

# Variability at Different Interfaces in the Development of English Speakers' L2 Chinese Wh-questions

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## 1. Wh-questions in Chinese and English

This paper reports on an empirical study showing variability at different interfaces in the development of English speakers' L2 Chinese wh-questions. Unlike English wh-questions, in which the wh-word has to move to the sentence initial position, the Chinese wh-word remains *in situ*, as *shenme* in (1). Chinese uses a wh-particle *ne* to mark the wh-question although it is phonetically optional. Another characteristic of Chinese wh-questions is that the wh-word can be located inside islands, such as a complex NP (CNP) as in (2) and a sentential subject as in (3). Obviously, wh-words cannot be extracted from these islands in English.

- (1) Ni xiang chi shenme (ne)?  
you want eat what Q  
'What would you like to eat?'
- (2) Ta xihuan [shei xie de] shu (ne)?  
he like who write DE book Q  
'\*Who<sub>i</sub> do you like the book [that *t<sub>i</sub>* wrote]?'
- (3) [Shei qu Beijing] bijiao heshi (ne)?  
who go Beijing relatively suitable Q  
'\*Who<sub>i</sub> is [*t<sub>i</sub>* to go/goes to Beijing] more appropriate?'

However, when a Chinese wh-word in the island is a wh-adverb rather than a wh-argument, the sentence becomes ungrammatical, as shown in (5), which is in contrast with (2) and (4), where the wh-words in the island are wh-arguments.

- (4) Ni xihuan [xie shenme shu de] ren (ne)?  
you like write what book DE person Q  
'\*What book<sub>i</sub> do you like the person [who wrote *t<sub>i</sub>*]?'
- (5) \*Ni xihuan [ta weishenme xie de] shu (ne)?  
you like he why write DE book Q  
'\*Why<sub>i</sub> do you like the book [that he wrote *t<sub>i</sub>*]?'

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Chinese wh-words corresponding to “when” and “where”, which are generally regarded as adjuncts, can also appear in islands and do not cause ungrammaticality to the sentences, as shown in (6) and (7).

(6) Ni xihuan [ta (zai) shenmeshihou xie de] shu (ne)?  
 you like he (at) when write DE book Q  
 ‘\*When<sub>i</sub> do you like the book [that he wrote *t<sub>i</sub>]?’*

(7) Ni xihuan [ta zai nar xie de] shu (ne)?  
 you like he at where write DE book Q  
 ‘\*Where<sub>i</sub> do you like the book [that he wrote *t<sub>i</sub>]?’*

Huang (1982) suggests that wh-words “when” and “where” are NPs in Chinese as they can be preceded by a preposition *zai* “at” as in (6) and (7). In this sense, “when” and “where” in Chinese can be distinguished from “why” by the distinction between nominals and adverbs. The wh-word “how” patterns with nominals in Chinese as well. As we can see in (8), it can be located inside a CNP.

(8) Ni xihuan [ta zenmeyang zuo de] dangao (ne)?  
 you like he how make DE cake Q  
 ‘\*How<sub>i</sub> do you like the cake [that she makes *t<sub>i</sub>]?’*

<i>Types</i>	<i>[+/-argument]</i>	<i>[+/-nominal]</i>	<i>Operator Attachment</i>
<i>Shei</i> “who”, <i>shenme</i> “what”	+	+	-
<i>shenmeshihou</i> “when”, <i>nar</i> “where”, <i>zenmeyang</i> “how”	-	+	-
<i>weishenme</i> “why”	-	-	+

**Table 1. Feature attachment of wh-words in Chinese**

In this paper, I follow Tsai (1994a, b, 1999) and Cheng and Rooryck (2002, 2002) in assuming that the wh-adverb in Chinese has an operator but wh-nominals don’t. Whether a Chinese wh-word has an operator or not depends on whether it has a [+nominal] or [-nominal] feature, and the [+/-argument] feature does not play a role here. As shown in Table 1, Chinese wh-words with the [+nominal] feature, such as the Chinese equivalents of “who, what, when, where” and “how”, do not have an operator, whereas the Chinese wh-adverb *weishenme* “why” has an operator, which has to raise to CP for feature checking.

