INVESTIGATING PARAMETER RESETTING BY PERSIAN LEARNERS OF ENGLISH AS A SECOND LANGUAGE: THE CASE OF NULL SUBJECT VALUE

Alireza Jalilifar
Zohre G. Shooshtari
Shahid Chamran University of Ahvaz

ABSTRACT

The purpose of this study was to determine if Persian learners of English can reset the parameter value of the obligatory subject in simple and complex constructions in light of Universal Grammar, and if language proficiency has a role in parameter resetting. Data were elicited from 90 subjects who underwent a general English language proficiency test. A grammaticality judgment task and a translation test were then administered in order to examine how null subject parameter was rendered in the learners' performances. The tests included targeted sentences representing null subject properties (null subject, null expletive, post-verbal, and that-trace). Results, in general, suggested no significant differences across the language levels in resetting null subject. In particular, it appeared that lower-level learners were considerably better at simple constructions while higher-level learners outperformed in complex constructions. One of the results of this study was that Persian L2 learners approached the acquisition of null subject parameter resetting in a non-linear developmental path. Findings from in-depth analysis of data provide insight for partial parameter resetting and that L2 is only partially constrained by Universal Grammar.

Key words: null subject, null expletive, post-verbal, and that-trace.

ABSTRACTO

El propósito de este estudio fue determinar si estudiantes de inglés en Irán pueden reprogramar el valor paramétrico del sujeto obligado en construcciones simples y complejas a la luz de la Gramática Universal, y si la competencia en el lenguaje tiene alguna función en la reprogramación paramétrica. Los datos fueron obtenidos de 90 sujetos que tomaron una prueba de eficiencia de lenguaje en inglés general. Una tarea de cernimiento en gramática y una prueba de traducción fueron entonces administradas a modo de examinar cómo aparece el parámetro nulo en el desempeño de los estudiantes. Las pruebas incluyeron oraciones que representaban propiedades del sujeto nulo (sujeto nulo, expresión nula, post-verbal y trazo-de-eso). Los resultados en general sugieren que no hay diferencia significativa a lo largo de los niveles del lenguaje en reprogramar el sujeto nulo. En particular, aparece que los estudiantes del más bajo nivel resultaron mejores en construcciones más simples mientras que los estudiantes de nivel

más alto se destacaron en construcciones complejas. Uno de los resultados de este estudio fue que los estudiantes persas de L2 abordaron la adquisición de la reprogramación de parámetro de sujeto nulo por una ruta de desarrollo no-lineal. Los hallazgos de un análisis profundo de los datos revelan habilidad para la reprogramación parcial de parámetros y que L2 está solo parcialmente limitado por la Gramática Universal.

Palabras clave: *sujeto nulo, expresión nula, post verbal, trazo-de-eso.*

Alireza Jalilifar is an assistant professor of Applied Linguistics at Shahid Chamran University of Ahvaz, Iran. His main interests are second language writing, genre analysis, and academic discourse.

Zohre G. Shooshtari is an assistant professor of Applied Linguistics at Shahid Chamran University of Ahvaz, Iran. Her main interests are second and third language acquisition and second language writing.

INTRODUCTION

Null subject parameter has been one of the most intensively studied parameters in generative linguistics in First and Second Language Acquisition (F/SLA). Since null subject parameter is too abstract to be learned by environmental input, one line of thinking relates it to UG. In this argument all children start out speaking a pro-drop language, and then the rate of overt subject gradually increases over time in non pro-drop environments.

According to Jaeggli and Safir (1989), null subjects are permitted (only) in all languages with morphologically uniform paradigms. The morphological uniformity hypothesis states that an "inflected paradigm in *P* in a language *L* is morphologically uniform iff *P* has either only derived inflectional forms or only derived morphological forms" (p. 29). Based on this hypothesis, languages like Persian and Italian are morphologically uniform, so subjects of tensed clauses in these languages can be dropped since the property of null subjects can be identified from rich inflections.

Rizzi (1986) proposed that null subject occurs when two conditions of licensing and identification are satisfied. Licensing is the syntactic condition under which NP subject can be omitted and identification deals with the recoverability of the subject.

Chomsky (1995) outlined the system of UG as a highly structured and restrictive system of principles with certain open parameters to be fixed by experience. When it comes to L2 acquisition, parameters should be reset to be equivalent to the start of first language. Whether L2 learners access UG in L2 has been a controversial issue for years. Some believe that learners of an L2 have access to Universal Grammar, and that the initial hierarchical ranking of constraints for these learners is the ranking of their L1 (i.e., transfer); some reject such a position.

In terms of access, three positions emerge: (1) the position that unlike L1 learning, no access to UG is possible for adult L2 learners (Bley-Vroman, 1989; Clahsen & Muysken, 1986; Lenneberg, 1967); (2) the position that learners have access to UG partially, not fully (Schachter, 1989); and (3) the position that L2 learners have full access to UG, making this one way in which L1 and L2 acquisition are similar (Epstein, Flynn, & Martohardjono, 1996; Lakshmanan, 1994; Schwartz & Sprouse, 1996).

Most early SLA studies have centered on the L1 acquisitional work of Hyams (1986) to an L2 context. Hyams (1986) argued that pro-drop was the unmarked setting and that, if the target language was not pro-drop, a switch of parameter settings was required. White (1985) argued that the unmarked setting is [pro-drop].

White (1985) maintained that learners of a language at variance with their L1 pro-drop parameter do not immediately or easily reverse this parameter when they begin to acquire the L2; rather, they initially transfer the setting of their L1 into the L2. White tested the three characteristics associated with pro-drop: null subjects, subject inversion, and that-trace effects. Her study involved 73 adult L2 learners of English at McGill University in Montreal, Canada. She used a grammaticality judgment task where subjects were given 31 English sentences, some of which were grammatically well formed. The ill-formed sentences contained null subjects, inverted subjects, and violations of that-trace. White's findings

showed that Spanish speakers did indeed have more difficulty than the French speakers in correctly judging grammaticality when null subjects were used, although both groups also had difficulties judging sentences with expletive subjects. Both the French and Spanish groups performed well in subject inversion and poorly in that-trace. Although White concludes that pro-drop is a parameter with a set of related consequences, the results of her study showed that the various nuances of pro-drop are not simultaneously acquired.

