A Problem for UG in L2 Acquisition

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It is shown in Klein (to appear) that in the process of acquiring pied-piping (PiP) or preposition stranding (PS) many adult L2 learners of English omit the required preposition from a WH question or a relative clause. The same learners are also shown to evidence the required subcategorization knowledge for the particular verbs which require prepositional complements. This "null-prep" phenomenon is robust among adult L2 learners of English, regardless of their L1. Because null-prep is questionable as a natural language phenomenon, the occurrence of the structure in the interlanguage of adult second language learners of English raises compelling questions concerning the relationship between Universal Grammar (UG) and L2 acquisition. In this paper, I further explore the phenomenon by testing children of contrasting L1s to see whether null-prep is a general acquisition phenomenon among L2 learners of English, and whether child learners, in contrast to adults, produce null-prep because of L1 transfer. Two hypotheses will be proposed to explain the results, one related to the input of the target language and the second to the acquisition process and its relationship to prior knowledge. Implications of these findings for a UG-based model of second language acquisition will be discussed.

INTRODUCTION

In earlier research reported in Klein (to appear), it was shown that adult L2 learners of English often leave out prepositions in constructions that require pied-piping or preposition stranding. It was found that if learners are presented with a declarative sentence as shown in (1a), they tend to correct it as in (1b), adding the required preposition:

(1) a.*The girls talked the interesting movie yesterday
b. The girls talked *about* the interesting movie yesterday.

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However, the same learners often accept the related question and/or relative clause without the preposition, as shown in (2a) and (2b):

(2) *Null-Prep* (NuP)
Q: a.*Which movie did the girls talk yesterday?
RC: b.*Here's the movie (which, that, Ø) the girls talked yesterday.

This type of preposition omission has been termed the "null-prep" phenomenon, contrasting with correct instances of pied-piping and preposition stranding as shown in (3) and (4) respectively:

(3) *Pied-Piping* (PiP)
a. About which movie did the girls talk yesterday?
b. Here's the movie about which the girls talked yesterday.

(4) *Preposition Stranding* (PS)
a. Which movie did the girls talk about yesterday?
b. Here's the movie that the girls talked about yesterday.

L2 learners were shown to exhibit null-prep as an early stage in the acquisition of piping or stranding and some learners evidenced the phenomenon well into the high levels of English proficiency; that is, some learners advanced to mainstream American college classes and continued to accept null-prep. This appearance of null-prep in L2 extraction constructions has most recently been supported by Quintero (1992).

THE PROBLEM

The importance of null-prep in acquisition data is related to the fact that its occurrence is severely restricted in the natural languages of the world. Cross-linguistically, there are some languages which require a preposition in a declarative construction but allow the preposition to be omitted in the corresponding relative clause, though not in the related question. An illustration from Haitian Creole is shown in (5) - (7), with the required prepositions italicized:

(5) DECLARATIVE:
a. Twa zanmi - yo ap pale *de* sinema sa a.
'Three friends-(pl) are talking *about* movie this (top).'

b.*Twa zanmi - yo ap pale sinema sa a.
'Three friends-(pl) are talking movie this (top).'

(6) QUESTION:
(PiP) a. *De* ki sinema twa zanmi - yo ap pale a?
'*About* what movie three friends-(pl) are talking (top)?'

(NuP) b.* Ki sinema twa zanmi - yo ap pale a?
'What movie three friends - (pl) are talking (top)?'

(7) RELATIVE CLAUSE:
(PiP) a.?Men sinema *de* ki twa zanmi - yo ap pale
'Here is movie *about* which three friends - (pl) are talking
a.
(top).'

(NuP) b. Men sinema (que) twa zanmi - yo ap pale a.
'Here is movie (that) three friend - (pl) are talking (top).'

As shown in the contrasts between (5a) and (5b), the preposition is crucially required in the declarative construction. Likewise, (6a) shows that it is also required, in pied-piping form, in the corresponding interrogative. Null-prep in interrogatives is disallowed as (6b) indicates. Interrogatives contrast with the relative clause construction shown in (7) where null-prep is the preferred form.[1]

Other prepositional languages which exhibit a similar pattern include colloquial Brazilian Portuguese, Québécois and Montréal French, some dialects of Northern Greek, Catalan, Venezuelan and Puerto Rican Spanish, and Roviana, a language spoken in New Georgia, Solomon Islands (Keenan & Comrie, 1977). Like Haitian Creole, these languages require a preposition in declaratives but permit the omission of that same preposition in relative clauses. However, none of these languages allow null-prep in questions; that is, null-prep interrogatives are always ungrammatical, as illustrated in the Haitian Creole example shown as (6b).

