A syntactic-based approach to the perception and production of English verbs’ argument structures by Iranian EFL learners

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Abstract: Foreign language learners face learnability problems in the perception and production of English verbs’ argument structures manifested by different verbs. The purpose of this study was to investigate the problems Iranian learners encounter when perceiving and producing English verbs’ argument structures. A number of 75 students whose major was English literature and translation took part in this study. To answer the research questions, first, an Oxford Placement Test was administered to obtain three different proficiency levels including elementary, lower intermediate, and upper-intermediate. Then, one week after the proficiency test, a translation test was used to assess the learners’ production of English verbs’ argument structures. Finally, a Grammaticality Judgment test was conducted one week after the translation test to estimate the learners’ perception of English verbs’ argument structures. The data then were analyzed using descriptive statistics, One-way ANOVA, and also a Paired-samples t-test. The obtained data showed that students with different proficiency levels produced and perceived English verbs’ argument structures differently.

Additional information is available at the end of the article

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PUBLIC INTEREST STATEMENT

In spite of the time and energy dedicated to teaching grammar in Foreign and Second language programs, foreign language learners still face difficulties in comprehending and producing English verbs’ argument structures. Since argument structures play a key role in grammar; thus, there is a need to investigate and diagnose the problems Iranian learners face when perceiving and producing English argument structures. The obtained results showed that students encountered serious problems in perceiving transitive verbs and producing ditransitive verbs. Also, the learners’ comprehension and production of argument structures improved as their proficiency increased. The findings of this survey may prove useful to teachers in teaching English grammar.
argument structure differently and also they faced problems in producing ditransitive and perceiving transitive verbs.

Subjects: Adult Education and Lifelong Learning;; Educational Research; Education Studies

Keywords: English verbs’ argument structures; syntactic categories; proficiency level; production; perception

1. Introduction

According to Allen (2015), “Arguments can be identified in two ways: regarding syntactic roles concerning the verb such as subject and object, and concerning semantic roles in relation to the verb such as agent (an entity that instigates an action) and patient (an entity that undergoes an action).”

The study of the acquisition of argument structure has long figured prominently in debates about learning and abstractness (Viau & Bunger., 2016, p. 3). “The problem of argument structure is central to any theory of grammar” (Jackendoff, 2002, p.137). Realizing argument structure is a key to the realization of predication; hence, to understand how events and states are construed through linguistic expressions, the most typical kind of lexical item that supports predication is the verb. Thus, an analysis of how argument structure is realized in a given language is ultimately an analysis of how verbs will behave in that language when they express events and states by way of the patterning of clauses. The linguistic realization of arguments may be regarded as the transition between mental representations of concepts and the manifestations that emerge from them in morph-o-syntactic structures. Therefore, the semantics of argument realization is of crucial importance, and argument structure can be understood as a component of grammar in which there is an accurate interface account between semantics and syntax. Thus, on analyzing argument structure, it is useful to draw a theoretical distinction, between a semantic argument and a syntactic argument.

Harley’s (2006) approach is a hand framework that helps readers and addresses first the notions of non-relational and relational meanings, or concepts. The former can be defined as concepts that do not depend on other concepts to be construed, such as the concept of ‘boy’ and the concept of ‘apple’, the latter can only be appropriately construed by simultaneous mental activation of accompanying concepts, or concepts they have a relationship with. One such concept, taken from Jackendoff’s (2002) presentation of argument structure is the concept expressed in English by the verb ‘devour’. To conceptualize the meaning of this verb, the concepts of a ‘devourer’ and of a ‘devouree’ must also be present as participating concepts. Because of this property, relational concepts such as the meaning encoded by the verb ‘devour’ are referred to as predicators. When events and states are construed, the concepts that participate in the predication are referred to as the predicator’s arguments.

However, it should be noted that the argument structure is more than the specification of participating arguments. The structuring of argument realization in a language such as English also seems to imply specific linking constraints in the choice of syntactic configurations which will satisfy requirements imposed by the argument structure. Considering again a verb such as ‘devour’, this can be exemplified in the prompt semantic acceptability of the utterance “the boy devoured the apple”. In this utterance, ‘boy’ and ‘apple’ are noun phrases semantically compatible with the concepts of “devourer” and “devouree”, fine compatibility that would not be easily achieved had the utterance been “the apple devoured the boy”. In the second utterance, there seems to be a violation of a required distribution of arguments that can be formally sketched as X DEVOUR Y, where X must be ‘devourer’, and Y ‘devouree’. If instead of the highly specific labels “devourer” and “devouree” we choose the more general labels “agent” and “theme”, it is not difficult to realize that the argument structure of ‘devour’ can be stated as X (agent) VERB Y theme.
Furthermore, it is not difficult to realize that this generalization captures a remarkable grammatical similarity between the meaning of devouring and that of a vast array of other English verbs, the meanings typically are associated with ‘sweep’, ‘fix’, and ‘carry’ being but a few examples.

Traditional grammar classifies verbs according to the number of arguments they select. Furthermore, conventional syntax refers to arguments with the function that they have in the sentence, such as subject, object, and indirect object. According to the traditional grammar, we have intransitive verbs (with one argument, notably the subject), transitive verbs with two arguments (subject and object), ditransitive verbs with three arguments (subject, direct object, indirect object).

The primary task that EFL learners have to accomplish in learning argument structures is determining which verbs can appear in which argument structures. The task of the acquisition of argument structure including transitive, intransitive, and ditransitive complements can be among the learnability problems faced by EFL learners. Therefore, the aim of this study is to find out an order of difficulty in the perception and production of English verbs’ argument structures among Iranian EFL learners, the potential problems Iranian EFL learners face when trying to perceive and produce English argument structures, and the scope of the knowledge Iranian EFL learners at different proficiency levels have on the argument structures. It seems that different kinds of English argument have not adequately been addressed in the educational system. Reviewing the related literature on argument structures, a few studies have been done on argument structures among EFL learners. Therefore, the current research was based on how EFL learners perceive and produce English argument structures across different language proficiency levels.