In fact, the behaviour of the Chinese wh-word *zenmeyang* “how” is more complex than that presented in Table 1. As Tsai (1994a, b) points out, there is a distinction in Chinese between the instrumental “how” and the manner “how” as the syntactic behaviour of this Chinese wh-word depends on which of the two semantic meanings that this wh-word carries. The instrumental “how” is encoded with a [+nominal] feature and therefore should be treated as a DP. As a result, it can remain *in situ* inside a CNP or inside a sentential subject. This implicates that the instrumental “how” in Chinese does not have an operator; however, the manner “how” in Chinese is ruled out in a CNP or in a sentential subject. This is because the manner “how” is a wh-adverb and it has an operator which requires raising. Sentences in (9) and (10) can be used as evidence for the distinction between the two semantic meanings of the Chinese wh-word “how”. Answers to the question in (9) can be “With chocolate” or “With lots of cream”, but answers like “Carelessly” or “Casually” are not possible. However all these answers become possible when *zenmeyang* “how” occurs in a simple sentence like (10).

- (9) Ni bu xihuan [[ta zenmeyang zuo de] dangao] (ne)?  
 you not like she how make DE cake Q  
 a. ‘What is the means x such that you don’t like [cakes [which she makes by x]]?’  
 (instrumental-“how”)  
 b. ‘\*What is the manner x such that you don’t like [cakes [which she makes in x]]?’  
 (\*manner-“how”)
- (10) Ta yiban zenmeyang zuo dangao?  
 she usually how make cake  
 a. ‘What is the means by which she usually makes cakes?’ (instrumental-“how”)  
 b. ‘What is the manner in which she usually makes cakes?’ (manner-“how”)

Although I did not pursue the distinction between the instrumental “how” and the manner “how” in my empirical study, this distinction has implications in my L2 data analyses as L2 Chinese learners are exposed to various types of Chinese wh-words in their input including the instrumental “how” and the manner “how”.

## 2. Empirical Study

The empirical study involved 107 English speakers as subjects. It also included 20 native speakers of Chinese as controls. Information about each of the 6 groups is given in Table 2.

<i>Groups</i>	<i>No. of subjects</i>	<i>Average Age</i>	<i>Average months of studying Chinese</i>	<i>Average months in China/Taiwan</i>	<i>Mean scores in the cloze test (total=40) (ranges in brackets)</i>
English Beginner	20	22	4	1	4 (1-6)
English Post-beginner	20	23	10	3	11 (7-15)
English Intermediate	28	22	29	6	22 (16-25)
English Post-intermediate	25	27	83	18	30 (26-34)
English Advanced	14	36	207	44	36 (35-39)
<b>Native Chinese</b>	20	28	N/A	N/A	39 (38-40)

**Table 2. Information about each group**

Each subject had to do an acceptability judgment test, which included control sentences and corresponding experimental sentences. Subjects were asked to judge the acceptability of each sentence by circling a number on a scale as given in (11).

- (11)
- 
- completely unacceptable      probably unacceptable      “I don’t know”      probably acceptable      completely acceptable

As shown in Table 3, except for the Beginner and the Post-beginner Groups, all learner groups, like the native Chinese Group, accept Chinese wh-questions with the wh-particle *ne*. Moreover, those groups who accept Chinese wh-questions with *ne* reject ungrammatical wh-questions with the wh-word moved from its base-generated position to the sentence initial position. Results of Paired-samples t-tests show that in every group’s judgment, including the judgment by the Beginner and Post-beginner Groups, there is a significant difference between Chinese wh-questions with *ne* and those with wh-movement ( $p < 0.001$ ). The result of a one-way ANOVA indicates that there is no significant difference between the Native Chinese Group and any learner group in rejecting the incorrect Chinese wh-questions with wh-movement ( $F = 2.196, p > 0.05$ ). Table 3 also shows that all learner groups including

the beginner group, like the Native Chinese Group, accept Chinese wh-questions without phonetically realised *ne*. It seems that valuation of C<sup>0</sup> of Chinese wh-questions by phonetically unrealised *ne* is preferred by L2 Chinese grammars at least at beginner levels.

	Beginner	Post-beginner	Intermediate	Post-intermedia	Advanced	Chinese
With <i>ne</i>	0.7 <sup>†</sup>	1.13 <sup>†</sup>	1.46	1.53	1.89	1.89
*Wh-movement	-1.15	-1.25	-1.48	-1.72	-1.8	-1.49
Without <i>ne</i>	1.69	1.88	1.86	1.84	1.98	1.96

Note: <sup>†</sup> = Significantly different from the Native Chinese Group

**Table 3. Mean scores in the judgment of Chinese wh-questions with/without *ne* and with wh-argument moved**

Similar results are also obtained in the groups' judgments of simple Chinese wh-questions with *shenmeshihou* "when", *nar* "where", *zenmeyang* "how" and *weishenme* "why". All learner groups accept these wh-words *in situ* in Chinese wh-questions, as shown in the second row in Table 4, and they, except for the Beginner Group, reject or tend to reject wh-questions with this type of wh-words moved to the sentence initial position, as shown in the third row in Table 4.

