Minimal Link Condition in multiple Wh-movement and UG availability

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Abstract
The question of whether UG (Universal Grammar) mediates L2 acquisition, and to what extent, has been much debated, recently. A lot of research has been done in the field of SLA regarding the availability of UG and the form of this availability in L2 learning situations and contradictory results have been obtained. The present study aims to investigate whether Minimal Link Condition (MLC) in multiple wh-questions as a UG principle is available to Persian learners of English. To achieve this end, two groups of 24, both male and female, were chosen from among university students majoring in Teaching English as a Foreign Language(TEFL)
through an OPT(Oxford Placement Test). One group was considered more proficient than the other based on the OPT results. Then a Universal Grammar (UG) MLC test containing 40 items was administered to the students in both groups. Besides, the MLC test was sent to 10 English native speakers via E-mail. The result revealed the more proficient participants' performance on the MLC grammaticality judgment test was significantly different from that of the less proficient participants. Moreover, both groups differed from native speakers of English significantly in terms of their grammaticality judgment. Therefore, MLC in general is not accessible to second language learners to the same extent that it is to first language learners. Also, there is a positive relationship between proficiency and the availability of MLC as a UG principle. So, proficiency can be considered to be a strong factor for UG activation in SLA. Given these findings, language education which promotes UG activation is encouraged.
Key Words: Minimal Link Condition (MLC), proficiency, EFL learners, Second language Acquisition (SLA), Universal Grammar (UG)

Introduction

One of the theories which has major implications for SLA and assumes the two acquisition are basically the same is Universal Grammar (UG). Originally, Chomsky (1980-1981) proposed and developed the theory of UG in order to account for L1 acquisition. He claimed that humans have an innate capacity for acquiring their L1. He postulated UG as an explanation of how it is that learners come to know properties of grammar that go far beyond the input, how they know that certain things are not possible, why grammars are of one sort rather than another. The claim is that such properties do not have to be learned. Proposals for an innate UG are motivated by the observation that, at least in the case of L1 acquisition, there is a mismatch between the primary linguistic data (PLD), namely
the utterances a child is exposed to, and the abstract, subtle, and complex knowledge that the child acquires. In other words, the input (the PLD) underdetermines the output (the grammar). This is known as the problem of "the poverty of the stimulus" or the logical problem of language acquisition. (White, L: 1989)

However, since L2 learners sometimes successfully acquire aspects of the L2 different from their L1 without having received formal instruction in those aspects, some SLA researchers (White, Schachter, Bley-vroman, etc.) believe that an innate mechanism known as UG makes this phenomenon possible.

As an example of a proposed principle of UG which accounts for knowledge too subtle to be learned solely from input, I will consider the Minimal Link Condition (MLC) (Chomsky: 1995) as a general and natural constraint which is universally applied.

MLC requires that the landing site of a movement be optimally "close". To capture the relevant locality, the set-theoretic notion "minimal domain" must
first be invoked. Essentially, a minimal domain is a set of phrasal objects, all of which are directly associated to a given head. Elements of this set-theoretic domain are equally far from or close to other elements in phrase marker. Apart from this, only elements within the same command path interfere with one another for the purposes of locality. (thus, elements in different command path do not compete with respect to closeness) (Uriagerika:531).

According to this principle, shorter moves are preferred to longer ones when a movement is required; otherwise, the outcome will be ungrammatical. Thus, MLC is a derivational condition which eliminates a significant class of derivations.

In the related vein, the very vital question facing generative SLA/FLA at the present time is the availability of UG in L2 acquisition/learning. Assuming that there is indeed a logical problem of L2 acquisition, researchers asked more UG-specific questions. In the 1980s, the UG question seemed relatively straightforward (and relatively global): Is UG
available (or accessible) to L2 learners? In other words, do ILGs show evidence of being constrained by principles of UG? A number of principles were investigated, such as Subjacency, the ECP and Binding Principle A. The assumption was that if you can show that a particular UG principle operates/does not operate then this generalizes to other principles, hence to UG availability/non-availability in general. As such, this study is an attempt to answer the question of whether UG is available to Persian L2 learners with specific reference to MLC and multiple wh-movement. On the one hand, L2 learners' observation of MLC will be some empirical evidence on the feasibility of the theory of UG in L2 learning, in general, and on the other hand, it is of intrinsic value to the field of FLA/SLA research.

