Another Look at 'Verb Raising' in the L2 English of Chinese Speakers

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1. Introduction

In a series of studies, White (1990/91, 1991, 1992) found that French-speaking learners of English consistently allow adverbs to intervene between thematic verbs and (non-heavy) direct objects in their L2 English (e.g. *Mary watches often television). By comparing the clause structures of French and English, White attributed these **S**(ubject) **V**(erb) **A**(dverb) **O**(bject) errors to L1 transfer from French where SVAO is a grammatical order (e.g. Marie regarde souvent la télévision). This research has triggered great interest in the L2 acquisition of verb placement among generative second language researchers over the past decade. Eubank, Bischof, Huffstutler, Leek & West (1997), for example, found that L1 Chinese learners of English also seem to allow *SVAO in a Truth Value Judgment task, even though this order is prohibited in Chinese (e.g. *Mali kan changchang dianshi 'Mary watches often television'). Eubank et al. therefore argued that *SVAO stems from the immature state of Interlanguage rather than L1 transfer. However, in a study of L2 Chinese, Yuan (2001) found that *SVAO was categorically prohibited by L2 learners, even supposed beginners, whose L1 was English, French or German. From this he concluded that the *SVAO order, the so-called 'verb raising' phenomenon, was not "inevitable" in L2 acquisition.

The research above restricted its focus to thematic verbs. The study reported on in this paper is a partial replication of White's (1991) study, but this time looking at a group of L1 Chinese speakers acquiring English. In addition to the 32 sentence pairs used in White's 'preference' task, testing thematic verb placement relative to manner and frequency adverbs, another 18 pairs were added to the instrument testing non-thematic verbs (i.e. modals; auxiliary and copula be) relative to these adverbs and to negation.

The purpose of our study is twofold. First, since Chinese prohibits SVAO while French allows it, a comparison of our thematic verb results with White's, especially the *SVAO acceptance rates, should help shed light on the role that L1 transfer plays in the acquisition of verb placement (in English). Second, since English does allow adverbials to occur between non-thematic verbs and their complements, similar data from non-thematic verbs should help lead to a better understanding of the L2 acquisition of (English) verb placement.

The paper is organized as follows. Section 2 briefly lays out the theoretical background concerning the similarities and differences in the syntax of French, English and Chinese in regard to the placement of thematic verbs and non-thematic verbs relative to adverbs and negation. Section 3 describes the experiment and presents its results, and Section 4 discusses these results. Section 5 closes the paper with some concluding remarks and some caveats for future research design.

2. Linguistic Background

2.1. *French and English*

The difference between French and English verb placement is often attributed to the presence vs. absence of verb raising (e.g. Emonds 1978; Pollock 1989). In French all finite verbs raise for feature checking overtly at Phonetic Form, resulting in the surface orders SVAO (1), SAuxAVP (2) and SVNegO (3):

(1) Jean <u>embrasse</u>$_i$ **souvent** t_i Marie.   (verb raising)
     John <u>kisses</u>   **often**   Mary
     'John often kisses Mary.'

(2) Jean <u>a</u>$_i$ **souvent** t_i visité   le musée.   (Aux raising)
     John <u>has</u> **often**   visited the museum
     'John has often visited the museum.'

(3) Jean (n') <u>aime</u>$_i$ **pas** t_i Marie.   (verb raising)
     John   <u>likes</u> **not**   Mary
     'John does not like Mary.'

In English all finite thematic verbs stay *in situ* within VP, and feature checking is done covertly at Logical Form after affix lowering, leading to a surface SAVO sequence (4), while finite non-thematic verbs can raise overtly for feature checking, resulting in SAux/ModAVO (5) and SAux/ModNegVO (6). The negation of thematic verbs resorts to <u>do</u>-support (7).

(4) John t_i **often** <u>kiss</u><u>es</u>$_i$ Mary.   (affix lowering)

(5) John <u>has</u>$_i$ **often** t_i visited the museum.   (Aux raising)

(6) John <u>has</u>$_i$ **not** t_i visited the museum.   (Aux raising)

(7) John <u>does</u> **not** like Mary.   (<u>do</u>-support)

2.2. *Chinese*

Like in English, adverbs in Chinese may precede thematic verbs, but they cannot occur between thematic verbs and their direct objects (8):

(8) a.   Zhangsan **changchang** <u>chi</u> shuijiao.
      Zhangsan **often**   <u>eat</u> dumpling
      'Zhangsan often eats dumplings.'

   b. * Zhangsan <u>chi</u> **changchang** shuijiao.
      Zhangsan <u>eat</u> **often**   dumpling

As for negation, the negative markers <u>bu</u> and <u>mei</u> immediately precede the verbs they modify (9a), rather than resorting to <u>do</u>-support as in English or appearing after verbs as in French:

(9) a.   Lisi **bu**   <u>he</u>   kele.
      Lisi **not** <u>drink</u> cola
      'Lisi does not drink cola.'

   b. * Lisi <u>he</u>   **bu**   kele.
      Lisi <u>drink</u> **not**   cola

In line with Pollock (1989), the fact that adverbials precede thematic verbs instead of intervening between these verbs and their direct objects shows that thematic verbs do not raise in Chinese.

In addition, Chinese allows adverbs to occur in sentence-initial position but not in sentence-final position,[1] as is shown in (10):

(10) a. **Xiaoxin** de Zhangsan <u>kaikai</u> le   men.
    Careful DE Zhangsan <u>open</u>   ASP door
    'Carefully Zhangsan opened the door.'

   b. * Zhangsan <u>kaikai</u> le   men **xiaoxin** de.
      Zhangsan <u>open</u>   ASP door **careful** DE

Turning now to non-thematic verbs in Chinese, modal verbs such as <u>keyi</u> 'can/may', <u>hui</u> 'will/can', <u>neng</u> 'can' as well as aspectual markers such as <u>zai</u> (progressive) and <u>you</u> (perfective) function as auxiliary verbs, taking VP complements headed by thematic verbs (Ernst 1994, 1995). Chinese allows both SModAVP and SAModVP, although the scope interpretations are different, as can be seen in (11):

(11) a. Lisi <u>keyi</u> **changchang** he   niunai.
     Lisi <u>can</u> **often**   drink milk
     'Lisi has permission to often drink milk.'

   b. Lisi **changchang** <u>keyi</u> he   niunai.
     Lisi **often**   <u>can</u> drink milk
     'Lisi often has permission to drink milk.'

Similarly, negation can also directly precede or follow modals, i.e. SModNegVP and SNegModVP, while English and French allow only SModNegVP (12):

(12) a. Lisi <u>keyi</u> **bu**   he   kele.
     Lisi <u>can</u> **not**   drink cola
     'Lisi cannot drink cola.'   (meaning: Lisi has permission to not drink cola.)

   b. Lisi **bu** <u>keyi</u> he   kele.
     Lisi **not** <u>can</u> drink cola
     'Lisi cannot drink cola.'   (meaning: Lisi does not have permission to drink cola.)

As shown in the meaning gloss "Lisi cannot drink cola" of both (12a) and (12b), despite a single surface syntax in English, <u>can</u> takes scope over <u>not</u> (as in (12a)) or <u>not</u> takes scope over <u>can</u> (as in (12b)). This provides evidence that English modals (and auxiliaries) raise. Chinese, in contrast, reads scope off surface syntax for adverbs and negators, as shown in the unambiguous (12a) <u>keyi bu</u> 'can not' and the unambiguous (12b) <u>bu keyi</u> 'not can'. This suggests that Chinese modals (and other auxiliaries) do not raise.

In brief, then, the facts of verb placement in Chinese are rather straightforward: neither thematic verbs nor non-thematic verbs raise.

