L1 Transfer at L2 Syntax-Discourse Interfaces: Evidence from L2 Chinese "daodi...wh-" Questions

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1. Introduction

The past few years have seen an increasing number of hypotheses and proposals for L2 interfaces (e.g. Sorace and Filiaci 2006, Sorace and Serratrice 2009, Tsimpli and Sorace 2006, and White 2009). However, few have made an explicit statement about the role of L1 transfer at L2 interfaces. In this paper, I will present a study investigating L1 transfer at syntax-discourse interfaces in English speakers' L2 Chinese "daodi...wh-" questions. I will show that L1 transfer plays an important role at L2 interfaces and that the recovery from the L1 transfer may not always be possible.

2. "Wh-the-hell" Questions in English and "Daodi...wh-" Questions in Chinese

English phrases such as what the hell, who on earth, what the dickens are generically called whthe-hell phrases (cf. Dikken and Giannakidou 2002, Huang and Ochi 2004, and Chou 2006, 2007), and the Chinese "daodi...wh-" is generally considered an approximate counterpart of "wh-the-hell" in English (cf. Huang and Ochi 2004, and Chou 2006, 2007). Syntactically, "wh-the-hell" in English is a continuous constituent which is required to move to Spec CP, as in (1a,b).

- (1) a. What the hell would he buy?
 - b. *What would he buy the hell?
 - c. *John would buy the book the hell.

However, "daodi...wh-" in Chinese is discontinuous with daodi and a wh-phrase staying in situ, as in (2a and 2b). Neither "daodi" nor "the hell" can occur in a sentence without a wh-word, as in (1c) and (2c), and they are required to occur in the scope of an interrogative CP, as in (2d,e) and the English translations there.

- (2) a. Ta **daodi** yao mai **shenme**? He daodi would buy what "What the hell would he buy?"
 - b. * **Daodi shenme** ta yao mai? daodi what he will buy
 - c. *Zhangsan daodi yao mai shu.Zhangsan daodi would buy book*"Zhangsan would buy books the hell."
 - d. Wo xiang zhidao [Zhangsan daodi yao mai shenme].I wonder Zhangsan daodi would buy what
 - ? "I wonder [what the hell Zhangsan would buy]."

e. *Wo **daodi** xiang zhidao [Zhangsan yao mai shenme].

I daodi wonder Zhangsan would buy what

* "I the hell wonder [what Zhangsan would buy]."

In Chinese, *daodi* must c-command a wh-phrase as shown in (3).

- (3) a. Zhangsan **daodi** yao gei **shei** mai zheben shu? Zhangsan daodi will for who buy this book "Whom the hell would Zhangsan buy the book for?"
 - b. *Zhangsan yao gei **shei daodi** mai zheben shu? Zhangsan will for who daodi buy this book
 - c. *Zhangsan yao gei **shei** mai **daodi** zheben shu? Zhangsan will for who buy daodi this book
 - d. *Zhangsan yao gei shei mai zheben shu daodi? Zhangsan will for who buy this book daodi

At the discourse level, "the hell" in English is aggressively non-D-Linked and cannot be used with the aggressively D-Linked "which" (cf. Pesetsky 1987), as in (4a,b), and it cannot be bound by a referent in the discourse, as in (5a,b). However, the sentence in (6) demonstrates that "daodi...wh-" in Chinese is compatible with the aggressively D-linked "na" (=which). Moreover, "daodi...wh-" in Chinese can be bound by a referent in the discourse, as in (7), which is in contrast with the unacceptable English sentence in (5b).

- a. What the hell book did you read that in?b. *Which the hell book did you read that in? (=(40) in Pesetsky 1987)
- a. Someone; has stolen that book. John knows who;
 b. Someone; has stolen that book. *John knows who; the hell.
- (6) Zhangsan daodi xihuan na yi ben shu? Zhangsan daodi like which one CL book *"Which <the hell> book <the hell> does Zhangsan like?"
- (7) **Youren**_i tou-le naben shu. Zhangsan zhidao **daodi** shi **shei**_i. Someone steal-PERF that book Zhangsan know daodi is who. "Someone_i has stolen that book. *Zhangsan knows who_i the hell."

When "wh-the-hell" is used with a modal in English, the question cannot be answered with genuine information, and it can only be read as expecting a negative rhetorical answer, as in (8) (cf. Dikken and Giannakidou 2002).