Tsimpli and Roussou (1991) took the full transfer / no access position. They assumed that invariant UG principles remain accessible, but that parameter resetting is impossible. The results of their study showed that all Greek learners of English continue to accept null subjects; 95% of the learners accepted ungrammatical English sentences with that-trace violations, and 80% of learners accepted sentences lacking expletive subjects. All learners rejected ungrammatical English sentences with subject verb inversion and corrected them by placing the subject in post-verbal position. They concluded that the Greek [+null subject] value is transferred and is not reset to the English value.

Lafond (2003) characterized the developmental paths taken by adult L2 learners in terms of interaction between syntactic (null subject, inversion, and that-trace) and discoursal properties via a translation task, a pilot study, and a grammaticality judgment task. In his study, each stage of grammar was represented by total ranking of six constraints, and each stage was followed by one demotion, and each demotion yielded a new grammar that was taken by learners to progressively move toward the target language. The developmental path taken by learners supports the constraint demotion algorithm of Tesar and Smolensky (2000), and also lends support for its application in second language development.

Banka (2006) studied learners developing grammar in the context of parameter resetting and examined the role of transfer in L2 acquisition. He focused on structured differences between Hungarian and English. Thirty-three Hungarian learners of English were

divided into14 intermediate and 19 advanced students, based on the Oxford Placement Test (OPT). The participants were tested on the syntactic properties associated with null subject parameter. The result of his study showed that null subject properties were not acquired together, but sequentially. While participants had well-formed grammatical representation of the post-verbal and null subject properties, they had difficulty performing the constraint on the Wh-subject extraction, which seemed to be resistant to resetting. He also found that Hungarian learners transferred the L1 setting of the parameter into their interlanguage grammar, especially at early levels of proficiency.

Banka (2006) realized that students' levels of proficiency and their interlanguage grammar conformed to the principles and parameters of Universal Grammar. However, the data provided no clear evidence of parameter resetting

"In [-null subject] languages like English, the subject position can be filled by an agent, like argument, or expletive pronoun or movement of an argument from a post verbal into specified position" (Hawkins, 2001, p. 197). However, in [+null subject] languages, inflections define the person and number of the subject, and therefore, there is no need for the subject to be overt. English in contrast to Persian has subject in cases where Persian has unstressed pronouns. The definition is illustrated in the examples below:

A) Null subject: Languages such as English permit declarative sentences with subject.

2. I'll go to Tehran tomorrow.
   /færda: be Tehran miræværn / (ø tomorow goINFL to Tehran)

B) Null expletive: English requires expletive subject to fill the subject position in certain temporal or existential sentences while Persian does not.

3. It is cold.
   /særdeh / (ø is cold)

C) Subject-verb inversion: In Persian inversion is free, and subject can also occur after the verb in declarative sentences while in English it cannot be.

4. Ali went home.
   /Ræft xu: ne æli/ (ø went home Ali)

D) That-trace: Persian permits that-trace; i.e., the complementizer remains in trace position after wh-movement from subject position, while English only has a trace 't' in S-structure as in:

5. Who did I ask married Reza?
   *Who did I ask that married Reza?
   /porsidæm ke che kesi ba: Reza ezdevadj kærd?/
   (Asked that who with Reza married?)

There are significant differences between L1 and L2 grammatical hypotheses and grammatical properties that induce conflict between L1 and L2 grammatical systems of learners. Considering the differences between Persian as a [+null subject] language and English as a [-null subject] language, we assume that:

1. Persian L2 learners, avoid constructions that are not compatible with their native language (L1).

2. Learners may omit subject or use overt subject pronouns where the TL does not permit them.

According to Tsimpli and Roussou (1991), [+null subject] values are transferred to [-null subject] values and therefore resetting is not likely to happen (p. 161). They also state that the absence of subject pronouns in such sentences means that agreement is lacking. Consequently agreement phrase (AgrP) does not project, and there is no agreement (Agr) head to govern and so license *pro*. Following previous studies, this study intends to see whether Persian learners of English acquire the chance to reset the [-null subject] parameters in learning English as a foreign language. Therefore, the following questions stand out:

1. Can Persian L2 learners of English acquire the parameter value of the obligatory subject in English simple and complex sentences?

2. What is the role of language proficiency in the parameter resetting of the English obligatory subject by Persian learners of English?

METHODOLOGY

Ninety male and female subjects selected among MA students of Center for *Science and Research, Islamic Azad University of Ahvaz* and BA students of *Shahid Chamran University of Ahvaz* participated in this study. They were assigned into the three levels of lower, middle, and higher based on their scores in Nelson general proficiency test (Fowler & Coe, 1976). Their ages ranged from 18-32.

Three tests were administered to participants: (1) a general English language proficiency test, (2) a grammaticality judgment task, and (3) a translation task.

The Nelson test was used as a valid general English language proficiency test (Fowler & Coe, 1976). The test comprised 50 items, 25 items forming cloze passages and 25 in multiple-choice format focusing on grammar and vocabulary. The reliability of the test was 79 based on *KR-21*. The time allocated to this test was 45 minutes.

This study called into question the use of grammaticality judgment task (test code 1) to gain a view into the underling grammatical system. The test included 20-targeted sentences and 5 distracters. Each sub-section (null subject, null expletive, post-verbal, and that-trace) was tested through 5 sentences. Items testing null subject were subdivided into simple and complex constructions. Null expletive items were presented in predicate and raising predicate sentences**.** Post-verbal was presented in simple forms, while that-trace was provided in sentences mostly contrasted in having or lacking complementizers. Two more researchers in this field checked the test and made minor revisions, and finally agreement was reached on the final test. Evidence of successful parameter resetting was taken to be at or above 60%.

In order to compensate for the deficiency of context in the grammaticality judgment

task and to increase the reliability of the test, a translation task (test code 2) was also administered. This required participants to translate 20 sentences from Persian to English. All sentences were assumed to correlate with null subject properties, and their construction was similar to the grammaticality judgment task (5 on each sub-section). The time allocated to this test was 15 minutes.

Having taken the language proficiency test, each participant was rendered a score based on his performance on this test. In order to specify different proficiency levels participants were ranked from highest to lowest scores, and then the mean and SD of the total scores were obtained. Participants whose scores fell below -0.5 SD (scores between 20-22) were selected as lower level (level code 1). Those whose scores fluctuated between ± 0.5 SD (scores between 22-27) were selected as middle level (level code 2) and participants with scores above +0.5 SD were assigned as upper level (level code 3).

