

Is There a *Fundamental Difference*?

The Availability of Universal Grammar in Child versus Adult Second Language Acquisition

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1. Introduction

This paper presents the preliminary results of ongoing dissertation research on the subject of maturational constraints in Second Language Acquisition (SLA). It will be assumed here that, given sufficient time, child learners generally attain superior end states in L2 morphosyntax over adult learners. The present study aims to contribute to an explanation of this phenomenon, in particular by testing the Fundamental Difference Hypothesis of Robert Bley-Vroman (1990).

2. Background

During the 1980s, SLA researchers revisited the Critical Period Hypothesis (CPH) of Lenneberg (1967), which posited that normal language development could only proceed within a limited age range prior to puberty. While Lenneberg's primary focus was L1 acquisition, researchers now considered the possibility that the same critical period might constrain SLA. Johnson and Newport (1989) showed a strong negative correlation between children's age of arrival in second language environments and their ultimate morphosyntactic attainment. On the other hand, subjects who had arrived in L2 environments as adults were randomly distributed in terms of morphosyntactic attainment. As a group, the adults' level of attainment was markedly lower than the children's. These results support the CPH for SLA. At a more explanatory level, various hypotheses have competed to account for the observed superiority of child language acquirers over adults (e.g., Bever 1981, Felix 1985, Newport 1990, Pinker 1994, *inter alia*). Some have proposed that children are better at assimilating new information in general, due to greater neural plasticity and less fixed lateralization of the brain. Others have held that children are distracted by fewer peripheral stimuli than adults (social factors, abstract mental operations, etc.).

One class of hypotheses, designated by Birdsong (1999) as "use it then lose it," maintains that the age-related decline in language learning ability is part of human maturation. Individuals enjoy facility in language acquisition during childhood, when linguistic development is most crucial. This asset then declines in order to free up neural resources for other operations. Robert Bley-Vroman has been a key proponent of this position. Bley-Vroman's Fundamental Difference Hypothesis (FDH) posits that child language acquisition is guided by the principles and parameters of Universal Grammar (UG), whereas adults no longer have access to UG. The "fundamental difference" between child and adult language acquisition, then, is that children acquire language by first passively recognizing the parametric values particular to the target language grammar, then setting the parameters accordingly in their internal grammatical representations (a domain-specific mechanism). Adults rely instead on general problem solving skills to consciously construe the grammatical structure of the L2 input. Since individuals vary in their ability to employ these skills, the FDH explains why the outcome of adult language acquisition is both less morphosyntactically nativelike and less uniform across individuals than that of child language acquisition. In addition to problem solving skills, adults have indirect access to UG through the grammar of their L1. They are thus able to project the specific parameter settings of the L1 onto their L2 interlanguage. Unlike children, however, they are incapable of setting parameters to values other than those embodied in their L1.

Consequently, the following predictions can be deduced from the FDH:

- 1) Adult second language acquirers will produce markedly more instantiations of parametric transfer from L1 to L2 than child second language acquirers.
- 2) In the course of child SLA, non-target instantiations of a given parametric feature will be produced with decreasing frequency, ending in an abrupt leveling within the nativelike range (the asymptote, or end state, for the feature in question, which is reached at the point when the parameter is set). Adults will continue indefinitely to produce non-target instantiations of L2 parametric features.

DeKeyser (2000) replicated Johnson and Newport (1989) in order to test the FDH against the backdrop of that data set. DeKeyser focused on a prediction of the FDH other than the two given here: if some adult learners do indeed attain nativelike competence levels in the L2, they will have done so with the aid of exceptionally high linguistic aptitude. That is, since under the FDH adults do not have recourse to the domain-specific Universal Grammar, only those with superior metalinguistic capabilities will become nativelike in the L2. This prediction was borne out by DeKeyser's results; he found a strong correlation between linguistic aptitude and scores on a grammaticality judgment task.

However, grammaticality judgment tasks like those used by Johnson and Newport and DeKeyser cannot provide conclusive evidence for or against the FDH. This is because they are not a direct reflection of an acquirer's competence, but rather of his ability to perform metalinguistically (Birdsong 1989). In order to ascertain what the acquirer knows, we must at least supplement metalinguistic performance data with other kinds of data (free oral production, elicited imitation, picture description, etc.). The present study uses oral production data to follow the longitudinal progress of a group of child and adult subjects (n=9) in acquiring the parameter settings of Swedish as an L2. This paper presents results for a sample child/adult pair.

