the study on *wh*-island constraint contrast with the findings from Hawkins and Chan's study. The L1 Chinese of L2 English learners can detect the ungrammaticality of sentences of Subjacency violations, and their ability to make the right judgement is in accordance with their English proficiency. Besides, all the L2 learners involved, excluding the lower intermediate group, think of the sentences of *wh*-islands within a resumptive pronoun as ungrammatical, which is contrary to the previous claim made by Hawkins and Chan, that the resumptive pronoun is the repair to sentences of Subjacency violations. In addition the findings in previous studies demonstrated that UG principles are only partially available; in other words, the L2 learners can only acquire the properties instantiated in their L1s. Yet the L2 learners in this study revealed the ability to learn the properties in L2s which are lacking in the L1s. As was reflected in the data, the L2 learners did not perform like native speakers, but were still quite successful. The more advanced they were, the better they did in the GJT. Since Chinese is a language with limited Subjacency and non-movement [topic... pronoun] pattern, we can draw the conclusion that the interlanguage grammar of Chinese-speaking L2 learners falls within the domain of UG principles.

In conclusion, the L1 Chinese adult learners of English, especially the advanced L2 learners, could gain access to island constraints, and could perform with much greater accuracy in detecting violations than the Chinese-speaking L2 learners studied by Hawkins and Chan (1997). Moreover, the L2 learners showed a subject-object asymmetry, at least in the case of extractions from simple relative clauses. However, although this study achieved some compelling results, there are some objective reasons in methodology that have caused the differences.

Since some test sentences in this study are borrowed from Hawkins and Chan (1997), but the test results are in some senses opposite to those of the previous study, this brings the theory used as explanation in the former study into question. Nonetheless, there are some problems in this study that may have affected the experiment results. Firstly, the Chinese subjects involved in Hawkins and Chan's study were Cantonese-speaking students from a secondary school in Hong Kong and from the City University of Hong Kong. They had all taken the Oxford Placement Test as the proficiency test. However, my Chinese subjects were all Mandarin speakers, who either were or were going to become MA students at the University of York. They all had IELTS scores, and the lowest was 5.5 (people with this score can be regarded as intermediate English learners), but a Cloze test was given before the test. The different proficiency tests and the selection of the subjects in different L1s and from different educational backgrounds are all factors that may affect the experiment results. Secondly, Hawkins and Chan adopted a paced GJT, which has a strict time constraint on the responding time. By contrast, the GJT I administered was just a paper and pencil test, because of the time constraint. So maybe the results of these tests were affected by the different responding time; the subjects in my study had more time to make the judgement than the subjects in Hawkins and Chan's study.

Further research on Subjacency violations in second language acquisition with an attempt to replicate Hawkins and Chan's test with subjects from Chinese or other language backgrounds should pay a particular attention to the methodology. Furthermore, some linguists also suggest that the most important work in recent research of island effects is not to find out whether the interlanguage grammars are UG constrained or L1 based, but to look for a pure UG explanation (Belikova & White 2009).

## References

- Belikova, A., & White, L. (2009). Evidence for the fundamental difference hypothesis or not? Island constraints revisited. *Studies in second language acquisition*, 31, 199-223. <https://doi.org/10.1017/S0272263109090287>
- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, N. (1986a). *Barriers*. Cambridge, MA: MIT Press.
- Cinque, G. (1990). *Types of A'-dependencies*. Cambridge, Mass.: MIT Press.
- Haegeman, L. (1993). *Introduction to Government and Binding Theory*. Cambridge: Cambridge University Press.

