

UG and A-not-A Questions in L2 Chinese*

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Abstract

This study sets out to determine whether L2 acquisition is dominated by L1 and UG by examining Japanese- and English-speaking learners' second language acquisition of Chinese A-not-A questions. Sixty students at the Mandarin Training Center of National Taiwan Normal University, together with twenty native controls, were asked to perform two experimental tasks (i.e. a preference task and a restructuring task). The results show that all of the L2 learners were sensitive to the Head Parameter at the early stage of acquisition, suggesting that UG is operative in second language acquisition, but L1 influence is not significant. The present findings not only argue for the UG hypothesis but also provide empirical evidence for a revision of syntactic theory for A-not-A constructions.

Keywords: UG, A-not-A Questions, Chinese, L2 Acquisition

Introduction

Researchers in second language acquisition have directed their attention to the role of L1 in L2 learning (i.e. the transfer hypothesis) (cf. White 1985 and 1990, Gass & Selinker 1992). It has been argued that L1 is likely to influence L2 acquisition. In addition, according to current grammatical theory, the knowledge ultimately attained by the L1 learner is made possible by Universal Grammar¹. The theory of UG is claimed to specify principles and parameters that underlie linguistic competence (Chomsky 1981). Currently, the model of a biologically determined UG is argued to be effective in L2 acquisition as well (cf. Flynn 1987a, 1987b and 1989, Flynn & Espinal 1985, Hyams 1986). Thus, the goal of the present study is to investigate the accessibility of UG in L2 acquisition by examining the Head Parameter², one of the major principles of UG.

In the present study, we will look at the L2

acquisition of A-not-A questions³ by Japanese- and English-speaking learners of Chinese in Taiwan to see if L1 knowledge and UG will influence second language acquisition.

This paper is organized as follows: in section 2, we will first examine the linguistic properties of A-not-A questions in Chinese, Japanese, and English in terms of the patterns and categorial types of the constructions, and then we will review two major studies in support of the Head Parameter in L2 acquisition, namely Flynn & Espinal (1985), and Tada (1992). In section 3, we will report the methodology and the experimental design of the present study. In section 4, we will further discuss the experimental results with regard to L2 acquisition theories and syntactic theories. Finally, we will suggest some topics for further research in second language acquisition in section 5.

Properties and Previous Analyses of A-not-A Questions

In this section, some properties and previous studies of A-not-A questions in Chinese, English, and Japanese will be presented. In addition, we will review previous L2 studies of the Head Parameter in second language acquisition.

Linguistic Properties of A-not-A Questions

Below we will discuss the linguistic properties of A-not-A questions with regard to patterns and categorial types in Chinese, Japanese, and English respectively.

I. A-not-A Questions in Chinese

As far as syntactic categories are concerned, A-not-A questions can be of various types, such as the V-not-V type, the Aux-not-Aux type, the Adj-not-Adj type, and the Adv-not-Adv type, as exemplified below:

First, verbs of this type include stative verbs as in (1) and action verbs as in (2):

- (1) Ni *xi(huan)* bu *xihuan* milaoshu?
 you like not like Mickey Mouse
 'Do you like (or) don't (you) like Mickey Mouse?'
 (2) Ta *xie* zhepian baogao bu *xie*?
 he write this-CL report not write
 'Is he (or) isn't (he) going to write this report?'

Second, auxiliaries such as *hui* 'will' as in (3), and *neng* 'can' or 'may' as in (4) can form the Aux-not-Aux type:

- (3) Ta *hui* bu *hui* mai nadong fangzi?
 he will not will buy that-CL house
 'Will he (or) won't (he) buy that house?'
 (4) Ni *neng* bu *neng* bangmang wo?
 you can not can help me
 'Can you (or) can't (you) help me?'

Third, most adjectives⁴, such as *piaoliang* 'beautiful' as in (5), and *gaoxing* 'happy' as in (6) can occur in this type as well:

- (5) Ta zhangde *piao(liang)* bu *piaoliang*?⁵
 she looks pretty not pretty
 'Does she (or) doesn't (she) look pretty?'
 (6) Ta jintian *gao(xing)* bu *gaoxing* zhege xiaoxi?
 he today happy not happy this-CL news
 'Was he happy (or) wasn't (he) happy about this news today?'

Finally, manner adverbs⁶ such as *manmande* 'slowly' as in (7) (cited from Li and Thompson 1981), *zixi* 'carefully' as in (8) can form an A-not-A question, too:

- (7) Ta *manmande* pao bu *manmande* pao?
 he slowly run not slowly run
 'Does he (or) doesn't (he) run slowly?'
 (8) Ta zuo shi *zi(xi)* bu *zixi*?
 he does things carefully not carefully
 'Does he (or) doesn't (he) do things carefully?'

As can be seen above, the negative conjunct usually appears either before or after the object NP. Moreover, as McCawley (1994) pointed out, each type of A-not-A question is subject to the restriction that the positive expression precedes the negative expression, so the negative-positive order is totally excluded:

- (9) a. *Ni bu *xihuan* milaoshu *xihuan*?
 you not like Mickey mouse like
 'Do you (or) don't you like Mickey mouse?'
 b. *Ni *bu-ba* gongke *ba* gongke zuo-wan?
 you not-BA homework BA homework finish
 'Will you (or) won't you finish the homework?'

Hence, according to Huang (1991) A-not-A questions can be further divided into two patterns: the A-not-AB pattern and the AB-not-A pattern. But these two patterns are semantically equivalent. The A-not-AB pattern, as in (10), is derived from a simplex D-structure by a reduplication process:

- (10) Ta *xihuan* bu *xihuan* zhefu hua?
 he like not like this-CL picture
 'Does he like (or) doesn't (he) like this picture?'

The AB-not-A pattern, on the other hand, is derived from D-structures with a base-generated coordinate VP of the form [[AB] [not AB]] which may undergo a process of anaphoric ellipsis that deletes the second occurrence of B, as exemplified in (11):

- (11) Ta *xihuan* zhefu hua bu *xihuan*?
 he like this-CL picture not like
 'Does he (or) doesn't (he) like this picture?'

In the present study, since the A-not-AB pattern is more productive,⁷ we will assume that it is an unmarked pattern, and the AB-not-A pattern is

marked. Following Li (1990) and Huang (1991), this entails that a head-final language like Chinese will exhibit more A-not-AB patterns, rather than AB-not-A patterns.

II. A-not-A Questions in Japanese⁸

Like Chinese, Japanese is head-final (see Kuno 1973, Farmer 1980 and Saito 1985). Compared with the A-not-A construction in Chinese, let us see if Japanese exhibits the four categorial types of A-not-A questions. First, as can be seen in (12), the V-not-V construction in Japanese is an alternative question containing the coordinator *soredomo* 'or.' However, unlike the A-not-A question in Chinese, (12)c is ungrammatical:

- (12) a. John-wa kono hon-ga suki desu ka?
 TOP this-CL book-NOM like does Q
 (soredomo), suki dewa arimasen ka?
 or like does not Q
- b. John-wa kono hon-ga suki? Sukinai ?⁹
 like like-not
- c. *John-wa kono hon-ga suki sukinai?
 like-not-like
 'Does John like the book or doesn't (he) like (it)?'

Likewise, the auxiliary like *dekimasu* 'can' cannot be used to form the Aux-not-Aux type in Japanese, as in (13):

- (13) a. Anada-wa wadashi-o detsudao kodo-ga dekimasu ka?
 you-TOP I-ACC help this-NOM can Q
 (soredomo), dekimasen ka?
 or can not Q
- b. Anada-wa wadashi-o detsudao kodo-ga dekiru? dekinai?
 can cannot
- c. *Anada-wa wadashi-o detsudao kodo-ga dekiru dekinai?
 can-not-can
 'Can you help me? (or) Can't (you)?'

Moreover, adjectives like *takai* 'tall' cannot construct the Adj-not-Adj type, as exemplified in (14):

- (14) a. John-wa shincho-ga takai desu ka? (soredomo),
 TOP figure-NOM tall is Q or
 takakunai desu ka?
 tall-not is Q
- b. John-wa shincho-ga takai? takakunai?
 tall tall-not
- c. *John-wa shincho-ga takai takakunai?
 tall-not-tall
 'Is John tall? (or) Isn't (he) tall?'

