

# The Availability of Universal Grammar to Second Language Learners: A Case of Wh-movement

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## Abstract

In this experimental study, the researcher examined the accessibility of Universal Grammar to adult Persian learners of English with respect to the Empty Category Principle and the Subjacency. These principles are not operative in Persian as it is a Wh-in situ language. A 5-point Likert scale acceptability judgment task, which included both grammatical and ungrammatical extractions, was given to a group of 35 advanced Iranian EFL learners. The control group consisted of 30 adult native speakers of English. Their responses provided the baseline against which we measured the performance of non-native speakers.

The categorical performance of natives and non-natives on both types of grammatical and ungrammatical extractions was revealed through within-group comparisons. Similarly, between-group comparisons displayed that the performance of Iranian EFL learners did not differ significantly from that of the natives in the ungrammatical constructions. In general, the findings of this study led the researcher to conclude that Universal Grammar constrains adult EFL learners' competence.

**Keywords:** universal grammar, SLA, the empty category principle, the subjacency

## 1. Introduction

In first language acquisition (FLA), it is widely believed that the primary linguistic data (PLD) (i.e., the input to which a child is exposed) underdetermines the final state grammar the child acquires. Universal Grammar (UG) is assumed as an account of the mismatch between the input and the output. In other words, children's mental representation goes beyond the input they receive. This is known as the 'poverty of the stimulus' (POS) or the logical problem of language acquisition.

Assuming this logical problem for FLA, thus motivating UG, some scholars have wondered whether the same proposal can be held for second language acquisition (SLA) (Bley-Vroman, 1989; Schwartz & Sprouse, 2000; White, 2003). Felix (1988) briefly formulated the argument as follows:

"given that the process of L1 acquisition is heavily guided and controlled by a task-specific cognitive module called the language faculty (or UG), is it the case that also L2 learners use the same module to acquire the formal properties of the language they are exposed to, or do L2 learners use a different module (or several different modules) to accomplish essentially the same task?"(p.287)

In this regard, White (2003) summarizes how researchers have sought out genuine poverty of the stimulus cases in which both of the following hold:

"1. The phenomenon in question is underdetermined by the L2 input. That is, it must not be something that could have been acquired by simple observation of the L2 input, as an effect of input frequency, or on the basis of instruction, analogical reasoning, etc.

2. The phenomenon in question works differently in the L1 and the L2. If L2 learners show evidence of subtle and abstract knowledge, we want to exclude the possibility that such knowledge is obtained solely via the L1 grammar" (p. 23).

Considering these conditions, many L2 researchers frequently and extensively examine the availability of the UG principles that constrains wh-movement like the Subjacency and the ECP. Languages like English move the

*wh*-element to form a *wh*-interrogative, but in certain conditions the movement is not allowed. Native speakers of English know the constraints of *wh*-movement unconsciously without benefit of evidence in the PLD, so it is widely believed there must be principles of UG which constrain the *wh*-movement. But in languages like Persian, there is no *wh*-movement; instead, *wh*-element remains in situ.

Since the constraints on *wh*-movement in English are not instantiated in Persian, and evidence for the constraints is not reasonably provided to second language (L2) learners of English, we can explore Persian learners' acquisition of *wh*-questions in English to investigate whether UG is involved in SLA. If Persian learners display knowledge of the constraints, they must have constructed grammars which comply with principles of UG because neither in their L1 nor in their L2 can they find evidence for the constraints.

## 2. The Subjacency and the ECP in English

English (and many other languages such as German), in contrast to Persian (and many other languages such as Chinese) utilizes overt fronting of *wh*-constituents to form *wh*-questions. In this scheme, the *wh*-constituent is base-merged in its argument position and then undergoes  $\bar{A}$ -movement to Spec-CP (along with Subject-Aux inversion). The following examples illustrate English *wh*-argument questions, with the original base-merged position of the *wh*-constituent indicated by \_\_\_.