Two weeks later, the grammaticality judgment task (test code 1) and translation task (test code 2) were administered to all participants. The former was used mostly to gain view into competency and underlying grammatical system. According to Lafond (2003), "although underlying competence cannot be directly accessed, whatever access we do obtain through performance system may potentially reveal about grammaticality system of learners" (p. 172). Another reason in applying this test was that it has been widely used by researchers (e.g., Liceras, 1989; White, 1985). This task comprised 25 items, including 5 distracters, and learners were assigned 25 minutes to complete the task through assigning (√) for grammatically correct, (X) for grammatically incorrect, and (?) for unsure situations. The ungrammatical sentences in English were grammatical in Persian. The procedure of scoring the task was marking sentences in binary form (0, 1). Wrong responses and uncertainty over options were marked by 0, and right answers were marked 1. Since the same task was administered to all three levels, vocabulary needed to be controlled to avoid lexical items

unfamiliar to less proficient learners, and sometimes in order to avoid complex structures, sentences were selected as simple as possible.

In order to compensate for any deficiency in the grammaticality judgment task, the translation task was assigned. According to Phinney (1987), this test provides additional windows into learner competence. Participants were asked to translate 20 sentences with simple and complex structures that possessed null subject properties. The procedure of scoring was 1 for targeted translation and 0 for incorrect translation or mirror translation (word for word).

DATA ANALYSIS

In order to determine whether there is a significant difference between responses made by learners of various proficiency levels, one-way ANOVA was applied twice, first for the grammaticality judgment and then for the translation task. A post-hoc Sheffe test was also performed to highlight where the difference existed for each variable in each task.

After collecting the data, the early step used in analyzing data was organizing the numerical values in term of mean scores. The bar graphs present a clear picture of the two tasks. The mean scores display the competition of 90 Persian L2 learners in performing on the two tasks. Bars are indicative of the change in the learners' performance. As it is evident, there is fluctuation in the performance of Persian L2 learners on different variables of null subject parameter (null subject, null expletive, post-verbal, and that-trace).

Figure 1: Grammaticality Judgment Task

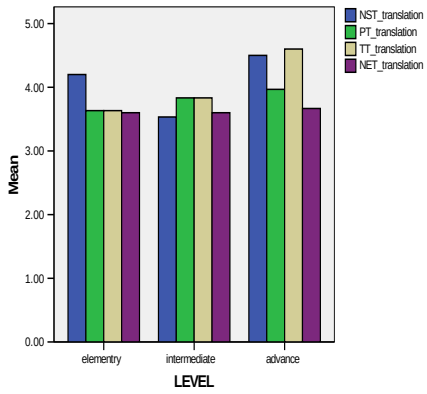
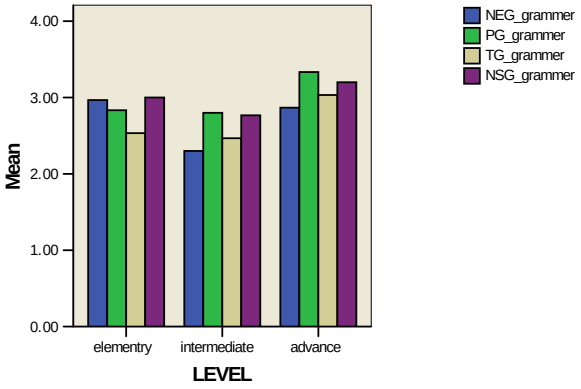
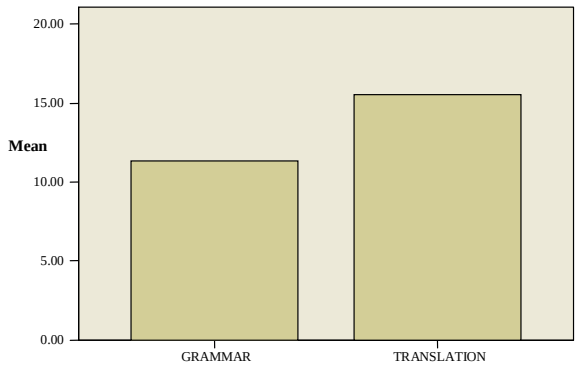


Figure 2: Translation Test



Analysis of figures 1 and 2 revealed that all learner groups failed to perform consistently across the task types (grammaticality judgment and translation test), and their performance varied from one task to another. For the sake of simplicity, the two tests are represented in the figure below:

Figure 3: Total Comparison of the Two Tasks



Persian L2 learners were significantly better on translation (n = 90, m = 15.5333, SD = 2.58431) than the grammaticality judgment task (n = 90, m = 11.3667, SD = 3.58351). The results of paired sample *t* test revealed significant differences between the performances of L2 learners across the two tasks (df: 89, m = - 4.16667, SD = 3.81, P < .000). Banka (2006) proposed two reasons for such findings: (1) students are more familiar with translation task

because it is frequently in the classroom; (2) students are poor on grammaticality judgment because it requires the use of more complex metalinguistic skills (p. 189). To elaborate on the subjects' performance regarding null subject properties, the results of running one-way ANOVA on each variable in each task are presented below.

Grammaticality Judgment Task (Test Code 1)

One-way ANOVA was run on the three level means of the null subject variable. The post-hoc result for a between-group yielded consistent effect in all levels (F (2, 12 = .540, P < 596). A visual inspection of test code 1 indicated that the differences were not significant for the three levels. In other words, the three proficiency levels were sensitive to null subject and performed consistently across sentences with overt pronoun.

Table 1

One-Way ANOVA for the Group Preferences on Null Subject (Test Code 1)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.933	2	8.467	.540	.596
Within Groups	188.000	12	15.667		
Total	204.933	14			

Table 2

Post-hoc Sheffe Test on Null Subject (Test Code 1)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	1.40000	2.50333	.586	-4.0543	6.8543
	3.00	-1.20000	2.50333	.640	-6.6543	4.2543
2.00	1.00	-1.40000	2.50333	.586	-6.8543	4.0543
	3.00	-2.60000	2.50333	.319	-8.0543	2.8543
3.00	1.00	1.20000	2.50333	.640	-4.2543	6.6543
	2.00	2.60000	2.50333	.319	-2.8543	8.0543

In order to determine the performance of Persian L2 learners on the null expletive in English, one-way ANOVA and Scheffe tests were performed on the mean values of three

level groups. Results indicated that the differences between the performances of the three levels of language learners in the use of the null expletive were not statistically significant (F (2, 12) = 1.601, P < .242). In general, the lowest proficiency English learners were better than intermediate ones in rejecting ungrammatically targeted sentences with null expletive. Table 3 displays the results of analysis of performance of the different proficiency groups on the null expletive.