	Beginners	Post-beginners	Intermediate	Post-intermediate	Advanced	Chinese
<i>In situ</i>	1.1 <sup>†</sup>	1.76	1.88	1.82	1.71	1.9
*Moved	-0.24 <sup>†</sup>	-0.89	-1.02	-1.59	-1.64	-1.69

Note: <sup>†</sup> = Significantly different from the Native Chinese Group

**Table 4. Mean scores in the judgment of simple Chinese wh-questions with "when/where/how/why" *in situ* or moved**

Now let us look at the judgment data of wh-words embedded in islands to see whether there is any operator raising in English speakers' L2 Chinese wh-questions. The data in the second row of Table 5 are from subjects' judgment of sentences with a CNP but without any wh-word. This type of sentence is used as a control to distinguish subjects who have mastered the basic structure of the sentence with an embedded CNP from those who have not. As we can see, all groups, except for the Beginner Group, have mastered the basic sentence structure with an embedded CNP in Chinese. So, we will ignore the Beginner Group's judgment and concentrate on the other groups' judgment of wh-questions which correspond to the control sentences.

	Beginner	Post-beginner	Intermediate	Post-intermediate	Advanced	Chinese
Control	0.68 <sup>†</sup>	1.43	1.94	1.87	1.89	1.93
Wh-argument	0.55 <sup>†</sup>	1.43	1.46	1.58	1.56	1.71
"When/where"	-0.31 <sup>†</sup>	0.15 <sup>†</sup>	0.55 <sup>†</sup>	1.06	1.13	1.16

Note: <sup>†</sup> = Significantly different from the Native Chinese Group

**Table 5. Mean scores in the judgment of Chinese wh-questions with a wh-word inside CNP**

From the third row in Table 5, we can see that all learner groups, except for the Beginner Group, accept Chinese wh-questions with a wh-argument inside a CNP. It seems that so long as L2 Chinese grammars can handle the basic sentence structure, there is no problem for wh-arguments to stay inside a CNP in L2 Chinese wh-questions. This suggests that Subjacency is irrelevant here as no movement is involved in this type of wh-questions in L2 Chinese.

However, the wh-words *shenmeshihou* "when" and *nar* "where" inside a CNP do not seem to be acceptable to L2 Chinese grammars at post-beginner and intermediate levels. As we can see from the

fourth row in Table 5, the Post-beginner and Intermediate Groups, who are shown to have mastered the basic sentence structure and who accept wh-arguments inside a CNP, do not accept Chinese wh-questions with *shenmeshihou* “when” and *nar* “where” embedded in a CNP. We can take this as evidence that wh-arguments and the wh-words such as *shenmeshihou* “when” and *nar* “where” do not develop in a uniform fashion in L2 Chinese grammars. It seems that only at post-intermediate and advanced levels does it become acceptable in L2 Chinese grammars to allow *shenmeshihou* “when” and *nar* “where” to stay *in situ* inside a CNP. L2 grammars at beginner, post-beginner and intermediate levels seem unsure of the status of *shenmeshihou* “when” and *nar* “where” and they seem uncertain whether these wh-words should share the same behaviour as wh-arguments in Chinese wh-questions.

How do wh-words *zenmeyang* “how” and *weishenme* “why” behave in L2 Chinese wh-questions? The data in Table 6 suggest that all groups, except for the Beginner Group, can handle the basic sentence structure for testing wh-questions with *zenmeyang* “how” and *weishenme* “why”, as these groups accept the control sentences with a CNP, as shown in Table 6, row 2.

However, as shown in the third row in Table 6, none of the learner groups, including the advanced group, accepts Chinese wh-questions with *zenmeyang* “how” embedded inside a CNP, which forms a striking contrast with the judgment of the native Chinese group. A careful examination of the data reveals that the status of *zenmeyang* “how” in L2 Chinese wh-questions remains variable throughout the acquisition process as the subjects in all groups optionally accept and reject wh-questions with *zenmeyang* “how” embedded inside a CNP. This variable status seems to be permanent in English speakers’ L2 Chinese grammars as the variability continues even at a very advanced level.

