A biolinguistic approach to clausal gerunds and TP-defective gerunds in second language syntax

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Abstract

This paper looks at the question of what second language learners know about syntax but could not have “learned.” It is hypothesized that if we show second-language learners know a particular aspect of the second language (L2) syntax which could not have been learned via formal explanation, and that aspect did not exist in their first language (L1) syntax, we can argue that there is something internal (in their minds/brains) that is responsible for such knowledge – the language organ. The study is intended to offer evidence for biolinguistics from the field of Second Language Acquisition.

Keywords: Biolinguistics; Clausal Gerunds; TP-defective Gerunds; second language syntax

1. Introduction

Biolinguistics is the study of the nature of language as a human biological system on par with vision, the immune system, and the like. Biologists’ object of study, believed to be a natural object in this cognitive organ system, is a component of the human mind/brain. To paraphrase Mendivil-Giro (2010), biolinguistics is a kind of linguistics that forms a part of the natural sciences. It is neither the mixture of biology and linguistics nor the application of biology to the study of language. So construed, the study of language is the study of the Language Faculty (LF) which is common to virtually all human beings and in certain aspects, unique to them.

Although biolinguistics is not directly concerned with the study of second language acquisition (SLA), it has an undeniable effect on the theories of SLA. Some researchers believe that second languages are not natural languages and they are learned through some domain-general processes other than language acquisition. Nevertheless, this is not the view to be held here. Second language acquisition in its core areas (Grammatical Competence), is essentially natural language acquisition, though there are certain features in SLA which need to be learned through other mechanisms. Recent research in Cognitive Neuroscience has shown that the neurological representation of language is the same for first language (L1) and second language (L2). As Stowe (2006, p. 306) states:

In a recent review, Stowe and Sabourin (2005) concluded that both L1 and L2 typically activate the same areas, particularly the typical language areas (i.e., there is no consistent qualitative difference between the neural architecture supporting processing of the two languages). The evidence suggested that this was so even when the L2
was learned relatively late. Therefore, it is reasonable to assume that SLA is natural language acquisition, not a kind of skill learning that employs other domain-general cognitive mechanisms.

1.1. Purpose of the study
This study seeks to shed light on the nature of language; the idea that there exists a biological and cognitive organ in the mind/brain of the human beings – the language organ. The claim is if we can show that the learners of a second language know a particular aspect of the L2 syntax that could not have been learned via the input and formal explanation, and that aspect does not exist in their L1 syntax, we can argue that there is something internal (in their mind/brains) that is responsible for such knowledge. For the purpose of this study two kinds of defective sentential domains in English are chosen, namely Clausal Gerunds and TP-defective Gerunds. The rationale behind choosing these forms is that “there is no Gerund form in Farsi” (Wilson & Wilson, 2001, p. 187). Although there are certain forms of supine in Persian, semantic and syntactic representations of these forms are not the same as English Clausal Gerunds and TP-Defective Gerunds. In English, on the surface, these two forms (Clausal Gerunds and TP-defective Gerunds) look identical but in deeper syntactic analysis (Pires, 2006) certain differences in terms of tense and agreement specifications could be noticed. Pires (2006, p. 1) argues that “different non-finite domains appear to be indeterminate regarding their possible feature specification, especially when there are no over morphological distinction among them.” But “this indeterminacy is only apparent, and syntactic properties give indication of what feature distinction may or may not be relevant for different non-finite domains.” For example, sentences in (1) show a similar behavior at the first look:

(1)  
   a. Frank preferred [going out on Sunday].  
   b. Frank tried [going out on Sunday].

But detailed analyses suggest that there are a range of different properties that distinguish these two types of Gerunds. For instance, the Gerund complement of prefer but not of try allows an over subject in the embedded clause, as seen in (2).

(2)  
   a. Frank preferred [Mary going out on Sunday].  
   b. * Frank tried [Mary going out on Sunday].

To distinguish between different kinds of these defective non-finite domains, the learner must know their appropriate feature specifications; tense, agreement, and case. These properties are not learnable through input and formal instruction and since they do not appear the same in English and Persian, we can infer that this knowledge comes from learners’ minds, if we show that they are successful on the acceptability judgment test.