Table 3

One-Way ANOVA for the Group Preferences for Null Expletive (Test code 1)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	46.533	2	23.267	1.601	.242
Within Groups	174.400	12	14.533		
Total	220.933	14			

Table 4

Results of Post-hoc Sheffe Test on Null Expletive (Test Code 1)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	4.00000	2.41109	.123	-1.2533	9.2533
	3.00	.60000	2.41109	.808	-4.6533	5.8533
2.00	1.00	-4.00000	2.41109	.123	-9.2533	1.2533
	3.00	-3.40000	2.41109	.184	-8.6533	1.8533
3.00	1.00	-.60000	2.41109	.808	-.5.8533	4.6533
	2.00	3.40000	2.41109	.184	-1.8533	8.6533

As shown in Table 5, the difference across the groups for the post-verbal was statistically significant (F (2, 12) = 2.709, P < .107). The result of Scheffe test revealed that higher-level learners (n: 30, m = 3.2000, SD = 1.34933) exhibited significantly higher competency on recognition of the ungrammatical sentences with inverted subject than lower and middle levels, i.e., the lower-level learners showed deficits with post and pre-verbal alternations in English structures.

Table 5

One-Way ANOVA for the Group Preferences for Post-Verbal (Test Code 1)

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	67.733	2	33.867	2.709	.107
Within Groups	150.000	12	12.500		
Total	217.733	14			

Table 6

Results of Post-hoc Scheffe Test on Post-Verbal (Test Code 1)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-2.40000	2.23607	.304	-7.2720	2.4720
	3.00	*-5.20000*	2.23607	.038	-10.0720	-.3280
2.00	1.00	2.40000	2.23607	.304	-2.4720	7.2720
	3.00	-2.80000	2.23607	.234	-7.6720	2.0720
3.00	1.00	*5.20000*	2.23607	.038	.3280	10.0720
	2.00	2.80000	2.23607	.234	-2.0720	7.6720

The mean difference is significant at the .05 level

Intra-group comparison of the groups yielded greater variation in performance on that-trace effect ($F (2, 12) = 1.216$, $P < .009$). Scheffe test showed that higher-level learners ($n = 30$, $m = 3.7700$, $SD = 1.1350$) performed significantly better at recognizing ungrammaticality of that-trace in English constructions than middle levels. The results confirmed the growth of the acquisition of that-trace, and that lower learners were less able than more advanced learners to take their grammatical information into account in judging over English constructions with complementizers filled or deleted.

Table 7

One-Way ANOVA for the Group Preferences on That-Trace (Test Code 1)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34.533	2	17.267	1.216	.009
Within Groups	170.400	12	14.200		
Total	204.933	14			

Table 8

Post-hoc Scheffe Test on Post-Verbal (Test Code 1)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	.40000	2.38328	.017	-4.7927	5.5927
	3.00	-3.00000	2.38328	.006	-8.1927	2.1927
2.00	1.00	-.40000	2.38328	.017	-5.5927	4.7927
	3.00	-3.40000	2.38328	.001	-8.5927	1.7927
3.00	1.00	3.00000	2.38328	.006	-2.1927	8.1927
	2.00	3.40000	2.38328	.001	-1.7927	8.5927

* The mean difference is significant at the .05 level.

The statistical analysis demonstrated that there were no striking differences between the groups in bringing overt subject into use for all three levels. In other words, post-hoc Scheffe test analysis failed to determine any significant difference between the groups. The results of Scheffe test are presented in the Table 10.

Table 9

One-Way ANOVA for the Group Preferences for Null Subject (Test Code 2)

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	532800.5	2	266400.267	1.001	.396
Within Groups	3193674	12	266139.533		
Total	3726475	14			

Table 10

Results of Post-hoc Scheffe Test on Null Subject (Test Code 2)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	400.00000	326.2757	.244	-310.8936	1110.8936
	3.00	399.60000	326.2757	.244	-311.2936	1110.4936
2.00	1.00	-400.00000	326.2757	.244	-1110.8936	310.8936
	3.00	-.40000	326.2757	.999	-711.2936	710.4936
3.00	1.00	-399.60000	326.2757	.244	-1110.4936	311.2936
	2.00	.40000	326.2757	.999	-710.4936	711.2936

The mean accuracy of the groups differed on test code 2. On the other hand, within group analysis of the null expletive variable revealed that there was a significant difference between middle (n = 30, m = 4.2000, SD = .71438), and higher (n = 30, m = 4.5000, SD = .82001) levels in the use of the null expletive. The lower level group had the lowest mean score. Note the following tables.

Table 11

One-Way ANOVA for the Group Preferences for Null Expletive (Test Code 2)

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	88.133	2	44.067	3.046	.002
Within Groups	173.600	12	14.467		
Total	261.733	12			

Table 12

Post-hoc Scheffe Test on Null Expletive (Test Code 2)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	4.00000	2.40555	.122	-1.2412	9.2412
	3.00	-1.80000	2.40555	.469	-7.0412	3.4412
2.00	1.00	-4.00000	2.40555	.122	-9.2412	1.2412
	3.00	*-5.80000*	2.40555	.018	-11.0412	-.5588
3.00	1.00	1.80000	2.40555	.469	-3.4412	7.0412
	2.00	*5.80000*	2.40555	.018	.5588	11.0412

One-way ANOVA was run on mean values of the post-verbal. The results were not significant for this variable as the groups' preference for the post-verbal was equal. The results of post-hoc Scheffe test on test code 2 also revealed marginal differences across proficiency levels (F (2, 12) = .849, P < .452). However, based on mean values, the less proficient learners-lower and middle-level learners did not clearly distinguish between post and pre-verbal word order while higher level learners were more aware of ungrammaticality of this construction in English. Results are depicted in the following tables.

Table 13

One-Way ANOVA for the Group Preferences for Post-Verbal (Test Code 2)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10.133	2	5.067	.849	.452
Within Groups	71.600	12	5.967		
Total	81.733	14			

Table 14

Post-hoc Scheffe Test on Post-Verbal (Test Code 2)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-1.20000	1.54488	.452	-4.5660	2.1660
	3.00	-2.00000	1.54488	.220	-5.3660	1.3660
2.00	1.00	1.20000	1.54488	.452	-2.1660	4.5660
	3.00	-.80000	1.54488	.614	-4.1660	2.5660
3.00	1.00	2.00000	1.54488	.220	-1.3660	5.3660
	2.00	.80000	1.54488	.614	-2.5660	4.1660

The difference across the groups was significant for that-trace in test code 2. The post-hoc Scheffe (Table 16) test suggested that higher- level (n = 30, m = 4.6000, SD = .62146) learners outperformed lower and middle groups on that-trace**.** This might indicate that some 'that-trace' appeared as early as lower levels, and noticeably disappeared at higher

levels. This is indicative of learners' improvement on the use of this complex structure.

