IS THERE A "NATURAL SEQUENCE" IN ADULT SECOND LANGUAGE LEARNING?

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The Bilingual Syntax Measure (Burt, Dulay, and Hernandez 1973) was administered to 73 adult learners of English as a second language in order to investigate accuracy of usage for eight English functors. It was found that there is a highly consistent order of relative difficulty in the use of the functors across different language backgrounds, indicating that learners are experiencing intra-language difficulties. Also, the adult results agreed with those obtained by Dulay and Burt (1973) for 5 to 8 year old children learning English as a second language, indicating that children and adults use common strategies and process linguistic data in fundamentally similar ways.

On the basis of intensive analysis of the speech of three children as well as the study of available literature on child language acquisition, R. Brown (1973) concluded that the order of acquisition of certain functors (or grammatical morphemes) in English is invariant; despite differing rates of first language acquisition, there seems to be a surprisingly uniform developmental course that all children take in learning English. Brown analyzed the speech of three children longitudinally, and noted the presence or absence of each functor in each "obligatory context," that is, in each locus where adult syntax would require the presence of the functor. A functor was considered acquired when it was supplied in 90% of obligatory contexts for three successive recording sessions. A slightly different method was used by de Villiers and de Villiers (1973) in a cross-sectional study; they simply ranked functors according to relative accuracy in obligatory contexts. This alternative method correlated significantly with Brown's results.

Dulay and Burt (1973), studying a subset of the 14 functors Brown dealt with, presented evidence that 5 to 8 year old children

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TABLE 1

Difficulty order of functors[1,3]

First language learners (de Villiers and de Villiers, 1973)	Second language learners (Dulay and Burt, 1973)[2]
1. plural (-s)	1. plural (-s)
2. progressive (-ing)	2. progressive (-ing)
3. past irregular	3. contractable copula
4. articles (a, the)	4. contractible auxiliary
5. contractible copula	5. articles (a, the)
6. possessive ('s)	6. past irregular
7. third person singular (-s)	7. third person singular (-s)
8. contractable auxiliary	8. possessive ('s)

[1]de Villiers and de Villiers (1973) studied 14 functors in all; included here are the eight functors covered in both studies.
[2]Taken from Dulay and Burt's largest sub-group ("Sacramento").
[3]Difficulty orders from the two studies do not correlate significantly (rho = .59, n.s.).

learning English as a second language also show a high degree of agreement with each other with respect to degree of accuracy of functors. Dulay and Burt concluded that "there does seem to be a common order of acquisition for certain structures in L2 acquisition" (p. 256); however, the actual difficulty ordering found by Dulay and Burt was not the same as that found in first language acquisition studies (see Table 1).

To explain this difference, Dulay and Burt note that the order of acquisition posited for older learners is not affected by the cognitive and conceptual development the first language learning child undergoes while learning his first language.

Dulay and Burt's findings are consistent with another observation reported in the same paper (Dulay and Burt 1973); the overwhelming majority of errors made by children in learning English as a second language are "developmental" rather than "interference," that is, they are similar in kind to errors made by children learning English as a first language and not the result of interference from the learners' first language habits. Dulay and Burt conclude from these results that first and second language learning in children involves similar kinds of processing of linguistic data. Specifically, the process of learning English as a second language must involve the "creative construction" and testing of hypotheses about the target language.

Recent studies have emphasized that errors made by adults in second langauge learning are to a large extent (1) common to

learners with different mother tongues, and (2) analyzable as incorrect hypotheses about the target language (Richards 1971a, 1971b, Buteau 1970, Duskova 1969, Bailey and Madden 1973). Such results encourage the hypothesis that adult second language learning may also involve a natural sequence of acquisition. One would not expect the adult sequence to match that of the child's learning of his first language. Rather, since adults are more similar to 5 to 8 year olds with respect to cognitive maturity, the adult order should be closer to that of the older child learning English as a second language. In this study, the following two hypotheses will be tested:

(1) adults learning English as a second language will show agreement with each other in the relative difficulty of functors in English.

(2) the adult rankings will be similar to that of the child learning English as a second language, rather than to that of children learning English as a first language.

Procedure

Seventy-three adult subjects (ages 17 to 55) were tested. The subjects were members of eight classes in ESL (the first four levels of each of two programs) at Queens College, New York. One program, the English Language Institute program, is an intensive, all day program for foreign students preparing to study in American colleges, and the other, the Continuing Education program, is a four hour per week adult education course. Generally, the adult education subjects had more exposure to English outside the classroom. The subjects were also classified as Spanish or non-Spanish speaking. The Spanish speaking group consisted of 33 students and the non-Spanish group consisted of 40 students representing eleven different mother tongues (Greek, Persian, Italian, Turkish, Japanese, Chinese, Thai, Afghan, Hebrew, Arabic, and Vietnamese).