(8) Q: Who the hell would buy that book? (=(2) in D & G, 2002) A: *He would buy that book.

A: That's right, nobody would buy that book.

However, Chinese "daodi...wh-" questions with modals can be felicitously answered with genuine information, as in (9a), and cannot be answered with a negative rhetorical answer like (9b).

- (9) a. Q: Daodi shei hui mai naben shu?
 daodi who would buy that book
 "Who the hell would buy that book?"
 A: Ta hui mai naben shu.
 "He would buy that book."
 - b. A:*Dui, meiyouren hui mai naben shu.
 "That's right, nobody would buy that book."

3. Empirical Study

Given the similarities and differences between Chinese and English, an empirical study was conducted, examining whether English speakers are able to acquire the syntactic behaviours of the Chinese "daodi...wh-" question and whether their L2 Chinese syntactic behaviours are regulated by the discourse constraints in Chinese or in their L1 English.

95 English speakers and 18 native Chinese as controls were involved in the study. On the basis of their performance in a Chinese cloze test, the English speakers were divided into five Chinese proficiency groups. Information about each of the groups is given in Table 1.

Table 1. Information about each group

			Average months	Average months	Mean scores in the cloze
	No. of	Average	of	in	test (total=40)
Groups	subjects	Age	studying Chinese	China/Taiwan	(ranges in brackets)
Beginner	19	20	2	0.4	6 (1-9)***
Post-beginner	18	21	7	1.9	15 (10-19)***
Intermediate	25	21	20	6	25 (20-29)***
Advanced	22	26	76	14	32 (30-34)***
Very Advanced	11	36	206	49	37 (35-39)
Native Chinese	18	26	N/A	N/A	39 (37-40)

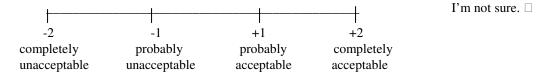
^{***=}Significantly different from the NS Group at p < 0.001

As we can see in Table 1, subjects in the Very Advanced Group, in average, have a history of over 17 years of studying Chinese, and their average stay in China or Taiwan is over 4 years. They are considered very advanced learners of Chinese.

Apart from the cloze test, each subject also had to do three other tasks, an acceptability judgment task, a sentence combination task and a discourse completion task.

3.1. Acceptability Judgment Task

The acceptability judgment task includes sentences presented in Chinese characters. The subject was asked to judge each sentence by circling a number on a scale, as shown below.



The sentence types and their examples are listed in (10).

(10) Sentence types and their examples in the acceptability judgment test

Type 1: The discontinuous form of "daodi...wh-object"

Ta daodi xihuan shei?

he daodi like who

"Who the hell does he like?"

Type 2: *The continuous form of "daodi wh-object"

*Ta xihuan daodi shei?

he like daodi who

"Who the hell does he like?"

Type 3:*The continuous form with the wh-object preceding "daodi"

*Ta xihuan shei daodi? ta like who daodi "Who the hell does he like?"

Type 4: "daodi...wh-subject"

Daodi shei xihuan ta?

daodi who like her

"Who the hell likes her?"

Type 5: *"wh-subject daodi"

*Shei daodi xihuan ta?

who daodi like her

"Who the hell likes her?"

Type 6: "Daodi" c-commanded by $CP_{[+Q]}$ Xiao Wang xiang zhidao ni daodi xihuan shei. Xiao Wang want know you daodi like who "Xiao Wang wonders who the hell you like."

Type 7: *"Daodi" c-commanded by CP_[-Q]
*Xiao Wang daodi xiang zhidao ni xihuan shei.
Xiao Wang daodi want know you like who
*Xiao Wang the hell wonders who you like."

Type 8: *"Daodi" in yes-no questions (without any wh-word)
*Ni daodi xihuan Li Ying ma?
you daodi like Li Ying y/n-Q
*"Do you the hell like Li Ying?"

Type 9: Wh-questions with "na (=which)" (control)

Ni xihuan na ben shu?

you like which CL book

"Which book do you like?"

Type 10: Wh-questions with "daodi" and "na (=which)" (experimental)
Ni daodi xihua na ben shu?
you daodi like which CL book
*"Which the hell book do you like?"