3. Procedure

Data were gathered from 2000 to 2001 in Gothenburg, Sweden. Child subjects were sought who had had no exposure to the L2 before age five. This precluded the possibility that some child subjects were actual native speakers of the presumed L2. All children were under the age of 10, thus ensuring that they were still within the critical period. Adult subjects had begun their acquisition of the L2 after age 18 (post-critical period) and had had little or no exposure to L2s other than the one in question. The subject population for the entire study is constituted as follows:

Table 1: Overview of subject population

“Abdullah”: Iraqi male Age 47	“Leo”: Finnish male c. Age 22 “Tarja”: Finnish female c. Age 27 “Mari”: Finnish female c. Age 30
“Hassan”: Iraqi male Age 9 “Ghusun”: Iraqi female Age 8	“Natalia”: Finnish female Age 9 “Emmi”: Finnish female Age 8 “Veikko”: Finnish male Age 8

Arabic and Finnish L1s were chosen for their typological dissimilarity to the L2, Swedish. Finnish is an agglutinating language with rich inflectional morphology. Arabic is a synthetic language, also rich in inflectional morphology. Swedish employs very little inflectional morphology but has more fixed word order than the other two languages. Typologically distant languages are desirable in this type of study because any transfer from the L1 to the L2 becomes salient in speakers' oral production. This facilitates a comparison of parameter setting and transfer behaviors in child and adult subjects. The subset of the subject population to be presented here consists of the Iraqi man “Abdullah” and the Iraqi girl “Ghusun”.

These two subjects were interviewed by the investigator in their homes. The speech elicitation interviews were conducted in Swedish, lasted approximately 30 minutes, and took place three times over a period of 10 to 13 months. Interviews were then transcribed using the *Modified Standard*

Orthography 6 transcription standard of the linguistics department at Gothenburg University. This standard accurately reflects speech down to the level of the morpheme. Transcripts were subsequently coded for instantiations of three target language features, as well as for applicable contexts where those features would appear in the speech of a native speaker.

4. Results

4.1 Null Subjects

Arabic is a null subject language. Finnish permits the omission of first and second person subject pronouns only. Swedish is (-) null subject. The FDH therefore predicts that Abdullah, the Arabic speaking adult, will fail to approach nativelikeness in including subject pronouns in his Swedish sentences. Rather, he will transfer the (+) null subject setting of Arabic into Swedish and frequently produce sentences lacking overt subjects. The Arabic speaking child, Ghusun, will approach nativelikeness and reach a stable asymptote in which she ceases to omit subject pronouns in Swedish. Figure 1 shows an example from Abdullah's production of a clause with empty [Spec, IP] node in bold:

Figure 1: Abdullah's null-subject IP juxtaposed with simplified syntactic tree of target structure

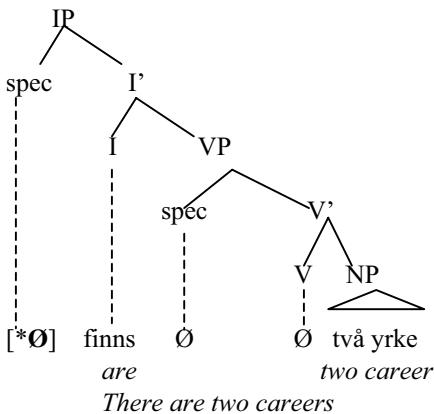


Table 2 shows the frequency with which Abdullah and Ghusun produced null subject clauses over the duration of the study. An applicable context for subject omission was any CP or IP whose first or second person subject had already been named in the preceding discourse,¹ as well as impersonal constructions which require the expletive subject *det* in Swedish.

Table 2: Subjects' production of null subject clauses

		Time 1	Time 2	Time 3
Abdullah	Null Subjects	13	10	6
	Applicable Contexts	125	105	98
	Percent Non-target	10.4%	9.5%	6.1%
Ghusun	Null Subjects	0	1	2
	Applicable Contexts	74	52	75
	Percent Non-target	0%	1.9%	2.7%

¹ This criterion was used for the sake of comparability with the Finnish data, in light of the more restricted contexts for subject omission in Finnish.