Table 15

One-Way ANOVA for the Group Preferences for That-Trace (Test Code 2)

	Sum of Squares	df	Mean Square	F	Sig.
Between groups	93.733	2	46.867	10.043	.003
Within Groups	56.000	12	4.667		
Total	149.73	14			

Table 16

Post-hoc Scheffe Test on That-Trace (Test Code 2)

(1)Level	(J)Level	Mean Difference(I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	-1.20000	1.36626	.397	-4.1768	1.7768
	3.00	*-5.80000*	1.36626	.001	-8.7768	-2.822
2.00	1.00	1.20000	1.36626	.397	-1.7768	4.1768
	3.00	*-4.60000*	1.36626	.006	-7.5768	-1.6232
3.00	1.00	*5.80000*	1.36626	.001	2.8232	8.77
	2.00	*4.60000*	1.36626	.006	1.6232	7.578

The mean difference is significant at the .05 level.

To recap, comparisons are worth mentioning here: lower proficiency Persian L2 learners were significantly less accurate in recognizing the ungrammaticality of inverted subject and the that-trace effect in English constructions, while they were more successful than middle-level learners at rejecting the ungrammaticality of null subject and null expletive. Additionally, one-way ANOVA did not show significant differences in null subject and null expletive, but it revealed significant differences in that-trace effect and post-verbal in test code1 (grammaticality judgment task). Regarding test code 2 (translation test), different results were achieved, indicating the varied preference of learners on the null expletive and that-trace effect, while their performance was similar on the post-verbal and null subject.

DISCUSSION

According to McLaughlin (1987), as learning progresses, internal representation changes, and must be restructured. Like any other cognitive skills, most researchers agree that developmental order exists in restructuring SLA, e.g., certain parameter values are acquired before others. This means that the null subject properties under investigation do not seem to be acquired simultaneously. In the following, the existing data was compared to present an overall view on the performance of the three level codes (elementary, intermediate, and advanced levels) based on the percentages and average scores with the aim of highlighting some rather fundamental differences on performing on the null subject proprieties firstly in grammaticality judgment then in translation tasks. The total percentages of raw scores are tabulated as follows:

Table 17

Total Percentage of Correct Responses in Two Test Codes

Level codes	Test code 1	Test code 2
Elementary level	50.75%	66%
Intermediate level	57.65%	78%
Advanced level	68.5%	83.25%

The percentages in the above table display the overall accuracy of learners' performance on the two tasks that allow for a more precise picture of interlanguage development. The case is more revealing by proving dominancy order of null subject properties of the tests.

Figure 4

Ranking of Variables in Test Code 1 According to the Percentages of Correct Responses

Elementary level: *Null subject > null expletive > post-verbal > that-trace*
Intermediate level: *Post-verbal > null subject > null expletive > that-trace*
Advanced level: *Null subject > that trace > post-verbal > null expletive*

As seen in Figure 4, at all levels dominancy order shows changes or fluctuations in strength of parameter resetting. For example, null subject was in dominance condition by the elementary level in test code 1 while post-verbal took this position by the intermediate level. Such dominancy order continues until L2 learners reach a plateau condition.

Figure 5: Ranking of Variables in Code 2 According to Percentages of Correct Responses.

Elementary level: *Null expletive > null subject > post-verbal > that trace*
Intermediate level: *Null expletive > post-verbal > null subject > that trace*
Advanced level: *That trace> null expletive > null subject > post-verbal*

Rankings of variables in test code 2 are in accordance with implicational hierarchy of Liceras (1989). For Liceras, null subject surfaces earlier than post-verbal, and post-verbal

appears earlier than that-trace. Such findings (results of the two tasks) give rise to two important interpretations. On the one hand, the results of statistical analysis revealed significant differences across levels of proficiency; it was shown that increasing proficiency causes improved performance on the pro-drop parameter. This means that upper level participants responded significantly better to pro-drop items in both tasks. On the other hand, it reveals that some variables are not salient to detect; null subject and post-verbal appear earlier than that-trace and null expletive.

In view of parameter resetting, we compared the average score of correct responses over variables firstly on the grammaticality judgment task (test code 1) then on translation test (test code 2). The two tasks consist of items differing in subject condition. For ease of presentation, the research questions will be discussed as follows.

1. Can Persian L2 learners of English acquire the parameter value of obligatory subject in English simple and complex sentences?

Null subject

Persian as a pro-drop language has the [+strong] Agr parameter value. The resulting AgrP gets its content from agreement affix in Agr. In this case, Spec AgrP may remain empty which accounts for sentences with missing or post-verbal subject. It is expected that Persian L2 learners may have problems with overt pronouns because they are not necessary for the purpose of identification.

Null subject items in test code 1 were presented in simple (items 9, 15, 20) and complex (items 21, 4) constructions. The following table shows the results.

Table 18

Percentage of Null Subject for Test Code 1: By Item and Proficiency Group

Test Items	1	2	3
9	66%	50%	70%
15	50%	66%	70%
20	66%	66%	69%
21	50%	66%	73%
4	40%	63%	66%
Avg.	56.4%	64.4%	68%

1 = lower, 2 = middle, 3 = higher

As table 18 shows, the presupposition of high variation across levels in performing on null subject was not borne out by the results. Based on the frequency counts of raw scores, even the lower level (56.4%) registered a strong preference on null subject in English simple constructions. Of interest in test items is the observation of lower percentage of correct responses for item 9 (simple sentences) on middle level (50%), than the lower level (66%), while the higher level (70%) performance was at the highest rate. For item 20, lower learners (66%) performed like the advanced level (66%).

Item 9: Mary is clever. Can learn this lesson on her own.

Item 20: Know John quite well, we have been friends for years.

In response to items 21 and 4 (complex sentences), elementary learners had significantly lower recognition of ungrammaticality of null subject than the other two levels, perhaps because of optional presence of subject pronoun in subject position in Persian constructions. In fact, transfer of first language induces interference and blocking recognition of proper subject condition.