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[1] It is possible to have an adverbial at the end of a sentence as a 'descriptive expression' (Tang 1990, cited in Ernst 1995). In this case, both the form and meaning of the sentence differ from its counterpart with a preverbal adverbial, as in (i):

(i) Zhangsan <u>kai</u>   men <u>kai</u>   de **hen xiaoxin**.
   Zhangsan <u>open</u> door <u>open</u> DE **very careful**
   'Zhangsan opened the door carefully.' (≈ 'Zhangsan's opening of the door was careful.')

2.3. Summary

A summary of the similarities and differences of verb placement in English, French and Chinese is presented in Tables 1 and 2:

Table 1: Thematic verb placement relative to adverbs

	SVAO	SAVO	SVOA	ASVO
English	*	√	√	√
French	√	*	√	√
Chinese	*	√	*	√

Table 2: Non-thematic verb placement relative to adverbs and to negation

	SAuxAXP	SAAuxXP	ASAuxXP	SAuxXPA	SNegAuxXP	SAuxNegXP
English	√	*(?)	√	√	*	√
French	√	*	√	√	*	√
Chinese	√	√	√	*	√	√Mod/*Aux

NB: "Aux" stands for auxiliaries, modals and copula.
"XP" is AdjP, NP or PP with copula, otherwise VP.

3. The Study

3.1. Subjects

The subjects in this experiment were 29 junior middle-school Chinese students in Baoji, an undeveloped inland city in P. R. China. The age of the subjects ranged from 14 to 17, with the average being 15. Although the reported age for starting to learn English varied from 8 to 14 (mean=10.52), systematic instruction of English usually starts at the age of 13 in China, when students enter junior middle school. The subjects had just entered Grade 3 before the study, and had had approximately three hours of classroom instruction per week for a little more than two years. Their English teacher said they had received explicit instruction on negation in English, but none on adverb placement. Their contact with English outside class was extremely limited.

Compared with the subjects in White's (1991) study, who had had two hours of English instruction per week for about one year and then three months of intensive ESL instruction just before the study, these Chinese students seem to have had English instruction for a longer time. However, there are several reasons to believe that their English proficiency level is comparable to, if not lower than, White's French subjects'. First, White's subjects had had three months solely devoted to ESL instruction prior to the study. And their instructors were native speakers of English who, moreover, placed great emphasis on communicative language teaching. In contrast, these Chinese subjects had received only three hours of English per week from instructors who were non-native speakers of English themselves. As is typical in China, most of the classroom teaching was done in Chinese rather than in English. Second, although White states that her subjects had little contact with English outside the classroom, English is nevertheless one of the official languages in Canada. Their chances of being exposed to English should be greater than our subjects', who lived in a monolingual society with Chinese being the only medium of communication.

In addition to these Chinese middle-school students, also included in the experiment were seven monolingual adult native speakers of English living in the US, to serve as a control group.

3.2. The experiment

All subjects were asked to complete a grammaticality judgment task that consisted of 50 pairs of sentences. Thirty-two of them were adapted from the sentences in the preference task in White's (1991) study. Their syntactic structures were kept intact, with minor modifications made to certain lexical items so as to make them more culturally accessible to Chinese students. Twenty-eight of these sentence pairs were designed to test various manner adverbs (i.e. carefully, quickly, quietly, slowly) and

frequency adverbs (i.e. <u>always</u>, <u>often</u>, <u>sometimes</u>, <u>usually</u>) in relation to finite thematic verbs (i.e. SVAO, SAVO, SVOA, ASVO, SVAPP, SAVPP, SVPPA),[2] and the other 4 were fillers. A sample item is given below in (13); in (13a), the adverb occurs between the verb and its direct object, hence the *SVAO order, whereas in (13b), the adverb falls in sentence initial position:

(13) a. Zhang Ling cuts carefully the paper.
     b. Carefully Zhang Ling cuts the paper.

After reading each pair of sentences, the subjects were required to choose one answer among the five options, as shown in (14):

(14) a. Only a is right.
     b. Only b is right.
     c. Both are right.
     d. Both are wrong.
     e. I don't know.

In addition to these sentences, 18 pairs of sentences were added to the test, covering the possible positions of the same manner and frequency adverbs as well as negation relative to finite non-thematic verbs, i.e. the modals <u>can</u> and <u>should</u>, auxiliary <u>be</u> and copula <u>be</u>. The patterns tested include: S<u>be</u>/ModAXP, SA<u>be</u>/ModXP, AS<u>be</u>/ModXP, S<u>be</u>/ModXPA, SNeg<u>be</u>/ModXP and S<u>be</u>/ModNegXP. XP stands for VP with modals and auxiliary <u>be</u>, and for AdjP, NP or PP in post-copula position. An example is given in (15):

(15) a. The teacher slowly is opening the door.
     b. The teacher is slowly opening the door.

All the sentence pairs, including the fillers, were in the present tense, and they appeared in the test paper in random order.

Given the limited proficiency level of the subjects, the instructions and the five choices were provided in both English and Chinese. To ensure that the subjects clearly understood what to do, before the test actually started the administrator gave them illustrations on the blackboard by using the two example items printed on their test paper. All the answers, together with certain relevant background information, were collected by using prepared answer sheets.

3.3. Results
3.3.1. Group Results

Complete group results are given in the seven tables in the Appendix as well as in Figures 1 through 3 in what follows. Before coming to each specific figure, we would like to highlight several points. First, all numbers in these figures and tables report acceptance rather than accuracy. Second, the Y-error Bars in the seven figures show confidence interval proportions, which indicate whether there is a significant difference between patterns. In other words, if there is no overlap between two Y-error Bars, the difference between them is significant; otherwise, the difference is not significant. Third, although 29 L2 learners completed the task, 4 were later excluded, 2 because they rejected most of the test items by choosing "Both are wrong" and 2 because they answered 3 of the 4 fillers incorrectly. Finally, the L2 learners' overall acceptance rate of all sentence patterns is not particularly high except for (targetlike) negation. With these observations in mind, let us look at the results.