1.1. Theoretical framework
There are various theories of argument structure (Pinker, 1989; Rappaport & Levin, 1988; Zubizarreta, 1987). These theories have assumed that argument realization is determined to a large extent by the lexical-semantic properties of verbs and verb meaning is compositional and that some parts of meaning, which are recurrent in many verbs, determine their grammatical behavior. These authors have proposed that agentive activity verbs, such as the English examples run, dance, cry, write, paint, and sew contain in their lexical meaning the manner of acting of the agent argument, being all represented by a lexical-semantic structure such as [X ACT<MANNER>]. The authors argue that manner verbs may be intransitive, since manner roots modify a monadic predicate, even when they present an “apparent argument” in object position. The claim is that, in such cases, the object would be an argument of the root <MANNER>, not an argument of the verb per se, since it need not be expressed. This study made use of Grimshaw’s (1990) syntactic framework which is elaborated more in the following parts.

This study was based on Grimshaw’s (1990) model since it formulates an original and highly predictive theory of argument structure that accounts for a large number of syntactic phenomena. An argument structure is “a lexical representation of grammatical information about a predicate” (Grimshaw, 1990, p.1), and is a level of representation which maps lexical conceptual/semantic structure onto D-structure. Under Grimshaw’s theory, an argument structure represents prominence relations among arguments, and prominence is determined by both thematic and aspectual properties of the predicate. Concerning thematic prominence, Grimshaw (p. 8) assumed the thematic hierarchy determines which argument will be the external argument, and thus the grammatical subject:

Thematic Hierarchy
(Agent (Experiencer (Goal/Source/Location (Theme))))

According to Grimshaw, transitive and intransitive verbs are thought to assign an external theta role. The element to which the external theta role is assigned is most often realized as the subject
of the clause. Transitive verbs subcategorize for minimally one internal argument, most often understood as the object of the clause. Assuming the verb phrase internal hypothesis (Koopman & Sportiche, 1991) which generates the external argument verb phrase internally at the underlying level of the syntax, and Larson’s (1988) clausal structure in which verb phrases are composed of shells or layers to accommodate the number of arguments, a monotransitive structure will appear as follows at the underlying level of the syntax (Figure 1):

An intransitive verb phrase will be comprised of only the upper shell to accommodate the external argument, but will not contain the lower shell given that intransitive verbs do not subcategorize for an internal argument. Un-accusative verbs subcategorize for an internal argument, which may be realized as the surface subject. They do not assign an external theta role. Within the structural framework, the underlying structure of an Un-accusative verb parallels that of the intransitive verb except that the argument which appears in the specifier VP is an internal, not an external argument, as shown in the diagram below (Figure 2):

1.2. Empirical studies on English verbs’ argument structure
For second language learners of English, the acquisition of English argument structures is a challenging task (Hejazian Yazdi & Rezai, 2015). Moore (1993) tried to investigate the acquisition of the causative alternations by second language learners of English in three experiments. He focused on overgeneralization as the main cause of wrong causativization. He found a significant difference between causativizable and non-causativizable verbs in all three experiments. Proficiency, L1 influence, and verb type proved to be significant.

Can (2009) tried to diagnose the acquisition of intransitives by Turkish EFL learners by comparing the (partial) results of the study carried out in 2000 with the results of its replication conducted in 2007. In both studies, all the variables were the same. The participants were 50 EFL learners randomly selected among the first-year students of ELT Department of Faculty of Education at Uludag University, Turkey, in 2000 and 2007. Their proficiency levels were determined via a cloze test, and a Grammaticality Judgment test with various subclasses of intransitives was administered. Results of the study revealed that the participants’ proficiency levels have increased through these seven years, on the other hand, paired ergative verbs were the most problematic subclass of intransitive in both studies.
Abbasi Bagherainpour, Sahragard, and Sadighi (2010) attempted to explore the effect of one of the pragmatic elements of discourse (namely the conceptualizable agent) on over-passivization of English un-accusative verbs. The participants were 206 Iranian intermediate and advanced English majors. They were asked to choose the more grammatical form (active or passive) in target sentences with un-accusative verbs through using the questionnaire by Ju (2000). Each target sentence was embedded in two different contexts expressing external and internal causation. The participants' performance supported the hypothesis that un-accusatives were over-passivized more when the discourse context offered a conceptualizable agent, and that monadic un-accusative verbs were passivized more than dyadic ones. The results demonstrated that the participants recognized conceptualizable agents offered by the discourse context and their judgments on sentence acceptance were influenced by these agents. Therefore, these errors are language universal rather than language-specific, and this study argued against a purely syntactic analysis of interlanguage errors such as over-passivization and talked in favor of an approach that takes pragmatic factors into account.

Rezai and Ariamanesh (2012) explored the acquisition of English un-ergative and un-accusative structures. A number of 55 studied English literature and 23 were MA students studied English teaching at Yazd University participated in this research. All participants took a placement test, and based on the results, they were divided into three groups based on their levels of proficiency, including lower intermediate, upper intermediate, and advanced. The researchers gave three kinds of tests, including slide-show pictures, a production test, and a grammatical judgment test. The results showed that the participants had learning problems associated with Un-accusative predicates as well as the intransitive (inchoative & middle) variants of Paired Ergative verbs. Additionally, the role of L1 (Persian) was detected in the acquisition of un-ergative and inchoatives more clearly when the learners experienced learning difficulties as the result of negative transfer from L1. In the case of un-accusatives, the challenges are attributed to the lack of L2 intuitive knowledge of the learners.