(a) Mary saw John in the park.

(b) **Who** did Mary see \_\_\_ in the park?

However, as far back as Ross (1967), it was discovered that there are cases in which this type of movement is not possible. Certain kinds of phrases do not seem to allow a gap. These phrases from which a *wh*-constituent cannot be extracted are referred to as extraction islands or simply *islands*. Some of these island constructions in English which are relevant to this study are presented below.

### 2.1 Islands in English

#### 2.1.1 Complex NP Island

Extraction out of complex noun phrases such as [that her sister married] in the following example will result in ungrammaticality:

Jack met the man *that his sister married*.

\* **Who** did Jack meet the man *that* \_\_\_ *married*?

#### 2.1.2 Adjunct Island

An adjunct island is formed from an adjunct clause. These islands are introduced by *because*, *if*, and *when*, as well as relative clauses. *Wh*-movement is not allowed out of an adjunct clause. For instance:

She lives there *because she likes working with kids*.

\* **What** does she live there *because she likes* \_\_\_?

#### 2.1.3 Wh-island

A *Wh*-island is formed by an embedded sentence introduced by a *Wh*-word. The clause "whether Martin likes oranges" in the following example is a *Wh*-island:

Lukas knows whether Martin likes oranges

\* **What** does Lukas know whether Martin likes \_\_\_?

*Wh*-islands are not as strong as adjunct islands, since extraction is often awkward but not necessarily regarded ungrammatical by all speakers.

#### 2.1.4 Clausal Subject Island

Finally, *Wh*-movement is not allowed out of phrases that appear in the subject position. This is particularly true for subject clauses.

That George likes you is obvious.

\* **Who** that George likes \_\_\_ is obvious?

In an ambitious attempt to subsume the island constraints under a single structural principle, Chomsky (1973) proposes the notion of *Subjacency*. The *wh*-phrase rises to the nearest vacant Spec-CP position, leaving behind a trace in its original position. In cyclic movements, again it can move, leaving behind another trace. However, in any single movement, it cannot move too far. *Too far* is specified in terms of boundaries or *bounding nodes*. A

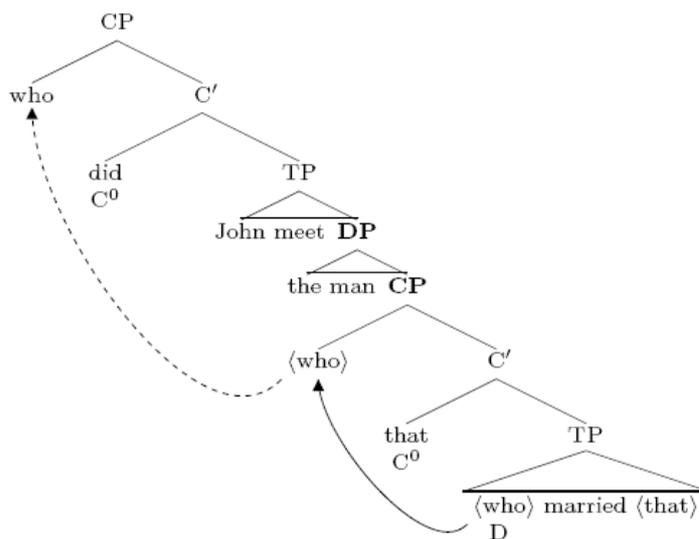
node is defined as the maximal projection in a syntax tree. Some types of nodes (depending on the language) are bounding, that is, boundaries to wh-constituent movement. Each trace must be “subjacent” to (i.e., separated by no more than one bounding node from) their antecedent if the result of movement is to be considered grammatical. In other words, if a constituent moves across more than one bounding node in a single movement the result is ungrammatical. DPs and IPs are recognized as bounding nodes in English. An example of a Subjacency violation is given below:

(1) \* $[_{CP} \text{Who}_i \text{ does } [_{IP} \text{Martin consider } [_{NP} \text{the idea } [_{CP} t_i \text{that } [_{IP} \text{Lukas likes } t_i]$

In the above-mentioned example, *who*, after moving to the embedded Spec-CP, cannot move to the matrix Spec-CP. In other words, *who* moves over two bounding nodes (IP and DP), hence the result is ungrammatical. Constructions that give rise to violation of the Subjacency include *Wh-island*, noun complement, relative clause, and complex subject.