It is evident now, that we are faced with an incompatibility between an interlanguage phenomenon, i.e. null-prep in L2 questions, and what appears to be a restriction on natural languages. The reason for this restriction, consistent with the detailed analysis presented in Klein (to appear),[2] is that null-prep represents a non-movement construction while question formation in null-prep languages generally results from syntactic wh-movement of an operator into Comp-initial position.

The arguments related to a non-movement analysis can be briefly summarized as follows:

Null-prep only occurs with an invariant complementizer. When an interrogative or relative pronoun appears, specifying wh-movement, null-prep is disallowed as shown in the following Brazilian Portuguese example from Tarallo (1983: 2) where the relative pronoun is italicized:

(8) a.*André, *quem* eu gosto, é mais bonito.
b. André, whom I am fond, is more handsome.

By contrast, when a complementizer occurs instead of a moved relative pronoun, null-prep is readily permitted as in (9):

(9) a. André, *que* eu gosto é mais bonito.
b. André, that I am fond, is more handsome.

Tarallo argues that this contrast is further supported by the "resumptive pronoun variant" which also uniquely occurs with the *que* complementizer and results from a "non-movement strategy." Therefore the relative pronoun shown in (10) does not permit a resumptive construction, while the complementizer in (11) clearly allows it:

(10) a.*André, *quem* eu gosto *dele* é mais bonito.
b. 'André, whom I am fond of him is more handsome.'

(11) a. André, *que* eu gosto *dele* é mais bonito.
b. 'André, that I am fond of him is more handsome.'

Claims for a non-movement analysis are further elaborated by Ingria (1979; 1981) for Greek, where the relative pronoun/ complementizer contrast also holds. Specifically, null-prep only

occurs in constructions where a Greek complementizer is present, never with a moved relative pronoun. Ingria argues that this non-movement/movement distinction is most compelling when we note that only the construction with the complementizer permits subjacency violations.[3]

From these facts, and others reported in Klein (to appear), the object in a null-prep phrase represents a non-lexicalized pronominal, rather than the *trace* of wh-movement (see below). In addition, the null-preposition is argued to be very weak; in fact, it is analyzed as a bound morpheme which attaches itself to its (null) object.[4] Crucial to my argument here, Universal Grammar (UG), the system of innate, constrained, parameterized principles instantiated in the minds of first language learners,[5] specifies restrictions on the licensing and governing of null-elements in the form of the Empty Category Principle (ECP). The ECP, discussed in Chomsky (1981) and elaborated by Lasnik & Saito (1984), among others, specifies that a wh-*trace* (though not an empty pronominal) must be *properly governed*.[6] Further, the *trace* of a moved element requires proper government by a strong preposition, if permitted at all;[7] thus, a very weak or null preposition would not provide the required government relation for the empty category. Null-prep in movement constructions, therefore, represents a violation of the ECP and is outlawed by UG. In addition, null-prep appears to violate the principle of Recoverability of Deletion (Chomsky & Lasnik, 1977; Chomsky, 1986), a principle which severely constrains the grammatical deletion of elements.[8] It is not surprising, then, that null-prep questions have been unattested in natural languages, even those which permit null-prep in (non-movement) relative clause constructions.

These natural language claims entail direct consequences for the interpretation of the relevant L2 data. They also illuminate the importance of this area of research activity for a principled theory of second language acquisition.

Acquisition researchers have argued that every stage of a learner's transitional competence must represent a grammar possible in some natural language, i.e., specified by UG, although each interim grammar may not necessarily match the specific target language of the learner. Therefore, errors are to be expected, but "wild" grammars, unconstrained by UG, are not predicted to occur in either L1 (Goodluck, 1986) or L2 acquisition (for example, Liceras, 1985; Schwartz, 1987; White, 1989). An accumulation of

evidence of null-prep in L2 questions and movement relatives, in violation of UG, thus provides direct counter-evidence to these generally accepted acquisition claims. If L2 learners are violating UG principles, then researchers must investigate the precise aspects of UG which are missing, how and why this occurs, and how learners actually do create their L2 grammars from the available input. Such questions would provide a compelling alternative to current UG-based theories of second language acquisition and clarify a very basic difference between L1 and L2 learning.

Within a broad program of research, the pilot study to be described below attempts to accumulate further evidence of this important phenomenon. Discussion will focus on which L2 learners create null-prep grammars and why they may be doing so. In the process, new questions are raised and new hypotheses are offered for future research on the subject.

THE RESEARCH QUESTIONS

My earlier research on null-prep in second language acquisition, summarized in Klein (to appear), reported robust findings among adult L2 learners of English, irrespective of their L1s; that is, language transfer did not appear to play a role in the occurrence of the phenomenon. Two related research questions are now posed:

1. Does null-prep also occur in child second language acquisition? If so, is the occurrence of null-prep influenced by L1 transfer?
2. What factors may be contributing to the occurrence of null-prep?