3.2. Sentence Combination Task

The sentence combination task is used to investigate whether English speakers would be influenced by their L1 English and incorrectly reject Chinese sentences with "daodi...wh-" linked to a referent in the discourse. In each question, subjects were presented with two individual clauses (A) and (B) and were asked to indicate to what extent it is appropriate for Clause B to follow Clause A. They were told that both (A) and (B) are "GRAMMATICALLY CORRECT" and were asked to indicate the degree of appropriateness of the combination by circling one of the choices under each question, as shown in

- (11). ¹ There are control questions and experimental questions. The control question and its corresponding experimental question are exactly the same except that the latter uses both "daodi" and a wh-word but the former only the wh-word.
- (11) (A) Suiran wo baba zhi shuo ta gei wo mai-le yi ge liwu, although my father only say he for me buy-PFV one CL present "Although my father only said that he had bought a present for me,"
 - (B) keshi wo yijing caichulai ta (daodi) gei wo mai-le shenme.
 - but I already figure out he (daodi) for me buy-PFV what "but I have already figured out what (the hell) he bought for me."

If Clause B follows Clause A here, it is

- (a) completely appropriate.
- (b) ok.
- (c) not so appropriate.
- (d) completely inappropriate.
- (e) I don't understand the clauses.

3.3. Discourse Completion Task

The aim of the discourse completion task is to examine whether English speakers can correctly interpret the Chinese question with "daodi…wh+modal" as a genuine information question, rather than a negative rhetorical question. The subject was presented with "daodi…wh+modal" questions, and after each question are multiple answers for the subjects to complete the discourse with. Subjects were told that all the questions and answers were GRAMMATICALLY CORRECT, but some answers were APPROPRIATE to the questions given, and some were NOT APPROPRIATE, and they were asked to use a "√" or a "X" to indicate "which answer(s) is/are APPROPRIATE and which answer(s) is/are NOT APPROPRIATE to the question given. An example is given in (12). As we can see, the set of multiple answers includes answers of genuine information, as in (12c), negative reinforcement, as in (12a), as well as a response irrelevant to the question, as in (12b). Before subjects started the task, they were given three examples for practice. They were told to mark ALL the answers in terms of appropriateness.

- (12) Daodi shei hui bangzhu ta? daodi who would help her "Who the hell would help her?"
 - a. Shide, meiyou ren hui bangzhu ta.
 right no person would help her
 "That's right, no one would help her."
 - b. Laoshimen ye changchang huxiang bangzhu teachers also often each other help "The teachers also often help each other."
 - c. Li Laoshi yiding hui bangzhu ta.
 Li Teacher definitely will help her "Teacher Li will definitely help her."
 - d. I don't understand the question/answers.

¹ The English translation of the sentences and the gloss are for the reader of the paper and were not provided in the task.

4. Results

4.1. Results of the Acceptability Judgment Task

Table 2 provides data of the groups' judgment of questions with "daodi...wh-object". As we can see, the discontinuous form of "daodi...wh-" is accepted and the incorrect continuous forms of "daodi-wh" and "wh-daodi" rejected by English speakers from the post-beginner level onward.

Table 2. Group mean scores in the judgment of "daodi...wh" questions with the wh-word in object position

	Discontinuous form	*Continuous form "daodi-	*"Wh" precedes "daodi"
Groups	"daodiwh"	wh"	"wh-daodi"
Beginner	0.62*** ←	-0.11***	-0.32 A
Post-beginner	1.14*** ←	-1.21	-1.03*** ^
Intermediate	1.55***	-1.49	-1.52*** ^
Advanced	1.77 ←	→ -1.52	-1.60*** ^
Very Advanced	1.98	-1.61	-1.64***
Native Chinese	2.00 ←	→ -1.54 ←	→ -0.21 <u>↑</u>

^{***=}Significantly different from the NS Group at p < 0.001; " \iff " =significantly different between the two.