Abbasi Bagherianpoor et al. (2015) investigated the role of causativization in over-passivization of un-accusative verbs by Iranian students of English majors. The participants were 139 students whose major was English Literature and Translation. An Oxford placement test was administered to determine the participants' level of language proficiency and then based on their score they were categorized into three groups: lower intermediate, upper intermediate, and advanced. In the first session, the subjects took a short constructed response task, and their rate of causativization of un-accusatives was checked. In the second session, a grammatical judgment task was given to the three groups to comprehend correct un-accusative, causativization errors, and also over-passivization. After analyzing the data, the results revealed that causativization mistakes with non-alternating un-accusatives were common errors among Iranian English Majors. Level of language proficiency was a significant factor in the learners' performance at both comprehension and production levels. Besides, there was a statistically significant correlation between the participants' performances in the causativization and passivization errors with non-alternating verbs. The obtained results revealed that language learners encountered serious problems in both production and comprehension of causativization of alternating and non-alternation un-accusatives, and also more exposure to language input, explicit teaching of the verbs structures, and practice in different contexts can improve the situation.

Hejazian Yazdi and Rezai (2015) tried to explore into language learnability of the argument structures of English transitivity constructions by EFL learners. The Oxford Quick Placement Test was given to 130 BA and MA students of Yazd University after which 99 students were selected and classified into three levels of proficiency including, elementary, intermediate, and advanced groups. A Completion Task was conducted to measure the participants' production of the argument structure of transitivity constructions. The results showed that the participants had the highest performance in producing transitive structures. Moreover, the role of L1 was detected in
the acquisition of those verbs which were optionally transitive verbs in English but mono-transitive in Persian and the majority of EFL learners preferred to use transitive structures.

Dehghan and Rezvani (2016) examined the degree to which similarities and mismatches between English and Persian influence the use of un-accusative and un-ergative verbs by Persian-speaking learners of English. Seven verb categories were identified as the basis for comparison based on different verb types in English and Persian. A forced-choice elicitation test, including 48 items, was developed based on these seven verb categories. A proficiency test was also used to divide 116 undergraduate students of English into high and low proficiency groups. The results revealed findings more in line with a transfer at the morphological rather than the argument structure level. Alternating un-accusatives with similar equivalent structures for transitive/intransitive pairs in Persian and non-alternating un-accusatives with different structures for transitive/intransitive pairs in Persian seem to be the most challenging verb categories for learners. The effect of proficiency level was also significant in the recognition of correct structures.

Reviewing several studies carried out on argument structure revealed that most of them have focused on one aspect of the topic neglecting the other properties which were closely related to it. Therefore, this study, in contrast, trying to fill this gap, focused on different argument structures to find out how EFL learners perceive and produce them syntactically. Moreover, the researchers tried to investigate the effect of the EFL learners’ language proficiency level on learning these structures. In addition to these, the researcher attempted to examine whether there is a significant difference between Iranian EFL learners’ production and perception of argument structures syntactically.

1.3. Objectives of the study
This study has multiple objectives to deal with the problems that our Iranian EFL learners encounter while they are processing English verbs’ argument structures syntactically in both modes of language learning, production, and perception. An attempt has been made to explore if there is an order of difficulty in perceiving and producing these constructions. Likewise, the comparison of these structures has been made to check whether a distinction can be found in the order of difficulty between the two types of arguments, syntactically. The next line of inquiry of the current study is to explore the scope of the knowledge Iranian EFL learners at different proficiency levels have on the argument structures in which the mentioned verb-types are used. In addition to these, the research survey investigates whether there is a significant difference between the learners’ perception and production of English verbs’ argument structures syntactically or not. More detailed delineations of these issues are presented in the form of research questions and null hypotheses as follows.

(1) Is there an order of difficulty in the production of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies?
(2) Does Iranian EFL learners’ proficiency affect their performance in producing English argument structures syntactically?
(3) Is there an order of difficulty in the perception of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies?
(4) Does Iranian EFL learners’ proficiency affect their performance in perceiving English argument structures syntactically?
(5) Is there any difference between the perception and production of English verbs’ argument structures by Iranian EFL learners syntactically?

Based on the questions mentioned above, the following null hypotheses result:

H01: There is no order of difficulty in the production of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies.
H02: Iranian EFL learners’ proficiency does not affect their performance in producing English argument structures syntactically.

H03: There is no order of difficulty in the perception of English verbs’ argument structures by Iranian EFL learners utilizing syntactic dichotomies.

H04: Iranian EFL learners’ proficiency does not affect their performance in perceiving English argument structures syntactically.

H05: There is no difference between the perception and production of English verbs’ argument structures by Iranian EFL learners syntactically.

2. Method

2.1. Participants
Participants of the present study were 75 undergraduate BA students, including 63 females and 12 males majoring in English Translation and Literature at Jahad University located in Ahvaz. Their age ranged from 18 to 25. The participants took part in an Oxford Quick Placement Test (Allan, 2001), and based on its results, they were categorized into three levels of proficiency: 30 students were placed at the elementary (scores between 18 and 29), 30 participants as the lower intermediate (scores between 30 and 39), and 15 participants at the upper intermediate (scores between 40 and 47). All the items in the Oxford Quick Placement test, used by the researcher in the current study, were derived from the standardized tests such as the Cambridge University Examinations Syndicate and the British Council in which lexicon and level of language difficulty have precisely been controlled. The categorization of the participants was based on the Allen’s categorization.