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[2] The purpose of the PP items in White's experiment was to test the effect of explicit instruction and negative evidence on parameter resetting. She wanted to find out whether the French learners had really reset their verb movement parameter to the English value, or whether they just adopted the ad hoc strategy that "adverbs cannot appear between the verb and something else" (White 1991: 148). Since this is irrelevant to the present study, the SVAPP, SAVPP and SVPPA items were treated as distracters and are thus not included in the results that follow.
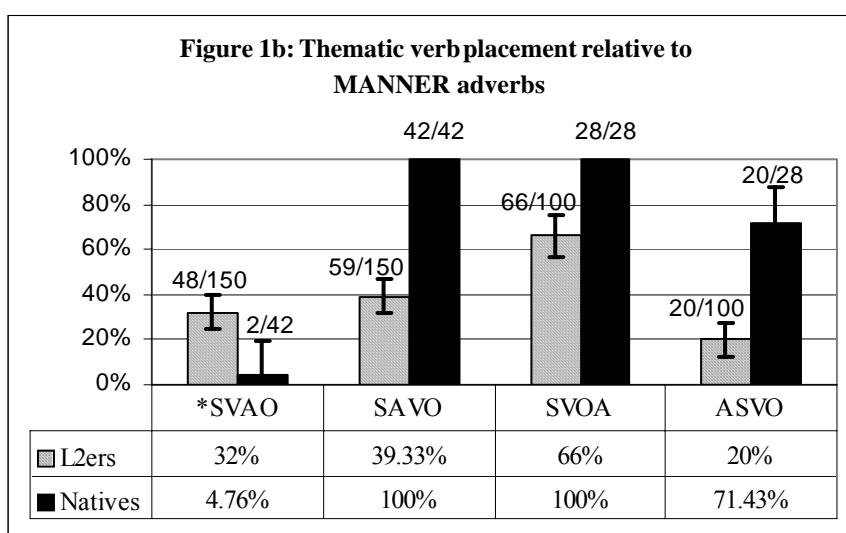
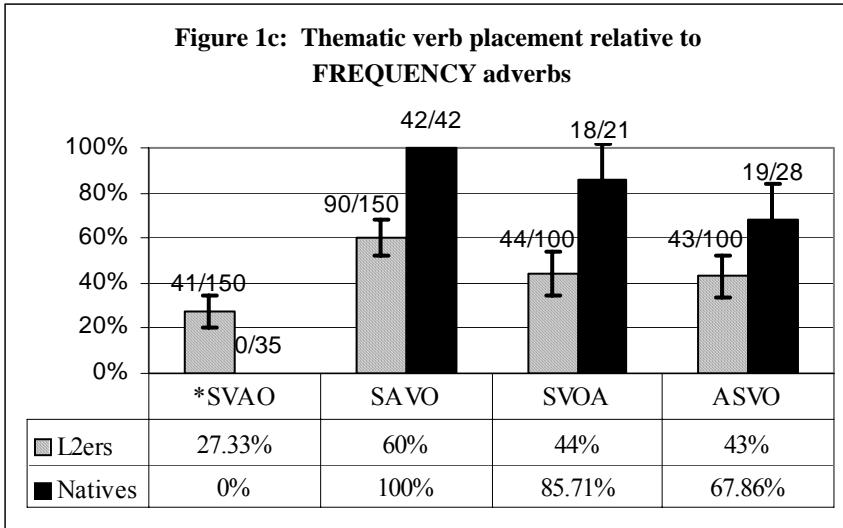*3.3.1.1. Thematic verb placement relative to adverbs*

The thematic verb results are summarized in Figures 1a, 1b and 1c. The mean acceptance rates of the four patterns regarding thematic verb placement relative to all adverbs are reported in Figure 1a.

Figure 1a: Thematic verb placement relative to ALL adverbs

	*SVAO	SAVO	SVOA	ASVO
L2ers	29.67%	49.67%	55%	31.50%
Natives	2.60%	100%	93.88%	69.64%
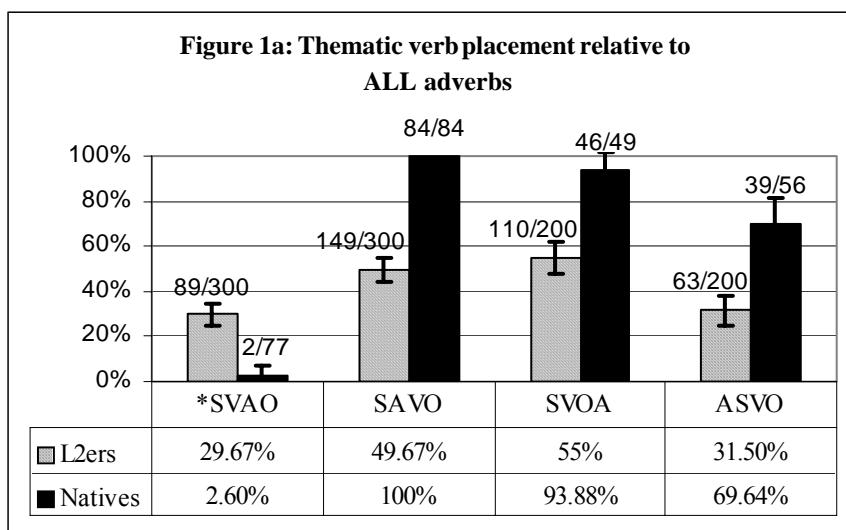
The natives performed as expected. Their *SVAO acceptance rate was 2.60%, and their SAVO acceptance rate was 100%. The L2 learners, however, accepted *SVAO at a rate of 29.67%. Although their SAVO acceptance rate was only 49.67%, the confidence intervals (see the Appendix for exact numbers) show that the difference between *SVAO and SAVO is significant.

As for the other two supposedly grammatical orders, the natives did not show as clear-cut a judgment, especially for ASVO, where acceptance was only 69.64%. A closer look at the data reveals that some native speakers showed sensitivity to adverb subtypes. For example, they tended to accept ASVO more with manner adverbs (e.g. Slowly the train leaves the station) than with frequency adverbs (e.g. Always my mother cooks dinner). Figure 1b and Figure 1c present the acceptance rates by adverb type, 1b for manner adverbs and 1c for frequency adverbs.

Figure 1b: Thematic verb placement relative to MANNER adverbs

	*SVAO	SAVO	SVOA	ASVO
L2ers	32%	39.33%	66%	20%
Natives	4.76%	100%	100%	71.43%

Figure 1c: Thematic verb placement relative to FREQUENCY adverbs

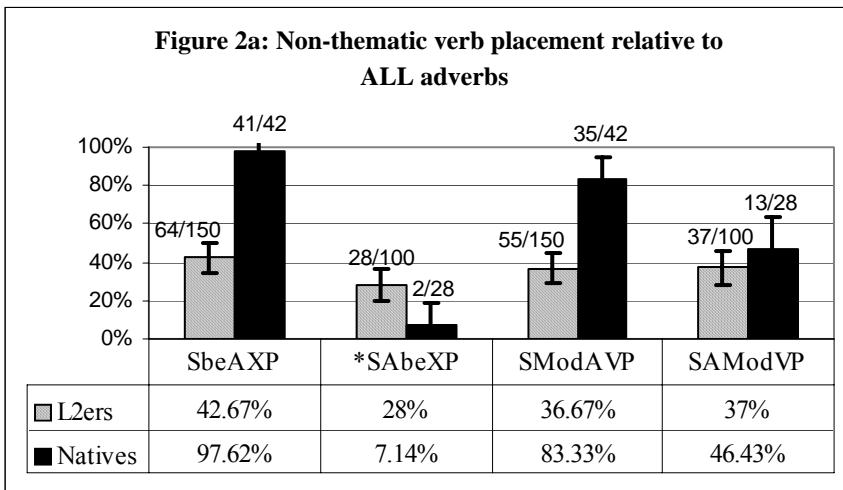|	*SVAO	SAVO	SVOA	ASVO
L2ers	27.33%	60%	44%	43%
Natives	0%	100%	85.71%	67.86%

By comparing the results in Figures 1b and 1c, we can see several interesting findings. First, the L2 learners accepted SAVO with manner adverbs at about 40% (see Figure 1b). The acceptance rate rose to 60% when frequency adverbs were used (see Figure 1c). Second, the difference between *SVAO and SAVO remains significant with frequency adverbs, but it is no longer significant when it comes to manner adverbs.
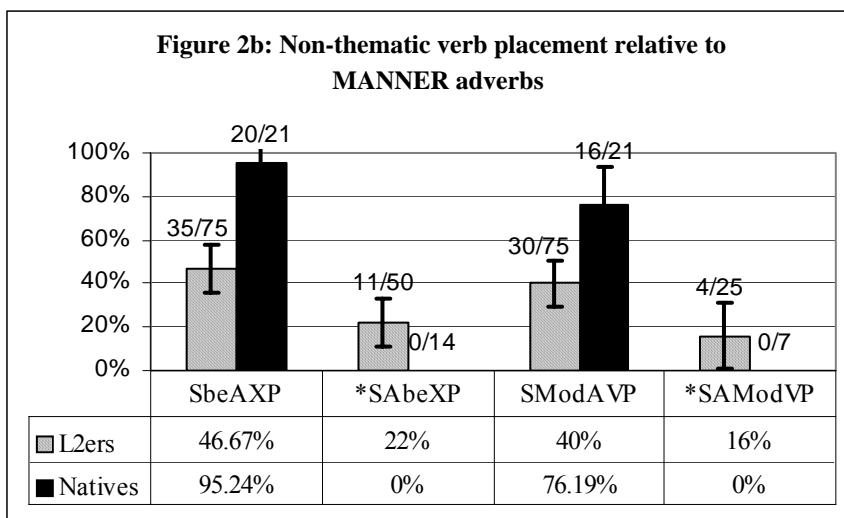
3.3.1.2. Non-thematic verb placement relative to adverbs

The results for non-thematic verbs are given in Figures 2a, 2b and 2c. We start with the overall results in Figure 2a.