Movement of a Wh-constituent out of a relative clause is depicted in the following example adopted from Bruhn (2007) (the violation of Subjacency is shown with a dotted line):

\* Who did John meet the man that \_\_ married?



As demonstrated in the tree above, the ungrammaticality of the Complex NP Island is accounted for by this principle. However, Subjacency cannot fully capture every island constraint without the inclusion of extra principles such as the Minimality Condition and Empty Category Principle (ECP). The ECP focuses on the conditions under which the traces left behind by movement are licensed and identified. It states that if a trace is to be licensed, it has to be properly governed by a lexical element or by a co-indexed antecedent. For example,

- a.  $\text{Who}_i \text{ do you believe } [_{CP} t_i \text{ that } [_{IP} \text{Lukas } [_{VP} \text{kissed } t_i]]]$
- b. \* $\text{Who}_i \text{ do you believe } [_{CP} t_i \text{ that } [_{IP} t_i \text{ } [_{VP} \text{kissed Mary}]]]$

The trace  $t_i$  in (a) is licensed by a lexical verb, namely *kissed*, so the result of movement is grammatical, while the trace  $t_i$  in (b) is a sister of C. C is not considered a licensing category in English, therefore the question formed is ungrammatical as it contains an unlicensed trace.

### 2.2 Island Immunity in Persian

Given that barriers to wh-movement are posed by island constructions, Wh-in-situ questions are expected to be immune to such restrictions. This is indeed the case with Persian as well as other Wh-in-situ languages such as Malay, Korean, and Mandarin Chinese. Some examples have been provided from Persian demonstrating Island Immunity, hence the grammaticality of extractions, in various islands:

#### 2.2.1 Complex NP Island

Shomadokhtarira dost daridkeghablan [**chekasiramolaghatkardeast**]?

For what person x, you love the girl who met x?

### 2.2.2 Adjunct Islands

Faatemehtalaghgereft [choonhamsarashfekrmikardoo**chekarkardeast**]?  
 For what x, Fatima got divorced because her husband thought she did what?

### 2.2.3 Wh-Islands

Ta'ajobmikonidke**koja** [Ali chechizikharid]?  
 For what x, you get surprised where Ali bought x?

### 2.2.4 Clausal-subject Islands

[Inke Ali **bachekasiezdevajkard**] madarashranarahatkard?  
 For what person x, that Ali married x upset his mother?

## 3. Research Question and Significance of the Study

In general, two contradictory findings pervade recent SLA research. Some studies suggest that adult L2 learners show native-like competence with respect to the Subjacency and the ECP constraints (White, 1988; Bley-Vroman *et al.*, 1989; Uziel, 1993; Wakabayashi & Okawara, 2003). Based on the findings, these L2 researchers argue that knowledge of these principles must be innate, in the form of principles of UG. Further evidence comes from other POS studies in SLA suggesting that the L2 output is underdetermined by the L2 input (e.g., Schwartz & Sprouse's (1996, 2000) study on German word order). However, other studies show that L2 learners achieve non-native-like competence in spite of abundant input and long immersion in the target language most probably due to L1-L2 parametric differences (Sorace, 1985; Hawkins & Chan, 1997; Hawkins, 2000 & Franceschina, 2001). This study is to shed light on this controversy. The main objective of this study is to confirm or reject already made claims with respect to the availability of UG to L2 learners. To the researchers' knowledge, no study has been carried out on advanced Persian-speaking learners of English to examine if UG is available in SLA with respect to wh-movement. To this aim, the following hypothesis and research question are formulated:

Q: Will adult Persian learners of English show convergent (native-like) knowledge in contexts constrained by the Subjacency and the ECP?