**Background**

Plato's problem claims that human beings know more than they experience and Universal Grammar has been proposed by Chomsky to explain this phenomenon. Chomskyian Generative Grammar assumes that first language
learners come to the acquisition task with innate knowledge or universal grammar and, further, some linguistic conditions or principles are determined or specialized for language learning (Chomsky, 1972). According to these advocates of universals, these abstract and linguistically determined principles or conditions underlie all natural languages and comprise the essential faculty for language with which all individuals are in general uniformity. Besides, they claim that this ‘built-in’ knowledge of syntax is properly triggered by the primary input, and then the grammar of language will be provided as the outcome (Rajimwalf, 1998).

According to V.J. Cook and M. Newson (1996), the question of whether L2 learners have access to UG has been perhaps the main topic of research among those interested in applying principles and parameters theory to second language acquisition. What could be the role of UG in L2 learning? Cook(1985) put it as a choice between three possibilities. One is that L2 learners start from scratch; they have direct access to UG and are uninfluenced by the L1. Or they start from
their knowledge of the first language; they have indirect access to UG via the L1. Or they do not treat the L2 as a language at all; they have no access to UG and learn the L2 without its help. Therefore, there are 3 possibilities regarding the availability of UG in SLA. These positions are as follows:

A: UG is fully available in SLA.
B: Access to UG in SLA is mediated via L1.
C: UG is not available in SLA.

According to V.J. Cook (1985) in a direct or full access, L2 learners may employ the principles of UG and set the parameters without any reference to their L1 values. L2 learners have parallel competences in L1 and L2-two instantiation of UG. Therefore, L2 learners acquire language almost in the same way as L1 learners. One way of demonstrating that L2 learners have direct access is to show that they indeed know principle and parameters they could not have learned.
In an indirect access position, L2 learners have access to L1 competence, which was ultimately based on UG. In other words, L2 knowledge is tied into L1 knowledge. L2 learners have access to UG through what they know of their L1 and they start with L1 parameter settings rather than the initial neutral or default state (Cook and Newson, 1996).

Finally, in "no access position" second languages might be acquired through non-natural means - other faculties of the mind than language. In this position, L2 competence is distinct from L1 competence and created in a totally different way. A second language, according to this position, can be learnt to some extent from a grammar book or from drills. L2 learning in this case is a parallel process to L1 learning, but without any connection to UG. (Cook and Newson, 1996)

In sum, Chomsky proposed the theory of Universal Grammar to account for the fact that children know properties of grammar that goes far beyond the input and they know far more than PLD (utterances a child is exposed to) has
provided them. Since L2 learners seem to know more about the L2 than they were taught, some researchers suspect UG's role in SLA. The field is relatively new and does not have a set answer. Many researchers in the field feel that more studies in different settings and different languages with various UG principles should be done. The claim that UG is available in SLA is a very attractive one and there is a way to test L2 learner's intuitions by which one can measure their knowledge of UG principle, such as grammaticality judgment task that many researchers have adopted. The present work is one such study aimed to contribute to the development of the field. Before discussing in detail, it makes perfect sense to turn our attention to economy principle and Minimal Link Condition which is the focus of this study.

Economy of Derivation
According to Chomsky(1995), both derivations and representations of the
language faculty, as maintained by MP (Minimalist Program), are constrained by economy principles.  

