Chinese learners' acquisition of English Stripping and VPE constructions[*]

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Abstract

This study aimed at inferring, on the basis of a truth value judgment test, the existence or non-existence of knowledge about an interpretive contrast between English Stripping and VP-ellipsis constructions in the interlanguage grammar of Chinese-speaking learners of English. The findings of the experiment indicate early acquisition of the contrast, though knowledge of such a contrast is underdetermined by the L2 input as well as the learners' L1.

Key words: stripping, VP-ellipsis, strict reading, sloppy reading

1. Introduction

In this study, we consider Chinese-speaking learners' interpretation of English sentences like (1) and (2) below.

(1)   John loves his mother, and Peter too.
(2)   John loves his mother, and Peter does too.

The two sentences represent two English elliptical constructions, known as Stripping and VP-ellipsis (henceforth VPE), respectively. In terms of surface configuration, these two constructions are different from each other only minimally, with VPE taking an additional auxiliary (e.g. 'does' in (2)) in the elliptical clause. But in terms of their syntactic distribution and semantic interpretation, the two minimally different constructions differ considerably.

In what follows, we will first provide a brief illustration of the major syntactic and semantic differences between Stripping and VP-ellipsis in English and their (un)availability in Chinese. We will then present the findings of a study we have recently done on Chinese-speaking learners' acquisition of a contrast between these two constructions as regards their interpretation. Given that the relevant interpretive difference is not instantiated in the learners' L1 (as will be made clear in section 3), nor possibly inferable from the L2 input or available from explicit instruction, demonstration of knowledge of the interpretive difference in question will constitute another instance of the 'problem of poverty of the stimulus' in second language

acquisition[1]. The main objective of our study is to infer the existence or non-existence of this knowledge in the interlanguage grammar of second language learners, through a truth value judgment test.

2. English Stripping and VPE

Despite the fact that English Stripping and VPE constructions differ only minimally on surface syntax, the presence or absence of an auxiliary has considerable syntactic and semantic ramifications. Stripping is more restricted in its syntactic distribution and semantic interpretation than VPE (Chao 1988; Lobeck 1995). For example, Stripping must occur in a coordinate construction, whereas VPE can occur in either a coordinate or a subordinate clause of a sentence, as illustrated by the contrast between the (a) and (b) sentences in (3-4) below. The asterisks indicate that absence of auxiliary leads to ungrammaticality.

(3a)   John gave chocolates to Mary, and Bill (did) too.
(3b)   John will give chocolates to Mary if Bill *(does) too.
(4a)   John likes feta, and Bill (does) too.
(4b)   John likes everything that Bill *(does).

With respect to interpretation, Stripping and VPE differ in the way the elided material in the elliptical clause is recovered from its antecedent. VPE is claimed to be pronominal in nature, and may be interpreted either in the syntax or at the discourse level, whereas Stripping must be syntactically interpreted (Chao 1988; see also Hardt 1993). Unlike Stripping, the elided VP and its antecedent in VPE are not strictly required to match in voice and syntactic category. Examples (5) (from Chao ibid.) and (6) (from Hardt ibid.) illustrate that for VPE, an elided active VP or a verbal VP can take a passive VP (i.e. 'be squirted') or a nominal (i.e. 'drinker') as their respective antecedent[2].

(5)   The children asked to be squirted with the hose, but we wouldn't [__].
(6)   People say that Harry is an excessive drinker at social gatherings. Which is strange, because he never does at my parties.

The examples in (7) below show that an elided VP in VPE is even pragmatically recoverable from the discourse.

(7a)   Don't [__].
(7b)   I will [__] if you do [__].

In addition, and more crucially for our present study, Stripping and VPE differ when interpretation of a pronoun is involved. For a VPE sentence like (2) above, it is well-known that the pronoun 'his' in the antecedent VP can be assigned two different readings, so long as the potential antecedent of the pronoun (e.g. 'John' in (2)) c-commands it[3]. Such a pronoun can be either syntactically interpreted as a bound

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[1] See White (1989, 2003), Bley-Vroman (1990) and Schwartz & Sprouse (1998), among others, for discussions of the 'problem of poverty of the stimulus' in second language acquisition.

[2] But see Matsuo & Duffield (2001) for experimental evidence suggesting that syntactic mismatch between the elided VP and its antecedent may be judged as degraded by native speakers of English.