1.2. Research questions and hypotheses
The present study has two main questions:

1. Can advanced Persian-speaking L2 learners of English distinguish between English Clausal Gerunds and TP-defective Gerunds?
2. Can second language acquisition data be used as evidence for biolinguistics?

Statement of the hypotheses:

1. Persian-speaking L2 learners of English can distinguish between English Clausal Gerunds and TP-defective Gerunds
2. Second language acquisition data can be used as evidence for biolinguistics.

1.3. The Syntax of Clausal Gerunds and TP-defective Gerunds
Pires (2006) presents a comprehensive minimalist account of English and Portuguese defective sentential domains from which I focus on English Clausal Gerunds and TP-defective Gerunds. The reason for labeling these structures “defective” is that “... they are deficient in terms of their specification for certain features” (Pires, 2006, p.
1). Although these defective domains “…seem to represent a unified class, they actually project different structures in syntax. Empirical motivation for this comes from variation in the way they license over and null subjects and from the tense and aspectual distinctions they allow”.

1.3.1. Clausal Gerunds

These are a class of gerunds “... in which the subject can be either a PRO or an overt DP Case-marked with accusative Case (acc-ing) or with nominative Case.” Clausal gerunds “... can license both overt and null subjects, despite the lack of syntactic feature distinction between both instances.” Clausal Gerunds can occur in three main environments: (a) complement to verbs (1a), complement to prepositions (1b,c), and subject position (1d):

(1) a. Mary favored [Bill taking care of her land].
    b. Susan worried about [Mark being late for dinner].
    c. Sylvia wants to find a new house without [Anna helping her].
    d. [Sue showing up at the game] was a surprise to everybody.

Regarding the distribution and licensing of subjects, Pires (2006) introduces five core syntactic properties of Clausal Gerunds:

i. The subject of a CG may be an empty category (standardly analyzed as a PRO) or an overt DP:

(2) a. The manager preferred [PRO being considered for the position in the downtown office].
    b. The manager preferred [Mary being considered for the position in the downtown office].

ii. CGs need to satisfy a case requirement:

(3) a. * It is expected [John reading the book].
    b. * John is preferred reading the book.
    c. * John is impossible reading the book.
    d. [John reading the book] was preferred.
    e. I prefer [John reading the book].

iii. CGs do not behave as Exceptional Case Marking (ECM) complements such as (4a), which is indicated by the fact that they do not occur as complements of ECM verbs like believe (4b-c) nor allow raising of their subjects to the subject position of any passive structure (with ECM (4c) and non-ECM predicates (5b)):

(4) a. Mary believes [Paul to be smart].
    b. * Mary believes [John being smart].
    c. * John is believed [being smart].

(5) a. Mary prefers [Paul swimming in the morning].
    b. * Paul is preferred [swimming in the morning].

iv. CGs can never occur as complements of subject raising verbs (6a-c), although they can occur as a single constituent in the subject position of raising predicates (6d):

(6) a. * There seems [being a man in the room].
    b. * John appears [liking Mary].
    c. * It appears [John liking Mary].
    d. [(John) talking to Mary] seems impossible.

v. The subject position of a CG must be filled in the course of derivation, either by a lexical DP (5a) that may further move, as in (7), or by a pure expletive (8). Within recent minimalist approaches (see Chomsky 2000, 2001 and references therein) the requirement for a subject in the clause has been instantiated as the need to have an EPP feature checked (or valued) in [Spec, TP]:

(7) Paul prefers [Jack swimming in the morning].
(8) Bill enjoys [there being many people at the party.]
1.3.2. TP-Defective Gerunds

Pires (2006) argues that in contrast with the Clausal Gerunds which were introduced in the previous section, there exists a class of complement gerunds that do not project a Tense-Phrase (TP). These are the gerund complements of aspectual verbs (e.g. start, finish, continue) and some other verbs such as try and avoid. He offers two arguments supporting the existence of this class of complement gerunds:

First, TP-defective gerunds do not have a tense and aspect specification independent from the matrix clause; they do not allow the occurrence of embedded temporal adverbials (9) (this is possible with Clausal Gerunds (10)). Likewise, TP-defective gerunds do not allow perfective morphology (11) whereas Clausal Gerunds do (12 and 13):

(9)  a. * Bill tried today [ej talking to his boss tomorrow].
    b. * Philip avoided last night [ej driving on the freeway this morning].
(10)  Mary worried (yesterday) about Paul/him/ej coming to dinner (tonight).
(11)  a. * Mark tried [having convinced his friends].
    b. * John will avoid [having talked to Mary].
(12)  a. Mark counted on [having convinced his friends].
    b. John will remember [having talked to Mary].
(13)  a. Ann counts on [John having finished the exam by now].
    b. Paul remembers [having been to Chicago].