H: *Wh-movement contexts*

*In contexts constrained by the Subjacency and the ECP, advanced Persian learners of English will show convergent (native-like) knowledge, although the construction under investigation is not instantiated in their L1.*

## 4. Methodology

### 4.1 Participants

The participants in this study were 35 Persian-speaking learners of English from Iran. The students had studied English at Kazeroon and Shiraz Islamic Azad Universities, Iran. They were all seniors and their average age was 23.6. All of them were undergraduate students who had learned English for six to seven years in a classroom environment at Iranian guidance and high schools before entering university, but had never been to an English-speaking country. None of them reported any communicative use of English before age 15. In other words, they were post-critical-period learners. These students were selected as the subjects because they had relatively high English level so that they knew exactly how a grammatical *wh*-question in English is formed. They were selected on the basis of their performance on a general proficiency test: the Oxford Placement Test. 30 adult native speakers of English served as subjects for the control group. They were given the same questionnaire and their responses provided the baseline against which we could measure the performance of L2 learners.

### 4.2 Material

The material used in this study is a 5-point Lickert scale acceptability judgment (AJ) task. The task required the participants to judge how good or bad each sentence was by assigning a number to it. The number must be restricted from -2 to +2. If the sentence is fully acceptable, they should give it +2; if it is fully unacceptable, they should give it -2 and so on. Anyway, the number they assigned to each sentence depended on their judgment of acceptability. The material was *selected* from the sentences White and Juffs (1998) used in testing two groups of Chinese-speaking learners of English regarding the acquisition of Wh-questions. Their objective was to explore the involvement of UG in SLA and the influence of learning environment in L2 acquisition. The GJ task in their study consisted of 30 grammatical and 30 ungrammatical Wh-questions, involving violations of constraints of

UG. For every ungrammatical sentence of a particular length in the test, there was a grammatical sentence of the same length but not necessarily of the same structure, so it can be concluded that the sentences were balanced for length in words. In order to develop a reliable test, researchers extensively piloted the sentences on native speakers of English. The sentences used in the final version of the test were those that received consistent judgments of grammaticality or ungrammaticality from native speakers. The exception was sentences violating that-trace effects, where consistent judgments were never obtained. As for this study, the researcher gave a group of 30 native speakers the same questionnaire on two different occasions. The correlation between separate administrations of the test was .87. The questionnaire assumed to be valid since the sentences were originally developed by subject matter experts.

#### 4.3 Instrument

Following White and Juffs (1998), the questionnaire used in this study included noun complement, relative clause, adjunct, subject, that-trace, NP PP, finite subject–that, finite object –that, finite object +that, nonfinite object and nonfinite subject. The ungrammatical sentences included noun complements, relative clauses, adjuncts, subjects, as well as that-trace violations. The grammatical sentences involved extraction from noun phrases of the form [<sub>NP</sub>NP PP] and extraction of subjects and objects from CPs. The ungrammatical sentences were included to test for knowledge of constraints on Wh-movement in English. Moreover, grammatical sentences were given to test whether Persian speakers do indeed have Wh-movement, especially long distance Wh-movement, in their grammars, since, if they do not, restrictions on Wh-movement are not expected to operate (Martohardjono & Cair, 1993; White, 1992). There were four sentences in each subtype, but the grammatical nonfinite clauses consisted of two sentences each. So the questionnaire included 40 questions altogether as illustrated in Table 1.