The first research question asks whether null-prep is related to the critical period; that is, whether it is unique to adult L2 acquisition or whether it also occurs among children, suggesting a more generalized acquisition phenomenon, for English at least. The secondary question asks whether children who exhibit null-prep do so because of transfer from their first language; this would be in contrast to null-prep among adult learners. The second research question asks why null-prep occurs; for example, there may be certain facts about English which propel learners to a null-prep grammar, or there may be certain facts related to language

processing and acquisition which cause the phenomenon. Discussion of this crucial question will be speculative but will provide impetus for further research.

METHOD

Subjects

There were 81 children, ages 8 and 9, who served as subjects for the experiment. All subjects attended grades 3 and 4 in the New York City (NYC) Public Schools. Fifty-eight of these were non-native speakers of English all of whom were receiving ESL instruction for 40 minutes every day. Equivalent proficiency levels were measured by means of a standardized test which had been administered to all subjects 5 months prior to this study.[9] Twenty-three native speakers of English, also ages 8 and 9, in grades 3 and 4, were tested as controls.

Materials and Procedures

As in my earlier experiment, a grammaticality judgment and correction task was administered to subjects by their classroom teachers, all of whom were graduate (MA) students working under my supervision.[10] A test of 54 sentences was given to small groups over several sessions. Because L2 learners may differ in their proficiency depending on modality, sentences were presented to all subjects both orally and visually. After a practice session, subjects were asked to judge whether sentences on the test were *good* (i.e., grammatical) or *bad* (i.e., ungrammatical). If a sentence was judged *bad,* the subject was to correct it. As shown in (12), subjects were presented with target sentences of three types, declaratives, questions, and relative clauses, randomized throughout the test. Lexical items remained constant across the sentence types and the preposition was always absent in the target sentences:

(12) a. The silly clown is dancing the big doll tonight.
b. Which doll is the silly clown dancing tonight?
c. This is the doll that the silly clown is dancing tonight.

If a subject accepts (12a) as correct, it is coded as inaccurate subcategorization for that verb and (12b) and (12c) are not analyzed for that subject. However, if she rejects (12a) and corrects it by adding a preposition, she is considered to have the necessary subcategorization knowledge for (12b) and (12c). That is, she knows that the verb in this instance requires a prepositional phrase (PP) complement. If the same subject then accepts (12b) and/or (12c) as correct, those responses are coded as null-prep. A correct response involves adding a preposition in piping or stranding position. Also included in the test were equal numbers of correct piping and stranding sentences for subjects to judge, such as those shown in (3) and (4). In addition there were an equal number of ungrammatical distractor sentences where the error was other than an omitted preposition, as in (13):

(13) Did the girls watched a television show last night?

For this part of the study we compared two contrasting L1 groups, Spanish and Haitian Creole speakers. Haitian Creole, as shown in (5) - (7) permits null-prep only in relative clauses and requires pied-piping in questions. Spanish, on the other hand, permits only pied-piping for both questions and relatives;[11] neither language permits preposition stranding. If there is a transfer effect from the L1, we would expect the Spanish speakers to do significantly better in relative clauses than the Haitian Creole speakers where null-prep is permitted in the L1; that is, the latter group would be expected to evidence null-prep in English relatives, accepting more deviant sentences than the former group who would be expected to pied-pipe. In questions, we would predict the two groups to be comparable.

RESULTS

The results are shown in Table 1. First, the control group of native speakers accepted null-prep to a far lesser degree than did the non-native speakers. To the extent that null-prep did occur, slightly more so in questions than relative clauses, we can account for the results by appealing to performance mistakes in a test situation.[12] In general, the native speaker results show: (a) That, for the most part,

children of this age were able to perform the task although some found it difficult; and (b) that children who are native speakers of English do not exhibit a deviant, i.e., null-prep, grammar. By constrast, it is clear that null-prep occurs to a much greater extent among child L2 learners of English.

Table 1. Null-Prep Results for Native Speakers and Non-Native Speakers

	S-type	N-subj	% subcat	mn NuP	mn PiP	mn PS
NS:	Q	23	75	12	0	87
	RC	23	75	9	0	89
HC:	Q	17	61	24	0	54
	RC	17	61	21	0	67
Span:	Q	20	23	33	0	47
	RC	20	23	47	0	36

S-type=sentence type; N-subj=number of subjects; %-subcat=percentage of accurately subcategorized declaratives across total tested; Mn NuP=mean percentage of null-prep acceptance in possible null-prep trials; Mn PiP=mean percentage of pied-piping; Mn PS=mean percentage of preposition stranding; NS=Native speakers of English; HC=Haitian Creole speakers; Span=Spanish speakers; Q=questions; RC=relative clauses.