Item 21: You had better take her advice because ø is very intelligent.

Item 4: Has hurt his foot because he kicked the ball.

As evident in the examples above, the empty subject pronouns appear in subordinate (item 21) and in main clauses (item 4). These items were selected less frequently as ungrammatical by the lower levels (50% and 40% respectively), but the success rate was

accounted for middle (66% and 63%) and higher levels (66% and 73%). This attests to a developmental order in detecting the ungrammaticality of this variable in Persian constructions.

In test code 2 participants progressively moved toward translating simple and complex items containing null subject into grammatical English constructions with overt pronouns except for one item. Table 19 illustrates the percentage of null subject in test code two.

Table 19

Percentage of Null Subject for Test Code 2: By Item and Proficiency Group

Test Items	1	2	3
1	90%	93%	96%
4	85%	86%	90%
5	83%	53%	88.6%
6	76%	83%	86%
18	63%	83%	93%
Avg.	78.8%	78.6%	88.6%

Data analysis revealed sharp transition in the performance of the middle level (53%) in deleting the null subject for item 5 compared to the lower (83%), and higher levels (83%). This was completely opposite to that which the researchers had expected.

Item 5: /ø ghabl as inke biron beravand, darha ra bastand/.

They closed the door before (they) went out.

Ungrammaticality in item (5) is due to the detected subject by incorporating the overt subject *they* after *before*, ungrammaticality of the item in English was avoided. A potential explanation is that higher-level learners are concerned more with complex structures, while the acquisition of simple sentences is the concern of the lower level. As a result, simple sentences are more likely to be ignored by advanced levels. In other words, null subject is acquired superficially at elementary level, but these learners are unable to reset the parameter until they move to the advanced level. Agreement features appear to be learned in discrete

stages, and learners gradually assimilate the L2 complex grammatical system.

Null expletive

Non pro-drop languages like English always require the expletive atmospheric pronoun 'it' (pleonastic) in the position of weather verb, while Persian leaves such a pronoun unexpressed. In this study two types of expletives were used: (1) type one was expletive in weather predicate sentences, and (2) type two was expletive in raising predicate sentences. The researchers had theorized that L2 learners have difficulty in acquisition of overt expletive because this variable does not need to be identified in Persian constructions.

Table 20

Percentage of Null Expletive for Test Code 1: By Item and Proficiency Group

Test Items	1	2	3
2	83%	73%	63%
7	66%	66%	56%
8	43%	63%	73%
13	63%	50%	53%
17	43%	70%	76%
avg.	56.6%	64.4%	60.2%

Interesting findings emerged as shown in the above table. Based on the findings, the average score for rejecting the ungrammaticality of the null expletive in English was relatively higher with the middle (64.4%) than higher level (64.2%), but the differences were less dramatic and could be attributed to other factors such as insufficient mastery of Persian L2 learners in assigning overt pronouns, and because of transfer of colloqoial Persian into English, for instance:

7. English: It is cold.
Colloquial Persian: /ø sarde/ (ø cold is)

This is more evident for item 7. Where the lower level (66%) was as accurate as middle (66%) level learners in rejecting ungrammatical sentences, while the higher level was less successful in detecting such constructions (56%).

Item 7: Not cold outside today.

The same results were also achieved for items 2 and 13. These items were preferred at a higher frequency rate by lower proficiency learners (83% and 63% respectively) compared to the higher (63% and 53% respectively) level learners.

Item 2: Hurry up. Is getting late.

Item 13: John left the party too early. Appears he did not like it.

Contradictory results were obtained from frequency counts on items 8 and 17. In these items, lower-level learners were less successful than middle-level (63% and 70%) learners in taking grammatical information into account during sentence processing. This may be due to the absence of relevant triggering data of the null expletive which are inaccessible to the language learners at the early stage of L2.

Item 8: Seems that Marry is fond of John.

Item 17: Is fun to watch children play.

In test code 2, higher-level learners of English used null expletive 74.2% of the times for rendering Persian sentences vis-à-vis the lower-level ones whose preference for this variable was 44.8% of the time.

Table 21

Percentage of Null Expletive for Test Code 2: By Item and Proficiency Group

Test Items	1	2	3
10	43%	70%	80%
11	76%	83%	83%
13	46%	83%	76%
14	56%	86%	76%
16	43%	43%	56%
Avg.	44.8%	73%	74.2%

The researchers had theorized that where L2 differs from L1 in terms of parametric values, there would be transfer error, at least at the early stages of L2 learning. This did not prove true at lower level (44.8%). This is more in line with avoidance strategy in order to

compensate for an empty category such as pro-drop.

7. Persian: Hava sard ast. (The weather is cold)

↓↑

English: It is cold.

8. Persian: Entezar miravad ke anha zood bargardand. (They were expected to come back soon.)

↓↑

English: It is expected that they come back soon.

The results of the two tasks revealed a contradiction regarding the null expletive. The source of such contradiction is better accounted for by the 'cue-driven approach' (MacWhinney, 2001, p. 54). According to this approach, L2 learners use cues to process input around them. Those cues that are generally most available (phonetically salient, frequent, and present) and most reliable (lead to a consistent interpretation) will win out over cues that are less available and reliable. If language learners are assumed to innately know that English tends to use the expletive subject then the pleonastic subject will set upon noticing the input (Lafond, 2003).

Post-verbal

The post-verbal subject is derived by optional movement rules. The subject is moved from D-structure, adjoining to the right of verbal phrase. The post-verbal is infelicitous in English and free in Persian. So transfer effects of the L1 are predicted by early L2 learners resulting in higher acceptance of inverted subject as a grammatical construction in English. The results of test code 1 are depicted in Table 22.

Table 22

Percentage Post-Verbal for Test Code 1: By Item and Proficiency Group

Test Code 2	1	2	3
3	40%	93%	86%
6	70%	73%	80%
10	60%	53%	83%
14	40%	43%	70%
18	40%	50%	63%
Avg.	50%	62.4%	76.4%

A review of Table 22 revealed that there is a significant difference between elementary and advanced levels in performing on the post-verbal. As it were, lower-level learners differed from higher-level learners by detecting ungrammaticality only 50% of the time, while higher learners usually selected the post-verbal as an ungrammatical construction over 76% of the time. In other words, beginners react more against the pre-verbal position in English constructions. Thus it takes time for them to assimilate this structure, but a progressive path was seen toward recognizing ungrammaticality of the post-verbal in English. The results of translation test for items with the post-verbal were promising and most items were translated into English with the subject in sentence initial position.