	Beginners	Post-beginners	Intermediate	Post-intermediate	Advanced	Chinese
Control	0.73 <sup>†</sup>	1.71	1.89	1.97	1.82	1.93
“How”	-0.15 <sup>†</sup>	-0.09 <sup>†</sup>	0.06 <sup>†</sup>	0.22 <sup>†</sup>	0.27 <sup>†</sup>	1.19
*“Why”	-0.41 <sup>†</sup>	-1.16	-1.47	-1.49	-1.59	-1.65

Note: <sup>†</sup> = Significantly different from the Native Chinese Group

**Table 6. Mean scores in the judgment of Chinese wh-questions with *zenmeyang* “how” or *weishenme* “why” inside a CNP**

In contrast to the variable behaviours of *zenmeyang* “how”, the behaviour of *weishenme* “why” in English speakers’ L2 Chinese wh-questions seems to be rather consistent. As we can see from the fourth row in Table 6, all groups, except for the Beginner Group, reject Chinese wh-questions with *weishenme* “why” embedded inside a CNP. This could be due to the fact that as the case in the native Chinese grammar, *weishenme* “why” in L2 Chinese grammars has an operator which has to move to Spec CP in wh-questions. Since *weishenme* “why” in the test sentences is embedded in a CNP and since the movement of the operator of *weishenme* “why” out of a CNP would violate Subjacency, L2 Chinese grammars reject wh-questions with *weishenme* “why” embedded in a CNP.

Can we obtain similar results from wh-questions with a wh-word embedded in a sentential subject? This type of sentence is also useful for testing possible wh-movement in L2 grammars as any movement out of the sentential subject would violate Subjacency. The data in the second row in Table 7 are mean scores of the groups’ judgment of control sentences, i.e. sentences with a sentential subject but without a wh-word. These data suggest that sentences with a sentential subject are acquired very late and that only those subjects at post-intermediate and advanced levels can handle this type of sentences. This forces us to concentrate only on these two groups’ judgment of wh-questions with a wh-word embedded in a sentential subject.

	Beginners	Post-beginners	Intermediate	Post-int.	Advanced	Chinese
Control	0.43 <sup>†</sup>	0.26 <sup>†</sup>	0.33 <sup>†</sup>	1.11	1.48	1.84
Wh-argument	-0.24 <sup>†</sup>	-0.35 <sup>†</sup>	-0.45 <sup>†</sup>	0.38 <sup>†</sup>	1.11	1.73
“When/where”	0.06 <sup>†</sup>	-0.15 <sup>†</sup>	0.22 <sup>†</sup>	1	1.54	1.81
“How”	-0.25 <sup>†</sup>	-0.06 <sup>†</sup>	-0.02 <sup>†</sup>	0.52 <sup>†</sup>	0.36 <sup>†</sup>	1.4
*“Why”	-0.09 <sup>†</sup>	-0.11 <sup>†</sup>	-0.46 <sup>†</sup>	-0.94	-1.04	-1.34

Note: <sup>†</sup> = Significantly different from the Native Chinese Group

**Table 7. Mean scores in the judgment of Chinese wh-questions with a wh-word inside a sentential subject**

As we can see from the third row in Table 7, the Advanced Group accept Chinese wh-questions with a wh-argument embedded in a sentential subject. A similar result can also be seen in the fourth row in Table 7, which indicates that the Advanced Group accept Chinese wh-questions with *shenmeshihou* “when” or *nar* “where” embedded in a sentential subject. The post-intermediate group also accept this type of sentences although not as strongly as the Advanced Group.

However, when the wh-word *zenmeyang* “how” is embedded in a sentential subject of a wh-question, the judgment of the sentences by the learner groups becomes variable, as shown in the fifth row in Table 7. A careful examination of the data reveals high degrees of variability in the judgment of this type of sentences by the subjects as the subjects in these groups optionally accept and reject this type of sentences. The results suggest that the wh-word *zenmeyang* “how” in English speakers’ L2 grammars is far from being native-like even at very advanced levels and that it can serve as an example of fossilization in English speakers’ L2 Chinese grammars.

The wh-word *weishenme* “why” seems to behave differently from the other wh-words in English speakers’ L2 Chinese grammars. As we can see from the sixth row in Table 7, the Advanced Group and Post-intermediate Group reject or tend to reject wh-questions with *weishenme* “why” embedded in a sentential subject. The native Chinese group also reject this type of sentences.