Further, as shown in Table 1, the results for relative clauses are exactly the opposite from what might be expected if L1 transfer were occurring. The Spanish speakers accept null-prep at a mean of 47% while the Haitian Creole speakers accept it only at a mean of 21%, with more than 50% fewer null-prep acceptances. In questions, the differences are not as great, but the pattern also shows the Spanish speakers to be accepting more null-prep constructions than the other group. In addition, it must be noted that there is a great discrepancy in the number of accurate subcategorizations in the two groups: 61% for the Haitian Creole speakers and only 23% for the Spanish speakers. In general, then,

the Haitian children seem to be more proficient (in this area of language development at least) than the Spanish-speaking children, even though the two groups were at the same level of language proficiency five months earlier. This finding will be discussed in the next section.

There was another interesting result reflected in Table 1. Like the native speakers who showed no evidence of pied-piping, the non-native speakers never made a correction by placing the preposition in initial clause position; they chose only the stranded option. This is quite remarkable considering the fact that both Haitian Creole and Spanish speakers clearly have piping in their native languages; as noted above, only piping is permitted in the questions of both languages and preposition stranding is disallowed.

This preference for stranding was further supported when I analyzed the results of the correct piping sentences to see if any were rejected and changed to stranding. The results of both native speakers and non-native speakers are shown in Table 2.

Interestingly, native speakers rejected piping, changing it to stranding, at a mean of 46% overall and the Haitian Creole speakers rejected piping at a mean of 38% in questions, and at a much lower percentage in relatives. The Spanish speakers generally did not reject correct sentences. Switches from stranding to piping were almost non-existent. Quintero (1992) reports similar preferences for stranding among adult Japanese ESL learners even though Japanese does not permit stranding.[13] Potential reasons for such findings are discussed below.

Table 2. Rejection of Piping (PiP) Versus Stranding (PS) by Native Speakers and Non-Native Speakers.

S-type		Mn% PiP→PS / →NuP		Mn% PS→PiP / →NuP	
NS	Q	42	3	2	1
	RC	50	8	1	0
HC	Q	38	0	3	0
	RC	9	29	0	6
Span	Q	2	0	0	0
	RC	1	0	0	0

S-type=sentence type; Mn%PiP→PS/→NuP=the mean percentage of correct instances of pied-piping (PiP) that were changed to preposition stranding (PS) or null-prep (NuP) out of total possible accurate subcategorizations, Mn%PS→PiP/→NuP=the mean percentage of correct instances of preposition stranding (PS) that were changed to pied-piping (PiP) or null-prep (NuP) out of total possible accurate subcategorizations; NS=native English speakers (N=23); HC=Haitian Creole speakers (N=17), Span–Spanish speakers (N–20); Q–questions; RC=relative clauses.

DISCUSSION

The results show that children, as well as adults, exhibit null-prep. Thus, in answer to the first research question posed above, the null-prep phenomenon does not appear to be constrained by the critical period for language acquisition. Secondly, like adult learners, children learning English as an L2 do not appear to show transfer effects when they exhibit null-prep (and stranding).[14] We turn now to the second, and more compelling, question which asks why adult and now child L2 learners are permitting a null-prep grammar.

To account for the results discussed here, two hypotheses are proposed. The first attempts to explain the findings by invoking facts about English; the second relates to acquisition issues.

Hypothesis I: *The nature of the English input propels L2 learners to null-prep and anti-piping*. This is because of:

a. the frequency of stranding and the potentially marked nature of piping in English;
b. contradictory evidence for the presence/absence of prepositions.

This hypothesis relates to the occurrence of null-prep in adult and child L2 acquisition and the lack of piping in the child language data.[15] It suggests that properties of the English language lead L2 learners to misanalyze the input, producing null-prep; they also produce stranding rather than pied-piping, in direct contrast to their native languages. I now discuss each suggestion relating to the English input.

The part of the hypothesis indicated as (Ia) relates to the overwhelmingly disproportionate number of stranding sentences in English, as opposed to piping. This point is fairly obvious. In the oral language, particularly, the frequency or salience of stranding was argued by Bardovi-Harlig (1987) to account for its early acquisition among adult L2 learners; that is, they acquire stranding before piping. It has also been suggested (Erickson, 1984)[16] that young children rarely, if ever, hear piping in the input since it is limited to formal "adult" or written language. Erickson suggests, further, that preposition stranding in the input may cause learners to initially drop prepositions, i.e., produce null-prep, since stranding is such a "marked" structure (see below). Thus, learners who produce null-prep or acquire stranding rather than or before piping are, by some interpretations, over-riding markedness considerations.