Table 23

Percentage Post Verbal for Test Code 2: By Item and Proficiency Group

Test Items	1	2	3
2	76%	93%	90%
7	63%	80%	86%
12	90%	76%	90%
15	80%	83%	93%
20	66%	60%	66%
Avg.	75%	75.4%	85%

As Table 23 shows, most participants were relatively at the same level of competency in rejecting the post-verbal position, and piece meal progression was observed in lower, middle, and higher-levels in the recognition of such an ungrammatical construction in

English. In this test, mirror translation was done as often as not by middle and higher levels referred to as below:

Item 12: neshast rooye gol zanboor
/Sat on the flower bee/

Mirror translation is mirror transfer of L1 grammatical properties, and it is postulated that some participants continue to accept null subject. Such errors are less frequent (less than 5%) and so ignorable in the process of parameter resetting in this study. In general, the average scores at each level indicated that participants progressed gradually toward constructing target like sentences. It seems that proficiency has contributed to prolonged retention of L2 structures.

That-trace

When the subject of the embedded clause is extracted from the major sentence, the complementizer *that* cannot immediately be followed by a trace, which is referred to as that-trace effect. The that-trace percentage of scores with complementizer position filled was calculated to see whether participants performed competently on the recognition of that-trace or not. The results of item testing for test code 1 are presented in Table 24, which provides the raw percentages of respondents' choice of that-trace on each item by proficiency group.

Table 24

Percentage That Trace for Test Code 1: By Item and Proficiency Group

Test Items	1	2	3
25	50%	53%	83%
19	46%	40%	63%
16	33%	60%	83%
11	40%	40%	66%
5	50%	43%	66%
Avg.	35.8%	47.2%	72.2%

Based on the above findings, significant variation in the performance of all levels was seen on this variable, and neither lower nor middle-level learners was adept at recognizing that-trace violation. Item 11 registered differences between lower (40%) and middle-level participants as compared to higher-level learners.

Item 11: Who is the man who asked the question?

Participants at advanced levels detected ungrammaticality of that-trace for items 16 and 25 at the same rate in contrast to lower-level learners who selected it less frequently.

Item 16: Who do you believe that will come on time?

Item 25: Brian knows that had to do the shopping.

The results for items 19 and 5 were less clear since no perceptible difference could be observed between lower and middle-level groups, but then higher-level learners performed significantly better.

Item 5: Who do you think that will visit?

Item 19: Who do you guess that will be the next president.

As shown in Table 24, the middle-level gives ground to lower and higher levels. This once again attested to the trace of overgeneralization, as it was observed in the middle-level learners' performances regarding the null subject property. It was also revealed that that-trace is considered as a complicated case for participants, mostly because (1) relative clause has complex constructions and is difficult to process; (2) relative clause is rare in input and occurs between once in every 100 words in English across all registers, and once in every 250 words in conversation (Mellow, 2006). The results of the translation test confirm the presupposition that Persian L2 learners do not recognize the necessity of the complementizer in certain conditions.

Table 25

Percentage of Choice of That Trace for Test Code 2: By Item and Proficiency Group

Test Items	1	2	3
5	46%	90%	90%
9	66%	86%	93%
17	73%	90%	83%
19	40%	66%	73%
3	53%	93%	86%
Avg.	55.8%	85%	85%

Table 25 shows significant differences across the three levels. It reveals that participants are in a process of matching target language and acquisition of that-trace. The results of these findings are in accord with Lafond (2003) who made a distinction between initial acceptance and correct use. Lafond (2003) in the explanation of why that-trace surfaced later than the null subject suggested that that-trace is disallowed in early stage of language acquisition because of not acquiring the null subject until that time. Lafond seems to believe in a one to one correspondence between acquisition of the null subject and that-trace.

Overall, the most rewarding outcomes of parameter resetting which can be drawn from the findings show that it most likely is governed by inflectional features and those L2 learners evolve gradually, and in discrete and transitional phases of development, especially during the early stages of L2 learning. As L2 functional features are not accessible to L2 learners, L1 features are imposed on L2 giving rise to the transfer error, so the developmental path taken by Persian L2 learners is deviated to non-linearity. However, results do not support the resetting of null subject properties which confirms the non-availability of UG in SLA and parameter unresetting.

CONCLUSION

Null subject is superficially reset at the early stage of L2 learning as if the dynamics of the parameter resetting may go through non-linearity and some transitions at intermediate levels. This period is followed by a gradual and piece-meal approximation of the target language. It is worth looking at Smith's (1983) three stages in the evolution of attrition with respect to the competence / performance distinctions to clear the case:

Stage 1. The first stage is characterized by deviation in performance while competence remains stable.

Stage 2. In the second transitional stage, the learner is in the possession of a new externally conditioned variety of his / her language but is able to switch back to standard versions of the language when the appropriate circumstances require it.

Stage 3. This stage is characterized by the advent of new and modified competence and restructured linguistic systems are observed.

The findings seem to match Smith's three stages, i.e., languages cannot, at least within short periods, replace each other. Conceivably, the interplay of different factors is necessary to generate languages. So UG is not the sole case for resetting of L2 parameters, and L2 parameters are only partially reset by Persian English Learners.

As stated earlier, one of the results of this study is that Persian L2 learners approached the acquisition of the null subject parameter resetting in a non-linear developmental path. The trace of deviation from this path has been mostly in grammaticality judgment. According to Ke and Holland (2006), non-linearity has two important implications in language learning.

(1) In order to understand how learning progresses, special attention must be paid to capturing such abrupt transitions and finding out if there are particular conditions or prompts that trigger such transition.

(2) Plateau periods are expected and therefore language teachers should provide continuing support to learners even at times when there seems to be no significant progress.

Enhancing learners' proficiency as a deliberate effort is another important goal in EFL classroom. Students should be competent enough to become aware of their grammatical deficiencies and weaknesses in order to cope with them and gradually improve.

Appendix A

Grammaticality Judgment Task

Decide on the apporpriacy of the following sentences. Use (√) for right (X) for wrong and (?) if you are not sure.