As in Dulay and Burt's (1973) study, language data was elicited with the Bilingual Syntax Measure (BSM) (Burt, Dulay, and Hernandez 1973). Despite the fact that the Bilingual Syntax Measure was originally designed for children it was successfully used with adults here. The BSM consists of seven colored cartoons accompanied by preliminary questions and testing questions. The preliminary questions are designed to insure the subjects' knowledge of lexical items. The testing questions are designed to elicit the use of the eight selected English functors listed in Table 1.

Each subject was tested individually by a team of two undergraduate students from the Queens College Linguistics Department. One *E* showed a picture to the *S*, asked the pertinent preliminary questions, then proceeded to the test questions. The second *E* recorded the *S*'s answers to the test questions on the BSM answer sheet.

As in previous studies, accuracy of usage was determined by the ratio of the correctly formed and used functors to the obligatory occasions for them. Following Dulay and Burt (1973) a correctly used functor was scored as one point, a misformed functor as .5 and a missing functor as zero, e.g.

They birds	(missing functor = 0)
They is birds	(misformed functor = .5)
They are birds	(correct functor = 1)

Results

Pearson product-moment correlations were performed on the relative accuracy of use of the eight grammatical morphemes between Spanish and non-Spanish speakers and among the eight instruction levels.

There was a significant correlation between relative accuracies of function words for Spanish and non-Spanish speakers ($r = .926$, $p < .005$, one-tailed test). The scores are portrayed in Figure 1. Correlations among the eight instruction groups are given in Table 2. There was a high degree of agreement as to the relative difficulty of the functors among all groups, with the exception of Level 3 in the English Language Institute program, which may be due to a ceiling effect caused by a high level of English language

TABLE 2

Correlations between groups of ESL students for function word accuracy

	ELI 1[1]	ELI 2	ELI 3	ELI 4	CON ED 1[2]	CON ED 2A	CON ED 2B
ELI 2	.85[b]						
ELI 3	.53	.79[b]					
ELI 4	.93[b]	.82[b]	.51				
CON ED 1	.78[a]	.83[b]	.43	.69[a]			
CON ED 2A	.93[b]	.86[b]	.49	.88[b]	.90[b]		
CON ED 2B	.84[b]	.68[a]	.16	.78[a]	.84[b]	.93[b]	
CON ED 3	.71[a]	.80[b]	.52	.69[a]	.84[b]	.63[a]	.94[b]

[1]English Language Institute
[2]Continuing Education Program
a: $p < .05$ (one-tailed)
b: $p < .01$ (one-tailed)