4.2 The V2 Parameter

Swedish, along with all other Germanic languages except English, is a V2 language. This entails that in matrix clauses, the finite verb occupies the node [C,CP]. The subject then appears immediately before the verb in [Spec, CP], except in the case of topicalization of some other maximal projection, which leaves the subject immediately after the verb in [Spec, IP]. Neither Arabic nor Finnish has this feature. The FDH predicts that the adult Abdullah will continue to produce V2 violations indefinitely, while the child Ghusun will approach nativelikeness in her conformity to this rule. Figure 2 shows an example from Ghusun's production of a V2 context, where the impersonal verb *fanns* (in bold) has failed to raise to [C,CP].

Figure 2: Ghusun's V2 violation juxtaposed with simplified syntactic tree of target structure

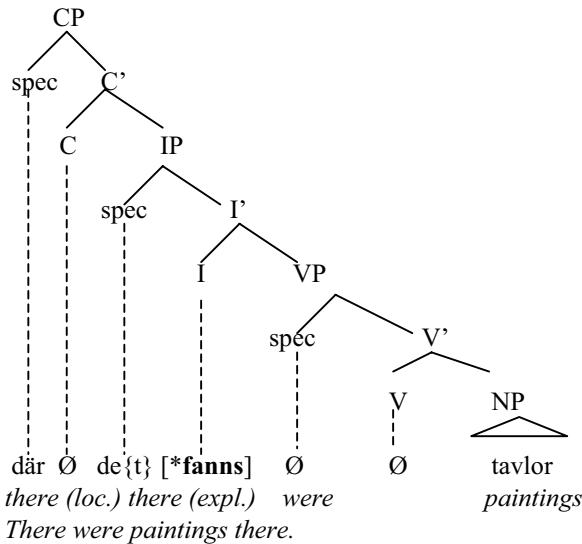


Table 3 shows the frequency with which Abdullah and Ghusun violated the V2 parameter over the duration of the study. An applicable context for V2 was any CP with an element other than the subject topicalized into [Spec, CP]. The V2 movement is usually invisible in other contexts, making it impractical to analyze.

Table 3: Subjects' production of V2 violations

		Time 1	Time 2	Time 3
Abdullah	V2 Violations	26	23	23
	Applicable Contexts	30	24	21
	Percent Non-target	86.7%	95.8%	109.5%²
Ghusun	V2 Violations	3	4	3
	Applicable Contexts	14	34	33
	Percent Non-target	21.4%	11.8%	9.1%

4.3 Null Copulas

² 109.5% violations per applicable contexts seems counterintuitive; the number indicates that the speaker never produced the target structure when it was called for, and that he furthermore produced this structure on two occasions when it was not called for (as if hypercorrecting).

Arabic uses no copula to link the subject and the predicate of an equational sentence. Finnish and Swedish both have copulas. The FDH predicts that the child Ghusun will successfully acquire the obligatory copula of Swedish, at some point ceasing altogether to omit it. The adult Abdullah, on the other hand, should continue indefinitely to omit this copula with varying frequency. Figure 3 shows an example from Abdullah's production of a null copula CP. The empty [C,CP] node (in bold) constitutes a copula omission.

Figure 3: Abdullah's null copula CP juxtaposed with simplified syntactic tree of target structure

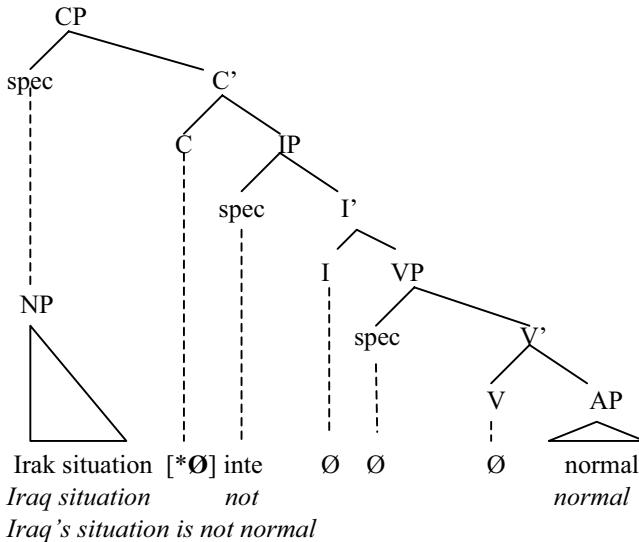


Table 4 shows the frequency with which Abdullah and Ghusun omitted copulas over the duration of the study. An applicable context was an equational sentence, i.e., a subject and predicate, which in Swedish should be linked by the copula *är* (is/are).