[3] In the present study, we only consider interpretation of English possessive pronouns, which may always

variable, yielding a sloppy reading for the sentence (i.e., 'John and Peter love their own mother respectively'), or pragmatically interpreted via covaluation between the pronoun and its antecedent, yielding a strict reading (i.e., 'John and Peter both love John's mother')[4].

But for Stripping sentences like (1), which are minimally different from VPE sentences like (2), it is observed that the pronoun can only be syntactically interpreted as a bound variable, and such Stripping sentences cannot have a strict reading (Chao 1988: 103-106). Thus, sentence (1) cannot mean 'John and Peter both love John's mother'.

Table 1 below summarizes the difference, as well as the similarity, between Stripping and VPE in their interpretation of a pronoun, under two different c-command relations between the pronoun and its antecedent. Note that the interpretive difference in question arises under only one of the two c-command conditions, namely, when the antecedent of the pronoun c-commands it. For interpretation of the pronoun under the other c-command condition, see fn. 4.

Table 1. Interpretation of pronouns in Stripping and VPE

Reading	Stripping		VPE	
	+c-command	~c-command	+c-command	~c-command
Strict	*no*	yes	yes	yes
Sloppy	yes	no	yes	no

It has been proposed in the literature that the above-mentioned distributional and interpretive differences between Stripping and VPE follow directly from a head distinction between the two elliptical constructions (Chao 1988). VPE is head plus because the head of IP in the elliptical clause is filled by an auxiliary, and Stripping is head minus because none of the relevant CP, IP, and VP in the elliptical clause has its head overtly filled by any element.

3. Stripping and VPE in Chinese

Chinese is a language that arguably has VPE constructions similar to English. However, unlike English, it has no corresponding Stripping constructions. While whether or not null object constructions like those in (8) are bona fide VPE constructions is still controversial (see Huang 1991; Xu 2003), sentences such as those in (9) are generally accepted as VPE constructions, on a par with English VPE, though the occurrence of auxiliaries such 'shi' and 'hui' are restricted with respect to tense, aspect and modality (Guo et al. 1996; Xu op. cit.).

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co-refer with a c-commanding clause-mate antecedent outside the immediate NP, in accordance with Binding Principle B (Chomsky 1981).

[4] Where the c-command relation does not obtain between the relevant pronoun and its antecedent, as in examples ((i)-(ii)) below, both VPE and Stripping can only receive a strict reading. Thus, neither sentence can mean "John's students like John, and Peter's students like Peter".

    (i)   John's students like him, and Peter's students do too.
    (ii)   John's students like him, and Peter's students too.

See Reinhart (2000) for a detailed discussion of the distinction between bound-variable and covaluation strategies for interpretation of anaphoric expressions.

(8a) John xihuan   zheben shu, Peter ye *(xihuan).
John like   this   book Peter also like
'John likes this book, and Peter does, too.'
(8b) John kanjian-le tade   mama,   Peter ye *(kanjian-le).
John see.PERF his   mother Peter also see.PERF
'John saw his mother, and Peter did, too.'
(9a) John xihuan tade   mama, Bill ye   *(shi).
John like   his   mother Bill also be
'John likes his mother, and Bill does as well.'
(9b) John hui   lai   Shanghai, Peter ye   *(hui).
John will   come Shanghai   Peter also   will
'John will come to Shanghai, and Peter will, too.'

Like English VPE, sentences (8b) and (9a) can have either a strict or a sloppy reading for the possessive pronoun 'tade'. The sentences in (8)-(9) are ungrammatical, however, if the repeated verbs or the auxiliaries are dropped, indicating that Stripping is illicit in Chinese. It follows then that the interpretative difference between English Stripping and VPE is not instantiated in Chinese, since Stripping simply does not exist in Chinese in the first place.

4. The research issue

The issue we address in our present study is the acquisition of the interpretive contrast between English Stripping and VPE constructions with respect to the interpretation of a pronoun. As already shown above, the contrast involves a subtle difference in the interpretation assigned to minimally different Stripping and VPE sentences like (1) and (2), with the absence of simply an auxiliary and consequently the absence of the strict reading in the case of Stripping sentences. For Chinese-speaking learners of English such a contrast between Stripping and VPE is immaterial in their native language as Chinese does not have Stripping. Furthermore, knowledge of unavailability of the strict reading of a pronoun in Stripping is quite unlikely to be inferable from observation of the L2 input. Thus, the cross-linguistic difference between English and Chinese, as well as the subtle nature of the interpretive contrast between English Stripping and VPE, provides a ground for testing knowledge of target language properties that is not instantiated in the L1 and supposedly hard to come by through L2 input alone.