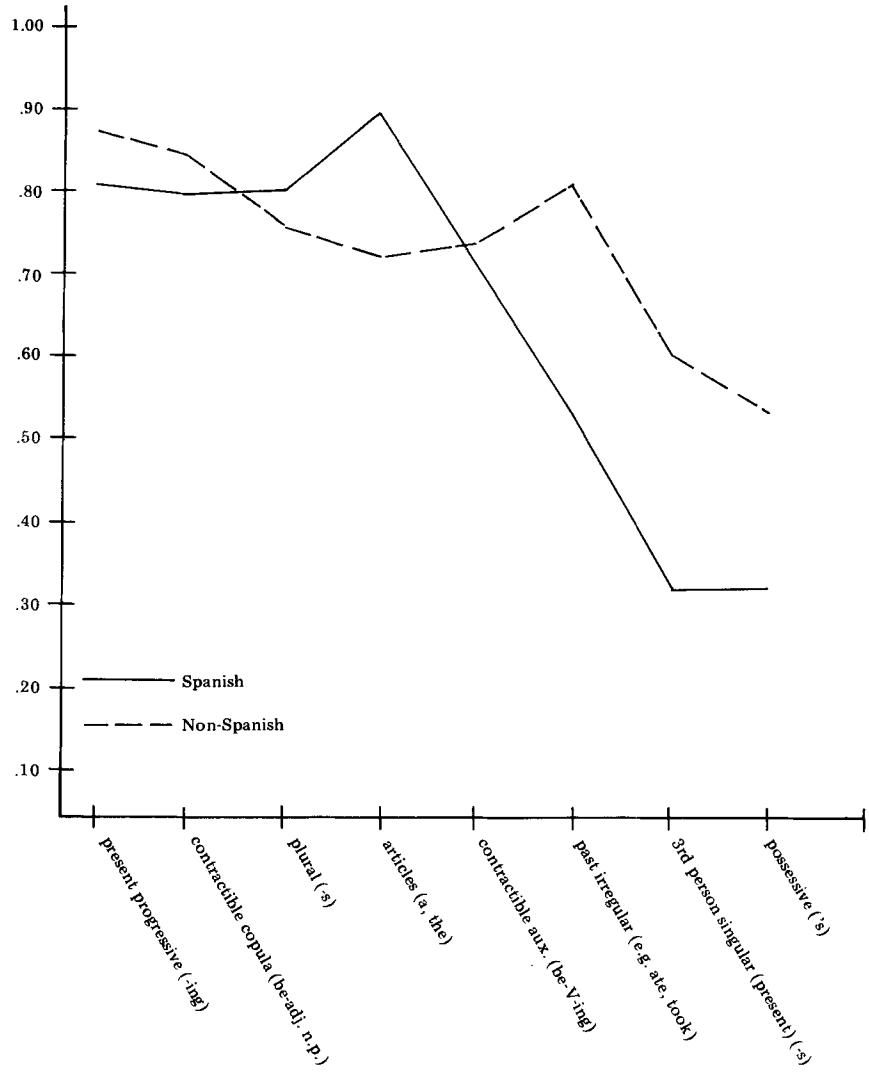

Figure 1. Comparison of Spanish and non-Spanish adults; relative accuracies for 8 functors.

proficiency in this group. Percentages of accuracy are given in Table 3.

To test Hypothesis 2 adult relative accuracies were compared to Dulay and Burt's (1973) data for 5-8 year old children learning English as a second language. Relative accuracies for their "Sacra-

TABLE 3

Percentage of accuracy for adult ESL learners in eight functors

	ing	cont cop	plural	art	cont aux	past irr	third per	poss
ELI 1	.84	.85	.72	.80	.77	.61	.34	.31
ELI 2	.87	.77	.71	.59	.55	.48	.38	.38
ELI 3	.90	.90	.88	.70	.66	.82	.65	.72
ELI 4	.90	.88	.81	.82	.81	.77	.54	.47
CON ED 1	.82	.80	.69	.81	.50	.25	.47	.21
CON ED 2A	.63	.64	.66	.83	.76	.13	.21	.13
CON ED 2B	.90	.88	.94	.93	.75	.40	.28	.19
CON ED 3	.89	.82	.88	.79	.33	.45	.32	.36

mento" group (consisting of 96 children with a relatively large amount of exposure to English) correlated significantly for both parametric and non-parametric measures ($r = .893$, $p < .005$, one tailed test, $rho = .91$, $p < .01$). Also, correlation between our subjects and Dulay and Burt's "San Ysidro" group (26 Mexican children exposed to English only in school) was significant ($r = .97$, $p < .005$, one tail, $rho = .94$, $p < .01$). The correlation between the adults and Dulay and Burt's "East Harlem" group (30 Puerto Rican children in a "balanced bilingual program") did not quite reach statistical significance with the Pearson r but did with the Spearman rho ($r = .60$, $p < .10$, $rho = .88$, $p < .01$). Figure 2 exhibits the relative accuracies of the four groups. The lower correlation with the East Harlem group may reflect the fact that Black English is often the target language for these children since their main divergence from the order of the other two groups is due to lower accuracy in the use of the copula and contractible auxiliary, commonly deleted in Black English.

As predicted, the adult order did not correlate significantly with relative accuracies for functors reported by de Villiers and de Villiers (1973) for children ($rho = .57$, n.s.).

Discussion

Despite the differences in adult learners in amount of instruction, exposure to English, and mother tongue, there is a high degree of agreement as to the relative difficulty of the set of grammatical morphemes examined here, supporting Hypothesis 1. This result in conjunction with error analysis research, indicates that adults use common strategies for second language learning. In