Claims have been made in the linguistic literature that the typologically more frequent and syntactically less complex piping is the unmarked option across languages while stranding is very marked (Van Reimsdijk, 1978; Hornstein & Weinberg, 1981).[17] However, following Hyams' (1986) notion of relative degrees of markedness, it is argued in Klein (to appear) that piping in English is (linguistically as well as stylistically) more marked than piping in other languages, such as standard French; in such languages, stranding is not an option because prepositions are syntactically

weak and do not structurally govern as I claim prepositions do in English. Thus pied-piping is obligatory, as illustrated in (14):

(14) [A qui] Emilie a t'elle parlé pp[e]
'To whom did Emily speak?'

In English, however, prepositions are strong and, as proper governors, are permitted to license their empty objects as in the stranding example shown as (15):[18]

(15) [Who] did Emily talk pp[to e]

In fact, English prepositions naturally strand in preference to attaching to their objects, in a clitic-like manner, and fronting, as pied-piping requires.

Native English speakers upon an abundance of positive evidence of stranding will, therefore, set the relevant parameters to result in the stranding option, and may never hear or pay attention to the more marked instances of piping. Only with enough evidence of piping will the learner reset to the marked language which includes both options.[19] For some native speakers, this never happens. That is, they consider English a stranding language and do not ever reset to the more marked option. In the few instances where piping is required (as shown in footnote 17), these speakers easily avoid the construction by using a paraphrase. The marked nature of English piping is also evidenced by the fact that, while some native speakers consider English to be a stranding-only language, those who might consider it a piping-only language are very rare and, perhaps, non-existent; almost all speakers who use piping do so only in alternation with stranding.

Similarly, some non-native speakers, once they recognize that English prepositions are very strong, easily use stranding and do not assume the more marked language which includes piping as well. Others select stranding as a possibility, with null-prep as the other option, perhaps in the belief that prepositions may be optionally omitted. Still others opt for null-prep exclusively. Their optional or unique choice of null-prep is potentially for the reason indicated in (Ib); that is, learners are confused by contradictory evidence for the presence/absence of prepositions.

This part of the hypothesis suggests that language learners exhibit null-prep because of evidence in the input that English allows

some prepositions to be optional and others to be omitted under certain conditions. Examples of such evidence appear as (16)-(19):

(16) a. The small children climbed (over) the fence.
b. Which fence did the small children climb (over)?
c. That's the fence the small children climbed (over).

(17) a. Ferdinand was complaining all day.
b. What was he complaining *(about)?
c. Here's the exam he was complaining *(about).

(18) a. Lucy ate at that time.
b. What time did Lucy eat?
c. That's the time Lucy ate.

(19) a. Lucy ate at that restaurant.
b.*What restaurant did Lucy eat?
c.*That's the restaurant Lucy ate.

Gruber (1965) and, more recently, Jackendoff (1985) cite examples such as (16) where a verb can subcategorize for an optional PP complement. This contrasts with (17a), where there is an implicit object and an incorporated preposition; in (17b) and (17c), however, the governing preposition must be overt.

The examples shown in (18) directly contrast with those in (19) and illustrate some lexically idiosyncratic structures that have been termed "bare NPs" by Larson (1985; 1987). Example (18a) shows that a preposition is required in the declarative form but may be omitted in the corresponding question (18b) and relative (18c). Similarly there is a required preposition in the declarative example (19a). However, omission of that preposition renders the corresponding question (19b) and relative clause (19c) ungrammatical. Bare NPs, although superficially like null-prep examples, are an entirely different phenomenon representing a highly-marked restricted class of temporal and locative nouns which permit the preposition to be omitted; other adverbial-like nouns require the preposition and the distinction seems almost arbitrary. Interestingly, while bare NPs are "exceptional" constructions, they are frequent enough in the input to easily mislead learners.

Now how does a learner cope with what appears to be such conflicting evidence regarding the occurrence of prepositions? This

is a particularly vexing question if learnability is to be explained by a parametric model of acquisition where positive evidence provides the necessary triggers for parameter-setting. First language researchers including Valian (1990) and Roeper & Weissenborn (1990) have begun confronting this learning problem in the area of null-subjects where similar contradictory input serves as positive evidence for English learners. Valian proposes that learners have alternative settings of a parameter available and use hypothesis-testing to set parameters. Alternatively, Roeper & Weisenborn argue that positive evidence is relevant only within a "unique triggering domain" specified by an innate acquisition device; the evidence within such a domain unambiguously triggers the setting for a parameter and all other evidence becomes irrelevant and automatically ignored by the learner. Gass & Lakshmanan (1991) invoke the Roeper and Weisenborn hypothesis for second language acquisition. They suggest that L2 learners of English may differ from L1 learners by lacking the acquisition device needed to identify specific elements in the input to which a learner's attention should be drawn. It is possible, then, that L2 learners are overgeneralizing the absence of prepositions from evidence of bare NPs in the input; or they may be hypothesizing that prepositions are optional, since UG is not available to specify triggers for parameter setting.