The second argument supporting that TP-defective gerunds do not project a TP is the fact that they do not allow an overt subject, either a regular DP or an expletive there (14), which are both possible with clausal gerunds (15):

(14)  a. * Clark tried [Mary taking care of the finances].
    b. * Mary avoided [there being too many people in the party].
(15)  a. David prefers [Mary taking care of the finances].
    b. Paul insists on [there being many people interested in his inventions].

2. Method
2.1. Participants

To accomplish the objectives of the study, 42 intermediate English learners of a private language institute in Karaj were chosen according to the score they obtained in a mock IELTS test (General Module). The chosen subjects had scored between 5 and to 6 in the test. In the second phase, they were interviewed to make sure they have never been to an English-speaking country for a significant period of time.

2.2. Instrumentation

In order to conduct the study an Acceptability Judgment Test was prepared. Mandell (1999) has compared Grammaticality Judgment Tests data with dehydrated sentences (DS) test data – an assessment tool commonly used in L2 classroom – and has indicated that Grammaticality Judgment data are reliable measures of linguistic knowledge in SLA research. The researcher prepared a table of specification to identify the syntactic features which he intended to test. Based on the table, 20 sentences were chosen from the examples provided in Pires (2006). The first draft of the Acceptability Judgment Test was piloted with 20 similar learners. To contribute to the reliability of the test, two versions of the same test were prepared (the same items with different ordering). Half of the subjects received the first ordering and the other half the second ordering. This was done to make sure that the ordering of the items does not affect the results.

3. Results, Discussion and Conclusion

To start with the crucial results, the experiment was successful in showing that our subjects were able to identify grammatical and ungrammatical sentences to a high degree. The minimum frequency of the correct answers was 25 and the maximum 40 out of 42. The standard deviation was 4.77. Generally, there were 665 correct responses and 175 incorrect responses out of a total of 840 responses – i.e., %79.17 of the responses was correct, and %20.83 of
the responses was incorrect. This is shown in table 1.

### Table 1. Percentage of responses

<table>
<thead>
<tr>
<th>Correct Responses %</th>
<th>Incorrect Responses %</th>
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<tbody>
<tr>
<td>79.17</td>
<td>20.83</td>
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</table>

As table 8.1 reveals the hypothesis is confirmed to a relatively high degree. Table 2 shows the frequency of correct responses to each item of the Acceptability Judgment Test.

### Table 2. Percentage of correct responses per item

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct Responses %</th>
<th>Item</th>
<th>Correct Responses %</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>88.3</td>
<td>11</td>
<td>88.1</td>
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<tr>
<td>2</td>
<td>90.5</td>
<td>12</td>
<td>81.0</td>
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<td>3</td>
<td>85.7</td>
<td>13</td>
<td>71.4</td>
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<tr>
<td>4</td>
<td>59.5</td>
<td>14</td>
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<td>5</td>
<td>83.3</td>
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<td>6</td>
<td>88.1</td>
<td>16</td>
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<td>7</td>
<td>64.3</td>
<td>17</td>
<td>73.8</td>
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<td>8</td>
<td>92.5</td>
<td>18</td>
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<td>9</td>
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<td>10</td>
<td>66.7</td>
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<td>85.7</td>
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</table>

As it could be noticed from the table, there are only two items with frequencies less than 60% and three items with frequencies less than 70%. For the rest 15 items, frequency of correct responses range from 71.4% to 92.5%. The results suggest that even though Clausal Gerunds and TP-defective Gerunds do not exist in the L1 grammar of the subjects and they have never been explicitly taught to the subjects, these syntactic domains are distinguishable for the subjects.