It seems that a linguistic expression of $L$ cannot be defined just as a pair $(\pi, \lambda)$ formed by a convergent derivation. Rather, its derivation must be optimal, satisfying certain natural economy conditions, locality of movement, no “superfluous steps” in derivations, and so on. Less economical computations are blocked even if they converge.

That is to say, the $C_{HL}$ as well as the interface levels are subject to an overarching principle of economy. FI (Full Interpretation) is obviously subsumed under the economy principle of representation, which requires minimum number of symbols. Regarding the nature of derivation, a basic assumption is that it functions with “least effort”. A shortest move is the easiest and thus the most natural, it is believed. And by the “shortest move”, apart from the movement of the shortest distance, one could mean the fewest possible steps as well. (Chomsky :181 ) .Moreover, a
movement should not happen unless there is really a “necessity”. NP-movement, for instance, is triggered by the need to check the morphological features of the NP. If those features are not checked and erased, the output representation would not be licensed or grammatical. Only when there is a need to check features, raising occurs. Once licensed, there should not be any movement. This is the so-called Last Resort Principle. Given that a syntactic movement cannot but take place, it should be done as late as possible. The principle is known as Procrastinate. Furthermore, a movement should not be ‘altruistic’, say, to license another element, but for its own sake: it is forced to move in order to avoid crashing. This is known as Greed which (Economy in Generative Grammar: 125)

(Kitahara :1997) thinks that UG principles Last Resort, C-Command Condition, and Minimal Link Condition are better called “computational principles”, “which determines what counts as a legitimate step in a given derivation”, and that “economy principles” include FI, Procrastinate and
Shortest Derivation Condition, “which determine what counts as an optimal derivation among competitors”.

So an optimal derivation is not only convergent but also subject to the above-mentioned economy principles of derivation, that is, in Chomsky’s term, “admissible”. The most admissible derivation \( (D_A) \) seems to be the one that “applies no applications at all to a collection of lexical choices and thus is sure to crash.” (Chomsky 1995:220). To avoid this undesirable consequence, an admissible move must be restricted to the class of convergent derivations \( (D_C) \).

The language \( L \) thus generates three relevant sets of computations: the set \( D \) of derivations, a subset \( D_C \) of convergent derivations of \( D \), and a subset \( D_A \) of admissible derivations of \( D \). FI determines \( D_C \), and the economy conditions select \( D_A \). ... I will continue to assume that economy considerations hold only of convergent derivations: \( D_A \) is a subset of \( D_C \). (Chomsky: 1995)

Therefore, according to the derivational economy proposed in MP, derivations must be as economical as
possible. The more economical derivations block the less economical ones. MLC is one of the economy principles of UG according to which the chain relation between phrase markers is heavily constrained.

**The Minimal Link Condition (MLC)** (Chomsky 1995: 311)

"K attracts $\alpha$ only if there is no $\beta$, $\beta$ closer to K than $\alpha$, such that K attracts $\beta$"

**Closeness** (Chomsky 1995: 358; Sabel 2002: 273)

"$\beta$ is closer to the target K than $\alpha$ if $\beta$ c-commands $\alpha$ ."

In the Minimalist Program (henceforth MP), movement of constituents is assumed to be feature-driven. Formal features associated with functional heads in the syntactic representation need to be matched with the corresponding formal features of lexical items. The relevant target features of a category K locate the matching features associated with an element $\alpha$. K then attracts $\alpha$, which moves and enters a checking configuration
in which the features of K and α can be matched. As a result of feature matching, the features of the target are deleted. Importantly, the MLC prevents α from moving if there is a closer β such that K attracts β. To illustrate how the MLC works, consider the following example of a wh-island effect:

a. [C you wonder [CP which car John could fix] how]?

b. *How do you wonder [CP which car John could fix] t t]?