The possibility that the nature of the input is responsible for the appearance of null-prep has some support in L2 research. Tarallo & Myhill (1983) found that learners (from different L1s) learning a variety of second languages exhibited null-prep in German though not in other L2s. (There is something in the nature of the German input, which will not be discussed here, that Tarallo & Myhill argue is responsible for these incorrect null-prep forms.) In order to test hypothesis I then, we need to conduct further studies on the L2 acquisition of a variety of languages to see whether it is specific input which drives learners to null-prep rather than general L2 learnability processes as suggested by Quintero (1992).

A second hypothesis to be considered here relates to the divergent results among the Spanish speakers and the Creole speakers in the study reported here. Recall that the Creole-speaking children did considerably better than their Spanish-speaking schoolmates: (a) By evidencing a much greater degree of subcategorization knowledge; and (b) by evidencing a much lesser degree of null-prep. This was the case even though the two groups were the same age and were at equivalent proficiency levels five

months prior to this test; they also lived in the same neighborhood and, therefore, could be argued to be from equivalent socio-economic levels.

One difference that is not accounted for is that almost all of the Haitian Creole speakers had been taught some French in Haitian schools before coming to New York. Thus for them, English was potentially an L3 and this may be the reason for their success on this language task. For the Spanish speakers, on the other hand, and other L1 learners we tested, English was the L2–and the Haitian Creole group surpassed them all. This suggests another hypothesis:

Hypothesis II: *Success on decontextualized tests of non-native language acquisition increases in proportion to the number (and perhaps types) of non-native languages learned.*

The age at which these languages are learned and the time span involved should be important variables. Intuitively, this hypothesis does not seem illogical but there has been little research on the subject. Eisenstein (1980) reports that children who had become bilingual before the critical period, particularly those who had learned the second language formally, did significally better as adults on foreign language aptitude tests than their monolingual counterparts. And trilinguals outperformed the bilinguals. Interestingly, the study of adult learners reported in my earlier research also lends initial support for this hypothesis. Of all the subject variables investigated, including length of time in the US, gender, handedness, mode of acquisition, there was only one that proved statistically significant: Those learners for whom English was a third or fourth language evidenced null-prep at a significantly lower mean percentage than L2 learners. Similarly, a study by Thomas (1988) showed that Spanish-English bilinguals learning French as an L3 outperformed monolingual English students learning French as an L2.

It may be the case, of course, that talented language learners are just those who choose to learn other languages–certainly correlation does not imply causation. However, the children tested in the NYC schools were not faced with any choices–they are all required to learn English. An interesting facet of the results may be relevant here: It was found that the Haitian children also tended to exhibit more analytic strategies than the other learners; that is, when the Spanish speakers judged a sentence ungrammatical, they often

could not correct it. On the other hand, when the Creole speakers judged a sentence ungrammatical, they tended to correct it decisively and without hesitation. This could suggest that they are better test takers which means that they are more likely to achieve the kind of grammatical accuracy necessary for standardized tests and school-related, decontextualized language tasks on which placement and achievement are often based. Like Eisenstein, Thomas (1992: 534) tested adults and concludes that bilinguals are better non-native language learners than monolinguals because the former "used their metalinguistic awareness to facilitate their performance on the tasks focused on language forms . . . ."

It will be important in future research to further support Hypothesis II by testing greater numbers of children and by comparing equal groups of L2 and L3 learners, preferably with matching L1s. Confirmation of this hypothesis would lead to some interesting new questions for acquisition researchers about L2 cognition and strategies and how these may be related to parameter setting and the operation of UG. Critically important implications for non-native language teaching programs follow as well.

CONCLUSIONS

The research reported here can be summarized as follows.

(1) Child L2 learners exhibit null-prep; therefore, the phenomenon is not an artifact of adult language acquisition. Null-prep does not appear to be strongly motivated by language transfer in child L2 acquisition; this is consistent with the findings of earlier research among adults.

(2) An input hypothesis has been proposed to explain the presence of null-prep and the absence of pied-piping in second language acquisition. That is, there are particular linguistic phenomena in English that motivate L2 learners to constrain, mishypothesize or overgeneralize application of target language rules.