5. Methodology

5.1 Test design

To test the relevant knowledge, a truth value judgment task (Crain & Thornton 1998) was used. To ensure that all our subjects actually understood the test contexts accurately, the stories providing the test contexts were presented in Chinese. Each story was followed by a pair of minimally different Stripping and VPE sentences. There were 8 stories in this part of the experiment, 4 giving contexts that were compatible with the strict reading, and 4 giving contexts that were compatible with the sloppy reading. The subjects were required to read each story and judge which of the two test sentences that followed gave faithful description of the context laid out in the story. They could choose both sentences if they found both fit the context. (10) and (11) below are sample stories

and test sentences used in the experiment[5]. The 8 test stories, together with 24 other test stories addressing the Structural and Referential Parallelism Constraints on pronoun interpretation in English VPE and some other issues (to be reported in a separate paper), were randomized and presented to the subjects in one single test.

(10) *Sample story 1* (Stripping *vs* VPE in the strict context)
    John and Peter are neighbors. John's mother is gentle and amiable. She is kind to John. And she is kind to Peter, too. Both John and Peter love her.
    1. John loves his mother and Peter too.
    2. John loves his mother and Peter does too.
(11) *Sample story 2* (Stripping *vs* VPE in the sloppy context)
    Lucy and Kate are good friends. Lucy's mother is a teacher and Kate's mother is a doctor. The two mothers are very kind to their children. Both Lucy and Kate love their mothers.
    1. Lucy loves her mother and Kate too.
    2. Lucy loves her mother and Kate does too.

Sample story 1 gave a strict context, in which John and Peter both love John's mother. Since the sentence involving Stripping can only receive a sloppy reading, whereas VPE can receive either a strict or a sloppy reading, we expected learners to choose sentence 2 as a truthful description of the strict situation if they knew the interpretive constraint on Stripping.

For sample story 2, the correct choice can be either sentence 1 or sentence 2, as both Stripping and VPE can be assigned a sloppy reading.

5.2 Subjects

34 junior middle school and 57 senior middle school Chinese-speaking learners of English in Shangrao Railway Middle School, Jiangxi Province of China, plus 5 adult native speakers of English working in Shanghai, took part in the experiment. The junior middle school learners had received tuition in English for less than 6 months, with an average of four forty-five-minute English classroom sessions per week. The senior middle school learners had learned English for less than four years, with an average of five forty-five-minute English classroom sessions per week.

5.3 Test procedure

The experiment was carried out in the learners' own classrooms. The allowed time was forty-five minutes. Subjects in the control group took their test paper home and finished it separately, with no time limit. The Chinese subjects were all able to finish the test within the time limit.

6. Results and discussion

The number and percentage of responses choosing Stripping and/or VPE for the four strict contexts and the four sloppy contexts were calculated for each group of subjects. The results of the experiment are presented in Tables 2 & 3 below.

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[5] In the sample stories here, we provide only the English translations of the original Chinese stories.

6.1 Reponses in strict contexts

Table 2 presents the subjects' choice of Stripping and/or VPE in the four strict contexts. The total number of responses, as well as the number and percentage of responses choosing Stripping, VPE, both Stripping and VPE, are provided for each group of subjects in separate columns[6].

Table 2. Choice of Stripping and/or VPE in strict context

Subjects	*#Stripping*	*VPE*	*#Stripping & VPE*	*Total Responses*
Junior Middle (n = 34)	12 (8.82%)	121 (88.97%)	2 (1.47%)	(34 x 4 =)136
Senior Middle (n = 57)	68 (29.82%)	153 (67.11%)	5 (2.19%)	(57 x 4 =)228
Native (n = 5)	1 (5.00%)	19 (95.00%)	0 (0.00%)	(5 x 4 =) 20

As we can see from the table, the native speakers of English responded as expected, with 95% of their responses correctly choosing VPE in the strict contexts.

The junior middle school students' responses approximate those of native English speakers, with nearly 90% of them favoring VPE sentences. The non-target responses, plus responses that did not distinguish between Stripping and VPE, add up to only a little over 10% of the total responses. This result thus indicates that the junior middle school students distinguished between Stripping and VPE in their responses in the strict contexts, overwhelmingly preferring VPE to Stripping.