Both C-heads in the above example have a [Q]-feature which needs to be matched with the [Q]-feature of a wh-phrase. In the first (a) sentence, the wh-phrase which car has moved to the embedded Spec–C position to check the [Q]-feature of the embedded C. The [Q]-feature of the matrix C still needs to be checked. In the second (b) sentence, it is matched with the [Q]-feature of the wh-phrase how, which has moved to matrix SpecC. However, since the wh-phrase which car c-commands how and is therefore closer to the matrix C, (b) violates the MLC and is
therefore ungrammatical. Here, we see that the movement of the wh-phrase "how" in (b) is blocked by the presence of the c-commanding wh-phrase "which car". (Paul and Zeller: 2005)

As it is stated in (Uriagerika:369), case checking necessarily involves movement; and case checking is a short distance process. Consider the following sentences which is an example of the violation of MLC:

a. [It seems[that Alice is likely [t to live here]]]
b.*[Alice seems [that it is likely[t to live here]]]

In the above example, we're comparing alternative derivations which start with the same partial numeration, after the numeration has been reduced. The following sentence is the original form of the above sentences before any movement has taken place:

[tense[seems[that[it is likely [Alice to live here]]]]]]

| ok |
Here, tense has a case feature that needs to be checked. It is capable of entering into a checking relation either with 'Alice' or with 'it'. If the case feature of tense is checked against that of "Alice", MLC is violated. Since the distance between "Alice" and "tense" is too far and we have one more economical choice; that is, the movement of 'it' to the beginning of the sentence which satisfies MLC. (Uriagerika:374) states that in the above sentence as far as movement is concerned, 'it' is blindly attracted, given the MLC. This prevents the movement of "Alice", even if the result of attracting 'it' is also ungrammatical for some other reasons.

*[[it Tense [seems[that[t is likely[Alice to live here]]]]]

Another constraint on wh-movement which can be subsumed under MLC is Wh-island constraint. (Radford:2004) talks about Wh-island constraint which specifies that wh-clauses(i.e. clauses
beginning with a wh-expression) are islands, so that no constituents can be moved out of a wh-clause. Consider the ungrammaticality of the following sentence:

*He is someone [ who nobody knows [what the FBA did to]]

(Radford :2004) explains the ungrammaticality of the above sentence due to the fact that moving 'who' out of the 'did clause' will lead to the violation of Ross's wh-island constraint. He states that, the 'did clause' is a wh-clause(by virtue of containing the preposed wh-word 'what') and since wh-clauses are islands, movement of the relative pronoun out of the 'did clause' will lead to the violation of the Wh-island constraint.

According to (Gereon Muller:1997) Superiority effects as they show up with wh-movement in English can be viewed as a typical example of a restriction on otherwise ambiguous rule application. In cases in which there is more than one possible wh-phrase that might undergo
wh-movement, the rule of wh-movement can in fact not apply ambiguously to either of the wh-phrases; rather, the highest wh-phrase has to undergo movement (cf. Chomsky (1973)). This is shown by “standard” superiority effects as in (a and b) (i.e., effects that have been shown to be reducible to the ECP in Aoun, Hornstein & Sportiche (1981) and Chomsky (1981)), and by “pure” superiority effects as in (c and d) (i.e., effects that involve two objects and are, therefore, not reducible to the ECP in an obvious way; cf. Hendrick & Rochemont (1982) and Pesetsky (1982)):

a. I wonder [CP who1 C [TP t1 bought what2 ]]
b. *I wonder [CP what2 C [TP who1 bought t2 ]]
c. Whom1 did John persuade t1 [CP to visit whom2 ]?
d. *Whom2 did John persuade whom1 [CP t0 2 to visit t2 ]?

Since the MLC is essentially a feature-based version of the Superiority Condition, it comes as no surprise that it
accounts for superiority effects in English.

(Radford:2004) also talks about the syntax of multiple wh-questions which contain two or more separate wh-expressions. A salient syntactic property of such questions in English is that only one of the wh-expressions can be preposed -as we can illustrate in relation to an echo question such as:

He might think who has done what.