Figure 2a: Non-thematic verb placement relative to ALL adverbs

	SbeAXP	*SAbeXP	SModAVP	SAModVP
L2ers	42.67%	28%	36.67%	37%
Natives	97.62%	7.14%	83.33%	46.43%

The native control group had more consistent judgments on adverb placement relative to auxiliary and copula be than to modals. They accepted SbeAXP at the rate of 97.62% and rejected *SAAuxXP at about 93%. Although they tended to accept SModAVP and reject SAModVP most of the time, many of them accepted both orders when the adverb sometimes was used (e.g. The baby can sometimes walk vs. The baby sometimes can walk). Compared with the thematic verb results, the L2 learners' overall acceptance of all sentence patterns is even lower. Confidence interval proportions show that there are no significant differences among all these orders.

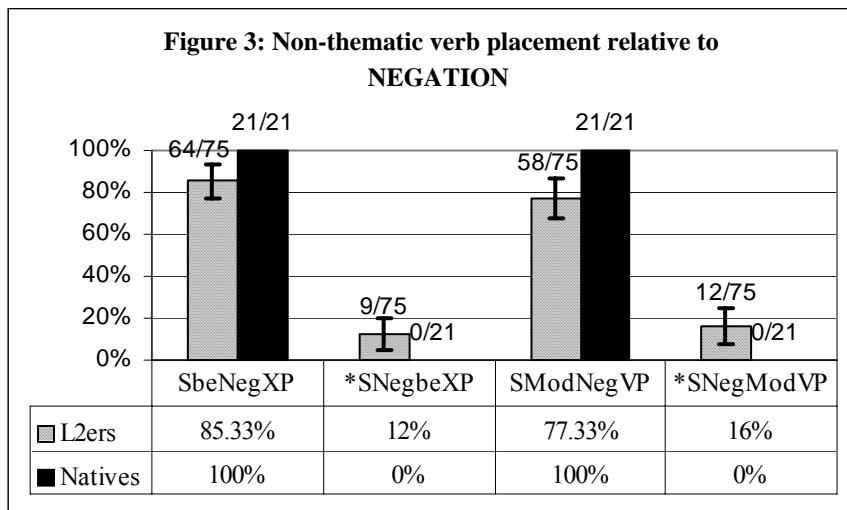Figures 2b and 2c present the results of acceptance by subtype of adverb with non-thematic verbs.

Figure 2b: Non-thematic verb placement relative to MANNER adverbs

	SbeAXP	*SAbeXP	SModAVP	*SAModVP
L2ers	46.67%	22%	40%	16%
Natives	95.24%	0%	76.19%	0%

Figure 2c: Non-thematic verb placement relative to FREQUENCY adverbs

	SbeAXP	*SAbeXP	SModAVP	SAModVP
L2ers	38.67%	34%	23.33%	44%
Natives	100%	14.29%	90.48%	61.90%
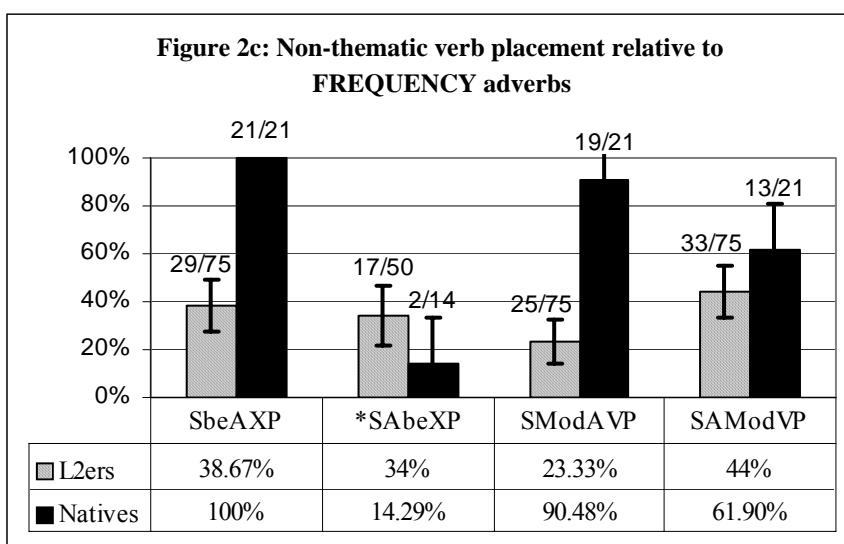
The natives performed as expected, except for their judgment on SAModVP with frequency adverbs. Scrutiny of the test items reveals that this 44% mean acceptance does not result from individual variation; rather, it is due to the fact that they accepted this order with certain adverbs (e.g. <u>Alice sometimes can understand me</u>) but rejected it with other adverbs (e.g. <u>The students often should clean the classroom</u>).

As for the L2 learners, generally speaking, they performed slightly 'better' on non-thematic verb placement with manner adverbs than with frequency adverbs. Indeed, the sole difference that reaches statistical significance is between S<u>be</u>AXP (46.67%) and *SA<u>be</u>XP (22%) with manner adverbs. The SModAVP acceptance rate with manner adverbs was also about 40%, but the rate dropped to 23.33% with frequency adverbs. In terms of <u>be</u> and modal placement, from Figures 2b and 2c we can see a somewhat higher acceptance of S<u>be</u>AXP than SModAVP, but the confidence interval analysis indicates that this difference is not significant.

3.3.1.3. Non-thematic verb placement relative to negation

Compared with the adverb results, the negation data are much more uniform (see Figure 3):

Figure 3: Non-thematic verb placement relative to NEGATION

	SbeNegXP	*SNegbeXP	SModNegVP	*SNegModVP
L2ers	85.33%	12%	77.33%	16%
Natives	100%	0%	100%	0%

The native control group accepted Sbe/ModNegVP at 100% and rejected all sentences in the *SNegbe/ModVP order. The L2 learners, although not totally nativelike, accepted 85.33% of SbeNegXP and 77.33% of SModNegVP. Their acceptance rates of the two ungrammatical orders, i.e. *SNegbeXP and *SNegModVP, were 12% and 16%, respectively. Again, they were slightly more targetlike with the placement of be than modals, but this difference is not statistically significant.

3.3.2. Individual results

Since the grouped adverb results of the L2 learners often seem to hover around chance, it is important to try to determine whether this is an averaging effect or whether this is generally true of individual L2 subjects. We therefore further analyze the results on adverb placement vis-à-vis thematic verbs and auxiliary and copula be[3] on an individual basis, with a focus on sentence-medial adverb positions.