2.2. Instruments
A standard Oxford Quick Placement Test (Allan, 2001) was utilized in this study to categorize the participants into three proficiency levels, as mentioned above. The test consisted of two integrated parts with 60 multiple-choice items, which measured the learners’ knowledge of grammar and vocabulary (Appendix A). To find out how Iranian EFL learners perceive and produce English argument structures, two kinds of test were used. The first test was a translation test through which the participants were required to translate 48 simple Persian sentences into English including 16 transitive verbs, 16 intransitive verbs, and 16 ditransitive verbs, respectively (Appendix B). All sentences in this test were Persian translations of English sentences extracted from different books written by native linguists or from different monolingual dictionaries. The Persian translations were utterly correct, fluent, and based on Persian contemporary and standard prose.

| Table 1: Classification of participants based on the Oxford Quick Placement test |
|---------------------------------|-----------------|-----------------|-----------------|
| Level                           | Paper and pen test score | Part 1 score out of 40 | Part 1 score out of 60 |
| 0 Beginner                      | 0–15             | 0–17            | A1               |
| 1 Elementary                    | 16–23            | 18–29           | A2               |
| 2 Lower intermediate            | 24–30            | 30–39           | B1               |
| 3 Upper intermediate            | 31–40            | 40–47           | B2               |
| 4 Advanced                      | 48–54            |                 | C1               |
| 5 Very advanced                 | 54–60            |                 | C2               |
The second test was a Grammaticality Judgment test which consisted of 48 items including 16 transitive verbs, 16 intransitive verbs, and 16 ditransitive verbs, the score for each correct answer was considered to be 1; for each wrong answer, 0 was assigned. The test-takers had the option to accept or reject the given sentences by judging them as grammatically possible or impossible (Appendix C). The verbs in these tests were selected based on their frequency in the Corpus of Contemporary American English (COCA), meaning that these verbs frequently occur in contemporary speech. The Cronbach alpha indexes of reliability for the Oxford Placement Test, the Translation test, and Grammaticality Judgment test were .81, .91, and .78, respectively. Finally, to test the validity of the Translation test, the students’ translations were checked by a professor who taught translation courses at the Jahad University of Ahvaz, and also the validity of Grammaticality Judgment test was checked by a professor who taught English grammar courses at that university.

3. Data analysis
The following results were obtained by the analysis of the data using the SPSS software (version 18). The results were presented and analyzed in the order of the research questions (RQs) pertaining to the three syntactic categories (transitive, intransitive, and ditransitive).

3.1. Results of the production of argument structures utilizing syntactic dichotomies
The first research question of this study asked, “Is there an order of difficulty in the production of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies?” In other words, to see the order of difficulty of the argument structures including transitive, intransitive, and ditransitive types, the total frequency of the correct and wrong answers to each syntactic categories for all participants in the translation test was calculated separately to determine the hierarchy order of syntactic categories.

Table 2 illustrates the hierarchy of difficulty of syntactic categories for all the participants in the translation test (production task).

According to Table 2, English ditransitive verbs with 1081 and the correct mean of 67.56 correct items (the highest number and mean) is regarded as the most problematic argument structure and the transitives with 1198 correct items and the correct mean of 74.87 as the least problematic argument structure in the production test because it had more right answers. The intransitive type stands in the second row carrying 1149 correct answers with the correct mean of 71.81. Therefore, the null hypothesis, H1: there is no order of difficulty in the production of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies can be rejected since the correct means of the three verb types were different and the number of correct answers for transitive is higher than intransitive and ditransitive verb types, respectively.

3.2. Results of participants’ performance in the translation test (production), related to the three syntactic types
The second research question of this study asked, “Does Iranian EFL learners’ proficiency affect their performance in producing English argument structures syntactically?” To answer this question, first
the mean and standard deviation of the participants’ performance in the translation test was calculated; then, the analysis of one-way ANOVA Scheffe statistics was used to see if any significant differences existed between the three proficiency levels.

Table 3 shows the mean score of the performance of each proficiency group on the three verb types (transitive, intransitive, and ditransitive) in the translation test. It is clear that ditransitives are the most problematic for all three groups based on the frequency of the correct answers. Transitives along with intransitives pose less learning difficulties. The performance of the upper-intermediate participants seems a bit different since they had the best performance on transitive verbs.

A mixed between-within groups ANOVA was conducted to explore the impact of proficiency on the Iranian EFL learners’ difficulty order of transitive, intransitive, and ditransitive verbs in the translation test. The results of the differences between- and within-subjects are presented in Table 4.

As Table 4 shows, the p-value for ditransitive is less than 0.05; therefore, it can be concluded that there is a significant main difference between the three groups but there is no difference between groups for transitive and intransitive verbs. Thus, the second null hypothesis H2: Iranian EFL learners’ proficiency does not affect their performance in producing English argument structures syntactically, can be rejected only for ditransitive verbs since there was a significant difference among the three groups for ditransitive verbs whereas the null hypothesis cannot be rejected for the other two types of verbs (transitive and intransitive), because the p value for these two verbs was higher than 0.05.

**Table 3. Descriptive statistics of the argument structures across proficiency in the translation test**

| Argument structures | Proficiency     | N   | Mean | SD   |
|---------------------|-----------------|-----|------|------|
| Transitive          | Elementary      | 30  | 15.96| .18  |
|                     | Lower-intermediate | 30  | 15.96| .182 |
|                     | Upper-intermediate | 15  | 16.00| .00  |
| Intransitive        | Elementary      | 30  | 15.16| .74  |
|                     | Lower-intermediate | 30  | 15.23| .67  |
|                     | Upper-intermediate | 15  | 15.80| .41  |
| Ditransitive        | Elementary      | 30  | 13.43| 1.85 |
|                     | Lower-intermediate | 30  | 14.80| 1.27 |
|                     | Upper-intermediate | 15  | 15.60| .63  |
| Grand Mean          |                 |     | 15.43|      |