If we try and prepose the highlighted wh-words in the above sentence, we find that only one of the two can be preposed (not both of them) and moreover the preposed item has to be "who" and not "what":

a. Who might he think t has done what?
   b.*What might he think who has done t?
   c.*Who what might he think t has done t?
d. * What who might he think t has done t?

Why should this be? (Radford:162) explains that the affixal [Tns] feature carried by C in the main clause attracts the auxiliary 'might' to move from T to C. The [WH,EPP] features of C in turn mean that C attracts a wh-expression to move to spec-cp. But in the above sentences we have two wh-words, namely who and what. Since it is who rather than what which must be pre-posed and since who is Closer to C than what, let's suppose that C attracts the closest wh-word which it c-commands. This requirement is a consequence of a principle of Universal Grammar (adapted from Chomsky 1995, p:297) which Radford outlines informally as follows:

**Attract Closest Principle/ACP**

A head which attracts a given kind of constituent attracts the closest constituent of the relevant kind.
Since who is closer to the main clause C than what, it follows from ACP that C attracts who to move into spec-cp and leads to deletion of the uninterpretable [Tns, Wh, Epp] features of C. So, this accounts for the pattern of grammaticality found in multiple wh-questions like above. As we see here, ACP proposed by Radford is one of the principles subsumed under Minimal Link Condition. All said, no one can deny the importance of this subject, particularly in line with recent research. The present work is one such study with regard to MLC and multiple wh-movement in L2 context among Persian learners of English.

**Research Questions**

To investigate whether Minimal Link Condition in multiple wh-movement is available to Persian learners of English and whether there is any relation between the Proficiency Test scores and UG Test scores, the following questions were raised:
1. Does the more proficient learners' mean score of MLC grammaticality judgment significantly differ from that of the less proficient learners?

2. Does the less proficient participants' mean score on MLC grammaticality judgment significantly differ from that of English native speakers?

3. Does the more proficient participants' mean score on MLC grammaticality judgment significantly differ from that of native speakers of English?

4. Do the scores on the Proficiency Test have an effect on the UG Test performance?

Methodology
Participants
The subjects for this study were two groups of university students, both male and female, majoring in EFL in Shahrekord Azad university. 48 students were chosen from 80 applicants through an Oxford Placement Test (OPT). All the
participants had Persian as their L1 and ranged in age between 20 to 26 years.

**Material**

The materials consisted of a 100-item multiple choice OPT and a UG Minimal Link Condition test. (see sample items in the appendix). The MLC test contained 40 items including ungrammatical MLC items (22 items), which violated MLC in multiple wh-movement, as well as some grammatical sentences which were used as distracters.

**Procedures**

To select the subjects, 80 students majoring in English teaching were tested on their previous experience and knowledge of English through a 100-item multiple choice OPT. According to the placement test, subjects whose scores were less than one standard deviation below the mean were considered as the low proficient group and those whose scores were more than one standard
deviation above the mean were considered as the high proficient group. Those students whose scores fall between one standard deviation above or below the mean were excluded from the study. After a week interval, the MLC test was given to 48 students in both groups. The UG test was also sent via E-mail to 10 English native speakers who were all educated people, living in the United States, to decide on the un/grammaticality of the items. The Persian EFL learners were also supposed to decide on the un/grammaticality of the sentences. The subjects had 3 choices for judging each item: "possible", "impossible", and "not sure". Following Bley-Vroman (1988), a "not sure" answer was interpreted as an incorrect response. Then the papers were scored based on the number of the correct answers. Finally, several t-tests were employed on the resulting scores to answer the research questions.

**Results and Discussions**

Table 1 shows the results of proficiency test. As the table indicates the OPT scores ranged between 26 and 89
with the mean score of 30.79 and 75.46 and std. deviation of 2.126 and 4.539 for the less (low group) and the more proficient participants (high group), respectively.