Finally, adverbs, such as *deinei* 'carefully' in (15), cannot be used to form the Adv-not-Adv type:

- (15) a. Mary-wa shigoto-ga deinei desu ka? (soredomo),
 TOP work-NOM carefully does Q or
 deinei dewa arimasen ka?
 carefully does not Q
- b. Mary-wa shigoto-ga deinei? deinei dewanai?
 carefully carefully not
- c. *Mary-wa shigoto-ga deinei deinei dewanai?
 carefully-not-carefully
 'Does Mary do things carefully? (or) Doesn't (she do things) carefully?'

In sum, all of the (a) sentences above are the natural ways of asking yes-no questions in Japanese. Such a pattern is similar to the alternative question with a conjunction (*soredomo* 'or') which connects two questions. And the (b) sentences are disjunctive questions which may undergo coordinate deletion (cf. Huang 1991), resulting in reduced alternative questions. However, the (c) sentences are ungrammatical in Japanese if we posit the positive conjunct and the negative conjunct in the same sentence to form an A-not-A question. Therefore, we conclude that Japanese does not exhibit A-not-A questions.

III. A-not-A Questions in English

Unlike Chinese and Japanese, English is head-initial. To begin with, as can be seen in (16), only the V-not-V type connected with the conjunction 'or' is grammatical, but not the A-not-AB pattern or the AB-not-A pattern:

- (16) a. Do you or don't you like Mickey Mouse?¹⁰
 b. *Do you like not like Mickey Mouse?
 c. *Do you like Mickey Mouse or not like?

Similarly, auxiliaries can form the following Aux-not-Aux type in English, as in (17), where the Aux-not-Aux type with the conjunction 'or' is grammatical, but sentences without a conjunction, as in (17c), are not:

- (17) a. Will he buy or won't he buy that house?
 b. Will he buy that house or won't he?
 c. *Will he won't he buy that house?

In addition, adjectives in English cannot form the Adj-not-Adj type; a conjunction 'or' is required for this type, as illustrated in (18):

- (18) a. Is she happy or not happy?
 b. Is she happy or not?
 c. *Is she happy not happy?

For the same reason, adverbs in English can-

not form the Adv-not-Adv type without a conjunction, as in (19):

- (19) a. Does he run slowly or not slowly?
b. Does he run slowly or not?
c. *Does he run slowly not slowly?

To sum up, the (a) sentences are used to express alternative questions in English. Conjunctions are required in each question to link the positive expression and the negative expression. So, without conjunctions, the AB-not-A pattern of A-not-A questions and the A-not-AB pattern are unacceptable in English. Therefore, we conclude that there are no A-not-A questions in English, either. The comparisons of the categorial types and the patterns of A-not-A questions in Chinese, English, and Japanese are shown in Tables 1 and 2 respectively:

Table 1 Comparison of Categorial Types of A-not-A Questions in Chinese, Japanese, and English (v=exists; *=does not exist)

Categorial type	Chinese	Japanese	English
V-not-V	v	*	*
Aux-not-Aux	v	*	*
Adj-not-Adj	v	*	*
Adv-not-Adv	v	*	*

Table 2 Comparison of Patterns of A-not-A Questions in Chinese, Japanese, and English (v=exists; *=does not exist)

Pattern	Chinese	Japanese	English
A-not-AB	v	*	*
AB-not-A	v	*	*

Previous L2 Studies of the Head Parameter

In this section, we will review two major studies of the Head Parameter in second language acquisition, i.e. Flynn & Espinal (1985) and Tada (1992).

I. Flynn & Espinal (1985)

Based on the parameter setting model pro-

posed by Flynn (1983), Flynn & Espinal (1985) claim that adult L2 learners adopt principles of syntactic organization isolated in L1 acquisition in the construction of the L2 grammar, and L2 learners from early stages of acquisition are sensitive to the different values of the parameters between the L1 and L2 grammars. If the value of the L1 matches that of the L2, acquisition is facilitated and is comparable to that for L1 acquisition; however, if the L1 and L2 values differ, L2 acquisition is disrupted so that the L2 learners must reset their L1 parameters in order to cohere with the L2 grammar.

In order to provide a complete explanation for head direction¹¹ between L1 and L2, Flynn & Espinal (1985) investigated Japanese-, Spanish-, and Chinese-speaking learners' acquisition of English word order and head direction in their study.¹² The relationships among these languages, with regard to word order and head direction, are summarized in Table 3.

Table 3 Comparison of Word Order and Head Direction in English, Spanish, Japanese, and Chinese

Language	English	Spanish	Japanese	Chinese
Word order	SVO	SVO	SVO	SVO
Head direction	head-initial	head-initial	Head-final	Head-final

They further argue that the Head Parameter is the predominant factor in adult second language acquisition of pronoun anaphora. In their study, sixty Chinese-speaking adults learning ESL, with a mean age of 34 years, are divided into three proficiency levels (beginning, intermediate, advanced) comparable to those of the Japanese subjects in Flynn (1983). Besides, like the design and the methodology in the previous study, subjects in this study were tested by a standardized imitation task on the stimulus sentences, which consist of two types: left-branching and right-branching of adverbial subordinate clauses, either preposed or postposed to the main clause; also, these two types of adverbial subordinate clause are different in direc-

tion of pronoun anaphora, backward and forward.

Results of the Chinese-speaking learners of English matched those of the Japanese-speaking learners of English. The results confirm the existence of the Head Parameter in adult second language acquisition of pronoun anaphora.

However, Flynn & Espinal's study raises several questions. First, though they claim that the Head Parameter rather than the Word Order Parameter is the predominant factor in adult L2 acquisition, there is no clear contrast among the three languages in support of Flynn's claims. Second, only the advanced Chinese subjects found sentences with postposed clauses significantly easier to imitate than sentences with preposed clauses, while the other groups of Chinese subjects did not show any preference for this pattern, and there was no significant difference between sentences with forward and backward pronoun anaphora. Therefore, the relationship between the Head Parameter and pronoun anaphora is not confirmed in their study.

II. Tada (1992)

Tada (1992) applies the parameter setting model to foreign language learning (FLL)¹³ and discusses the parameter setting model as a grammar development model. First of all, Tada examined three models of SLA concerning the existence of UG: the Direct Access model¹⁴, the No Access model¹⁵ and the Indirect Access model. She assumes the Indirect Access model, which claims that L1 knowledge interferes with UG. This model can explain the individual differences between the achieved states of grammar in adult FLL. Since the Indirect Access model presupposes the operation of UG in L1 acquisition, Tada examines one of the principles proposed in UG --the Head Parameter.

She assumes that another faculty, the PS system, is involved in the process of adult FLL. Her assumptions are based on Felix's (1986) claims in which adults are equipped with two cognitive systems for language acquisition: the LS system (the language-specific system) and the PS system (the problem-solving system). Each cognitive system is responsible for a specific domain. The LS system is the system for language, which is only activated for the purpose of language acquisition. On the contrary, the PS system is for general problem-solving

and it has a wider range of applicability than the LS system.

Tada proposes two possible factors in adult FLL which are different from children's L2 acquisition: the function of UG and the involvement of another system other than UG, that is, the PS system. She argues for the Indirect Access model and for the PS system in adult FLL. In her study, adult learners are claimed to use the PS system due to the fact that pedagogical rules and direct negative evidence given in the classroom are processed by the PS system.

She then proposes a hypothetical model of foreign language learning. Tada's experiment aims to investigate the sensitivity of the PS system and the LS system with regard to the Head Parameter. Two tests conducted in her study were grammatical judgment tasks. Test 1 examined the degree of activation of the PS system, and Test 2 examined that of the LS system. Test 1 consisted of a set of sentences involving the application of wh-movement, because wh-movement was one of the explicit pedagogical rules in FLL. Test 2 consisted of a set of sentences in which adverbs occur in different positions.

The subjects in Tada's study were 134 Japanese junior high school students, aged 13-14 years old, who had studied English as a foreign language for almost three years. The results of the two tests showed that 100 subjects performed better in Test 1 than in Test 2. This implied that the PS system was more active than the LS system, that is, the PS system was activated first in FLL.