- Hawkins, R., & Chan, C. (1997). The partial availability of Universal Grammar in second language acquisition: the 'failed functional features hypothesis'. *Second Language Research*, 13, 187-226. <http://dx.doi.org/10.1191/026765897671476153>
- Hawkins, R., & H. Hattori. (2006). Interpretation of English multiple wh-questions by Japanese speakers: a missing uninterpretable feature account. *Second Language Research*, 22(3), 269-301. <http://dx.doi.org/10.1191/0267658306sr269oa>
- Huang, C.-T. (1982a). Logical relations in Chinese and the theory of grammar. Unpublished doctoral dissertation, MIT, Cambridge, MA.
- Huang, C.-T. (1982). Move wh in a language without wh movement. *The Linguistic Review*, 1(4), 369-416. <http://dx.doi.org/10.1515/tlir.1982.1.4.369>
- Huang, C.-T. J. (1984). On the distribution and reference of empty pronouns. *Linguistic Inquiry*, 15, 531-574.
- Johnson, J., & Newport, E. (1989). Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language. *Cognitive, Psychology*, 21, 60-99. [http://dx.doi.org/10.1016/0010-0285\(89\)90003-0](http://dx.doi.org/10.1016/0010-0285(89)90003-0)
- Johnson, J., & Newport, E. (1991). Critical period effects on universal properties of language: the status of subadjacency in the acquisition of a second language. *Cognition*, 39, 215-58. [http://dx.doi.org/10.1016/0010-0277\(91\)90054-8](http://dx.doi.org/10.1016/0010-0277(91)90054-8)
- Juffs, A. (2005). The influence of first language on the processing of wh-movement in English as a second language. *Second Language Research*, 21(2), 121-151. <http://dx.doi.org/10.1191/0267658305sr255oa>
- Lakshmanan, U., Kim, K. L., McCreary, R., Park, K.-S., Suen, U., & S. Lee. (2009). L2 learners' Sensitivity to Strong and Weak Subadjacency-Violations in Online Processing. Paper presented at the Proceedings of the 10th Generative Approaches to Second Language Acquisition Conference, Somerville, MA.
- Li, X. (1998). Adult L2 accessibility to UG: An issue revisited. In S. Flynn, G. Martohardjono, & W. O'Neil (eds.), *The generative study of second language acquisition*, 232-286, Mahwah, NJ: Erlbaum.
- Oller, J. (1979). *Language test at school*. London: Longman.
- Rizzi, L. (1982). *Issues in Italian syntax*. Dordrecht: Foris. <https://doi.org/10.1515/9783110883718>
- Rizzi, L. (1986). Null objects in Italian and the theory of pro. *Linguistic Inquiry*, 17, 507-557.
- Ross, J. (1967). Constraints on variables in syntax. Doctoral dissertation, MIT. Also published (1986) as *Infinite Syntax*. Norwood, NJ: Ablex.
- Tayyebi, G. (2012). The Availability of Universal Grammar to Second Language Learners: A case of wh-movement. *International Journal of English Linguistics*, 3, 34-43. <http://dx.doi.org/10.5539/ijel.v2n3p34>
- Schachter, J. (1989). Testing a proposed universal. In S. Gass and J. Schachter (eds.), *Linguistic perspectives on second language acquisition*, 73-88. Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/CBO9781139524544.007>
- Schachter, J. (1990). On the issue of completeness in second language acquisition. *Second Language Research*, 6, 93-124. <http://dx.doi.org/10.1177/026765839000600201>
- Schwartz, B., & Sprouse, R. (1994). Word order and nominative Case in nonnative language acquisition: a longitudinal study of (L1 Turkish) German interlanguage. In T. Hoekstra and B. Schwartz (eds.), *Language acquisition studies in generative grammar*. John Benjamins, Amsterdam. <https://doi.org/10.1075/lald.8.14sch>
- Schwartz, B., & Sprousee, R. (1996). L2 cognitive states and the 'full transfer/full access' model. *Second Language Research*, 12, 40-72. <https://doi.org/10.1177/026765839601200103>
- Smith, N. V., & Tsimpli, I. M. (1995). *The mind of a savant: language learning and modularity*. Oxford: Blackwell.
- Tsimpli, I.M., & Roussou, A. (1991). Parameter-resetting in L2? *UCL Working Papers in linguistics*, 3, 149-170.
- Tsimpli, I.M., & Smith, N.V. (1991). Second language learning: evidence form a polyglot savant. *UCL working papers in linguistics*, 3, 171-184.
- Tsimpli, I.M., & Roussou, A. (1991). Parameter-resetting in L2? *UCL Working papers in Linguistics*, 3, 149-169.
- Wang, Q., Lillo-Martin, D., Best, C., & Levitt, A. (1992). Null subject vs. null object: some evidence from the

acquisition of Chinese and English. *Language Acquisition*, 2, 221-254.  
[https://doi.org/10.1207/s15327817la0203\\_2](https://doi.org/10.1207/s15327817la0203_2)

White, L. (1988). Island effects in second language acquisition. In S. Flynn and W. O'Neil (eds.), *Linguistic Theory in Second Language Acquisition*, 144-172. [http://dx.doi.org/10.1007/978-94-009-2733-9\\_10](http://dx.doi.org/10.1007/978-94-009-2733-9_10)

White, L. (1992). Subjacency violations and empty categories in second language acquisition. In H. Goodluck and M. Rochemont (eds.), *Island Constraints: Theory, Acquisition and Processing*, Dordrecht: Kluwer. [http://dx.doi.org/10.1007/978-94-017-1980-3\\_17](http://dx.doi.org/10.1007/978-94-017-1980-3_17)

White, L., & F. Genesee. (1996). How native is near-native? The issue of ultimate attainment in adult second language acquisition. *Second Language Research* 11, 233-65. <http://dx.doi.org/10.1177/026765839601200301>

White, L., & A. Juffs. (1998). Constraints on wh-movement in two different contexts of non-native language acquisition: Competence and processing. In S. Flynn, G. Martohardjono and W. O'Neil (eds.), *The generative study of second language acquisition*, 111-29. Mahwah, NJ: Lawrence Erlbaum.