The responses provided by the more advanced senior middle school students are not as accurate as those of the junior students, with around 30% of their responses wrongly choosing Stripping in the strict contexts, though there are still around 70% of the responses selecting VPE.

6.2 Responses in sloppy contexts

The subjects' responses in the four sloppy contexts are summarized in Table 3.

Table 3. Choice of Stripping and/or VPE in sloppy context

Subjects	*Stripping*	*VPE*	*Stripping & VPE*	*Total Responses*
Junior Middle (n = 34)	114 (83.82%)	19 (13.97%)	0 (0.00%)	(34 x 4 =)136
Senior Middle (n = 57)	66 (28.95%)	162 (71.05%)	0 (0.00%)	(57 x 4 =)228
Native (n = 5)	3 (15.00%)	14 (70.00%)	0 (0.00%)	(5 x 4 =)20

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[6] In Tables 2 and 3, response percentages for some subject groups do not add up to 100% because of one or two or three missing responses. The '#' sign is used to indicate that the relevant construction cannot be assigned a strict reading, and is thus incompatible with the strict context provided by the story.

The sloppy readings of the pronoun are available both in Stripping and VPE, so responses selecting Stripping, VPE, both Stripping and VPE, are all correct, and they simply reflect the subjects' preferences. As we can see from the table, both the native English speakers and the senior middle school students preferred VPE as truthful descriptions of the sloppy contexts, the percentage of such responses accounting for about 70% of both groups.

The preference pattern for junior middle school students is different, with only around 14% of their responses preferring VPE in the sloppy contexts. They quite overwhelmingly favored Stripping, which actually may only receive the sloppy reading in the experiment. The percentage of responses choosing Stripping reaches about 84 %.

Comparing responses in the strict contexts (Table 2 above) with those in the sloppy contexts (Table 3), we find that for junior middle school students, the very low percentage of responses that selected Stripping in the strict contexts (i.e. 8.82%) cannot be attributed to their general disfavor of Stripping regardless of contexts, since in the sloppy contexts, junior middle school students gave a high percentage of responses favoring Stripping (i.e. 83.82%).
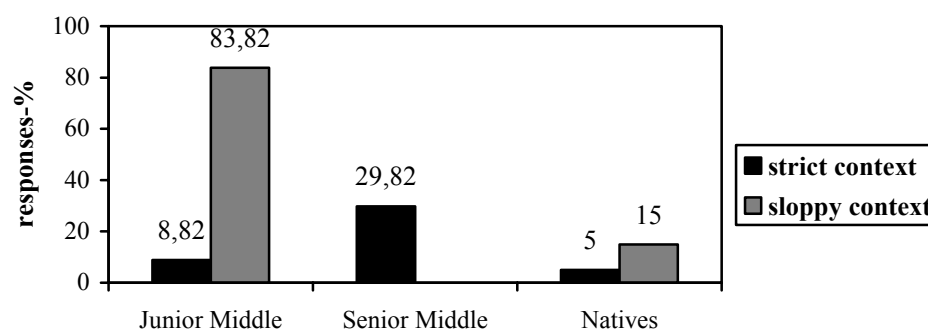

Figure 1. Choice of Stripping in the strict and sloppy context

Figure 1 above, which compares responses in the strict and the sloppy contexts for each group of subjects, clearly illustrates this contrast in responses by junior middle subjects. It is, nevertheless, unclear to us why junior middle subjects overwhelming preferred Stripping in the sloppy contexts, though such contexts are actually compatible with both Stripping and VPE.

Comparison of responses in the two types of contexts also reveals that the senior middle school students and native English speakers gave equally low percentage of responses that selected Stripping as truthful descriptions for both the strict and the sloppy contexts. So, for at least the senior middle school students, it is yet to be seen whether their relatively low percentage of responses choosing Stripping in the strict context could actually be attributed to knowledge of the interpretive constraint on Stripping, or to a general disfavor of this construction, regardless of contexts.

6.3 Individual performances by junior middle school subjects

Cross-tabulations of individual subjects' choice of Stripping in the strict and sloppy contexts are presented in Table 4 (for junior middle subjects), and Table 5 (for senior middle subjects, in the next section). The numbers in italics indicate the number of individuals who chose Stripping for a certain number of times (minimum=0; maximum=4) in the two types of contexts. If an individual has clear knowledge of the unavailability of the strict readings for the pronoun in Stripping sentences, he or she will

ideally be expected to choose Stripping 0 times in the strict contexts. And the most convincing cases will be those in which an individual learner chooses Stripping 0 times in the strict contexts, but 4 times in the sloppy contexts.