However, Tada's study is problematic in the following respects. First, as to the tasks conducted in the study, there was only one grammatical judgment test for each system, Test 1 for the PS-system and Test 2 for the LS system. Such experimental results were not convincing, because the L2 subjects might have some bias in their responses (cf. White 1989). Second, the tests concerned two independent constructions which are not related at all. Therefore, the correct responses to Test 1 didn't correspond to those to Test 2 and the statistical scoring also didn't show a significant difference between the two tests. Hence, Tada's study didn't really provide empirical evidence for the PS system. Third, Tada's subjects were not divided according to their

proficiency in the target language. Hence, the questions of how the two systems interacted among different-level learners of FLL or what role L1 played were not addressed. Since the role of L1 was still vague in this study, the Indirect Access model was not supported in FLL. Finally, pedagogical rules or the negative evidence in FLL may be used to trigger UG, so more investigation will be necessary to see if UG plays a dominant role in adult FLL.

In this section, we have discussed linguistic properties of A-not-A questions in Chinese, Japanese, and English. In addition, we have reviewed two major studies concerning the existence of the Head Parameter. In the following section, we will present an experimental study which looks into the acquisition of the A-not-A question to see if UG and L1 dominate second language acquisition.

Experimental Methods and Results

As discussed in section 1, the main concern of this study is to argue for the existence of UG in second language acquisition. Specifically, we want to see if L2 learners consult the Head Parameter to acquire Chinese A-not-A questions. If yes, we expect L2 learners to use this parameter consistently in interpreting both of these linguistic constructions. Therefore, in this section we will present the experimental designs and results of the present study.

Subjects

Three groups of subjects were compared in this study: two test groups of Chinese learners whose native languages are Japanese and English and a group of native controls. Members of the test groups were further classified into intermediate and advanced learners on the basis of the Placement Test of the Mandarin Training Center (MTC) of National Taiwan Normal University (NTNU) in Taiwan. A total of 80 subjects were asked to participate in the experiment: 30 native speakers of Japanese, 30 native speakers of English – each of these groups consists of 15 intermediate and 15 advanced learners of Chinese and 20 native controls.

The L2 learners are full-time students in the

MTC of NTNU. Most of them have a regular class load, two hours per day, 10 hours per week with Chinese-speaking teachers. All classes at the MTC are conducted in Mandarin Chinese. Tutorials in the Chinese lesson are essentially topic-oriented with some degree of explicit grammar instruction. But the subjects in the present study had received no specific instruction in A-not-A questions. Of the 30 Japanese-speaking learners, 14 reported that they had been learning Chinese in Taiwan, for a period ranging from 6 months to 4.3 years. Out of the thirty English-speaking learners¹⁶, three of them said that they had been learning Chinese in Taiwan, ranging from 1.5 to 3.2 years; besides, 10 stated that they had gone on a short visit to Mainland China for 1 to 6 months. As to the outside reading of the subjects of the test groups, 17 of the Japanese-speaking subjects said that they had read Chinese materials regularly in their free time, and 13 noted that, except the textbooks, they did not read Chinese materials often. Of the English subjects, on the other hand, 12 reported that they had read Chinese materials frequently, and 18 stated that they read few Chinese outside-reading materials. In addition, the major background information of the two test groups is shown in Table 4.

Table 4 Background Information of the Japanese and English Subjects

Group	Japanese (N=30)			English (N=30)		
Sex	F=16/ M=14			F=14/ M=16		
Type	Mean	SD	Range	Mean	SD	Range
Age	26.88	4.93	20-39	26.07	5.51	20-46
Years of Formal Education	15.53	1.94	12-18	16.67	1.09	16-20
Years of L2 Chinese Learning	2.66	3.41	0.5-20	4.44	5.29	0.5-31

First of all, of the total number of subjects, 30 were females and 30 were males. Of these, 16 of the Japanese subjects were females and 14 were males; 14 of the English subjects were females and 16 were males. Secondly, all the test subjects were of similar mean age; the mean age for the Japanese subjects was 26.88 and that for the English subjects was 26.07. Subjects ranged in age from 20.00 to 46.00. Thirdly, the two test groups were similar in their number of years of formal education. The total number of years of formal education for both groups ranged from 12.00 to 20.00 years; the mean number of years of formal education for the Japanese subjects was 15.53 and that for the English subjects was 16.67. So, all of the L2 subjects were well-educated professionals and academics. Furthermore, the test subjects were similar within 4.5 in the mean number of years of L2 study.

The control group consisted of 20 native speakers of Chinese. Of these subjects, 11 were students, taking Chinese lessons at the World Chinese Language Association, and nine were students of the English Training Center at NTNU who were currently taking some basic English courses. The controls were citizens of Taipei. Their background information is given in Table 5:

Table 5 Background Information for the Control Group

Sex (N=20)	F=17/ M=3		
Type	Mean	SD	Range
Age	29.65	6.66	19-46
Years of Formal Education	15.75	1.52	12-18
Years of Chinese Study	NA	NA	NA

As we see from Table 5, the native controls were a few years older than the test groups. There were two reasons why we chose older native controls here: one was that we were afraid that (espe-

cially advanced) L2 learners'¹⁷ knowledge of the second language might influence their first language (cf. Chen, Liu & Kuo 1996); the other was that Chinese speakers in Taiwan did not receive formal English education until they were in their teens. But the controls and the test groups were similar in their formal education. Like the test groups, most of the controls received a college education; the mean number of years of formal education of the control group was 15.75. However, the number of years of Chinese study was not applicable to the controls, since all of them were native speakers of Chinese.

Methodology and Materials

As we said earlier, one of the main purposes of the present experiment is to explore whether UG is available to the L2 learner by looking at the Head Parameter, an important principle of UG. Subjects in the present study were given two experimental tasks on both A-not-A questions. One was a Preference Task, which was assumed to detect the grammaticality judgment of the L2 learner; the other, a Restructuring Task, which was used to test the linguistic knowledge and production of the L2 learner. Both tasks used pencil and paper tests.

The materials used in the present study contain constructions involving the Head Parameter. There were two sets of test materials for the A-not-A question on both of the tasks: (a) patterns of the constructions; (b) categorial types of the constructions. The A-not-A construction used in each question concerned two patterns (i.e. the A-not-AB and the AB-not-A patterns). Besides, four categorial types of A-not-A questions were investigated: the V-not-V type, the Aux-not-Aux type, the Adj-not-Adj type, and the Adv-not-Adv type.

The Preference Task included judgment of items on the patterns of A-not-A questions. There were 12 pairs of stimulus test sentences. Each pair consisted of two patterns concerning the properties of A-not-A questions. Subjects were asked to choose one sentence out of the two in the task. Table 6 presents some sample sentences of the A-not-A construction:

Table 6 A-not-A Questions on the Preference Task¹⁸

Type	Pattern	Example
V-not-V	A-not-AB	Ni renshi bu renshi Wang xiansheng? you know not know Mr. Wang 'Do you (or) don't (you) know Mr. Wang?'
	AB-not-A	Ni renshi Wang xiansheng bu renshi? you know Mr. Wang not know 'Do you (or) don't (you) know Mr. Wang?'
Aux-not-Aux	A-not-AB	Xiaoming jintian ke-bu-keyi lai shangke? Xiaoming today can not can come to the class 'Can Xiaoming (or) can't (Xiaoming) come to class today?'
	AB-not-A	Xiaoming jintian keyi lai shangke bu keyi? Xiaoming today can come to the class not can 'Can Xiaoming (or) can't (Xiaoming) come to class today?'
Adj-not-Adj	A-not-AB	Ni haoqi bu haoqi Danian de chengji? ¹⁹ you curious not curious Danian GEN grade 'Are you (or) aren't (you) curious about Danian's grade?'
	AB-not-A	Ni haoqi Danian de chengji bu haoqi? you curious Danian GEN grade not curious 'Are you (or) aren't (you) curious about Danian's grade?'
Adv-not-Adv	A-not-AB	Sidong xiao-bu-xiaoxin-de kaiche? Sidong carefully-not-carefully drive a car 'Does Sidong (or) doesn't (Sidong) drive carefully?'
	AB-not-A	Sidong xiaoxinde kaiche bu xiaoxinde? ²⁰ Sidong carefully drive a car not carefully 'Does Sidong (or) doesn't (Sidong) drive carefully?'

In the Preference Task on A-not-A questions, subjects were also asked to correct what they chose in order to avoid a preference bias.