Table 3. Group mean scores in the judgment of "daodi...wh-" in subject position, "daodi" is c-commanded by $CP_{f+/-Qf}$ and "daodi" without a wh-word

	Daodi	*Wh-sub	"daodi" c-comma	nded	*"daodi" c-	*"daodi" with
Groups	wh-sub	daodi	by $CP_{[+Q]}$	(commanded by $CP_{[-Q]}$	no wh-word
Beginner	0.45***	> 0.17***	0.29***		0.33***	0.65***
Post-beginner	1.18***	> -1.11	1.17***	\leftarrow	→ 0.33***	0.63***
Intermediate	1.51**←	> -1.41	1.44**	\leftarrow	→ 0.12***	0.73***
Advanced	1.80 €	→ -1.56	1.74	\leftarrow	→ -0.64*	-0.90
Very Advanced	1.93	→ -1.57	1.96	\leftarrow	→ -1.14	-1.11
Native Chinese	1.96	→ -1.29	1.92	\leftarrow	→ -1.36	-1.22

^{*=}Significantly different from the NS Group at p < 0.05; **=Significantly different from the NS Group at p < 0.01; ***=Significantly different from the NS Group at p < 0.001; " \Longrightarrow "=significantly different between the two.

Table 3 presents the results of "daodi" and wh-subjects. As we can see, all learner groups, except for the Beginner Group, accept the grammatical sentences with "daodi…wh-" in subject position (with their mean scores all above +1) and reject the ungrammatical sentences with the wh-subject preceding "daodi" (their mean scores are all below -1). This provides us with evidence that "daodi" in English speakers' L2 Chinese c-commands the wh-subject.

Similarly, English speakers do not seem to have much difficulty either with the requirement that "daodi" must be c-commanded by $CP_{[+Q]}$, as shown in column 4 of Table 3; all of them, again except for the Beginner Group, are able to make significant distinctions between the correct sentences in which "daodi" is c-commanded by $CP_{[+Q]}$ and those incorrect ones where "daodi" is c-commanded by $CP_{[-Q]}$. The data in the last column of Table 3 provides evidence that incorrect Chinese sentences without any wh-word in the domain of "daodi" are not accepted by English speakers at advanced and very advanced levels. Given the data in Tables 2 and 3, we can argue that English speakers can acquire syntactic properties of "daodi…wh" questions in their L2 Chinese.

Table 4. Group me	an scores in ine juas	5meni c	$_{\prime\prime}$ $_{\prime\prime}$ $_{\prime\prime}$	anking of adout and
Groups	"which" -control	l l	D-Lini	king of "daodi…na"
Beginner	0.79***	\leftarrow	\rightarrow	0.41***
Post-beginner	1.38**	\leftarrow	\rightarrow	0.82***
Intermediate	1.49**	\leftarrow	\rightarrow	1.20***
Advanced	1.99	\leftarrow	\rightarrow	1.68
Very Advanced	1.98			1.98
Native Chinese	2.00			1.99

Table 4. Group mean scores in the judgment of D-Linking of "daodi" and "na (=which)"

Table 4 presents the results of the judgment of the D-Linking property of "daodi" and "na (=which)". As we can see in Table 4, the Beginner, Post-beginner, Intermediate and Advanced Groups make significant distinctions between the control sentences and the sentences with "daodi" co-existing with "na (=which)". This can be due to the L1 transfer that "daodi" in these English speakers' L2 Chinese grammars have some L1-based non-D-linking property, which makes the co-occurrence of "daodi" with the Chinese "na (=which)" in a sentence less acceptable. In spite of the L1 transfer in earlier stages, native-like behaviours of "daodi" is found in the Very Advanced Group as subjects in this group accept both the control sentences and the sentences with "daodi" co-existing with "na (=which)" and they do not make a distinction between the two.

4.2. Results of the Sentence Combination Task

Table 5. Group mean scores of linking "daodi...wh-" to a discourse-familiar referent in the sentence combination task

	The wh-word is linked to a discourse-familiar referent when	The wh-word is linked to a discourse- familiar referent when "daodi" is		
Groups	"daodi" is not used (control)	used		
Beginner	0.55***	0.26***		
Post-beginner	1.17 <	→ 0.36***		
Intermediate	1.70	1.03		
Advanced	1.34 ←	O.99		
Very Advanced	1.52	1.25		
Native Chinese	1.44	1.26		

^{***=}Significantly different from the NS Group at p < 0.001; " \rightleftharpoons " = significantly different between the two.

Table 5 presents data concerning the groups' performance in the sentence combination task involving linking "daodi...wh-" to discourse referents. In our data analysis, if a subject considers a combination "completely appropriate", we convert it to "+2"; if the combination is considered just "ok", it is converted to "+1"; if "not so appropriate", it is converted to "-1"; and if "completely inappropriate", it is converted to "-2". The statement of "I don't understand the clauses" is given the value of "0".