Table 1.

| Category              | Example   | Number of ites |
|-----------------------|---|----------------|
| Noun complement       | *What did Tom believe the claim that Ann stole?     | 4              |
| Relative clause       | *Which article did you criticize the man who wrote? | 4              |
| Adjunct               | *Who did you meet Tom after you saw?                | 4              |
| Subject               | *What was a dish of cooked by Ann?                  | 4              |
| That-trace            | *Which horse do you think that will win the race?   | 4              |
| NP PP                 | Who are you reading a book about?                   | 4              |
| Finite, subject, that | Who did Jane announce would be the new teacher?     | 4              |
| Finite, object, -that | Which man did Jane say her friend liked?            | 4              |
| Finite, object, +that | What does Ann think that her husband saw?           | 4              |
| Nonfinite, object     | Who does Ann want to give this book to?             | 2              |
| Nonfinite, subject    | Who does Sam want to win the election?              | 2              |

In the test paper, the 40 sentences were arranged randomly with an instruction putting before those sentences. A careful introduction of the task was given to the participants before they started doing the test to make sure they knew exactly what they were expected to do during the test. The subjects read the instruction before commencing the test. It was emphasized that the researcher was interested in the participant's opinion regarding a set of sentences that tested how people learn English. Explicit instructions concerning how to complete the questionnaire were also given. In addition, as in the first experiment, it was made clear that subjects were expected to do it as quickly as possible since the researcher was interested only in their *first* intuition. The instructions made it clear what the value scale (–2 ... +2) meant.

#### 4.4 Results for the Second Experiment

Within-group comparisons were carried out through paired-samples *t*-tests. The results are presented in Table 2. As it can be seen, the difference between the grammatical and the ungrammatical constructions for the English native group is highly significant ( $t (-62.655) = 29, p < .05$ ). The difference between the grammatical and ungrammatical constructions is also significant for the Persian group ( $t (76.428) = 30, p < .05$ ). On the whole, as predicted by H3 the performance of natives and EFL learners is not optional or indeterminate, rather they treat acceptance or rejection of Wh-movement categorically.

Table 2. Paired samples *t*-test on grammatical and ungrammatical constructions

|             | Grammatical    | Ungrammatical   | <i>t</i> | <i>df</i> |
|-------------|----------------|-----------------|----------|-----------|
| Non-natives | 9.34<br>(.89)  | -7.51<br>(.79)  | 76.428*  | 30        |
| Natives     | 11.3<br>(1.44) | -8.43<br>(1.03) | -62.655* | 29        |

Note: \* =  $p \leq .05$ . Standard Deviations appear in parentheses below me

In order to compare the performance of natives and non-natives on each type of grammatical and ungrammatical extractions, several independent *t*-tests were run. First results from judgments of the sentences violating island restrictions are presented (Table 3). It can be seen that the accuracy of Persian group in rejecting all ungrammatical constraints except *that*-trace violation is high. Their judgment in all cases except in NP PP and *that*-trace is not significantly different from that of native speakers. And in fact this is the *that*-trace violation which has brought down their overall performance.

Table 3. The performance of learners and natives on ungrammatical structures

| Structure type  | Natives         | EFL Learners     | <i>t</i> | <i>df</i> |
|-----------------|-----------------|------------------|----------|-----------|
| Noun Compliment | -1.76<br>(.253) | -1.61<br>(.269)  | -2.220*  | 59        |
| Relative Clause | -1.73<br>(.285) | -1.67<br>(.265)  | -.770    | 59        |
| Adjunct         | -1.76<br>(.285) | -1.646<br>(.237) | -1.568   | 59        |
| Subject         | -1.8<br>(.249)  | -1.74<br>(.254)  | -.901    | 59        |
| That-trace      | -1.38<br>(.386) | -838<br>(.711)   | -3.729*  | 46.62     |

Note: \* =  $p \leq .05$ . Standard Deviations appear in parentheses below means.

On the other hand, there might be a possibility that learners are not interested in the extraction of Wh-constituents at all. If so, their rejection of sentences violating UG constraint cannot be attributed to unconscious knowledge of these restrictions. In that case, we expect much lower accuracy on the grammatical sentences, that is, rejection of grammatical types of extraction. Judgments of the grammatical sentences are given in Table 4.