A Restructuring Task was adopted in the experiment, which included the same stimulus sentence as those on the Preference Task. In each question, the words were randomized and the sub-

jects were asked to reorganize the choices given into a grammatical and meaningful sentence in terms of the linguistic knowledge acquired. Likewise, the subjects were given the opportunity to correct the answer. With reference to the test sentences in Table 6, Table 7 displays the stimulus sentences of the A-not-A question of the Restructuring Task:

Table 7 A-not-A Questions on the Restructuring Task²¹

Type	Example
V-not-V	<i>Renshi/ ni /Wang xiansheng /bu rensi /?</i> know you Mr. Wang not know 'Do you (or) don't (you) know Mr. Wang?'
Aux-not-Aux	<i>Xiaoming jintian /keyi /lai shangke /bu keyi /?</i> Xiaoming today can come to the class not can 'Can Xiaoming (or) can't (Xiaoming) come to class today?'
Adj-not-Adj	<i>bu haoqi /Danian de chengji /haoqi /ni /?</i> not curious Danian GEN grade curious you 'Are you (or) aren't (you) curious about Danian's grade?'
Adv-not-Adv	<i>Sidong /xiaoxin-de /kaiche /bu xiaoxin-de/?</i> Sidong carefully drive a car not carefully 'Does Sidong (or) doesn't (Sidong) drive carefully?'

So far, we have described the methodology and test materials used in the present experiment; in the next section we will present the procedures.

Procedures

When preparing the test sentences, we made reference to the textbook Practical Mandarin Conversation Vols. I & II²² to see if the vocabulary items were comprehensible to the subjects. In addition, the subjects were told beforehand that they were free to ask questions about any unfamiliar words while filling out the questionnaires.²³

The UG test for L2 learners was done during official school hours at the MTC from October 1996 to January 1997. The subjects were requested to sign the consent form, in which they were informed that the tests were only for research purposes and irrelevant to their grades. In addition, appointments were made with the subjects individually.

The two tasks were administered in two separate sessions.²⁴ Thus, the subjects would not be able to refer to a test they had just finished or have a chance to change their earlier answers if they took a second look (cf. Christie 1992). The

first session was for the Preference Task and the second for the Restructuring Task. At the end of the second, subjects were asked to present their background information. The experiment was carried out by the present researchers, together with three assistants. After finishing the tests, the subjects were given a small gift as a token of our appreciation.

Scoring and statistical analyses came after the completion of the data collection. Each response was entered into an SPSS file and processed by the computer. For statistical analysis, T-test, ANOVA, and LSD post hoc procedures were employed.

Results

In this section, we will report the responses to A-not-A questions. As shown in section 1, the tasks with A-not-A questions aimed to see if both of the test groups (Japanese vs. English) and the control group showed any differences in acquiring the Head Parameter. Now let's look at the results of A-not-A questions on both tasks, for the test groups and also for the controls, given in Tables 8 and 9 respectively.²⁵

Table 8 Results of A-not-A Questions in the Preference Task²⁶

Subject	Japanese				English				Chinese	
Level	M		A		M		A		NA	
Score	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A-not-AB Pattern	0.801	0.240	0.878	0.186	0.711	0.218	0.744	0.159	0.871	0.125
AB-not-A Pattern	0.039	0.076	0.022	0.067	0.194	0.233	0.006	0.022	0.017	0.036
Other	0.161	0.249	0.100	0.176	0.094	0.099	0.250	0.154	0.113	0.119

Table 9 Results of A-not-A Questions in the Restructuring Task

Subject	Japanese				English				Chinese	
Level	M		A		M		A		NA	
Score	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
A-not-AB Pattern	0.834	0.130	0.762	0.201	0.617	0.218	0.683	0.148	0.667	0.153
AB-not-A Pattern	0.022	0.067	0.022	0.067	0.083	0.161	0.011	0.029	0.008	0.026
Other	0.144	0.107	0.216	0.206	0.300	0.157	0.306	0.150	0.325	0.148

As far as the A-not-AB pattern was concerned, results of the analysis indicated that the group effect was significant (ANOVA, $F(2, 317)=6.6203$, $p=0.0015$). Further post hoc LSD t-tests showed that the Japanese subjects chose the A-not-AB pattern significantly more than the English subjects, and the mean score for the Japanese was 0.818 while that for the English was 0.689 ($p<0.05$). Statistical analysis revealed that the Japanese subjects were better than the English subjects in acquiring the A-not-A question. The controls responded to the A-not-AB pattern significantly more than the English subjects and the mean scores for the controls and the English were 0.769 and 0.689 respectively ($p<0.05$); however, there was no significant difference between the Japanese and the controls.

This showed that the Japanese subjects resembled the controls in their response to the A-not-AB pattern, and also that the Japanese subjects performed better than the English subjects. Therefore, in terms of the acquisition of the Head Parameter, the results implied that the controls and the Japanese subjects were similar in their performance, because these two language groups share the same value of the Head Parameter (i.e. head-final); on the contrary, the English subjects were found to delay acquisition due to the different setting of the Head Parameter (i.e. head-initial).

The comparison of the patterns of A-not-A questions for the three language groups is shown in Figure 1:

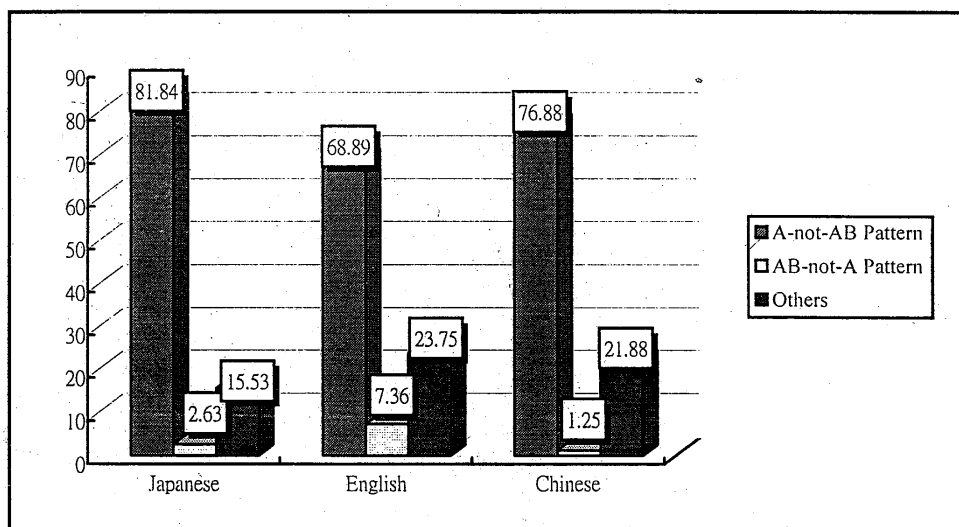


Figure 1 Results of Patterns of A-not-A Questions

As can be seen in Figure 1, within-group analysis indicated that both test groups significantly preferred the A-not-AB pattern to the AB-not-A pattern ($p < 0.01$). This also revealed that learners of Chinese at the early stage of acquisition were already sensitive to the differences between the two patterns of the A-not-A question. That is to say, if they were indeed influenced by their mother tongue, the Japanese speakers and American speakers should show different preferences, and they should be in favor of a pattern similar to that of their L1. But as shown above, they tended to show more preferences for A-not-AB patterns, regardless of whether their L1 is head-initial or head-final. In other words, UG was activated in the early stage of acquisition, and the default setting value is the A-not-AB pattern.²⁷ Hence, the L2 subjects could easily distinguish the differences between the two patterns given in the tasks.