(3) A hypothesis related to prior language experience has also been proposed to explain particular differences in the degree to which two groups of subjects, specifically Haitian Creole speaking and Spanish speaking children, show evidence of a deviant grammar. It is hypothesized that, all else being equal, bilingual subjects do predictably better at non-native language tasks than monolingual

subjects, success being directly correlated with the number of previous languages learned.

Investigation of these hypotheses and others will help determine the extent to which, and under what conditions, L2 learners exceed the bounds of UG, the central question for this research.

It was shown in studies of adults and children that null-prep appears in L2 relative clauses. According to the analysis sketched earlier, such data conform to UG only if the specified constructions do not involve wh-movement. To maintain support for a UG-constrained grammar, we would want to claim that L2 learners' early relatives are non-movement constructions. In fact, this is potentially quite plausible if we consider the evidence provided by some L1 researchers who argue that children learning English as L1 begin learning embedded questions and relatives by assuming non-movement (Roeper, Mallis & Akiyama, 1985; Nishigauchi & Roeper, 1987; Lebeaux, 1988; deVilliers, Roeper & Vainikka, 1990). Similiarly, L2 researchers have also hypothesized that second language learners may begin learning relative clauses as non-movement constructions (Martohardjono & Gair, 1989; Schachter, 1988; White, 1988). The non-movement hypothesis specifically related to null-prep relatives must now be tested in further research.

More compelling, however, is the appearance of null-prep in L2 questions, clearly wh-movement constructions.[20] Such evidence suggests that second language learners are creating an "impossible" language, "impossible" because it is not sanctioned by UG. In fact, null-prep in L2 questions provides clear evidence that some L2 learners create wild grammars along the route of their interlanguage development. In doing so, these learners appear to be outside of UG in some way, at least if we look at the relationship between UG and acquisition as it is currently posed.

However, many questions and issues remain. For example, it may be necessary to relax the criteria for strictly adhering to UG at every point in the developing grammar; that is, some (specified) deviations might be permitted in the L2 interlanguage (which, at any stage however, could become the end-state grammar). It is also possible that L2 learners are guided by some parts of UG and not by others, or that certain principles and parameter settings are more accessible than others, related to the availability of language-specific triggering data; such a possibility, of course, would argue for crucial distinctions between L1 and L2 acquisition.

It is also obvious that the precise nature of the target language input, as well as the learner's grammar, must be cautiously analyzed to determine how the former influences the latter, perhaps even propelling it outside of UG. It is always possible that, while surface evidence or learner intuitions indicate what appears to be a non-UG learner grammar, in-depth analysis of that grammar may suggest otherwise, or at least illuminate the strategies responsible for such deviation. For example, if null-prep in the L2 is the result of overgeneralizing from bare NPs, which are peripheral constructions (i.e., highly marked and very lexically idiosyncratic in English) learners are making the mistake of using the wrong data to create core constructions in their grammars; that is, while hypothesizing movement questions and relatives, learners may be incorrectly assuming all nouns to have the same exceptional features as bare NPs. While L1 overgeneralizations are also common, it would not be expected that evidence of null-prep among L1 learners be similarly attributed to the use of incorrect triggering data, but rather for other reasons, such as very early non-movement strategies. Importantly, then, non-native speaker retreat mechanisms for such errors as overgeneralization would have to be worked out (assuming the absence of negative evidence) especially since we know that retreat is inevitable for Ll learners.

And UG itself must also be questioned. In order to accommodate new acquisition facts, the relevant UG principles may need re-examination and reformulation; for example, in question here are the governing principles for empty categories and the principle involving recoverability of deleted elements. It is not unwarranted to suggest that extensive examination of null-prep in further acquisition as well as linguistic research may serve to motivate changes in linguistic theory.

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NOTES

[1] Preposition stranding is not permitted in Haitian Creole. In fact, PS is limited to Indo-European languages, primarily English and the Scandinavian languages and also occurs in Macedonian, a Slavic language (see Van Reimsdijk, 1978).

[2] I can only refer the reader to my forthcoming book to fill in the gaps which must necessarily be left out here and in other sections of this paper due to space limitations.

[3] According to linguistic theory, wh-movement always observes subjacency, a restriction on the number of constituents across which the wh-element may move to Comp position. The prohibition against violations of subjacency is often cited as evidence of wh-movement (for example, in Chomsky, 1981; Huang, 1984; 1987).

[4] The distinctions between strong and weak prepositions are interesting and complex and are discussed in Bouchard (1981, 1984) and Klein (to appear), among others.

[5] Researchers in second language acquisition are currently examining the possibility that UG is also accessible to L2 learners.

[6] Proper government is the relationship between an element *a* and an empty category ß such that *a* properly governs ß iff (a) *a* is lexical and governs ß, or (b) *a* locally A'-binds ß.