Table 8 provides a summary of the data<sup>1</sup>. As shown in the second row of Table 8, the Beginners have not mastered the basic sentence structures with an embedded CNP or a sentential subject in Chinese. The second column and the last column of Table 8 suggest that, except for beginners, English learners generally allow wh-arguments to stay inside islands and that they reject ungrammatical Chinese wh-questions with the wh-adverb “why” embedded inside an island.

	<i>shei</i> “who”, <i>shenme</i> “what”	<i>shenmeshihou</i> “when”, <i>nar</i> “where”	<i>Zenme(yang)</i> “how”	<i>weishenme</i> “why”
beginners	N/A <sup>†</sup>	N/A <sup>†</sup>	N/A <sup>†</sup>	N/A <sup>†</sup>
post-beginners	√	? <sup>†</sup>	? <sup>†</sup>	X
intermediate	√	? <sup>†</sup>	? <sup>†</sup>	X
post-intermediate	√	√	? <sup>†</sup>	X
advanced	√	√	? <sup>†</sup>	X
native Chinese	√	√	√ <sup>a</sup>	X

Note: N/A=learners have not mastered the basic sentence structure; “√” = accept; “X”=reject; “?”= variable.  
<sup>†</sup> = Significantly different from the Native Chinese Group. <sup>a</sup> = Less determinate in the native Chinese grammar.

**Table 8. Summary of English speakers’ judgment of different Chinese wh-words inside CNPs and inside sentential subjects**

However, as we can see from the third column in Table 8, the Post-beginner and Intermediate Groups, who have mastered the basic sentence structures and who accept wh-arguments in islands, do not accept Chinese wh-questions with “when” and “where” embedded in islands. We can take this as evidence that wh-arguments and the wh-words such as “when” and “where” do not develop in a

<sup>1</sup> To a large extent, the data in Table 8 are based on the groups’ judgment of Chinese sentences with wh-words embedded inside a CNP. This is because English speakers seem to be able to handle Chinese sentences with a CNP earlier than sentences with a sentential subject.

uniform fashion in L2 Chinese grammars. A closer examination of the data indicate that post-beginner and intermediate learners variably accept and reject Chinese wh-questions with “when” or “where” embedded inside islands.

How about the behaviour of “how”? As shown in the fourth column in Table 8, none of the learner groups, including the advanced group, accepts Chinese wh-questions with “how” embedded inside islands. A careful examination of the data reveals that subjects in all learner groups variably accept and reject wh-questions with “how” embedded inside islands. It is also found that in the native Chinese grammar, wh-questions with “how” embedded inside islands are less determinate, as indicated in Table 8. There is a significant difference in native Chinese speakers’ judgment between wh-questions with “how” embedded in islands and the control sentences although their mean scores suggest that they generally accept both types of sentences. This may have an implication for L2 Chinese grammars concerning wh-questions with “how” embedded in islands.

### 3. Discussion

Our results indicate that wh-questions in English speakers’ L2 Chinese grammars are marked by the Chinese wh-particle *ne*. There is no L1 transfer in this aspect of L2 grammars as no wh-movement is found in English speakers’ L2 Chinese although it is generally required in their L1. However, wh-words do not develop in a uniform fashion in their L2 Chinese. L2 Chinese wh-words behave differently both synchronically and developmentally.

#### 3.1 *Variability at the Lexical Morphology-Syntax Interface at Beginner and Intermediate Levels*

It is likely that at beginner and intermediate levels, English speakers’ L2 Chinese grammars are indeterminate as to whether the operator should be attached to wh-words with the [-argument] feature or to wh-words with the [-nominal] feature (although they seem to know it has to be attached to something with a minus value). This indeterminacy leads to optional attachment of the operator to wh-words such as “when” and “where” as they have the [-argument] but [+nominal] features. When wh-words with the [-argument] feature are attached with the operator, wh-words “when” and “where” are not allowed to stay inside islands because the operator attached to them requires raising to Spec CP but the Subjacency constraint makes that impossible. However, when the operator is attached to wh-words with the [-nominal] feature, “when” and “where” are allowed to stay inside islands in L2 Chinese as both the learners’ L1 English and the Chinese input can tell their L2 Chinese lexicons that these wh-words can serve as object of a preposition (e.g. “from where” and “since when”). Therefore, they should have the [+nominal] feature and thus have no operator. In other words, the wavering between the [-argument] feature and the [-nominal] feature for the operator attachment is believed to be the source of the variability at the surface level in the Post-beginner and Intermediate groups’ L2 Chinese wh-questions.