Table 4. The performance of learners and natives on grammatical structures

| Structure type    | Natives        | EFL Learners   | <i>t</i> | <i>Df</i> |
|-------------------|----------------|----------------|----------|-----------|
| NP PP             | 1.88<br>(.313) | 1.5<br>(.428)  | 4.001*   | 54.95     |
| Subject +that     | 1.917<br>(.23) | 1.48<br>(.376) | 5.438*   | 50.27     |
| Object –that      | 1.83<br>(.355) | 1.66<br>(.35)  | 1.902    | 59        |
| Object + that     | 1.8<br>(.315)  | 1.63<br>(.35)  | 1.9      | 59        |
| Nonfinite Object  | 1.84<br>(.315) | 1.58<br>(.395) | 2.728*   | 56.98     |
| Nonfinite Subject | 1.77<br>(.389) | 1.49<br>(.356) | 2.881*   | 59        |

Note: \* =  $p \leq .05$ . Standard Deviations appear in parentheses below mean.

At first glance, it does indeed seem to be the case that accuracy on the grammatical sentences is lower than on grammatical ones on NP PP, extracted subjects nonfinite objects and nonfinite subjects.

However, it is not the case that the Persian learners are not interested in long-distance movement since all extractions with various degrees are accepted. In the case of movement of an object out of a finite lower clause and extraction of objects with complementizer, the learners are not significantly different from native speakers. The L2 learners are less likely in general to accept grammatical extraction of subjects than extraction of objects. In fact, as far as extraction of subjects versus objects out of nonfinite clause is concerned, there is a significant difference for both Persian learners and native speakers. This is indicated in Table 5.

Table 5. Paired samples t-test on non-finite object and nonfinite subject

|             | Nonfinite Subject | Non-finite Object | <i>t</i> | <i>df</i> |
|-------------|-------------------|-------------------|----------|-----------|
| Non-natives | 1.49<br>(.356)    | 1.58<br>(.395)    | 1.46*    | 30        |
| Natives     | 1.84<br>(.315)    | 1.77<br>(.389)    | -1.074*  | 29        |

Note: \* =  $p \leq .05$ . Standard Deviations appear in parentheses below mean.

The overall performance of natives on both grammatical as well as ungrammatical cases is reported in Table 6. Independent *t*-tests reveal that the acceptance of the grammatical cases for natives and non-natives is significantly different ( $t(2.376) = 59, p < .05$ ). In the same way, the rejection of the ungrammatical constructions differs between groups significantly ( $t(-3.966) = 59, p < .05$ ). The results contradict the hypothesis of the research. However, if the ungrammatical construction of that-trace is excluded (one which has brought down the overall performance of non-natives), their performance on violations of UG principles will not be significantly different ( $t(1.697) = 59, p < .05$ ).

Table 6. Overall performance on grammatical and ungrammatical

|   | Non-native     | Native          | <i>t</i> | <i>df</i> |
|---|----------------|-----------------|----------|-----------|
| Grammatical                             | 9.34<br>(.89)  | 11.03<br>(1.44) | 2.376*   | 59        |
| Ungrammatical                           | -7.51<br>(.79) | -8.43<br>(1.03) | -3.966*  | 59        |
| Ungrammatical<br>(excluding that-trace) | -6.7<br>(.913) | -7.05<br>(1.42) | 1.697    | 59        |

## 5. Discussion

On the basis of the hypothesis of the study, the within group and between group predictions can be made. If the hypothesis is correct, within-group analysis will demonstrate that both English natives and Persian learners are expected to favor the grammatical cases (i.e., sentences which do not violate UG constraints) over the ungrammatical sentences (i.e., cases where the extraction of Wh-constituent is a result of violation) significantly. This would confirm that UG principles (Subjacency and ECP) guide learners' knowledge. Moreover, if this is the case, *between-group analysis* will indicate that the Persian group would behave identically to the native group for each type in ungrammatical cases, that is, their performance would not differ significantly where UG principles are violated.