In addition, with respect to the distinction of level of proficiency in Chinese, there was a difference between the mid-level and the advanced-level English subjects. The English subjects at the advanced level significantly selected the A-not-AB pattern more than those at the intermediate level, and the mean score for the mid-level English subjects was 0.664 while that for the advanced-level English subjects was 0.714 ($p < 0.05$). However, there was no significant difference between the two

levels of Japanese subjects in terms of patterns of the A-not-A question. The mean score for the mid-level Japanese subjects was 0.817 and that for the advanced Japanese subjects was 0.820 ($p > 0.05$). Thus, within each language group, both levels of Japanese subjects were similar in their response to the patterns of A-not-A questions, while the English subjects at the advanced level performed better than those at the intermediate level. On the other hand, the mid-level Japanese subjects chose the A-not-AB pattern more than the mid-level English subjects, and the mean scores for the two groups were 0.817 and 0.664 ($p < 0.05$), but the mid-level English subjects chose the AB-not-A pattern (mean score: 0.139), more than the mid-level Japanese subjects, whose mean score was 0.030 ($p < 0.05$); besides, as to the advanced subjects, the Japanese subjects also significantly selected the A-not-AB pattern (mean score: 0.820), more than the English subjects, whose mean score was 0.714 ($p < 0.05$), but both of them did not differ significantly in their responses to the AB-not-A pattern. Here the mean score for the Japanese was 0.022 and for the English was 0.008. The results suggest that the acquisition process of English subjects is slower than that of Japanese subjects, specifically at the intermediate level. Figure 2 shows the level distinctions for the test groups on the A-not-AB pattern:

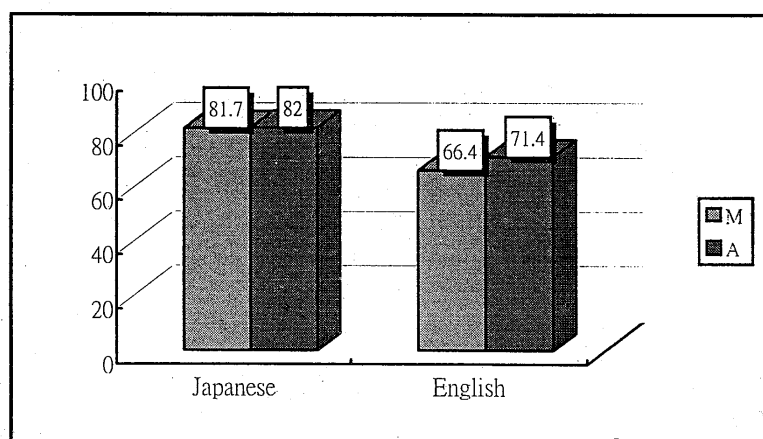


Figure 2 Level Distinctions on the A-not-AB Pattern

Furthermore, it was found that methodology plays a significant role within each language group. The English subjects chose the A-not-AB pattern more in the Preference Task (hereafter the P Task), with a mean score of 0.728, than in the Restructure Task (hereafter the R Task), with a mean score of 0.650 ($p < 0.01$). This indicated that the English subjects showed significant differences in their performance on the two tasks. The Chinese subjects also

responded differently to the two tasks, and they chose the A-not-AB pattern significantly more in the P Task than in the R Task. Their mean score for each task was 0.871 and 0.667 ($p < 0.01$). However, the Japanese subjects did not show a significant difference in their response to the A-not-AB pattern on the two tasks. These results are also shown in Figure 3:

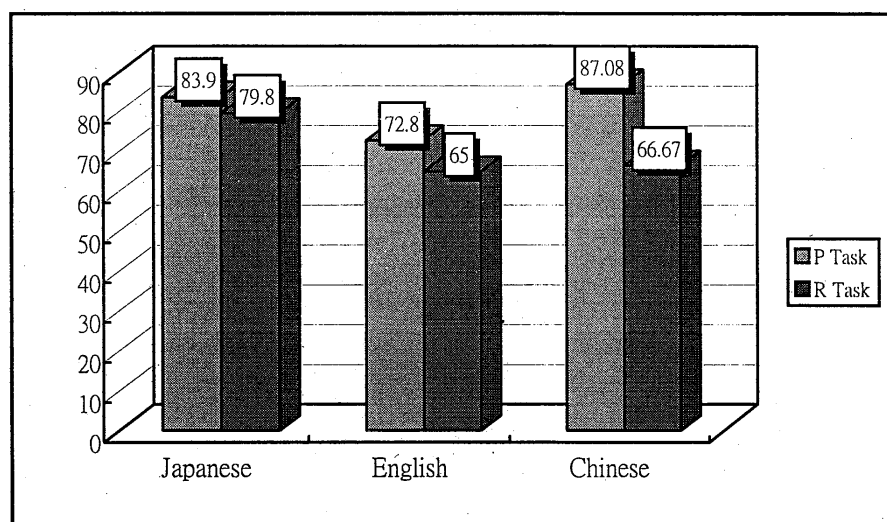


Figure 3 Methodological Distinctions of A-not-A Questions²⁸

Finally, there was an interaction between language and type of A-not-A questions (ANOVA, $F(6,73) = 4.398$, $p = 0.000$). It showed that all of the language groups differed in their interpretation of the types of A-not-A questions. As far as the Japanese group was concerned, there were significant differences in the responses to the types of A-not-A questions (ANOVA, $F(3,116) = 12.665$, $p = 0.0000$); besides, the post hoc LSD indicated that the mean scores of Type 1 (0.930) and Type 2 (0.951) were significantly better than those of Type 3 (0.714) and Type 4 (0.685) ($p < 0.05$). For the English subjects, there were significant differences in the response to each type of A-not-A question (ANOVA, $F(3,116) = 21.4062$, $p = 0.0000$); in addition, the LSD post hoc showed that Type 2 (mean: 0.9387), was significantly responded better than to the other three types. The mean score for Type 1

was 0.783, for Type 3 0.44, and for Type 4 0.595 ($p < 0.05$). Besides, the Type 1 was significantly responded better than Type 3 and Type 4 ($p < 0.05$), and the frequency of choice of Type 4 was also significantly higher than that of Type 3 ($p < 0.05$). Therefore, both the test groups showed that the V-not-V type and the Aux-not-Aux type were significantly easier than the Adj-not-Adj type and the Adv-not-Adv type for the L2 subjects. The controls also showed a significant difference in the responses to each type of A-not-A question (ANOVA, $F(3,76) = 31.4433$, $p < 0.05$). The LSD post hoc indicated that, like the Japanese group, Type 1 (0.933) and Type 2 (0.966) were significantly responded better than Type 3 (0.709) and Type 4 (0.467) ($p < 0.05$); besides, Type 3 rated significantly higher than Type 4 ($p < 0.05$). The results are illustrated in Figure 4:

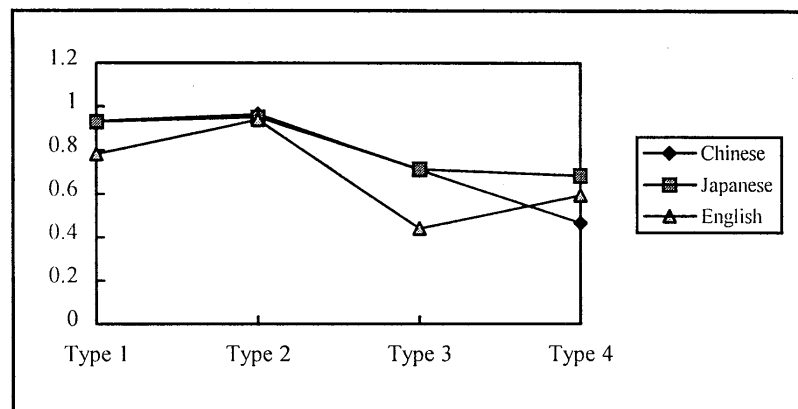


Figure 4 Types of A-not-A Questions

As can be seen in Figure 4, all the language groups showed a similar developmental sequence in the V-not-V type, the Aux-not-Aux type and the Adj-not-Adj type; however, the controls responded differently as to the Adv-not-Adv type, since their choices of the Adv-not-Adv type in the A-not-AB pattern were significantly fewer than of the other three types. The categorial distinction will be further discussed in the next section.

To sum up, the present results show a significant language group effect on the A-not-A ques-

tion, since the Japanese subjects, like the controls, significantly chose the A-not-AB pattern more than the English subjects. All three language groups were significantly more in favor of the A-not-AB pattern than the AB-not-A pattern. In addition, all of the language groups showed fewer selections of the Adj-not-Adj type and the Adv-not-Adv type than of the V-not-V type and the Aux-not-Aux type.

The results of the present study can be summarized as follows:

First, the group effect was found to be significant in the acquisition of both the A-not-A question. Both of the test groups showed a significant difference in the acquisition of each construction: the Japanese subjects performed better than the English subjects because the L1 setting of the Japanese language matches that of the Chinese language (i.e. head-final), while the L1 setting of the English language is different from that of the Chinese language (i.e. head-initial). Besides, the English subjects have some difficulty in the acquisition of the construction, since the English subjects performed worse than the Japanese subjects.