**Table 4. Results of the one-way ANOVA in translation test**

| Argument structures | Sum of square | df | Mean square | F    | Sig. |
|---------------------|---------------|----|-------------|------|------|
| Transitive          |               |    |             |      |      |
| Between groups      | 0.013         | 2  | 0.007       | 0.248| 0.781|
| Total               | 1.947         | 74 | 0.027       |      |      |
| Intransitive        |               |    |             |      |      |
| Between groups      | 4.387         | 2  | 2.193       | 4.945| 0.010|
| Total               | 36.320        | 74 |             |      |      |
| Ditransitive        |               |    |             |      |      |
| Between groups      | 54.420        | 2  | 27.210      | 12.909| 0.000|
| Within groups       | 151.767       | 72 | 2.108       |      |      |
| Total               | 206.187       | 74 |             |      |      |
3.3. Results of the perception of argument structures utilizing syntactic dichotomies

The third research question of this study asked, “Is there an order of difficulty in the perception of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies?” In other words, to see the order of difficulty of the argument structures including transitive, intransitive, and ditransitive types, the total frequency of the correct and wrong answers to each syntactic category for all participants in the Grammaticality Judgment test was calculated separately to determine the hierarchy order of syntactic categories.

Table 5 illustrates the hierarchy of difficulty of syntactic categories for all the participants in Grammaticality Judgment Test (perception).

Table 5 shows that English transitive verbs with 206 correct answers and the correct mean of 68.66 are the most problematic argument structure and ditransitive verbs with 679 answers and the correct mean of 226.3 is the least problematic argument structure in the perception test. The intransitive category carrying 453 correct items with the correct mean of 151 stands in between the two. Therefore, the null hypothesis, H3: There is no order of difficulty in the perception of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies can be rejected since the means of the three verb types were different and the number of correct answers for ditransitive is higher than intransitive and transitive verb types, respectively.

3.4. Results of participants’ performance in the grammaticality judgment test (perception) related the three types of syntactic categories

The fourth research question of this study asked, “Does Iranian EFL learners’ proficiency affect their performance in perceiving English argument structures syntactically?” To answer this question, first the mean and standard deviation of the participants’ performance in the Grammaticality Judgment Test was calculated; then, the analysis of one-way ANOVA Scheffe statistics was used to see if there existed any significant differences between the three proficiency levels.

Table 6. Descriptive statistics of the argument structures across proficiency in Grammaticality Judgment Test

![Table 6](https://example.com/table6.png)
Table 6 reveals the mean score of the performance of each proficiency group on the three verb types (transitive, intransitive, and ditransitive) in the Grammatical Judgment test. It is easily possible to see the differences among the participants from different levels. Transitives were the most problematic for all three groups. Intransitives along with ditransitives pose less learning difficulties. The performance of the upper-intermediate participants seemed to be a bit different since they had the best return on intransitive verbs.

The other statistical test was a mixed between-within groups ANOVA which was conducted to explore the impact of proficiency on the Iranian EFL learners’ difficulty order of transitive, intransitive, and ditransitive verbs in the grammaticality judgment test. The results of the differences between- and within-subjects are presented in Table 7.

Table 7 demonstrates that the p-value for all argument structures is less than 0.05; therefore, it can be concluded that there were significant main differences between the three groups for the three types of argument structures and upper-intermediate participants outperformed the other two groups, while lower-intermediate students outperformed the elementary subjects. The fourth null hypothesis H4: Iranian EFL learners’ proficiency does not affect their performance in perceiving English argument structures syntactically, can be rejected since there was a significant difference among the three groups for all the three verb types.

3.5. Results of the hierarchy of English verbs’ argument structures: A comparison between syntactic categories in the production and perception tests

To answer the fifth research question, which asked, “Is there any difference between the perception and production of English verbs’ argument structures by Iranian EFL learners syntactically?” To answer this question, a paired-samples t-test was run to show the significance of the difference in the two types of tests, production, and perception.

Table 8 shows the paired-samples t-test for syntactic categories in the perception and production tests.

According to Table 8 the statistical analysis indicated that the p value for syntactic categories in the perception and production test is less than 0.05; therefore, it is clear that there is a significant

| Table 7. Results of the one-way ANOVA in Grammaticality Judgment Test |
|--------------------------|----------------|-----|-----|-----|
| Argument structures | Sum of square | df  | Mean square | F   | Sig. |
| Transitive Between groups | 139.613 | 2 | 69.707 5.035 | 13.844 | 0.000 |
| Within groups | 362.533 | 72 | | | |
| Total | 501.947 | 74 | | | |
| Intransitive Between groups | 326.900 | 2 | 163.450 4.432 | 36.880 | 0.000 |
| Within groups | 319.100 | 72 | | | |
| Total | 36.320 | 74 | | | |
| Ditransitive Between groups | 40.420 | 2 | 20.210 5.213 | 3.877 | 0.025 |
| Within groups | 375.367 | 72 | | | |
| Total | 415.787 | 74 | | | |

Table 8. Paired-samples t-test for syntactic categories in perception and production tests

| Mean | Std. deviation | Std. error mean | t    | df | Sig. (2-tailed) |
|------|---------------|-----------------|------|----|----------------|
| -19.94 | 5.66          | .653            | -30.51 | 74 | .000            |
difference between the syntactic categories in the translation test (production) and the Grammaticality Judgment test (perception). Therefore, the fifth null hypothesis which is “there is no difference between the perception and production of English verbs’ argument structures by Iranian EFL learners syntactically” can be rejected since the above table showed that there was a significant difference between syntactic categories in the production and perception tests.