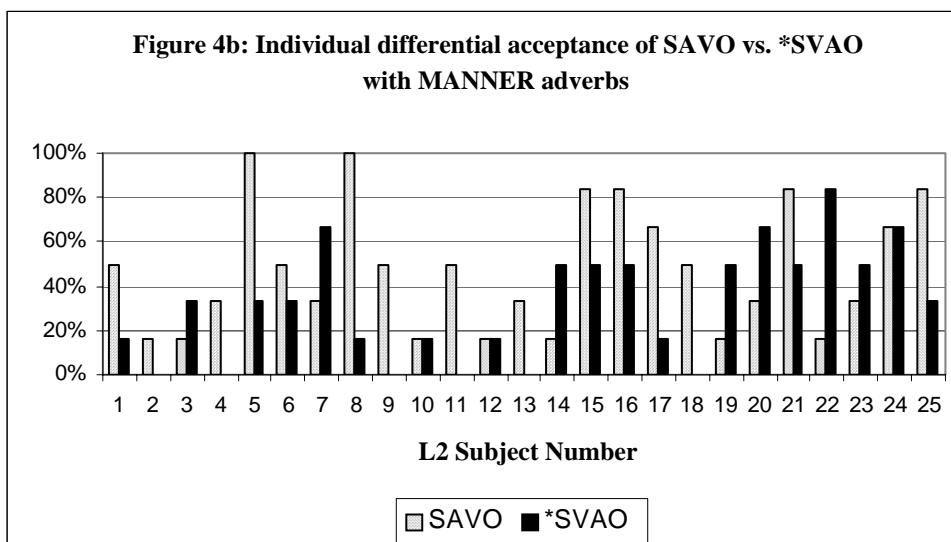### 3.3.2.1. Thematic verb placement relative to adverbs

Thematic verb results by individual subject are shown in Figures 4a through 4c below.

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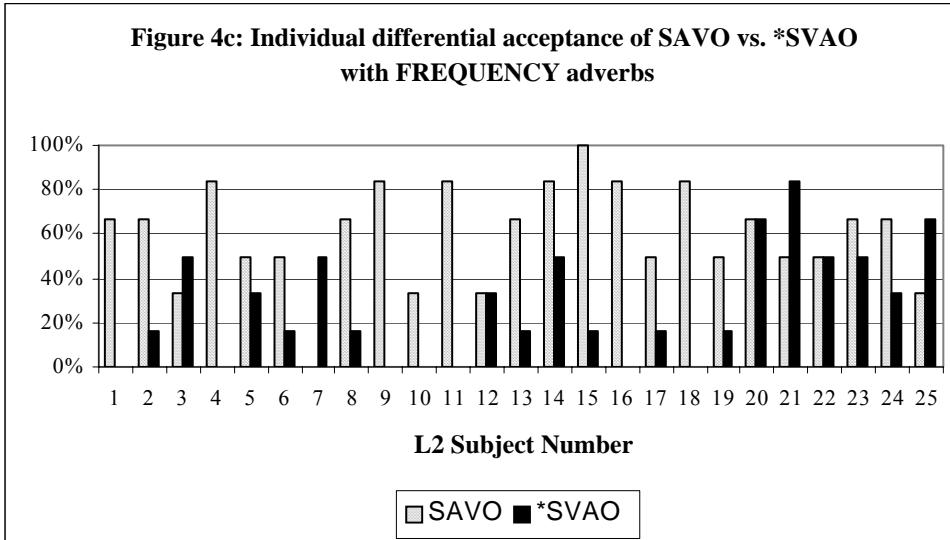[3] Due to an oversight, the instrument contained only one item in the SAModVP order; therefore, individual results of modal verb placement are not presented here.

Figure 4a: Individual differential acceptance of SAVO vs. *SVAO with ALL adverbs
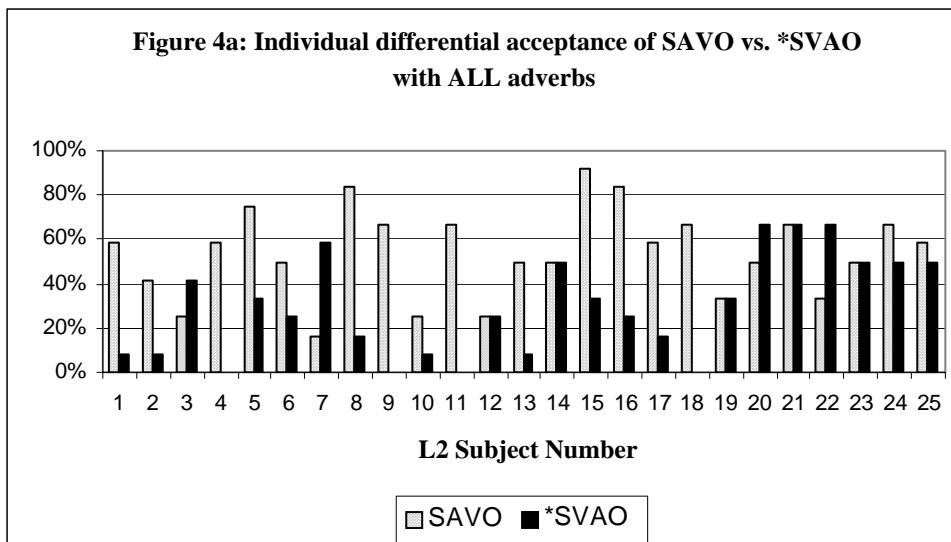
From Figure 4a we can see that most subjects (16 out of 25) accepted SAVO items at a (much) higher rate than *SVAO, although individual variation does occur. There are 4 subjects (i.e. 4, 9, 11 and 18) who did not allow *SVAO at all, and their SAVO acceptance rate with all adverbs is about 60%.

Figures 4b and 4c present the individual results on thematic verbs by adverb subtype, 4a for manner adverbs and 4b for frequency adverbs.

Figure 4b: Individual differential acceptance of SAVO vs. *SVAO with MANNER adverbs

Figure 4c: Individual differential acceptance of SAVO vs. *SVAO with FREQUENCY adverbs

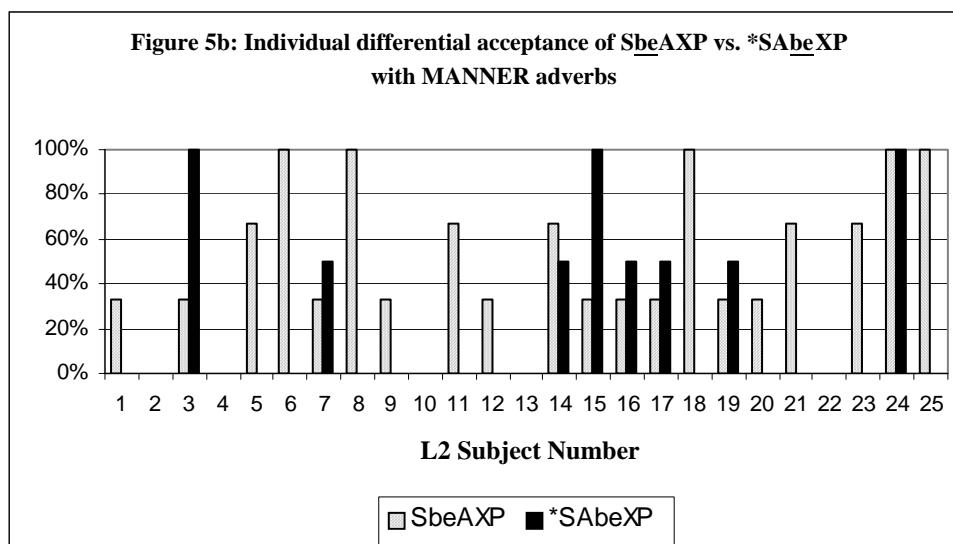**L2 Subject Number**

□ SAVO ■ *SVAO

Comparing Figure 4b with Figure 4c, we see that the same four subjects (viz. 4, 9, 11 and 18) showed sensitivity to adverb subtype. Their acceptance of SAVO was 50% or less with manner adverbs but over 80% with frequency adverbs. Indeed, out of 25 subjects, 15 had higher SAVO scores than *SVAO scores with manner adverbs, and 18 had higher SAVO scores than *SVAO scores with frequency adverbs. By contrast, 4 subjects (i.e. 3, 7, 20 and 22) deviated sharply from the group results. With all adverbs grouped together (see Figure 4a), they had higher acceptance rates for *SVAO than for SAVO. In terms of adverb subtypes, subject 7 rejected all SAVO items with frequency adverbs. Subjects 20 and 22 accepted *SVAO at much higher rates with manner adverbs but had the same rates for both orders with frequency adverbs. Despite the individual variation displayed in these three figures, the majority of individual L2 subjects are nevertheless making distinctions in the direction of the target grammar.