1. In my country, children usually stop living with their parents when they get married.

2. Hurry up. Is getting late.

3. Decide to rest, the boys.

4. Has hurt his foot because he kicked the ball hard.

5. Who do you think that will visit?

6. Advised the students, the teacher.

7. Not cold outside today.

8. Seems that Marry is found of John

9. Mary is clever. Can learn this lesson on her own.

10. In Iowa was born Laura.

11. Who is the man who asked the question?

12. I told Marry that was messy yesterday, and she promised to pick her room up.

13. John left the party too early. Appears didn't like it.

14. Arises from hot water, steam.

15. Can see him, I think he is hidden somewhere.

16. Who do you believe that will come on time?

17. Is fun to watch children play?

18. Are flying to New York, the Smiths.

19. Who do you guess that will be the next president?

20. Know John quite well. We have been friends for years.

21. You had better take her advice because is very intelligent.

22. We are looking forward to the day when our national team wins the Olympic gold.

23. He is very strong. Even in winter he doesn't wear an overcoat.

24. Who is the man who asked the question?

25. Brain knew that had to do the shopping.

Appendix B

Translate these sentences into English.

1. فردا به کتابخانه می روم.

2. از هوای گرم خسته بود مریم.

3. ایا گفت که چه موقع از سفر بر می گردد؟

4. علی به مدرسه نرفت چون مریض بود.

5. قبل از اینکه بیرون بروند درها را بستند.

6. نسترن فکر می کند که می تواند رانندگی یاد بگیرد.

7.سبد ش پربود از میوه مریم.

8 . اگر مریم پول پس انداز کند ماه آینده ماشین نو می خرد

9. نمی دانم کجا او را ملاقات کردم.

10. ساعت هفت هوا تاریک می شود.

11. هوا سرد است و تاریک به نظر می رسد که علی دیر کرده است.

12. نشست روی گل زنبور.

13. این یک منظره ی بسیار زیباست که علی تمام روز به تماشای ان می نشیند.

14. امروز باران می بارد.

15. دارد به خانه می رود افسانه.

16. انتظار می رود که آنها زود بر گردند.

17.علی فکر می کند که حسین چه کسی را ملاقات خواهد کرد.

18. هنوز به مدرسه نرسیده بود که زنگ به صدا در آمد.

19. نمی دانم که او کی به خانه رفت.

20.به دانشگاه اصفهان می رود شهلا.

REFERENCES

Banka, I. F. (2006). Resetting the null subject parameter by Hungarian learners of English. In M. Nikolo & J. Horvath (Eds.), *Empirical studied in English applied linguistics* (pp.179-195). Pecs: Lingua Franca Csoport.

Bley-Veroman, R. (1989).What is the logical problem of language learning? In S. Gass, J. Schachter (Eds.), *Linguistic perspective on second language acquisition* (pp. 41-68). Cambridge: Cambridge University Press.

Chomsky, N. (1995). *Minimalist program*. Massachusetts: MIT Press.

Clahsen, H., & Muysken, P. (1986). The accessibility of Universal Grammar to adult and child learners: A study of the acquisition of German word order. *Second Language Research, 2*, 93-119.

Epstein, S., Flynn, S., & Marthohardjono, G.(1996). Second language behavioral acquisition: Theoretical and experimental issues in contemporary research, *Brain and Behavioral Science, 19*, 677-714.

Fowler, W. S., & Coe, N. (1976). *Nelson English language tests: Book three advanced*. Ontario: Thomas Nelson and Sons Ltd.

Hawkins, R. (2001). *Second language syntax: A generative introduction*. Oxford: Blackwell.

Hyams, N. (1986). *Language acquisition and theory of parameters*. Dordrecht, Holland: Reidel.

Jaeggli, O., & Safir, K. J. (1989). The null subject parameter and parametric theory. In O. Jaeggli & K. J. Safir (Eds.). *The null subject parameter* (pp. 1-44). Dordrecht, Holland: Kluwert.

Ke, J., & Holand, J. H. (2006). Language origin from an emergenist perspective. *Applied Linguistics, 23*(4), 691-716.

Lakshmanan, U. (1994). *Universal grammar in child second language acquisition: Null subject in morphological uniformity*. Amsterdam: John Benjamins.

Lafond, L. (2003). Putting the pieces together: Second language learning of null subjects, inversion, and that trace. In J. M. Liceras, (Ed.) *Proceedings of 6th generative approaches to second language acquisition conference(GASLA*)(pp.168-175). Somerville, MA: Cascadilla proceedings project.

Lenneberg, E. H. (1967). *Biological functions of language.* New York: Wiley.

Liceras, J. (1989). On some properties of the prop-drop parameter: Looking for missing subjects in non-native Spanish. In S. Gass & J. Schachter (Eds.), *Linguistic perspective on second langage acquisition* (pp. 109-133), Cambridge: Cambridge University Press.

MacWhinney, B. (2001). The competition model: The input, the context, and the brain. In P. Robinson, (Ed.), *Cognition and second language instruction* (pp. 69-90). Cambridge: Cambridge University Press.

McLaughlin, B. (1987). *Theories of second language learning*. London: Arnold Publishers.

Mellow, J. D. (2006). The Emergence of second language syntax: A case study of the acquisition of relative clause. *Applied Linguistics, 27*(4), 645-670.

Phinney, M. (1987). The pro-drop parameter in second language acquisition. In T. Roper, & E. Williams (Eds.). *Parameter setting* (pp. 221-38). Dordrecht, Holland: Reidel.

Rizzi, L. (1986). Null objects in Italian and the theory of pro. *Linguistic Inquiry, 19,* 503-

511.

Schachter, J. (1989).Testing a proposed. In S. Gass & J. Schachter (Eds.). *Universal linguistic perspectives on second language acquisition* (pp.73-88). Cambridge: Cambridge University Press.

Schwartz, D. B., & Sprouse, R. A. (1996). L2 cognitive states and the full transfer/full access model. *Second Language Research, 12*(1), 40-70.

Sharwood-Smith, M. A. (1983). On first language loss in the second language acquirers: Problems of transfer. In S. Gass, & L. Selinker (Eds.), *Language transfer in language learning* (pp. 222-231). Rowley, MA: Newbury House.

Tesar, B., &, Smolensky, P. (2000). *Learnability in optimality theory*. Cambridge, MA: MIT Press.

Tsimpli, I. M., & Rousou, A. (1991). Parameter resetting in L2? *Working Papers in Second Language Acquisition, 3*,149-69.

White, L. (1985). The pro-drop parameter in adult second language acquisition. *Language Learning, 35*, 47-62.

Yuan, B. P. (1997) 'Asymmetry of null subjects and null objects in Chinese speakers' L2 English'. *Studies in Second Language Acquisition, 19*, 467-497.