Table 4: Subjects' production of null copula clauses

		Time 1	Time 2	Time 3
Abdullah	Null Copulas	9	2	16
	Applicable Contexts	44	43	57
	Percent Non-target	20.4%	4.7%	28.1%
Ghusun	Null Copulas	1	0	1
	Applicable Contexts	18	17	25
	Percent Non-target	5.6%	0%	4%

5. Conclusions

Table 2 shows a gradual improvement by Abdullah from 10.4% to 6.1% omitted subjects. Ghusun omitted no subjects during the first interview, but on subsequent occasions she omitted subjects slightly more often (progressing from 0% to 2.7% omitted subjects). Both subjects violated the V2 parameter more often, with Abdullah increasing from 86.7% to 109.5% V2 violations and Ghusun decreasing from 21.4% to 9.1% (see Table 3). As for null copulas, both subjects exhibited inverted u-shaped curves, with relatively high percentages of omitted copulas at time one and time three compared to time two (see Table 4).

Taken at face value, Ghusun's null subject performance seems to run counter to the predictions of the FDH. She omits more subjects as time passes, while Abdullah progressively omits fewer subjects.

However, this may be an artifact of the analytical procedure followed. In examining oral production data, it can be difficult to assign a syntactic structure to certain utterances. Spoken language is characterized by false starts, pauses, and changes in vocal quality which can obscure the way in which sequences of words are grouped. This results in a subjective element to the analysis, and one should therefore reckon with some margin of error (which in turn would be difficult to calculate). Ghusun produced very few tokens of null subjects, and it is possible that 1 token out of 75 contexts would be better interpreted as 0 out of 75. Assuming some small margin of error, then, Ghusun's non-target tokens can be considered negligible in the case of null subjects and null copulas. This would place Ghusun at a nativelike end state with regard to these two features. Abdullah's non-target tokens, in contrast, appear to exceed the negligible range for each feature examined. But in spite of the fact that he does not appear to have attained nativelikeness, his performance on null subjects improved gradually over the duration of the study, suggesting that he might eventually acquire the null subject parameter to native standards.

As for null copulas, Abdullah showed no such improvement over time. His production of null copula sentences seems to vary in an unprincipled fashion, suggesting that he is indeed not acquiring this feature.

The V2 parameter has clearly presented a challenge to both subjects. That L2 acquirers, unlike L1 acquirers, have difficulty with the V2 parameter has been noted in earlier studies as well (Schlyter and Håkansson 1994). But the FDH predicts that a child acquirer like Ghusun will nonetheless succeed in setting the parameter. Judging by her performance in the present study, she is gradually approaching the native standard. This is in accord with the FDH, but the fact that Abdullah could show similar progress with regard to the null subject parameter then becomes problematic. A possible solution to this problem is that there is a scale of difficulty among L2 parameters, such that any learner from a given L1 background will learn the parameter in question more or less easily than the other parameters. Assuming that some parameters are more difficult than others, Ghusun still has performed markedly better than Abdullah on each parameter examined here.

With some minor modifications, this study could produce more conclusive results. Namely, the ideal study period would begin with the subjects' arrival in the L2 environment and continue until a steady state in their L2 performance is reached. Ghusun may have been recruited for this study too late to observe her null subject and null copula acquisition. For her V2 acquisition, the study should ideally have continued for a longer period of time. Similarly, only time would tell whether Abdullah might approach a native standard with regard to the null subject parameter.

Another desideratum for future research would be to incorporate a wider variety of data collection methods. Administering a grammaticality judgment task at the outset and subsequently administering elicited imitation tasks, picture description tasks, and others throughout the study period, could give a fuller picture of subjects' initial and end states, as well as the course of acquisition (cf. Flege and Liu 2001 for a study related to the CPH for SLA which uses convergent sources of data).

In sum, these results show unambiguously that the adult acquirer failed to set the V2 and null copula parameters, while he may have been on his way to setting the null subject parameter. The child acquirer seems already to have set the null subject and null copula parameters and to be on her way to setting the V2 parameter. These results thus provide mixed support for the FDH and point to the need for further studies with the suggested modifications.

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