4. Discussion
Having reviewed the results of the study, we now would address the questions of the study.

4.1. Discussing the perception and production of argument structures utilizing syntactic dichotomies
This study explored whether there is an order of difficulty in the production and perception of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies or not. The results found as an answer to the first and third research questions, presented in Tables 2, and 4, showed that in the case of syntactic categories in the production test the mean score for ditransitive was less than transitive and intransitive verbs. Therefore, ditransitives were the most problematic English verbs’ argument structures, while in the perception test the mean score for transitives was less than intransitive and ditransitive verbs. Thus, transitive verbs were the most problematic English verbs’ argument structures. As a result, we came to the conclusion that there is an order of difficulty in both production and perception of English verbs’ argument structures among Iranian EFL learners utilizing syntactic dichotomies. As far as the first and second questions are concerned, this study is somehow compatible with Hejazian Yazdi and Rezai (2015) who claimed that participants had the highest performance in producing transitive structures. Whereas it is against Can (2009) and Rezai and Ariamanesh (2012) who found out that intransitives were the most problematic verbs and the reason is that those studies just focused on two types of argument structures transitive and intransitive. In sum, what can be deduced from the above discussion is that the positions of the syntactic categories and their sub-divisions in the hierarchical difficulty impose more difficulty differentially on the EFL learners while they were engaged in the processing of syntactic categories productively and receptively. This situation warrants the close attention of teachers and learners when they face the learning of these categories.

4.2. Discussing participants’ performance in the grammatical judgment and translation tests
One of the findings of this study, which serves important implications, is that L2/FL learners’ proficiency which was the most important independent variable of this study was proved to be generally significant. The results presented in sections 3.2, and 3.4, showed that in the Translation and Grammaticality Judgment tests proficiency was recognized to play a crucial role in processing these constructions. Therefore, it might be concluded that the more the learners are exposed to the target language input and achieve higher level of English proficiency, the better they will perform on English argument structures. The results of this part showed that the number of right and wrong answers varies as the proficiency level rises or lowers. In fact, the level of proficiency or amount of language input has a role in the learners’ performance. This is in line with Abbasi Bagherianpoor et al.’s (2015), Moore (1993) and Dehghan and Rezvani (2016) study who claimed that the level of language proficiency was a significant factor in the learners’ performance in both comprehension and production levels. Moore (1993), in his experimental study, concluded that the level of language proficiency affected the production and comprehension of some particular verbs whereas the finding of the current study is against Can (2009) who claimed that proficiency has a negative impact on the behavior of the L2 learners dealing with English ergative structures. Can (2009) states that “the more learners know about syntactic positions of grammatical units and the semantic roles that they can bear, the more they avoid the ergative structure and favor the passive” (p. 2836). As the language proficiency of the EFL learners increases, their ability in producing and perceiving the English verbs’ argument structures syntactically will improve as well. One of the key factors in enhancing the proficiency of the learners is the role of input.
Input that learners receive in the learning process plays a very important role in the language acquisition. Learners need to be given the opportunity to make sense of what they hear or see, to notice the contexts in which the samples of the language are used, to interact with them as well as to compensate for insufficiency. Therefore, the more the learners receive input, the better they perform on the properties of English verbs' argument structures syntactically.

4.3. Discussing perception and production tests
The last question raised in this study was to examine the difference between the perception and production of English verbs' argument structures syntactically by Iranian learners. The data were analyzed to find in which test the learners had better performance regarding different verb contexts. After analyzing the data, regarding perception and production, this study showed that there was a significant difference between the perception and the production tests of the participants. The mean score of the production test was higher than the perception one syntactically (see Tables 3 and 5). The results showed that learners performed better for all argument structures syntactically on the Translation test rather than on the Grammaticality Judgment test. This finding shows that our Iranian learners participated in this survey were less successful in comprehending English verbs' argument structures syntactically than producing them. After analyzing the data and considering the results, it was observed that EFL learners will have few problems with the production of argument structures whereas in the case of perception they would experience challenging problems syntactically. To compare our results with those of previous studies, no previous study has dealt with the difference between the perception and production. Rezai and Ariamanesh (2012) claimed that Persian learners of English had better performance in their production in the case of Un-accusative verbs, but they were better in recognizing correct inchoative and middle structures. Hejazian Yazdi and Rezai (2015) claimed that participants had the highest performance in producing transitive structures. To summarize, Table 8 reveals that the P value to compare the perception and production tests for syntactic categories was less than 0.05, indicating that there was a significant difference between the two tests.

6. Conclusions and implications
The results indicated that there was an order of difficulty in the production and perception tests syntactically. Ditransitives were the most difficult syntactic categories in production while transitives were the most challenging syntactic categories in the perception. The results concerning proficiency revealed that proficiency was a significant factor in English verbs' argument structures perception and production. Further, in the case of syntactic categories, the upper-intermediate learners fared far better than the elementary and even lower-intermediate participants. The results also indicated that the upper-intermediate learners, with more exposure to Foreign Language input, outperformed on the production and the perception tests than the other two groups. Finally, the findings of this study supported the fact that proficiency was a significant factor in perceiving and producing English verbs' argument structures by our Iranian EFL learners.

The results of the research, looking for the significant difference between learners' perception and production syntactically, demonstrated that Iranian EFL learners participated in this survey performed better in the production test (translation) rather than the perception test (GJT) syntactically. A statistically significant difference was observed in both modes of language learning, production, and perception syntactically.

The findings of this study lead us to three main conclusions: one related to the order of the difficulty of syntactic categories, another concerning the underlying level of the synted with the learners' language proficiency levels; moreover, the other one dealt with the problems learners encountered in perceiving and producing English verbs' argument structures.

As such, the researcher came to the following conclusions:
(a) The big problem for our learners is lack of sufficient knowledge of syntactic categories of these types of English verbs’ argument structures. In dealing with these problematic cases, our teachers should be cognizant and aware of them and pay very close attention to the way they teach their students at different proficiency levels learning these constructions.

(b) Our results for these participating Foreign Language learners support the view that proficiency is a significant factor in the perception and production tests. This fact implies that more exposure to the target language input and more knowledge in the English grammar result in more satisfactory performance in acquiring the Foreign Language in general, and these argument structures in English in particular. Krashen’s (1985), Long’s (1981), and Swain’s (2005) views on input and output in second and foreign language processing should be considered as a leading point by our teachers and learners in a foreign context, like our situation in Iran.