The wh-word “why” has both the [-nominal] feature and the [-argument] feature in learners’ L1 English and in the target language Chinese. As a result, Chinese wh-questions with “why” embedded inside islands is rejected by L2 Chinese grammars whether the operator is attached to wh-words with the [-nominal] feature or to wh-words with the [-argument] feature in their L2 Chinese as the wh-adverb “why” has both of these two features.

The wavering between these two features for the operator attachment will not lead to variable behaviours of “who” and “what” at the surface level either. This is because the two wh-words have both the [+argument] and [+nominal] features. Consequently, learners at these early stages accept wh-questions with “who” or “what” embedded inside islands. This amounts to saying that the stable behaviours of the wh-words “who”, “what” and “why” in these groups’ judgment are only superficial because the underlying mechanism concerning the behaviours of these wh-words is still indeterminate in these English speakers’ L2 Chinese grammars.

The English wh-word “how” has both the [-argument] and [-nominal] features. If English beginner and intermediate learners of Chinese take the wh-word *zenmeyang* “how” as the Chinese counterpart of the English wh-word “how”, we would expect this Chinese counterpart to have both the

[-argument] and [-nominal] features in the learners' L2 Chinese lexicons. This would allow the Chinese wh-word "how" to behave in the same way as the wh-word "why" at these early stages. However, learners are exposed to positive evidence in their L2 Chinese input that the Chinese wh-word "how" can be embedded inside islands, as shown in (8). The two sources of information, i.e. the positive evidence in the Chinese input and the L1 transfer, are likely to make the operator optionally attached to "how" in these learners' L2 Chinese lexicons, which can account for their wavering between accepting and rejecting Chinese wh-questions with "how" embedded inside islands.

### 3.2 *Variability at the Semantics-Syntax Interface at Post-intermediate and Advanced Levels*

If we look at the third column in Table 8, we can see that the variability in the Post-beginner and Intermediate Groups' judgment concerning "when" and "where" disappears in the Post-intermediate and Advanced Groups. This suggests that from the post-intermediate level onward, feature attachment to L2 Chinese wh-words has been reassembled and that "when" and "where", which have the [-argument] and [+nominal] features, no longer have an operator. This implicates that in these learners' L2 Chinese grammars, the [+/-argument] feature no longer has the function of distinguishing the wh-words with an operator from those without, and that the only feature that the L2 Chinese grammars use for making such a distinction is the [+/-nominal] feature.

Then why is variability of the behaviour of "how" so persistent that it continues even in advanced learners' L2 Chinese wh-questions? Recall that there is a distinction in Chinese between the instrumental "how" and the manner "how"; the former has the [+nominal] feature while the latter the [-nominal] feature. As a result, the manner "how" has an operator which requires raising. It is possible that the variable behaviours of the Chinese wh-word *zenmeyang* "how" in post-intermediate and advanced learners' L2 Chinese is related to a problem that their L2 Chinese grammars have at the semantics-syntax interface. English learners of L2 Chinese are exposed to positive evidence in the input that the Chinese wh-word *zenmeyang* "how" can sometimes occur inside a CNP or inside a sentential subject. However, they are not aware of the semantic conditions imposed by the distinction between the instrumental "how" and the manner "how" on the syntactic behaviours of the Chinese wh-word. That is, as far as this wh-word is concerned, no relationship is established at the semantics-syntax interface in English speakers' L2 Chinese grammars even at the advanced level. This leads to persistent variable behaviours of the Chinese wh-word *zenmeyang* "how" in English speakers' L2 Chinese grammars.

It should be mentioned that some native Chinese speakers do not always find it easy to draw a clear line between the instrumental "how" and the manner "how" in some Chinese sentences. This can probably account for the small degree of variability in native Chinese speakers' judgment of Chinese wh-questions with "how" inside islands, as indicated in Tables 6, 7, and 8. We can borrow the term from Parodi and Tsimpli (2005) and call the variability in the native Chinese grammar "apparent optionality". Our data seem to suggest that the variability in English speakers' L2 grammars of the Chinese wh-word "how" can be related to the "apparent optionality" in the native Chinese grammar although I have to leave it for the future research to find out to what extent this is the case.

## 4. Conclusion

In conclusion, the results in my study have demonstrated that both the lexical morphology-syntax interface and the semantics-syntax interface are possible loci of variability in L2 acquisition and that variability may occur at different interface levels in the L2 development.

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