White, L. (2003). *Second Language Acquisition and Universal Grammar*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511815065>

Xu, L.J. (1986). Free empty category. *Linguistic inquiry*, 17, 75-93.

Xu, L. (1990). Remarks on LF movement in Chinese questions. *Linguistics*, 28, 355-382.

Yuan, B. (1997). Asymmetry of null subjects and null objects in Chinese speakers' L2 English. *Studies in Second Language Acquisition*, 19, 467-97. <https://doi.org/10.1017/S0272263197004038>

## Note

Note 1. Example of the ungrammatical relative clauses involving a resumptive pronoun is in Hawkins and Chan (1997, p.212).  
 E.g. \*The man who she admires him is an artist. In my studies, similar test sentences were given. They are simple relative clauses with extraction from direct object position with/without a resumptive pronoun. E.g.

a. \*The man that she admires him is a singer.

b. The man that she admires is a singer.

## Appendix A

### Sentences violating the Subjacency condition

Violation of the *wh*-island constraint

1-1\*This is the man that Mary told me when she will visit.

This is the man that Mary told me when she will visit him.

1-2\*This is the clerk that Lily told Peter when she will employ.

This is the clerk that Lily told Peter when she will employ him.

1-3\*This is the lady that Richard told me when he will meet.

This is the lady that Richard told me when he will meet her.

1-4\*This is the flat that my mother told me when she will rent.

This is the flat that my mother told me when she will rent it.

Hawkins and Chan (1997, p. 226)

1-5. \*This is the cat that John told me when he will send away.

This is the cat that John told me when he will send it away.

1-6. \*This is the monkey that Helen told me when she will feed.

This is the monkey that Helen told me when she will feed it.

- 1-7 \*This is the guy that Sue told me when she will marry.  
This is the guy that Sue told me when she will marry him.
- 1-8. \*This is the book that Jimmy told me when he will buy.  
This is the book that Jimmy told me when he will buy it.

### **Simple relative clauses with extraction from subject and direct object with/without a resumptive pronoun**

#### **8 subject relatives**

- 2-1. \*The man that he lives next door has won.  
The man that lives next door has won.
- 2-2 \*The waiter that he served us is called George.  
The waiter that served us is called George.
- 2-3. \*The boy that he married Sue has left.  
The boy that married Sue has left.
- 2-4 \*The boy that he had been to Paris has graduated.  
The boy that had been to Paris has graduated.
- 2-5 \*The girl that she likes Tom is only five.  
The girl that likes Tom is only five.
- 2-6 \*The man that he fixed the door is John's father.  
The man that fixed the door is John's father.
- 2-7 \*The man that he talked with Joy has two daughters.  
The man that talked with Joy has two daughters.
- 2-8\* The girl that she plays excellent tennis is from the U.K.  
The girl that plays excellent tennis is from the U.K.

#### **8 direct object relatives**

- 3-1. \*The man that she admires him is a singer.  
The man that she admires is a singer.
- 3-2. \*The actress that I saw her is very beautiful.  
The actress that I saw is very beautiful.
- 3-3. \*The patient that I visited him was very optimistic.  
The patient that I visited was very optimistic.
- 3-4. \*The parcel that I received it was from my sister.  
The parcel that I received was from my sister.
- 3-5. \*The girl that John likes her is my best friend.  
The girl that John likes is my best friend.
- 3-6. \*The boy that I kissed him is Tom's son.  
The boy that I kissed is Tom's son.
- 3-7. \*The teacher that we loved her has gone.  
The teacher that we loved has gone.
- 3-8. \*The bridge that we saw it was built in 1809.  
The bridge that we saw was built in 1809.

**Filler items/test of acceptability of null subject and null object****Grammatical****4 sentences with tensed complement to V**

- 4-1. John thought that Bill had left.
- 4-2. Teddy said that Tom had moved to Rome.
- 4-3. Ross once believed that the dead dog has been sent to a farm.
- 4-4. Jack knew that the girl had been robbed.

**4 grammatical sentences with object pronouns**

- 5-1. After he read the book, John put it back on the shelf.
- 5-2. Being annoyed by the dog, Tom sent it away.
- 5-3. Although the apples were not ripe, John still picked them.
- 5-4. Even though John had read the book, he read it again.

**Ungrammatical****4 sentences with tensed complement to V, no subject in embedded clause**

- 6-1. The boy thought that kissed Sue.
- 6-2. The worker saw that had left.
- 6-3. The police asked that stayed at home.
- 6-4. Sue overheard that will come.

**4 sentences with null objects**

- 7-1. After he used the tool, John put back in the box.
- 7-2. Although the vase was broken, Judy still placed on the table.
- 7-3. The cod was so fresh, Sue chose for dinner.
- 7-4. The box is very big, Tom cannot move alone.