As shown in Table 4, 19 out of a total of 34 junior middle school students performed exactly that way. There were additionally 7 individuals who selected Stripping in the strict contexts 1 or less times, while accepting Stripping in the sloppy contexts 3 or 4 times. Moreover, there was not a single individual in the whole group who selected Stripping over 2 times in the strict contexts. So, individual performances by the junior middle school students generally confirm our observations on performance of the group as a whole. That is, the junior middle school students were already sensitive to the interpretive constraint on English Stripping, despite very limited exposure to the target language. And their general rejection of Stripping in the strict contexts cannot be attributed to a general disfavor of Stripping regardless of contexts, since in the sloppy contexts, the majority of the junior middle school students favored Stripping.

Table 4. Individual subjects' choice of Stripping (sloppy context × strict context)

	Frequency (max. = 4)	*Sloppy Context*				*Subject total*
Frequency (max. = 4)		*0*	*2*	*3*	*4*	
	0	1	0	4	19	24
Strict Context	1	0	5	1	2	8
	2	0	1	1	0	2
Subject total		*1*	*6*	*6*	*21*	*34*

6.4 Individual performances by senior middle school subjects

The individual responses of the senior middle school subjects, as shown in Table 5 below, conform to the group tendency of disfavoring Stripping in both the strict and the sloppy contexts. Except for 7 individuals who selected Stripping 4 times in the sloppy contexts but 0 times in the strict contexts, indicating knowledge of the interpretive constraint on Stripping, and another 8 individuals who selected Stripping 0 times in the sloppy contexts but 3 times in the strict contexts, indicating no knowledge of the relevant constraint on Stripping, the majority of the subjects in this learner group rejected Stripping in both types of contexts. The performance of the majority of the subjects again makes it difficult to decide if their rejection of Stripping in the strict contexts is not related to linguistic knowledge.

Table 5. Individual subjects' choice of Stripping (sloppy context × strict context)

	Frequency (max = 4.)	*Sloppy Context*					*Subject total*
Frequency (max.= 4)		*0*	*1*	*2*	*3*	*4*	
	0	6	5	3	0	7	*21*
	1	8	4	3	1	0	*16*
Strict Context	2	4	3	1	0	1	*9*
	3	8	1	1	0	0	*10*
	4	0	0	1	0	0	*1*
Subject Total		*26*	*13*	*9*	*1*	*8*	*57*

The 8 senior middle individuals who showed no clear knowledge of the interpretive constraint on Stripping pose a potential problem with our findings about the junior middle school subjects, who indicated a general sensitivity to the constraint. At this stage, we are unable to decide whether regression had occurred in their interlanguage grammar, or the interpretive distinction between Stripping and VPE had never been acquired by these 8 individuals.

7. Concluding remarks

The findings of our present study indicate that the junior middle school subjects possibly possessed knowledge of the interpretive constraint imposed by the grammar on Stripping sentences involving interpretation of pronouns.

Given that Chinese has VPE but no corresponding Stripping, the interpretive contrast between English Stripping and VPE is immaterial in the L1. L1 transfer as a possible source of the knowledge can thus be ruled out. In addition, L2 input and explicit instruction as a possible source of the knowledge can also be ruled out for the following two reasons. First, since Stripping and VPE are minimally different in surface forms, and are partly overlapping in their interpretation, it is quite unlikely that learners of English could infer from the L2 input the missing of a strict reading for Stripping while still maintaining the possibility of either a strict or sloppy reading for VPE. Second, since the junior middle school students had studied English for less than 6 months in a classroom setting prior to the test, their exposure to the L2 input must have been extremely limited.

It then remains to be explained how surprisingly early acquisition of the interpretive contrast between Stripping and VPE, in the absence of L1 transfer as well as sufficient L2 input, could have been possible. We hypothesize that the formal requirement for head minus elliptical constructions to be syntactically, but not either syntactically or pragmatically, interpreted (Chao 1988), could be part of the innate mechanism of natural language. In the case of Stripping sentences involving interpretation of a pronoun, noticing that the relevant CP, IP, and VP heads in the elliptical clause are not overtly filled could automatically trigger interpretation of the pronoun as a bound variable only, thus ruling out the strict reading resulting from pragmatic covaluation.

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