Secondly, there were significant differences in

the acquisition of categorial types of each construction across and within each language group. Both the Japanese subjects and the controls exhibit a similar sequence in the categorial types of A-not-A questions, whereas the English subjects differed from the other groups in the categorial types of this construction. However, within each group, all of the language groups performed better in the V-not-V type and the Aux-not-Aux type than in the Adj-not-Adj type and the Adv-not-Adv type.

Thirdly, methodology is another factor in determining the acquisition of the A-not-A construction. Both the test groups performed better on the P Task than on the R Task.

Discussion

Now let us further discuss the results of the present experiment for both A-not-A questions with respect to the Head Parameter.

Theoretical Consequences

The present findings shed light on theories of the A-not-A question in Chinese. In this section we will first investigate the role of L1 and then examine the existence of UG. Finally, we will discuss the methodological effects and the syntactic implications of A-not-A questions.

I. The Role of L1

As discussed in section 2, both Chinese and Japanese are head-final languages where the left-branching pattern is the dominant structure of a given construction, while English is a head-initial language, in which the right-branching pattern is dominant. Hence, this immediately invites the following question: Will L2 learners transfer their L1 knowledge to acquire the target language? If yes, our results should support the transfer hypothesis (cf. White 1985 & 1992, Gass & Selinker 1992), and we should find that L2 learners' L1 knowledge will interfere with their acquisition. In particular, we should find that the English subjects are in favor of the right-branching pattern (which matches the setting of their L1) of either construction, at least at the early stage of acquisition²⁹. Now that the proficiency of the target language influences the linguistic knowledge acquired, let us look at the

level distinction first. The level distinctions are shown in Table 10:

Table 10 Level Distinctions for the Predicted Patterns of the A-not-A Construction

Pattern	A-not-A Question(A-not-AB Pattern)			
Level	M		A	
Score	Mean	SD	Mean	SD
Japanese	0.817	0.122	0.820	0.141
English	0.664	0.202	0.714	0.138

As can be seen in Table 10, the mid-level Japanese subjects significantly performed better on the A-not-AB pattern of A-not-A questions than the mid-level English subjects ($p < 0.05$). In addition, as for the advanced learners, the Japanese subjects also significantly performed better on the A-not-AB pattern than the English subjects ($p < 0.05$). That is to say, the Japanese learners indeed acquired the construction a little faster than the English learners at either level. Furthermore, the mid-level English subjects significantly responded more to the AB-not-A pattern (mean score: 0.139) than the mid-level Japanese subjects (mean score: 0.03) ($p < 0.05$). In other words, in comparison with the performance

of the Japanese subjects, the English subjects did have some difficulty acquiring this construction, but they did not show a significant L1 effect in the developmental process. Hence, we claim they only had a delaying effect, so the transfer hypothesis is not supported in the present study. Meanwhile, the present results support Flynn's (1983, 1987a, 1987b, 1987c & 1989) parameter setting model, which argues that where the L1 setting matches the L2 setting, L2 acquisition will be facilitated, while where the L1 value does not match the L2 setting, L2 acquisition will be disrupted. As can be seen in section 3.4, the correct responses on the theoretically predicted patterns (i.e. the A-not-AB pattern) by the Japanese-speaking learners were significantly more than those by the English-speaking learners. (The respective mean scores for the A-not-A question for the Japanese subjects were 0.818, and those for the English subjects were 0.689.) ($p < 0.05$) The present study thus provides a piece of evidence for Flynn's parameter setting model.

II. The Existence of UG

Another issue related to second language acquisition is the role of UG. First of all, let us take a look at the results shown below:

Table 11 Responses to the Theoretical Patterns for the A-not-A Construction

Pattern	A-not-A Question(A-not-AB Pattern)			
Level	A-not-AB		AB-not-A	
Score	Mean	SD	Mean	SD
Japanese	0.818	0.130	0.826	0.048
English	0.689	0.172	0.074	0.147
Chinese	0.769	0.100	0.013	0.024

As can be seen in Table 11, with the acquisition of the A-not-A question, both test groups significantly preferred the A-not-AB pattern to the AB-not-A pattern ($p < 0.01$). That is to say, the L2 subjects in the present study seemed to consistently operate on a linguistic basis (i.e. the UG basis) given their

overall adherence to the two patterns predicted by the Head Parameter for the A-not-A construction. Therefore, the empirical results suggest that UG is fully activated for the L2 learner since the parameter resetting is possible in the process of second language acquisition.³⁰ These results also confirm the theoretical predictions made by Flynn & Espinal (1985), who argue that L1 and L2 acquisition are fundamentally alike because of the accessibility of UG.

We will now further examine three hypotheses concerning the existence of UG in L2 acquisition. In the first place, the No Access Hypothesis claims that UG is no longer available to L2 learners in the process of second language acquisition (Clahsen & Muysken 1986, Schachter 1988), and proposes that other non-linguistic strategies, such as problem-solving, are adopted by L2 learners. As UG is no longer in active force, parameters of UG cannot be reset. Hence, if the No Access Hypothesis is valid, we should find that the L2 value will not be attainable. However, the present study evidently argues against this hypothesis because both of the test groups (Japanese vs. English) responded significantly better with the theoretically predicted patterns, no matter the L1 value matched (as with the Japanese subjects) or mismatched (with the English subjects) the L2 value. Therefore, the No Access Hypothesis is not supported by the English subjects, whose L1 value is different from the value of their L2. That is to say, UG still operates in second language acquisition.

Now let's turn to the Indirect Access Hypothesis. Since the mid-level Japanese subjects selected to the predicted patterns significantly more often than the mid-level English subjects, one may argue that the L1 setting should play a dominant role in L2 acquisition. However, the Indirect Access hypothesis claims that principles and parameter setting from the L1 are served at least in the initial stage of acquisition as an interim theory about the L2, which attributes considerable importance to the L1 grammar (Schwartz 1987, White 1985 & 1992). That is to say, it assumes that, based on the L2 input with a still active UG, the L2 learner should be capable of completing the parameter resetting via the L1 grammar. In this case, we should find that the English subjects uniformly chose the patterns

which match their L1 (i.e. the head-initial patterns) on both of the constructions. Therefore, it is difficult to judge the transfer effect in this case, so the Indirect Access Hypothesis is controversial in the present study.

Unlike the No Access Hypothesis and the Indirect Access Hypothesis, the Direct Access Hypothesis argues that L2 acquisition is a pure interaction between UG and the L2 data (Dulay & Burt 1974, Krashen 1981), assuming that L1 knowledge is irrelevant to the L2 and plays no role in L2 acquisition. This hypothesis is preferred for the reason that the majority of the responses of the test groups indeed initiated the permissible setting of the Head Parameter and the PBD. Moreover, the fact that the intermediate English-speaking learners

of Chinese significantly chose the AB-not-A pattern (which is in accord with the head-initial setting) more than the Japanese-speaking learners of Chinese ($p < 0.05$) supports Flynn's parameter setting model which claims that L2 acquisition will be facilitated if L1 and L2 match.

III. Syntactic Implications of A-not-A Questions

As discussed in section 3.4, all of the language groups responded differently to the categorial types of the A-not-A question as to whether the syntactic theories of the A-not-A question are supported by the empirical findings. With respect to the A-not-A question, the results of the categorial distinction are repeated in Table 13:

Table 13 Response to the Categorial Types of A-not-A Questions

Type	V-not-V		Aux-not-Aux		Adj-not-Adj		Adv-not-Adv	
Score	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Japanese	0.928	0.104	0.950	0.117	0.711	0.263	0.683	0.305
English	0.783	0.232	0.939	0.148	0.439	0.278	0.594	0.335
Chinese	0.933	0.113	0.967	0.068	0.708	0.235	0.467	0.251

As can be seen in Table 13, the Japanese subjects and native controls were similar in their interpretation of four categorial types. Both of them responded similarly to the V-not-V type, the Aux-not-Aux type, and the Adj-not-Adj type, while the English-speaking subjects responded differently to the categorial types. This suggests that the acquisition of the A-not-A questions is constrained by the head direction, because both Chinese and Japanese are head-final, while English is head-initial. Besides, though the selection of the Adj-not-Adj type of the A-not-AB pattern by the Japanese subjects and the controls are fewer than those of the V-not-V type and the Aux-not-Aux type, the error analysis of the Adj-not-Adj type of the BA-not-A pattern indicated that the Japanese subjects and the native controls, showed similar responses. (The percentage

of error responses for the Japanese subjects was 20.0% and that for the controls was 20.83%).