3.3.2.2. Auxiliary verb placement relative to adverbs

As for the placement of auxiliary and copula be relative to adverbs, the individual results provide some revealing information not apparent in the group results, as shown in Figures 5a through 5c.

Figure 5a: Individual differential acceptance of SbeAXP vs. *SAbeXP with ALL adverbs

L2 Subject Number
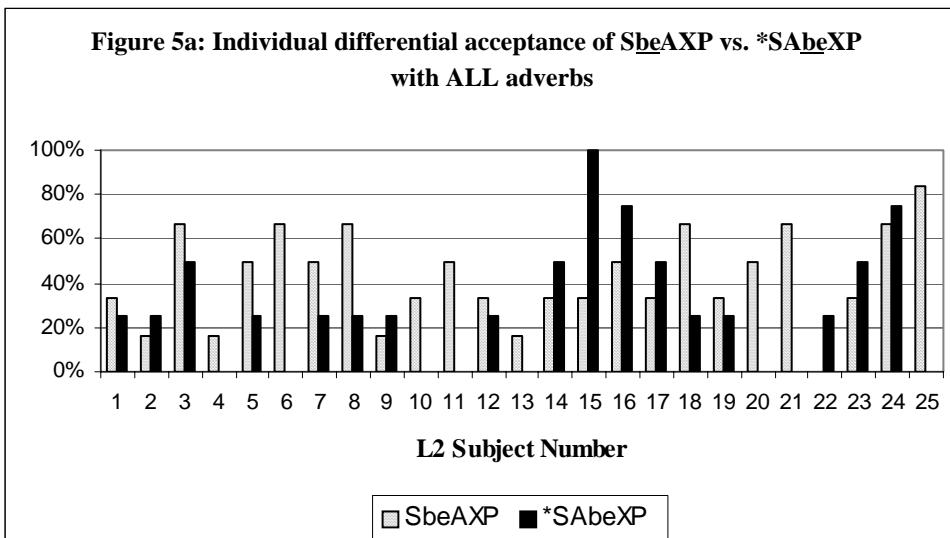
□ SbeAXP ■ *SAbeXP

Consistent with the grouped results, Figure 5a shows that despite the generally low acceptance scores, the majority of the L2 subjects (16 out of 25) preferred SbeAXP over *SAbeXP—even if only slightly—when all adverbs are combined together. However, when we compare Figure 5b with Figure 5c, we see different performance on the two subtypes of adverbs:

Figure 5b: Individual differential acceptance of SbeAXP vs. *SAbeXP with MANNER adverbs

Figure 5c: Individual differential acceptance of SbeAXP vs. *SAbeXP with FREQUENCY adverbs
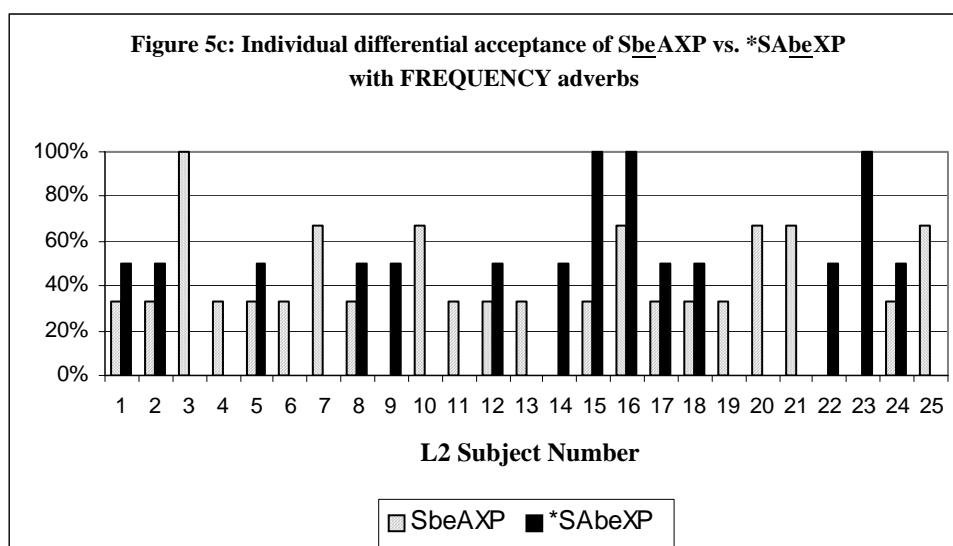
With manner adverbs, of the 20 subjects who accepted any manner adverbs with be, 12 did not allow *SAbeXP at all. Despite a noticeable amount of individual variation, 10 of these 20 subjects have SbeAXP acceptance rates between 60% and 100%, with only one of these (i.e. 24) failing to distinguish between SbeAXP and *SAbeXP. With frequency adverbs, however, although 11 subjects rejected all *SAbeXP items, the 14 others showed a preference in the opposite direction, i.e. for *SAbeXP over SbeAXP, including 4 subjects (i.e. 9, 14, 22 and 23) who rejected all SbeAXP items.

3.3.2.3. Summary

To sum up the L2 results: for thematic verbs, the mean acceptance rates of *SVAO vs. SAVO were, respectively, 29.67% and 49.67%, and the difference between them was statistically significant; for non-thematic verbs, accuracy was much higher with negation than with adverb placement. By adverb

subtype, there was a statistically significant difference between SAVO with manner adverbs (39.33%) vs. SAVO with frequency adverbs (60%), but not with the *SVAO order (32% vs. 27.33%, respectively). Analysis of individual data indicated (i) that the majority of the subjects had higher acceptance of SAVO than *SVAO, despite the individual variation; (ii) that the SAVO acceptance rate was generally higher with frequency adverbs than with manner adverbs; and (iii) that the subjects were more likely to allow the *SA<u>be</u>XP order with frequency adverbs than with manner adverbs.

4. Discussion

Let us now return to the two objectives of this study. The first was to determine whether L1 transfer is ultimately at the root of verb placement in (early) Interlanguage by comparing the L2 English of Chinese speakers with that of the French speakers in White's (1991) study. The second objective was to investigate non-thematic verb placement relative to adverbs and negation in L2 English development. Taken together, the results tentatively suggest that there are two major causes for the L2 English SVAO errors, namely, L1 transfer and the (perceived) irregularity of English input.

4.1. L1 transfer

Recall that White (1991) found that of the 12 sentence pairs in her preference task, the French-English subjects had a mean *SVAO score of about 8 (i.e. 66.67%) on the pretest and the long-term follow-up test. As French verb raising derives SVAO, White concluded that transfer of verb raising from French causes the L2 English SVAO errors.

Eubank et al. (1997) contested White's conclusion. They tested her analysis against Chinese-English Interlanguage since, as we have seen, Chinese prohibits verb raising. The type of data they collected, however, was different. They employed a Truth Value Judgment (TVJ) task, consisting of 28 items. Eight of them were in the *SVAO order, so-called 'raised' items, testing thematic verb placement relative to manner adverbs, one sample of which is given in (16):

(16) Tom loves to draw pictures of monkeys in the zoo. Tom likes his pictures to be perfect, so he always draws them very slowly and carefully. All the monkeys always jump up and down really fast.