(c) Language input or exposure has a vital role in acquiring/learning a second or a foreign language related to the two modes of language learning, perception, and production in general. In particular, English verbs’ argument structures that have been found more complicated and problematic in several studies including the present one should be practiced both implicitly and explicitly to raise the learners’ awareness. In this way, the FL learners of English would be able to pay more attention to these types of structures (un)consciously. L2 researchers’ investigations such as Ellis et al. (2006) on explicit and implicit feedback have strong support for the use of these two types of feedback to go together hand-in-hand to achieve more satisfactory results.

Since the results of this study have shown that Foreign Language learners have problems in perceiving and producing English verbs’ argument structures, syntactic categories across different proficiency levels, some implications are thought to help learners, teachers, and material developers. Syntactic properties of verbs must consciously be taught and learned. Schmidt (1990), in his noticing hypothesis, pointed out that language learners acquire a grammatical form just through noticing and explicit attention to its kind. Moreover, Ellis (1990) suggested that teachers should use Consciousness Raising (CR) in teaching grammar. In this approach, language learners are made explicitly aware of the grammatical form which is more helpful for them than providing them with repeated practice. But, it is believed that just exposure cannot be considered as a guarantee for perfect grammar learning in Iran; teachers and learners must use some activities in order to complete the learning process as well. The recommended activities are discovery-learning ones such as problem-solving tasks in which, for example, the teacher can give a set of sentences to the students and ask them to formulate the related grammatical rule. As the final remarks, textbooks, class activities, and interactions are the primary sources of input exposure and familiarity with the syntax/semantics links of verbs in L2 (Juffs, 1998). Being exposed to enough input is an essential condition for the Iranian learners; on the other hand, lack of comprehension input prevents them from mastering grammar. Conclusively, syntactic verb categories are suggested to be used and chosen by experience and be focused upon during the teaching process.

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Appendices
Appendix A: Oxford Placement Test
Part 1

Questions 1–5

- Where can you see these notices?

- For questions 1 to 5, mark one letter A, B, or C on your Answer Sheet.

1. You can look, but don’t touch the pictures
   - A. in an office
   - B. in a cinema
   - C. in a museum

2. Please give the right money to the driver.
   - A. in a bank
   - B. on a bus
   - C. in a cinema

3. No parking please
   - A. in a street
   - B. on a book
   - C. on a table

4. Cross bridge for trains to edinburgh
   - A. in a bank
   - B. in a garage
   - C. in a station

5. Keep in a cold place
   - A. on clothes
   - B. on furniture
   - C. on food

Questions 6–10

- In this section, you must choose the word which best fits each space in the text below.

- For questions 6 to 10, mark one letter A, B, or C on your Answer Sheet.

The stars

There are millions of stars in the sky. If you look (6).............the sky on a clear night, it is possible to see about 3000 stars. They look small, but they are really (7).............big hot balls of burning gas. Some of them are huge, but others are much smaller, like our planet Earth. The biggest stars are very bright, but they only live for a short time. Every day new stars (8)...........born and old stars die. All the stars are very far away. The light from the nearest star takes more (9)...........four years to reach Earth. Hundreds of years ago, people (10)............stars, like the North Star, to know which direction to travel in. Today you can still see that star.

6. A at   B up   C on
7. A very   B too   C much
8. A is   B be   C are
9. A that   B of   C than
10. A use    B used    C using

Question 11–20

• In this section, you must choose the word which best fits each space in the texts.
• For questions 11 to 20, mark one letter A, B, C, or D on your Answer Sheet.

Good smiles ahead for young teeth

Older Britons are the worst in Europe when it comes to keeping their teeth. But British youngsters (11)............more to smile about because (12).............teeth are among the best. Almost 80% of Britons over 65 have lost all or some (13).............their teeth according to a World Health Organisation survey. Eating too (14)............sugar is part of the problem. Among (15)............., 12-year-olds have on average only three missing, decayed or filled teeth.

11. A getting    B got    C have    D having
12. A their    B his    C them    D theirs
13. A from    B of    C among    D between
14. A much    B lot    C many    D deal
15. A person    B people    C children    D family

Christopher Columbus and the New World

On August 3, 1492, Christopher Columbus set sail from Spain to find a new route to India, China and Japan. At this time most people thought you would fall off the edge of the world if you sailed too far. Yet sailors such as Columbus had seen how a ship appeared to get lower and lower on the horizon as it sailed away. For Columbus this (16).......... that the world was round. He (17).............to his men about the distance travelled each day. He did not want them to think that he did not (18).............exactly where they were going. (19)............., on October 12, 1492, Columbus and his men landed on a small island he named San Salvador. Columbus believed he was in Asia, (20).............he was actually in the Caribbean.

16. A► made    B► pointed    C► was    D► proved
17. A► lied    B► told    C► cheated    D► asked
18. A► find    B► know    C► think    D► expect
19. A► Next    B► Secondly    C► Finally    D► Once
20. A► as    B► but    C► because    D► if

Question 21–40

• In this section, you must choose the word or phrase which best completes each sentence.
• For questions 21 to 40, mark one letter A, B, C, or D on your Answer Sheet.