*Table 1. Participants' proficiency scores*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proficiency_Scores</td>
<td>80</td>
<td>26</td>
<td>89</td>
<td>51.47</td>
<td>17.40</td>
</tr>
<tr>
<td>Low_Group</td>
<td>24</td>
<td>26</td>
<td>33</td>
<td>30.79</td>
<td>2.13</td>
</tr>
<tr>
<td>High_Group</td>
<td>24</td>
<td>70</td>
<td>89</td>
<td>75.46</td>
<td>4.54</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In order to answer the first question, a t-test was conducted between the means of the less and the more proficient participants (low and high group) Table 2 reports the result of the t-test with regard to un/grammaticality judgment.

<table>
<thead>
<tr>
<th>group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>24</td>
<td>25.63</td>
<td>5.215</td>
<td>1.065</td>
</tr>
<tr>
<td>high</td>
<td>24</td>
<td>30.92</td>
<td>5.717</td>
<td>1.167</td>
</tr>
</tbody>
</table>

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Table 2. T-test on the mean scores of "low and high" groups

<table>
<thead>
<tr>
<th>grade</th>
<th>Levene's Test for Equality of Variances</th>
<th>Test for Equality of Means</th>
<th>95% Confidence Interval for the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig</td>
<td>t</td>
</tr>
</tbody>
</table>

As the table above illustrates $P = .002$ which is less than $.05 (P<.05) and this indicates that the performance of the two groups on the UG test is significantly different. In other words, the high group performed significantly better than the low group on the un/grammaticality judgment test.

In order to see whether the less proficient group's mean score on the MLC test differed from that of native speakers of English, another t-test was performed.
As Table 3 shows, the t-value was significant at .05 level; that is, P = .000 which is less than .05 and this means that the native speakers' mean score on the UG test was significantly different from that of "low proficiency" group.

Table 3. t-test on the mean score of the low group and native speaker

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>grade</td>
<td>low</td>
<td>24</td>
<td>25.63</td>
<td>5.215</td>
</tr>
<tr>
<td></td>
<td>native</td>
<td>10</td>
<td>38.50</td>
<td>1.080</td>
</tr>
</tbody>
</table>

To investigate the third research question of the study, again another t-test was run. As Table 4. indicates (P < .05), the more proficient learners differed from the native speakers of
English significantly on their mean scores of MLC violation and grammatical sentences.

**Group Statistics**

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>high</td>
<td>24</td>
<td>30.92</td>
<td>5.717</td>
<td>1.167</td>
</tr>
<tr>
<td>native</td>
<td>10</td>
<td>38.00</td>
<td>1.054</td>
<td>.333</td>
</tr>
</tbody>
</table>

Moreover, according to Pearson correlation coefficient and Linear regression analysis, there was a strong correlation between OPT scores and the UG test scores in both the "low and high "

**Table 4. t-test on the mean score of high group and native speakers**

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>t</td>
<td>df</td>
<td>Sig. (2-tailed)</td>
<td>Mean Difference</td>
<td>Std. Error Difference</td>
<td>95% Confidence Interval of the Difference</td>
</tr>
<tr>
<td>grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>16.474</td>
<td>.000</td>
<td>-3.857</td>
<td>32</td>
<td>.001</td>
<td>-7.063</td>
</tr>
</tbody>
</table>

29
proficiency group as shown in table 5 and 6, respectively.

**Table 5. Pearson correlation coefficient between the scores on the low proficiency group and performance on the UG test**

<table>
<thead>
<tr>
<th></th>
<th>proficiency_ Low Group</th>
<th>UGtest_ Low Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>proficiency_Low Group</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.827**</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>24</td>
</tr>
<tr>
<td>UGtest_Low Group</td>
<td>Pearson Correlation</td>
<td>.827**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>24</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

**Table 6. Pearson correlation coefficient between the scores on the high proficiency group and performance on the UG test**
Figure 1 and 2 show that there is a linear relationship between UG test scores and Proficiency scores. As can be seen from the figures and the correlation coefficients (.827 and .819), there is a positive relationship between two sets of scores in both groups. These results find an answer to the last research question and we see that the proficiency test scores affect the performance of subjects on the UG test.
Figure 1. Relationship between the UG test score and OPT score in low proficiency group.