Tom draws slowly jumping monkeys.
True
False

Note that the context states two facts pertinent to the test item: (i) Tom draws slowly and (ii) the monkeys jump fast. If, in the given context, subjects judge <u>Tom draws slowly jumping monkeys</u> as True, it shows that in their grammar, the adverb <u>slowly</u> modifies the verb <u>draws</u> rather than <u>jumping</u>, which provides evidence that they allow verbs to raise past adverbs. Conversely, if they judge the statement as False, they must be interpreting <u>slowly</u> as the modifier of <u>jumping</u>, hence a local interpretation (i.e. without verb raising).

Eubank et al. found that of the 317 responses on the 'raised' items, 74.1% were judged False and 25.9% were judged True. In other words, the Chinese-English subjects allowed *SVAO 25.9% of the time. Eubank et al. took the results to argue that rather than stemming from the L1, the *SVAO order is caused by the (permanent) impairment of adult Interlanguage grammar. Specifically, this impairment is said to make adult L2 learners incapable of specifying the strength value under Iº, the result of which being 'optional verb raising'.

However, this impairment-based explanation for SVAO errors seems misguided to us: if L2 learners really had **optional** verb raising, that should mean that they would actually accept sentences with both 'unraised' (SAVO) and 'raised' (*SVAO) verbs. In other words, using the TVJ item in (16) as illustration, faced with the context-matching *SVAO statement <u>Tom draws slowly jumping monkeys</u>, subjects should allow the adverb <u>slowly</u> to modify the verb <u>draw</u> at a rate approaching 100%. This is to say, because verb raising is supposedly **optional**, <u>draws slowly</u> and <u>slowly draws</u> should be equally good

with, importantly, exactly the same meaning. This is obviously not what was happening in the Eubank et al. study.

As for our study, if Eubank et al.'s 'optional verb raising' explanation were on the right track, subjects should accept SAVO and *SVAO to more or less the same extent, i.e. there should not be a significant difference in acceptance rates between SAVO and *SVAO, contrary to fact. Or, minimally, since the hypothesized impairment of Interlanguage grammar, leading to 'optional verb raising', is proposed to hold universally of all adult L2 learners, regardless of L1-Target Language pairing, our Chinese-English subjects should have more or less the same *SVAO acceptance rate as White's French-English subjects—again, contrary to fact. In short, neither of these predictions based on Eubank et al.'s approach is borne out in this study: First, the results show that the L2 subjects do distinguish between SAVO and *SVAO. Second, taking the same test as White's French-English subjects, our Chinese-English subjects had a substantially lower mean *SVAO acceptance rate (66.67% vs. 29.67%, respectively). Regarding the latter, as mentioned earlier, although there was no independent measure of the subjects' English proficiency, there is good reason to believe that our subjects were at least not more advanced than White's subjects. The fact that the overall acceptance rates of our subjects were low (apart from targetlike negation) suggests that they are beginning-level English learners. In addition, there is (anecdotal) evidence that even advanced French learners of English persist in making SVAO errors (Schwartz 1998). All in all, then, the fact that White's subjects accepted *SVAO more than twice as often as ours points to L1 transfer being the pivotal cause.

This L1 transfer effect receives additional support in the analysis of results by individual for the placement of auxiliary and copula <u>be</u>. Recall our findings: of 25 subjects, only 8 accepted *SA<u>be</u>XP at all with manner adverbs. However, when it comes to frequency adverbs, the number of subjects accepting *SA<u>be</u>XP rose to 14; moreover, all 14 of these subjects showed a preference for this order over the target S<u>be</u>AXP order. This is clear evidence of transfer from Chinese, where manner adverbs appear after the auxiliary <u>zai</u> (17), while frequency adverbs occur before it (18):

(17) a. Zhangsan <u>zai</u>   **renzhen** de kan   dianshi.
        Zhangsan <u>AUX</u> **careful** DE watch television
        'Zhangsan is carefully watching television.'

    b. ? Zhangsan **renzhen** de <u>zai</u>   kan   dianshi.
           Zhangsan **careful**   DE AUX watch television

(18) a. Lisi **changchang** <u>zai</u>   kan   dianshi.
        Lisi **often**   <u>AUX</u> watch television
        'Lisi is often watching television.'

    b. * Lisi <u>zai</u>   **changchang** kan   dianshi.
          Lisi <u>AUX</u> **often**   watch television

Nevertheless, if L1 transfer is at the root of these various word order errors in their L2 English, several other findings still require explanation. The first is the lackluster 49.67% overall acceptance rate on SAVO. A clue for this may be found in the different rates of SAVO acceptance between manner (30.33%) and frequency (60%) adverbs, in both the grouped results and the individual results. Recall that for finite thematic verbs, all test items were in the simple present tense. Chinese learners of English are taught quite early that the simple present tense denotes habitual and generic meaning. Yet manner adverbs are decidedly odd in the simple present tense (19a), whereas frequency adverbs sound much better in this context (19b):

(19) a. Mary quickly opens the letter.
    b. Jack usually drinks tea.

The learners were perhaps sensitive to the aspectual incongruity of manner adverbs with the habitual/generic meaning of the simple present tense, which led to a depression of the acceptance rate of SAVO with manner adverbs.

Secondly, the general low acceptance of both Sbe/ModAXP and SAbe/ModXP is also puzzling. It could be due to the complexities of scope interpretation of adverbs, especially frequency adverbs, intertwining with the subtleties of the meanings of modals, making non-thematic verb placement generally more difficult for the L2 learners to acquire. In addition, L1 transfer can also lead to low acceptance of particular sentences, for example <u>The baby can sometimes walk</u>. That the subjects rejected such items could be due to the fact that in Chinese, <u>youshihou</u> 'sometimes' never occurs between modal verbs and their VP complements, as in (20):

(20) * Zhe ge xiaohai <u>keyi</u> **youshihou** zoulu.
      This CL baby <u>can</u> **sometimes** walk

Finally, the high acceptance of Sbe/ModNegXP also requires explanation. We believe that there is abundant evidence in the input showing these learners that English negation follows finite non-thematic verbs. In addition, they had had (explicit) classroom instruction on negation.[4]

To sum up: Although we have speculated that several factors might have affected the test results, some observations remain clear nonetheless. First, our Chinese learners of English do allow *SVAO, but at a rate substantially lower than that of White's French learners of English, which argues for the principal cause of the SVAO error in L2 English being L1 transfer. Data from non-thematic verb placement as discussed above bolster this conclusion. Second, our subjects' non-thematic verb placement relative to negation was much more targetlike than their (thematic and non-thematic) verb placement relative to adverbs, showing the effects of robust input as well as classroom instruction. Third, as for adverbs, our subjects were, comparatively speaking, more targetlike with the placement of thematic verbs than non-thematic verbs; they scored, e.g., 66% for SVOA with manner adverbs and 60% for SAVO with frequency adverbs, but for non-thematic verbs the highest rate was only 46.67% for SbeAXP with manner adverbs, thus indicating that these Chinese subjects had more difficulty here.

4.2. The 'irregularity' of input

The fact that the Chinese learners of English did allow *SVAO in this study leads to the conclusion that L1 transfer alone is insufficient as an explanation for the SVAO error in L2 English. In what follows, we attempt to suggest that English input may be another major cause.