The Acceptability Judgment Test tested the knowledge of Clausal Gerunds and TP-defective Gerunds with regard to the following syntactic features of these domains:

- Licensing the subject (null subjects, overt DP case-marked with accusative or nominative case)
- Positions in which they can occur
- Satisfying case requirements
- Allowing there expletives
- Occurrence of embedded temporal adverbials, i.e., independent tense
- Allowing perfective morphology

To test the first feature, items 1, 9, and 15 were employed in the Acceptability Judgment Test. Item 1 having a null subject which was answered correctly by 83.3%. Items 9 and 15 having an overt DP which were answered correctly by 90.5% and 88.1% of the subjects, respectively. This suggests that the subjects were quite competent in knowing that Clausal Gerunds license both forms.

As for the positions in which the Clausal Gerunds may occur in a sentence the test employed items 3, 6, 10, 14, 17, and 20. Items 3 and 17 were complements of a subject raising verbs which were answered correctly by 85.7% and 73.8% of the subjects. Item 6 was the case of complement of an ECM verb (believe) which was answered correctly by 88.1% of the subjects. Item 10 was the case of the subject of the sentence answered correctly by 66.7% of the subjects. Item 14 was the case of a single constituent in the subject position of a raising predicate answered...
correctly by 59.5% of the subjects. Item 20 was the case of a complement to a preposition which was answered correctly by 85.7% of the subjects. Once again the results suggest that the subjects were able to distinguish different position that Clausal Gerunds may occupy. Only the results of item 14 were not significant. It may suggest that at this level this structure is problematic for the subject. Nevertheless, the interesting point is that the literal translation of item 14 into Persian (subjects’ first language) makes sense. It shows that the subjects were paying attention to the structure of the items rather than their meaning.

Items 2 and 11 tested the knowledge of the subjects regarding the case requirement of Clausal Gerunds. As discussed before, Clausal Gerunds cannot occur in case-less position. 88.1% of the subjects answered item 1 correctly and 90.5% of the subjects responded correctly to Item 11. This shows that the subject knew very well that Clausal Gerunds need to satisfy the case requirements.

Regarding the fourth feature (allowing there expletives) the test employed items 13 and 18. As discussed in chapter two, Clausal Gerunds allow the occurrence of there expletives whereas TP-defective gerunds do not. Item 13 was a TP-defective Gerund which was ungrammatical due to the existence of there and it was correctly answered by 71.4% of the subjects. Item 18 was a grammatical Clausal Gerund which was answered correctly 66.7% of the subjects. This shows that up to a good degree the subjects were able to distinguish the two kinds of Gerunds, although their performance is not that much outstanding.

The next feature to test was the occurrence of embedded temporal adverbials. Since TP-defective Gerunds do not have tense and aspect specification independent from the matrix clause, they do not allow the occurrence of embedded temporal adverbials, contrary to Clausal Gerunds. Item 4 was a Clausal Gerund which was answered correctly by 59.5% of the subjects and Item 8 which was a TP-defective Gerund was answered correctly by 92.5% of the subjects. There is a big difference which shows that the subject knew TP-defective Gerund much better than Clausal Gerunds in this regard.

Finally, the test investigated the knowledge of the subjects on allowing perfective morphology in these defective domains. TP-defective Gerunds do not allow perfective morphology whereas Clausal Gerunds do. Item 5 was an ungrammatical TP-defective Gerund which was answered correctly by 83.3% of the subjects. Item 7 was a grammatical Clausal Gerund which was answered correctly by 64.3% of the subjects. Item 19 was an ungrammatical TP-defective gerund which was answered correctly 71.4% of the subjects.

Generally, it could be observed that up to a high degree the subjects of this study were able to distinguish the differences between the two kinds of defective domains which were investigated; Clausal Gerunds and TP-defective Gerunds. These results lead to the confirmation of the hypothesis that Persian-speaking L2 learners of English can distinguish between English Clausal Gerunds and TP-defective Gerunds.

Having confirmed the first hypothesis, we turn to the second, which is a concomitant of the first hypothesis. The second hypothesis asserted that since the investigated aspects of English syntax are not present in the first language of the speakers (Persian) and that they could not have been learned through formal explanation and teaching, we can offer evidence for biolinguistics regarding the claim that there exists only one human language. In conclusion, the results of present study support that there exists a cognitive biological organ in the minds/brains of our species which is dedicated to language and the capacity to learn natural languages is innate.

References