As we can see in Table 5, subjects generally accept the control combinations. However, some groups behave differently when "daodi" is inserted in the experimental combinations, in which "daodi...wh-" refers to a familiar referent in the discourse, and significant differences are found between the control combinations and the experimental combinations in Post-beginner, Intermediate and Advanced Groups. The implication of this finding is that subjects in these groups transfer the discourse constraint on "wh-the-hell" from their L1 English into their L2 Chinese and do not find it so acceptable if "daodi...wh-" is linked to a referent in the discourse. However, in spite of the earlier transfer of the L1 discourse constraint, English speakers are able to eventually acquire the native-like competence in this respect.

^{*=}Significantly different from the NS Group at p < 0.05; **=Significantly different from the NS Group at p < 0.01; ***=Significantly different from the NS Group at p < 0.001; " =significantly different between the two.

4.3. Results of the Discourse Completion Task

Table 6. Mean frequency rates of individual subjects in each group in interpreting the "daodi...wh+modal" question as a genuine question or as a negative rhetorical question in the discourse completion task (The highest frequency rate = 4, the lowest = 0)

Groups	As a genuine question	*As a negative rhetorical question
Beginner	1.53***	1.05
Post-beginner	3.39	1.78**
Intermediate	3.76	1.96***
Advanced	4.00	2.09***
Very Advanced	4.00	2.27***
Native Chinese	4.00	0.17

^{**=}Significantly different from the NS Group at p < 0.01; ***=Significantly different from the NS Group at p < 0.001

Table 6 provides the results from the discourse completion task. In our data analysis, we use the frequency rates at which individual subjects chose a particular answer to answer the "daodi...wh+modal" question. We want to find out whether any difference exists between the Native Chinese Group and any learner group in interpreting Chinese questions with "daodi...wh+modal" as genuine information questions or as negative rhetorical questions. That is, in our analysis, we use, as numerical data, the frequency rates of genuine-information answers and negative reinforcement answers in subjects' responses to the "daodi...wh+modal" questions. In the discourse completion task, there are four tokens of the "daodi...wh+modal" question and that the subject can choose the genuine information answer, or the negative reinforcement answer, or both, in response to each question. Therefore, the maximum score a subject can get in providing each type of response is 4 and the minimum is 0.

As we can see in Table 6, all learner groups, except for the Beginner Group, readily interpret the questions as genuine information questions as they are as frequent as the Native Chinese Group in providing answers of genuine information to this type of question (4 out of 4, or nearly). This suggests that Chinese questions with "daodi...wh+modal" can be acquired as genuine questions by English speakers as early as the post beginner level. However, the <u>acquisition</u> does not seem to imply the removal of L1 transfer of interpreting this type of question as a negative rhetorical question. As shown in the last column of Table 6, English speakers incorrectly interpret the Chinese questions as negative rhetorical questions, and the average frequency rate of the Very Advanced Groups' incorrect interpretations are as high as 2.27 (out of 4). The implication of these findings is that the "daodi...wh+modal" question can be acquired by English speakers as a genuine information question, but this is more likely to be in addition to, rather than a replacement of, the question incorrectly interpreted as a negative rhetorical question in their L2 Chinese grammars. This L1-related problem is so persistent that it exists even at very advanced levels.

5. Discussion

Table 7: Summary of the findings concerning "daodi...wh" questions

Groups	Syntactic	D-linking of	Linking to	As	*As negative
	properties	"daodi…na	discourse-	genuine	rhetoric
		(=which)"	familiar referents	questions	questions
Beginner	?	?	?	?	?
Post-beginner	$\sqrt{}$?	?	$\sqrt{}$?
Intermediate	$\sqrt{}$	\sqrt{c}	\sqrt{c}	$\sqrt{}$?
Advanced	$\sqrt{}$	$\sqrt{^{\phi}}$	\sqrt{c}	$\sqrt{}$?
Very Advanced	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$?
Native Chinese	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	$\sqrt{}$	X

Notes: $\sqrt{\ }$ = accept; $\sqrt{\ }$ = accept but not completely; X = reject; ? = optional.