First, there are various positions in the sentence that English allows adverbs to occupy, as illustrated in (21):

(21) (**Stupidly**,) they (**stupidly**) have (**stupidly**) been (**stupidly**) buying hog futures (, **stupidly**).
<div align="right">(Ernst 2002: 2, (1.1))</div>

From (21) we can see that the only impossible position for English adverbs is between thematic verbs and their direct objects. Second, on top of this range in the positioning of adverbs, their scope interpretation is also non-linear, as in (22):

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[4] Another factor potentially affecting test performance is the order in which the two sentences appeared in a pair. Take test item 23 for example, reproduced in (i).

(i) a. Mary can speak Chinese slowly.
   b. Mary can slowly speak Chinese.

Most multiple choice tests that Chinese students take are like those in the TOEFL test, that is, they are to pick only one correct answer from the choices given, where the choices do not overlap. Therefore, a widely used test-taking strategy for Chinese students is to stop reading the rest of the choices once they find a correct answer. It is likely that after reading the sentence in (ia), some subjects immediately chose option "a" ("Only a is right") without reading (ib). The low acceptance of sentences like (ib), then, may not necessarily indicate rejection *per se*.

(22) a. John should **obviously** go.
    b. **Obviously**, John should go.
    c. John should go **obviously**. (=in an obvious manner).   (Ernst 1995: 49-50, (14))

(22a) is ambiguous in the sense that <u>obviously</u> can have either a sentential interpretation as in (22b) or a manner interpretation as in (22c). These two factors combined may make English adverb input potentially misleading for L2 learners, especially for beginners, who may feel rather insecure as to where to put adverbs.

    Compared with English, Chinese input on adverb placement is crystal clear. Neither thematic verbs nor non-thematic verbs raise, and adverbials always precede what they modify, that is, they take the same scope at Logical Form as they do in surface syntax, as exemplified in (23):

(23) a.   Lisi   **xianran**   <u>yinggai</u>   qu.
        Lisi   **obviously** <u>should</u>   go
        'Lisi should obviously go.'

    b. * Lisi   <u>yinggai</u>   **xianran**   qu.
        Lisi   <u>should</u>   obviously go   (Ernst 1995: 49-50, (14))

    As the adverb <u>xianran</u> 'obviously' does not have a manner connotation in Chinese, it can only take scope over <u>yinggai</u> 'should' as in (23a), but not <u>qu</u> 'go', resulting in the unacceptability of (23b).

    This regularity of Chinese input may effect swift Interlanguage restructuring in the L2 acquisition of Chinese, thereby explaining the overwhelming rejection of *SVAO (and acceptance of SAVO) on the part of all the L2 learners in Yuan's (2001) study, even the native French speakers whose L1 requires SVAO (and disallows SAVO).

5. Closing remarks and caveats for future research design

    In a nutshell, we are proposing two causes of the SVAO error in L2 English. For speakers of languages like Chinese, the L1 cannot be the source of the error but instead misleading adverb input is. For speakers of languages like French, the L1 grammar is the main culprit, exacerbated again by misleading adverb input. By contrast, Chinese adverb placement has much less variation (in comparison to English adverb placement), and this rigid regularity of input eases the L2 acquisition of Chinese verb placement. This kind of approach—i.e. offsetting the influence of the L1 grammar with particular properties of Target Language input—may lead to a better understanding of why, e.g., French speakers have more problems abandoning SVAO (i.e. verb raising) in favor of SAVO (i.e. no verb raising) in the L2 acquisition of English than in the L2 acquisition of Chinese. Yet, despite the conceptual appeal of this approach, it must be said that not all the findings of our study were clear-cut. Additional research on L2 verb placement is still needed, especially in the non-thematic verb domain.

    In the course of our study, several factors were found that might have affected the subjects' judgments. They are listed here as caveats for future test design. First, a vocabulary test should be included to make sure that subjects understand all the lexical items on the test. Second, manner adverbs should not be tested in the simple present tense in English. Third, test items should appear individually rather than in minimal pairs. Fourth, the adverb <u>sometimes</u> behaves differently from other frequency adverbs in sentence-medial position; thus it may not be a good candidate for testing adverb placement in general. Finally, as adverb scope is not always linear, when testing (especially) non-thematic verbs relative to adverbs, rather than presenting them as isolated sentences, it would be better to contextualize these test items.

Appendix: Group results

Table 3a: Thematic verb placement relative to all adverbs (Confidence Intervals): Acceptance

	*SVAO	SAVO	SVOA	ASVO
L2ers (n=25)	89/300 29.67% (±5.15%)	149/300 49.67% (±5.62%)	110/200 55.00% (±6.83%)	63/200 31.50% (±6.39%)
Natives (n=7)	2/77 2.60% (±4.72%)	84/84 100% (±3.11%)	46/49 93.88% (±7.87%)	39/56 69.64% (±11.77%)

Table 3b: Thematic verb placement relative to manner adverbs (Confidence Intervals): Acceptance

	*SVAO	SAVO	SVOA	ASVO
L2ers (n=25)	48/150 32.00% (±7.4%)	59/150 39.33% (±7.72%)	66/100 66.00% (±9.14%)	20/100 20.00% (±7.85%)
Natives (n=7)	2/42 4.76% (±14.44%)	42/42 100% (±5.89%)	28/28 100% (±8.39%)	20/28 71.43% (±16.06%)

Table 3c: Thematic verb placement relative to frequency adverbs (Confidence Intervals): Acceptance

	*SVAO	SAVO	SVOA	ASVO
L2ers (n=25)	41/150 27.33% (±7.09%)	90/150 60.00% (±7.75%)	44/100 44.00% (±9.55%)	43/100 43.00% (±9.52%)
Natives (n=7)	0/35 0% (±6.92%)	42/42 100% (±5.89%)	18/21 85.71% (±15.68%)	19/28 67.86% (±16.46%)

Table 4a: Non-thematic verb placement relative to all adverbs (Confidence Intervals): Acceptance

	S*be*AXP	*SA*be*XP	SModAVP	SAModVP
L2ers (n=25)	64/150 42.67% (±7.82%)	28/100 28.00% (±8.71%)	55/150 36.67% (±7.71%)	37/100 37.00% (±9.3%)
Natives (n=7)	41/42 97.62% (±7.13%)	2/28 7.14% (±11.46%)	35/42 83.33% (±11.46%)	13/28 46.43% (±17.29%)

Table 4b: Non-thematic verb placement relative to manner adverbs (Confidence Intervals): Acceptance

	S*be*AXP	*SA*be*XP	SModAVP	SAModVP
L2ers (n=25)	35/75 46.67% (±11%)	11/50 22.00% (±11.4%)	30/75 40.00% (±10.83%)	4/25 16.00% (±14.74%)
Natives (n=7)	20/21 95.24% (±12.75%)	0/14 0% (±14.52%)	16/21 76.19% (±17.6%)	0/7 0% (±22.79%)

Table 4c: Non-thematic verb placement relative to frequency adverbs (Confidence Intervals): Acceptance

	S*be*AXP	*SA*be*XP	SModAVP	SAModVP
L2ers (n=25)	29/75 38.67% (±10.77%)	17/50 34.00% (±12.74%)	25/75 23.33% (±9.51%)	33/75 44.00% (±10.95%)
Natives (n=7)	21/21 100% (±10.63%)	2/14 14.29% (±19.21%)	19/21 90.48% (±14.37%)	13/21 61.90% (±19.2%)

Table 5: Non-thematic verb placement relative to negation (Confidence Intervals): Acceptance

	S*be*NegXP	*SNeg*be*XP	SModNegVP	SNegModVP
L2ers (n=25)	64/75 85.33% (±8.18%)	9/75 12.00% (±7.63%)	58/75 77.33% (±9.42%)	12/75 16.00% (±8.42%)
Natives (n=7)	21/21 100% (±10.63%)	0/21 0% (±10.63%)	21/21 100% (±10.63%)	0/21 0% (±10.63%)

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