On the whole, the Subjacency and the ECP results obtained in this experiment are compatible with the previous findings (White, 1988; Bley-Vroman *et al.*, 1988; Uziel, 1993; Wakabayashi & Okawara, 2003; Hawkins & Hattori, 2006). As predicted by the hypothesis, within-group analyses revealed that Persian speakers behaved like English natives, discriminating between grammatical and ungrammatical Wh-movements. Both natives and L2 learners significantly favored the grammatical cases that did not violate UG constraints over the ungrammatical sentences where the extraction of Wh-constituent was a result of violating the UG principles. In short, within-group comparisons support the predictions made by the hypothesis and confirm that non-natives show convergent knowledge of the Wh-movement.

As for between-group comparisons, it was found that the Persian group did not differ significantly from the English group in the ungrammatical construction. Recall that the hypothesis predicted that if L2 knowledge is constrained by UG (and in particular by Subjacency and ECP), provided that *wh*-movement has been acquired, adult Persian speakers of English should observe restrictions on *wh*-extraction, even though such restrictions are not demonstrated in their L1. The finding of this study also supports this prediction. In general, Persian learners observe constraints on Wh-movement, rejecting violations in GJ task. In many cases the performance of the English group and the Persian group did not differ significantly where violation of UG principles are involved. Nevertheless, there are certain kinds of constructions where the Persian learners are not sure about Wh-movement possibilities: as presented in table 4, their performance is less accurate on extraction of subjects than extraction of objects. Some studies in this field also have reported such differences in manipulating the extraction of subjects and objects, and more interestingly, this is the case even for native speakers (Schachter & Yip, 1990; Jordens, 1991). Based on the results obtained from GJ tasks, Schachter and Yip (1990) argued that English native speakers, as well as L2 learners, were more likely to reject, or to be less certain about, grammatical constructions with subject extracted from lower clause. They suggested that rejecting grammatical cases of subject extraction does not reflect a deficiency in competence, rather it shows a processing problem, which affects native speakers and language learners in the same way. They also argued that extraction of subjects involves more processing difficulty than extraction of objects. Jordens also argued that the difference in the two constructions is the result of the difficulties associated with the extraction of subjects. In all cases, both groups of participants preferred object extraction over subject extraction. So, it appears that Persian learners and native speakers of English experience the processing difficulty that other scholars have reported. The subject-object asymmetry observed in this study and that lower accuracy on some of the grammatical cases may be attributed to this problem. Although accuracy appears higher on extraction of objects when the complementizer *that* is not present, there is in fact no significant difference between natives and non-natives on extraction from object clauses with and without the complementizer.

## 6. Conclusion

In conclusion, the researchers interpret the results as consistent with the claim that our L2 learners in this study, as the hypothesis predicts, can access island constraints on Wh- movement. Based on the findings, the researchers conclude that adult L2 learners' mental representation surpasses the input they are exposed to; hence UG principles guide their interlanguage competence. However, more UG-oriented SLA research should try to differentiate between invariant UG constraints and parameter resetting. Once more we need to recall that island constructions are never explained in textbooks and they represent a typical poverty of stimulus phenomenon. The most viable explanation is to propose that the results favor an approach to SLA where learners' knowledge is constrained by UG. According to White and Juffs (1998), processing difficulties, rather than competence differences, can account for results on some of the grammatical and ungrammatical sentence types. These processing difficulties are not specific to adult language learners, as the control group also shows a subject-object asymmetry, at least in the case of extraction from nonfinite clauses.

Furthermore, note that, as Schwartz and Sprouse (2000) argue, any theory of grammar needs to account for POS phenomena, as they are theory-independent. This serves as an 'antidote' to changes in generative theory. Despite the changes in generative theory during the past 20 years or so, it seems that innate principles of UG (whatever their formulation) can be invoked to account for the learners' subtle knowledge of POS phenomena with respect to pronominal subject distributions.

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