[7] Note that a trace in some languages may be governed by a strong preposition, which is what occurs in cases of preposition stranding in English, for example (cf., Hornstein & Weinberg, 1981).

[8] Following earlier work, Chomsky (1986) still argues that:

> A principle of recoverability of deletion states that an element can be deleted only if it is fully determined by a structurally related phrase containing its lexical features or if it is a "designated element," where these notions have to be made precise . . . *to whom* could not be deleted in "the man to whom you spoke," because the preposition *to* is unrecoverable.

This principle suggests that null-prep in relative clauses as well as questions is problematic. However, it could be argued that the head of a relative clause with which the null-prep is co-indexed is available to potentially help identify and "recover" a deleted PP; such identification is only available in an interrogative construction if the verb subcategorizes for one and only one preposition.

[9] This test is the Language Assessment Battery (LAB) which is administered twice a year, in two forms, to all non-native speakers in the NYC school system. It is on the basis of this test that children are placed in appropriate ESL classes.

[10] This (second) test differed from the original in some respects: (1) A confidence-rating scale was administered in the first, but not the second test; (2) the second test was shorter and some of the lexical items used differed from the original in order to accommodate younger subjects. For these reasons, direct comparison of the adult versus child results will not be made.

[11] Recall that some dialects of Spanish permit null-prep, i.e., Venezuelan and Puerto Rican Spanish. Subjects who spoke these dialects were excluded from the study.

[12] In the adult study, native speaker controls accepted null-prep at a very low rate of 1% in questions and 2% in relative clauses.

[13] In a production task involving extraction constructions, Quintero found that subjects beyond the early stages of acquisition produced stranding nearly 100% of the time; only one subject (who was at a later stage of acquisition) produced a few instances of piping. Prior to their accurate production of these constructions, Quintero's subjects exhibited a "no-prep" stage along with a pattern of resumption, as in *This is a car that the girl is singing about car'* (1992: 63). Quintero explains these results by appealing to learnability considerations. These include "cumulative development," which suggests an implicational order of acquisition, and "continuity" which argues for learners' early preferences for canonical word order, implying lack of wh-movement at the no-prep and resumptive stages of development.

[14] An anonymous reviewer points out that it is possible that the Haitian Creole speakers are transferring 21% null-prep relatives from their L1 while the 40% null-prep relatives among Spanish speakers are the result of something other than transfer. While this may be true, it is very odd that the same creole speakers would not, to some extent at least, also transfer pied-piping (a correct form in both L1 and L2), which they do not do at all.

[15] Piping was exhibited to a much lesser extent than stranding in the adult data as well, but the exact percentages have not yet been analyzed.

[16] I thank Nina Hyams (personal communication) for providing me with this paper.

[17] Some researchers claim that markedness relationships are not relevant to acquisition unless the related languages adhere to the Subset Principle. This principle (Berwick, 1985; Wexler & Manzini, 1986; 1987) proposes that when languages are nested one within the other, a learner, in the absence of negative evidence, will assume the smallest (subset) language compatible with the primary linguistic data she is exposed to. Only positive evidence of the larger language would trigger a resetting to the more marked, superset language. Therefore, if piping and stranding represent such nested languages, markedness values would naturally follow. However, the subset/superset relationship is not readily apparent here, although it could be argued that either piping or stranding is nested within a larger language which permits both constructions. In English this is complicated by the fact that some sentences require piping, as in i:

i. You know the extent to which some politicians will lie.
*You know the extent which some politicians will lie to.

Others require stranding, as in ii:

ii.We visited the city where she is from.
*We visited the city from where she is.

Most others permit both. Because of these complications, I leave open the potential application of the Subset Principle for consideration elsewhere.

[18] Hornstein and Weinberg (1981) offer an alternative analysis, as suggested in footnote 7.

19 The exact amount of evidence and the exact nature of the trigger needed to motivate the permanent setting of the parameter(s) involved are still open questions.

20 Wh-questions representing non-movement are exceedingly rare in prepositional languages of the world. One such example appears in Irish (McCloskey, 1979) involving a very syntactically complex construction which L2 learners would not presumably hypothesize. Furthermore, L2 learners beyond the beginning stages of acquisition readily produce wh-questions using variant interrogative pronouns (what, which, where, etc.) although, like L1 learners, they may evidence uninverted constructions as in i:

i. Which book the girl is reading?

However, many L2 learners at intermediate levels of proficiency have acquired subject-aux inversion, suggesting a movement analysis for their questions. Strong support for a non-movement analysis would come from evidence of questions where the wh-phrase remains *in situ*, as in many postpostional languages. This possibility is shown in ii:

ii. The girl is reading *which book*?

There is little data, however, showing that such constructions are favored among second language learners, except perhaps at the very earliest stages of L2 proficiency.

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