Figure 2. Relationship between the UG test score and OPT score in high proficiency group.
In Bley-Vroman et al. (1988), the TOEFL score and the UG test score have a weak correlation (.23) and the researchers state that "whatever TOEFL may be measuring, it is not the same thing that our test is measuring." An important thing to note is that the subjects in their study are all advanced learners who were living in the United States at the time of the test. Their Proficiency test score is at least 500. Therefore, it may be the case that the higher the proficiency score is, the more irrelevant the correlation between the Proficiency score and any test on UG principles becomes.

To summarize, both the more and the less proficient participants significantly differed from the native speakers of English in their MLC un/grammaticality judgment. Moreover, they were different from each other in terms of MLC judgment. The more proficient learners performed better. This fact indicates that UG does not operate immediately in SLA or that UG does not operate in exactly the same way as it does in L1. In other words, the position that UG is fully available is not supported.

One can explain the performance of the less proficient group that is better than mere chance but not as good as the more proficient group, by assuming that the low proficiency group frequently transferred their L1 values that wh-questions are formed without wh-movement. Wh-movement in Persian is not obligatory, it is optional. If this is the case, it follows that the delay in UG operation is due to the process of parameter resetting. We can say that the low proficiency group begins somewhere in the middle between L1 and L2, adopt both the L1 value that wh-questions are not formed by wh-movement and the L2 value (English) that wh-questions are formed by wh-movement. On the other hand, the more proficient group, which passed the stage of parameter resetting and is located much closer to L2 than the less proficient group, adopted the L2 value, and accordingly recognized the MLC consistently. So, these findings can support one of the available positions in current UG-based SLA research, which states that access to UG in SLA is mediated via L1, corroborating White (1985), White (1988), White (1992), and Uziel (1993).

Also, this study shows that there is a positive relationship between OPT scores and UG test scores. Therefore, we can conclude that the proficiency, which is what the OPT is supposed to measure, was the main factor in activating UG in SLA. In other words, the closer the learners' interlanguage is to L2, the more their UG becomes operative. So, we can conclude that MLC could be confounded by proficiency. This implies that the feasibility of UG theory, by itself, should not be overemphasized; Teachers should not leave students in the hope that they figure out principles or conditions by themselves. Rather, they should focus on "how to teach" to set the right parameters in L2 teaching.

**Conclusion**
This study examined UG availability in SLA using Persian learners of English with different degrees of proficiency. The UG principle tested was the Minimal Link Condition. This research was an attempt to investigate how Persian learners of English would respond to un/grammaticality judgments in English sentences which either observed or violated MLC with regard to wh-movement.

The result of this investigation indicated that EFL participants differed from native speakers of English significantly in terms of MLC judgment. Therefore, MLC and UG, in general, are not available to Persian EFL learners to the same extent that they are to native speaker and these results do not support the theory of direct access to UG. Moreover, the more proficient participants of this study performed better than the less proficient participants in terms of un/grammaticality. Therefore, we can conclude that, given more input, or more time or a better learning environment, the non-native grammar may in due course converge on the target. There was also a Linear relationship between the Proficiency test scores and UG test scores. Here, one can conclude that the 'proficiency variable' could be a moderator variable. As such, L2 teachers should be cautious about the application of UG theory in L2 learning.

References


Appendix (Sample Items)
Please circle "p" if you feel the sentence is possible,"I" if you feel the sentence is impossible,and "N" if you are not sure.

Which test don't you know who failed?
Who did you wonder what kissed?
Who bought what?
What did who buy?
Whom did John persuade whom to meet?
Whom did John persuade to meet whom?
Who likes books that criticize whom?
Who don’t they know why Sue tolerate?