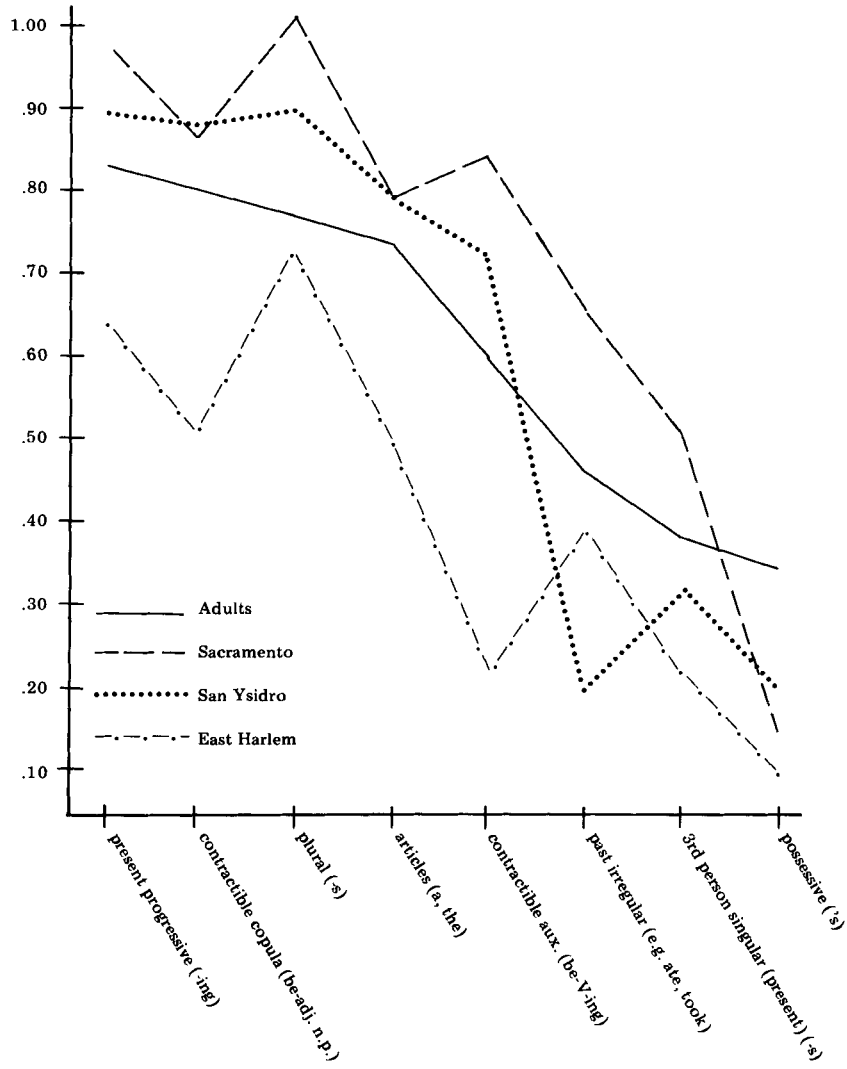

Figure 2. Comparison of child and adult relative accuracies for 8 functors.

addition, if relative difficulty corresponds to order of acquisition as implied by de Villiers and de Villiers' (1973) results with children, this result also suggests a common order of acquisition for functors in adults.

Comparison with Dulay and Burt's data reveals that relative accuracy in adults is quite similar to the relative accuracies shown

by children learning English as a second language for the same functors, supporting Hypothesis 2. Thus, while adults may in general not achieve the level of performance achieved by first language learners or children learning English as a second language, and may need the isolation of linguistic structures and feedback provided by the classroom, these results indicate that they process linguistic data in ways similar to younger learners.

Since subjects with different first languages performed similarly, the results are also consistent with findings that errors in second language learning are not all the result of interference from the first language. Along with studies of errors in second language learning cited above, this argues against any strong version of the contrastive analysis hypothesis. While casual observation affirms that errors due to mother tongue interference do occur in second language learning in adults, our data imply that a major source of errors is intra- rather than inter-lingual, and are due to the use of universal language processing strategies.

Further evidence may be found for the use of universal language processing strategies in the study of aphasia, a non-interference situation. A very recent cross-sectional study of non-fluent aphasia (de Villiers 1974) reports a relative order of difficulty in functors nearly identical to that found here for adults learning English as a second language (for those six functors covered in both studies, rho = .94, $p < .05$). There thus seem to be two invariant orderings for functors: one for children learning English as a first language, and the other shared by children learning English as a second language, adults learning English as a second language, and adult non-fluent aphasics. It remains to be determined what combinations of factors account for this apparent uniformity in adult processing and why the adult order differs from the child's.

Finally, we need to consider the role of the classroom. Dulay and Burt (1973) conclude that their findings of an invariant order of acquisition in children learning English as a second language and its implications for a developmental theory imply that "we should leave the learning to the children" (p. 257); teaching syntax is not necessary. It may be the case that second language learning in children can effectively take place in the absence of a formal linguistic environment. The conclusion, however, while possibly correct, does not follow from their results on relative accuracy of function words. Adults, as demonstrated here, show nearly the same rankings and a similar degree of invariance, and as empirical studies (Krashen and Seliger, in press, Krashen, Seliger and Hart-

nett, in press, Krashen, Jones, Zelinski, and Usprich, in press) and years of experience in language learning and teaching show, instruction is directly related to English language proficiency in adults, while exposure to English in informal environments is not.

We are thus faced with an interesting conclusion: adults seem to profit from instruction, an instruction that often presents the grammatical morphemes in an order different from that implied here. An interesting and testable hypothesis is that the most effective instruction is that which follows the observed order of difficulty, one with a "natural syllabus." We will be prepared for such an experiment when we confirm the implied sequence longitudinally, and discover which aspects of language follow a universal sequence, and understand what factors determine such a sequence.

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