Table 7 provides a summary of the findings in our study of Chinese "daodi...wh-" questions. As we have seen, syntactic properties of Chinese "daodi...wh-" questions, such as the continuous form, the c-commanding requirement, and the requirements of [+Q] feature and [+wh] feature, do not result in particular difficulty in English speakers' L2 Chinese.

However, the successful acquisition of syntactic properties of the "daodi...wh-" question does not seem to imply successful interfaces with the discourse in English speakers' L2 Chinese. The Postbeginner, Intermediate and Advanced Groups, who have no problem with the syntactic properties of the Chinese "daodi...wh-" question, do not readily accept the Chinese wh-question with "daodi" and "na (=which)" co-existing in it. This is likely to be influenced by their L1 English, in which "the hell" is aggressively non-D-linked and "which" aggressively D-linked, and as a result, the two cannot co-exist in a sentence (see Pesetsky 1987). However, learners are exposed to positive evidence of this type of wh-questions in their Chinese input, which can inform their L2 Chinese grammars that unlike "the hell" in their L1 English, "daodi" in Chinese is not aggressively non-D-linked and can co-exist with "na (=which)". The exposure to this type of positive evidence can trigger the recovery from the L1 influence, and this is supported by the native-like judgment of the Very Advanced Group.

Recall that while the wh-word in the Chinese "daodi...wh-" question can be linked to a discourse familiar referent, "wh-the-hell" in English cannot. L1 transfer of this discourse constraint is found in the sentence combination task by the Post-beginner, Intermediate and Advanced Groups, where these groups of learners make significant distinctions between "daodi...wh-" linked to a discourse-familiar referent and the linking of a wh-word to a discourse-familiar referent without "daodi"; they allow the latter but not the former. The implication of this finding is that in spite of their successful acquisition of the syntactic properties of the "daodi...wh-" question, their L2 Chinese syntactic structure is somewhat regulated by their L1 English discourse constraint. However, the L1 transfer can be removed from English speakers' L2 Chinese; as the data of the Very Advanced Group show, the wh-word in "daodi...wh-" questions can be linked to a discourse-familiar referent in this group's L2 Chinese. The removal of the L1 discourse constraint can be triggered by the positive evidence in the Chinese input. The reference linking in sentences like (13) can provide robust evidence to the learner that "daodi...wh-" can indeed be bound by a discourse-familiar referent in Chinese.

(13) Suiran wo baba zhi shuo ta gei wo mai-le <u>yi jian dongxi</u>, although my father only say he for me buy-PFV **one CL thing**

keshi wo yijing caichulai ta **daodi** gei wo mai-le **shenme**_{*i*}.

but I already figure out he **daodi** for me buy-PFV **what***"Although my father only said that he had bought something_i for me, I had already figured out what_i the hell he had bought for me."

However, the removal of L1 discourse constraints does not seem to be always possible, and this can be seen in the discourse completion task, which is designed to examine English speakers' interpretations of Chinese "daodi...wh+modal" questions as genuine information questions or as negative rhetorical questions. As we have seen, English speakers, apart from the beginners, do not seem to have much difficulty in interpreting the "daodi...wh+modal" question as a genuine information question. However, this native-like interpretation is only in addition to, rather than a replacement of, their L1-based interpretation of the question, as they are found to incorrectly interpret the question as negative rhetorical questions, even at very advanced levels. This suggests that there is a persistent problem at the syntax-discourse interface in this aspect of their L2 Chinese grammars. This is likely to be due to the lack of positive evidence in the Chinese input. Learners are exposed to the Chinese discourse where "daodi...wh+modal" questions are answered with genuine information, which can provide them with clear evidence that this type of questions can be genuine information questions in the target language. However, there is no positive evidence in the input that this type of questions CANNOT be answered with a negative rhetorical answer. In other words, nothing in the input can help remove the L1-based discourse constraint in English speakers' L2 Chinese. As a result, incorrect

negative rhetorical answers remain optional answers to Chinese "daodi...wh+modal" questions, even at very advanced levels.

6. Conclusion

Is "daodi" "the hell" in English speakers' L2 Chinese? Syntactically, it doesn't seem to be, but at the discourse level, it has traces of "the hell" at earlier stages although learners can eventually recover from "the hell" and become native-like in these aspects. However, with regard to "daodi...wh+model" questions, "daodi" is persistently influenced by "the hell", even at very advanced levels. This is due to the lack of the relevant positive evidence in the input to remove the influence of "the hell".

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