However, all of the language groups differed in their interpretation of the Adv-not-Adv type. In particular, as indicated in Table 21, the selections of the predicted pattern (i.e. the A-not-AB pattern) of this categorial type by controls (mean score: 0.467) were fewer than those by the test groups (Japanese: 0.683 and English: 0.594). The error analysis on this type even revealed that the Adv-not-Adv type of the BA-not-A pattern was equally acceptable by the native controls (mean score: 0.358). Therefore, the predicted patterns as proposed by Li & Thompson (1981) and Huang (1982) were found to be problematic in this study, since there were fewer responses to the Adv-not-Adv type and the Adj-not-Adj type by all language

groups. This also implies that, in addition to the Head Parameter, other factors (such as categorial types) may interfere with the acquisition of A-not-A questions because the subjects in the present study didn't respond equally to all the categorial types.

Since all of the language groups showed a significant difference in their interpretation of the presupposed categorial types on A-not-A questions, it is clear that the categorial distinction plays a crucial role in developing a formal model of syntactic theory. For this reason, let's take a closer and more critical look at the system of categorial types we employ here. As proposed by Radford (1988), the major categories can be decomposed into different sets of syntactic features. He further suggests that in order to "capture supercategorial generalizations"³¹ (p. 146), "such a system of supercategories can

be motivated on universalistic grounds (in the sense that it is applicable to languages other than English)" (p. 147). That is to say, since all of the subjects in the present study performed better in their responses to the V-not-V type and the Aux-not-Aux type, this suggests that only [-N] categories (i.e. the V-not-V type and the Aux-not-Aux type), which take NP complements, are more applicable to the A-not-A formation. Additionally, if we compare the responses to the V-not-V type and the Aux-not-Aux type with those to the Adj-not-Adj type and the Adv-not-Adv type, it is interesting to note that all the language groups, regardless of whether they exhibit this construction, are aware of the syntactic features of each categorial type. In other words, the Head parameter interacts with the supercategorial features in the acquisition of A-not-A questions.

Concluding Remarks and Implications for Further Research

We have argued that on the whole our findings support the UG effect in second language acquisition and the parameter setting model proposed by Flynn (1983 1987a, 1987b, 1987c & 1989), who argues that L2 acquisition will be facilitated when L1 matches L2, while L2 acquisition will show an effect of delay, but not language transfer, when L1 and L2 do not match. Moreover, the present experimental findings clarify the categorial types for both A-not-A questions, and provide empirical evidence for syntactic theories of linguistic constructions. However, due to the limitations of the present study, some other factors still need to be investigated in relation to the Head Parameter.

For example, the issue concerning L1 transfer for beginners can be further explored by looking at relevant constructions other than the adverbial clause. The syntactic theories of the A-not-A question should be further evaluated, since the present findings showed that the categorial distinction was significant only in the Adj-not-Adj and the Adv-not-Adv types of the A-not-A question. The syntactic theory of the A-not-A formation needs to take the supercategorial features into consideration. It is believed that a set of results concerning from different perspectives on second language acquisition will help us to better understand the parameter setting model of L2 acquisition.

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Notes

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1. As proposed by Chomsky (1981), "UG is taken to be a characterization of the child's pre-linguistic initial state"(p.7) and "an element of shared biological endowment"(p.8). Lust (1986) also argued that the mediation of UG in the process of language acquisition restrains the infinite number of false leads that could be provided by random induction from unguided experience of surface structure data.
2. According to Chomsky (1981), the Head Parameter, a parameter in X' theory, describes the relationships among specifiers, heads, and complements, as shown in (i) (cited from Haegeman 1991):

(i) $X'' \rightarrow \text{Spec}; X'$
 $X' \rightarrow X; YP$

As in (i), X, as a head, represents the major categories (N, V, A, P) which constitute the phrases (NP, VP, AP, PP). The category (YP) that follows the head is the complement. The principle of the head-complement relation differs in the head--either head-initial or head-final.
3. In Li and Thompson (1981), A-not-A questions refer to questions formed by a combination of an affirmative constituent and a negative counterpart without any conjunction in one single sentence. Hence, sentences with *haishi* or tag questions are excluded here, since the former one have a conjunction and the latter one consist of two clauses.
4. Here we should note that there are some co-occurrence restrictions on the Adj-not-Adj type. First, as pointed out by McCawley (1994), the adjective whose first element transparently negates the second element cannot appear in the Adj-not-Adj type. Second, the adjective which is modified by an adverb cannot be constructed as an A-not-A question. Third, the bisyllabic adjectives which are reduplicative as modifiers of nouns cannot occur in the A-not-A question.
5. We should note that the subpart of bi-syllabic words for each type, like *piaoliang* 'pretty,' *gaoxing* 'happy,' and *zixi* 'carefully,' can be reduced.
6. Li & Thompson (1981) state that many manner adverbs, which are normally used to describe the action, are derived from adjectives followed by *de* 'GEN,' such as *kuai-lede* 'happily,' *jiandande* 'simply,' *yanlide* 'severely.' However, in our observation, not all manner adverbs, can form the A-not-A question. Moreover, as one of the reviewers pointed out, manner adverbs seem more acceptable especially when they appear in postverbal position as in (i), rather than in preverbal position:

(i) Ta jiaoxue renzen bu renzen?
 he teach hard not hard
 'Does he or doesn't he teach hard?'
 However, it's not true that manner adverbs will definitely be acceptable when they appear in postverbal position, as illustrated in (ii) and (iii), where one of the manner adverbs occurs inside a complex *de* clause and the other denotes a result:

(ii) ?Ta zuo de hen man bu hen man?
 he walk DE very slowly not very slowly
 'Does he or doesn't he walk slowly?'
 (iii) ?Ta xie cuo bu cuo?
 he write incorrectly not incorrectly
 'Did he or didn't he write (it) incorrectly?'
 Therefore, when a manner adverb can be used to form an A-not-A question remains an issue. At this stage, we will still follow Li & Thompson's claim, and see if our experimental results also suggest that a syntactic modification of their theory is necessary to account for our native speakers' and L2 learners' responses to this type of A-not-A question.
7. According to our observation, the A-not-AB pattern is more productively used by speakers of Mandarin in Taiwan. But as one of the reviewers pointed out, the AB-not-A pattern is quite often used by speakers from the north of Mainland China. If this indeed is the case, should we change our assumption? The answer is no, simply because the present study aims to examine the influence of L1 and the availability of UG. If foreign students in Mainland China indeed use more AB-not-A patterns, this only entails that besides the two aspects we discussed here, the input foreign students receive in class also plays an influential role in their L2 acquisition.
8. We consulted with three native speakers of Japanese about different types of A-not-A questions in Japanese as mentioned earlier. They, aged from 20 to 31, were currently studying Chinese at Mandarin Training Center at National Taiwan Normal University, and they have stayed in Taiwan for about two years.
9. Though (12b) is grammatical in Japanese, it is different from the A-not-A question in Chinese. In Japanese, (12)

- is like a disjunctive question which undergoes coordination deletion.
10. As one of the reviewers pointed out, sentence (16a), different from an A-not-A question in Chinese, requires old information for this structure.
 11. In previous studies (such as Mangione 1982 and Travis 1984), Spanish and English are assumed to have similar head directions and word order, because Spanish and English are head-initial and the basic word order of Spanish and English is SVO. However, Japanese differs from English and Spanish in head direction and word order. Japanese is head-final (Kuno 1973), and the basic word order of Japanese is SOV (Kuno 1973, Saito 1985, Farmer 1980). Thus, word order other than just head direction could be an alternative explanation for the results of the previous studies (Travis 1984).
 12. Unlike Japanese, Chinese matches English and Spanish in its surface word order, SVO (Lii 1975, Li and Thompson 1976, Huang 1982, and Travis 1984); however, unlike English and Spanish but like Japanese, Chinese is head-final (Huang 1982, Travis 1984).
 13. Tada assumed that second language acquisition is distinguished from foreign language learning. She defined foreign language learning as being equivalent to 'formal language learning' (FLL) in which the learning of a foreign language took place in a classroom environment, not in a naturalistic setting. In addition, she pointed out that adult foreign language learning usually ended up with some intermediate stage of development, while children's second language acquisition normally achieved the final state of fluency.
 14. The Direct Access model claims that UG is involved in SLA just as it is in L1 acquisition; namely, L2 learners rely on L2 structures as a system rather than on their native languages (Dulay & Burt 1974).
 15. The No Access model claims that UG is not available to adult FLL, and that some cognitive learning strategies are responsible for adults' FLL. As proposed by Clahsen & Muysken (1988), the availability of cognitive learning strategies in adults but not in children blocks the use of UG.
 16. Among 30 English-speaking subjects, 27 reported that they had learned Chinese in other countries, ranging from 2.5 months to 6 years. Those countries include America, England, Canada, the Philippines and so on. Of 30 Japanese-speaking subjects, on the other hand, 16 noted that they had studied Chinese outside Taiwan, the number of years of their L2 study in other countries ranging from 1 month to 3 years.
 17. Chen, Liu and Kuo (1996) argued that L1 setting is not always fixed, that is, the original setting of the L1 will still be affected after L2 values are reset.
 18. Since our subjects were intermediate and advanced learners of Chinese, both of our tasks were written in Chinese (please see Appendices A and B).
 19. According to Huang (1982), adjectives like *gaoxing* can take a direct complement clause. This sentence is designed to see if most of our L2 learners also feel that haoqi is of this type.
 20. According to Li & Thompson (1981), this sentence is grammatical, since *xiaoxinde* is a manner adverb. But as one of the reviewers pointed out, this sentence may not be acceptable to native speakers of Chinese, either. But the main purpose of this study is to see if our subjects responded significantly differently in response to this type. If yes, Li and Thompson's theory ought to be revised.
 21. In order to control possible variables that may affect the experimental results, the test sentences used in both task are the same.
 22. Though Mandarin Conversation Vols. I & II are old textbooks, they are still in use.
 23. Prior to the main study, a pretest was first given to one American and one Japanese to check the validity of the test sentences. The Japanese subject, aged 31, had been learning Chinese at the MTC for two years and also was a part-time Japanese teacher. The American subject, aged 30, had learned Chinese for four years at the MTC and was a secretary at the MTC for six months. Their responses showed that the native-like pattern could be found in the advanced L2 learner. Therefore, the pretest revealed that the test sentences given in the main study were valid.
 24. Since both tasks used the same test sentences, they were given in separate sessions to avoid possible interference.
 25. Possible score range for the A-not-A question as well as for the adverbial clauses was 0-1. Also, we assumed a probability level of $p < 0.05$ as the level of significance. In addition, the abbreviations in the following tables are as follows: M stands for the intermediate learners, A for the advanced learners, and NA means 'not applicable.'
 26. In Table 8, since the A-not-AB pattern is head-final, it is a dominant structure in Chinese. The AB-not-A pattern is, however, head-initial.
 27. Some major principles like X' theory should be absolutely universal, but the Head parameter should be relatively universal. For example, some languages choose [+head-initial], and some, [-head-initial]. Here, we assume the unmarked pattern is a head-final pattern, the A-not-AB pattern, since it is more productive in L2 acquisition. But more investigation into this issue will be necessary.
 28. The Preference Task is abbreviated as the P Task, and the Restructuring Task as the R Task.
 29. Since Japanese and Chinese are both head-final, the Japanese-speaking learners need not reset their L2 parameter in acquiring A-not-A questions and adverbial clauses. On the other hand, English is head-initial, so that it is necessary for the English-speaking subjects to reset their L1 parameter to cohere L2 values. Therefore, when looking into the issue of language transfer, we will mainly focus on the English subjects.

30. According to Christie (1992), if UG is dead, there should be no parameter resetting.
31. Radford (1988) defines a supercategory as "a set of categories which share a subset of features in common" (p. 147).

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Appendix A: Test Sentences for the Preference Task

下面有 12 題，每一題有兩種句子。請你仔細看完後，勾出你最喜歡的『一個』句子。如果有錯誤，請改正。

例句：() a. 你有没有五百塊？

(V) b. 你有五百塊沒有？ 改正：(b) 沒有-->還是沒有

1. () a. 他下個月搬不搬家？

() b. 他下個月搬家不搬？

改正：() _____

2. () a. 立美奇怪這件事情不奇怪？

() b. 立美奇不奇怪這件事情？

改正：() _____

3. () a. 他清楚地說話不清楚地？

() b. 他清不清楚地說話？

改正：() _____

4. () a. 小明今天可不可以來上課？

() b. 小明今天可以來上課不可以？

改正：() _____

5. () a. 你認識王先生不認識？

() b. 你認不認識王先生？

改正：() _____

6. () a. 李太太高不高興這個消息？

() b. 李太太高興這個消息不高興？

改正：() _____

7. () a. 她認不認真地看書？

() b. 她認真地看書不認真地？

改正：() _____

8. () a. 你能用筷子吃飯不能？

() b. 你能不能用筷子吃飯？

改正：() _____

9. () a. 右平戴不戴這隻手錶？

() b. 右平戴這隻手錶不戴？

改正：() _____

10. () a. 你好奇大年的成績不好奇？

() b. 你好奇不好奇大年的成績？

改正：() _____

11. () a. 思東小心地開車不小心地？

() b. 思東小不小心地開車？

改正：() _____

12. () a. 他會不會常常生氣？

() b. 他會常常生氣不會？

改正：() _____

Appendix B: Test Sentences for the Restructuring Task

請將下面的字詞，組合成完整的句子。並且寫下正確的號碼順序。如果有錯誤，請改正。

例：有₁ / 你₂ / 這本書₃ / 沒有₄ / 還₅ / ?

答：2 1 3 5 4

改正錯誤：(5) 還 --> 還是

1. 家₁ / 他下個月₂ / 不搬₃ / 搬₄ / ?

答：_____ 改正錯誤：() _____

2. 可以₁ / 小明今天₂ / 來上課₃ / 不可以₄ / ?

答：_____ 改正錯誤：() _____

3. 這件事情₁ / 不奇怪₂ / 奇怪₃ / 立美₄ / ?

答：_____ 改正錯誤：() _____

4. 思東₁ / 小心地₂ / 開車₃ / 不小心地₄ / ?

答：_____ 改正錯誤：() _____

5. 認識₁ / 你₂ / 王先生₃ / 不認識₄ / ?

答：_____ 改正錯誤：() _____

6. 不能₁ / 能₂ / 你₃ / 用筷子吃飯₄ / ?

答：_____ 改正錯誤：() _____

7. 不高興₁ / 高興₂ / 這個消息₃ / 李太太₄ / ?

答：_____ 改正錯誤：() _____

8. 清楚地₁ / 說話₂ / 不清楚地₃ / 他₄ / ?

答：_____ 改正錯誤：() _____

9. 右平₁ / 這隻手錶₂ / 戴₃ / 不戴₄ / ?

答：_____ 改正錯誤：() _____

10. 不會₁ / 他₂ / 會₃ / 常常生氣₄ / ?

答：_____ 改正錯誤：() _____

11. 不好奇₁ / 大年的成績₂ / 好奇₃ / 你₄ / ?

答：_____ 改正錯誤：() _____

12. 她₁ / 不認真地₂ / 認真地₃ / 看書₄ / ?

答：_____ 改正錯誤：() _____

普遍語法與華語正反問句的第二語言習得

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本實驗旨在藉由研究來台學習華語之日本學生與美國學生華語正反問句 (A-not-A Questions) 之習得情形，探討第二語言中普遍語法之重要性與母語之角色。實驗組是 60 位師大國語中心的美、日學生；控制組則是 20 名中國學生。本實驗共設計兩組測驗：一是偏好題 (a preference task)、另一是重組題 (a restructuring task)。實驗結果發現大部分的美、日學生在華語習得初期即對主要成份參數 (the Head Parameter) 作出正確反應，顯示母語干擾並不顯著。由此可見，第二語言習得中普遍語法之存在。本實驗結果，除可証實普遍語法在第二語言中之重要性外，對華語正反問句語法理論之沿革，亦有參考之價值。

關鍵詞：普遍語法、正反問句、華語、第二語言習得