21. The children won’t go to sleep ……. we leave a light on outside their bedroom.
A► except    B► otherwise    C► unless    D► but

22. I’ll give you my spare keys in case you ……. home before me.
A► would get    B► got    C► will get    D► get

23. My holiday in Paris gave me a great ……. to improve my French accent.
A► occasion    B► chance    C► hope    D► possibility
24. The singer ended the concert .......... her most popular song.
   A► by B► with C► in D► as

25. Because it had not rained for several months, there was a .......... of water.
   A► shortage B► drop C► scare D► waste

26. I've always .......... you as my best friend.
   A► regarded B► thought C► meant D► supposed

27. She came to live here .... ....... a month ago.
   A► quite B► beyond C► already D► almost

28. Don't make such a ..........! The dentist is only going to look at your teeth.
   A► fuss B► trouble C► worry D► reaction

29. He spent a long time looking for a tie which .......... with his new shirt.
   A► fixed B► made C► went D► wore

30. Fortunately, ......... from a bump on the head, she suffered no serious injuries from her fall.
   A► other B► except C► besides D► apart

31. She had changed so much that ....... anyone recognised her.
   A► almost B► hardly C► not D► nearly

32. .......... teaching English, she also writes children's books.
   A► Moreover B► As well as C► In addition D► Apart

33. It was clear that the young couple were .......... of taking charge of the restaurant.
   A► responsible B► reliable C► capable D► able

34. The book .......... often chapters, each one covering a different topic.
   A► comprises B► includes C► consists D► contains

35. Mary was disappointed with her new shirt as the colour .......... very quickly.
   A► bleached B► died C► vanished D► faded

36. National leaders from all over the world are expected o attend the ...... meeting.
   A► peak B► summit C► top D► apex

37. Jane remained calm when she won the lottery and .... .... about her business as if nothing had happened.
   A► came B► brought C► went D► moved

38. I suggest we .......... outside the stadium tomorrow at 8.30.
   A► meeting B► meet C► met D► will meet

39. My remarks were .......... as a joke, but she was offended by them.
   A► pretended B► thought C► meant D► supposed

40. You ought to take up swimming for the .......... of your health.
   A► concern B► relief C► sake D► cause
Questions 41–45

• In this section, you must choose the word which best fits each space in the texts.
• For questions 41 to 45, mark one letter A, B, C, or D on your Answer Sheet.

Clocks

The clock was the first complex mechanical machinery to enter the home, (41)...........it was too expensive for the (42)...........person until the 19th century, when (43)...........production techniques lowered the price. Watches were also developed, but they (44)...........luxury items until 1868, When the first cheap pocket watch was designed in Switzerland. Watches later became (45)...........available, and Switzerland became the world´s leading watch manufacturing centre for the next 100 years.

41. A► despite B► although C► otherwise D► average
42. A► average B► medium C► general D► common
43. A► vast B► large C► wide D► mass
44. A► lasted B► endured C► kept D► remained
45. A► mostly B► chiefly C► greatly D► widely

Questions 45–50

Dublin City Walks

What better way of getting to know a new city than by walking around it?

Whether you choose the Medieval Walk, which will (46)...........you to the 1000 years ago, find out about the more (47)...........history of the city on the Eighteenth Century Walk, or meet the ghosts of Dublin´s many writers on The Literary Walk, we know you will enjoy the experience. Dublin City Walks (48) ........... twice daily. Meet your guide at 10.30 a.m. or 2.30 p.m. at the Tourist Information Office. No advance (49) ...........is necessary. Special (50) ........... are available for families, children and parties of more than ten people.

46. A► introduce B► present C► move D► show
47. A► near B► late C► recent D► close
48. A► take place B► occur C► work D► function
49. A► paying B► reserving C► warning D► booking
50. A► funds B► costs C► fees D► rates

Question 51–60

• In this section, you must choose the word or phrase which best completes each sentence.
• For questions 51 to 60, mark one letter A, B, C, or D on your Answer Sheet.

51. If you’re not too tired we could have a ........ of tennis after lunch.
A► match B► play C► game D► party

52. Don’t you get tired ........ watching TV every night?
A► with B► by C► of D► at

53. Go on, finish the dessert. It needs ........ up because it won’t stay fresh until.
A► eat B► eating C► to eat D► eaten
54. We're not used to ........ invited to very formal occasions.
A► be   B► have   C► being   D► having

55. I'd rather we ........ meet this evening, because I'm very tired.
A► wouldn't   B► shouldn't   C► hadn't   D► didn't

56. She obviously didn't want to discuss the matter so I didn't ......... the point.
A► maintain   B► chase   C► follow   D► pursue

57. Anyone ........ after the start of the play is not allowed in until the interval.
A► arrives   B► has arrived   C► arriving   D► arrived

58. This new magazine is ........ with interesting stories and useful information.
A► full   B► packed   C► thick   D► compiled

59. The restaurant was far too noisy to be ........ to relaxed conversation.
A► conducive   B► suitable   C► practical   D► fruitful

60. In this branch of medicine, it is vital to ........ open to new ideas.
A► stand   B► continue   C► hold   D► remain

Appendix B: Translation Test
Translate these Persian sentences into English by using the verbs in parentheses

Transitive verbs:

(1) Ali mashine gerangheimati darad. (have)
(2) Ma baraye khandan be eynak niaz darim. (need)
(3) Mina reza-ro dust dare. (like)
(4) Ma har-rooz television tamasha mikonim. (watch)
(5) Man nemitonam shomare telefonesh-ro beyad biyaram. (remember)
(6) Man hamisheh az yek shampoo estefadeh mikonam. (use)
(7) Daneshamoozan bayad yad begiran ke chegooneh kareshan-ro sazemandehi konand. (organize)
(8) Engelestan mosabeghe-ro bakt. (lose)
(9) Pedaram bolaye peleh bod, saghf-ro dasht tamir mikard. (repair)
(10) Mehdi naghshe-ro ta kard. (fold)
(11) An zan shooharash-ro kosht. (kill)
(12) Man be pirezani komak kardam ta az khiyaban rad shaved. (help)
(13) Sandali-ro harkat dadam. (move)
(14) Livan-ro shekastam. (break)
(15) Man addreseshoo balad nistam. (know)
(16) Helicopter bazmandegane tasadoof ro-nejat dad. (rescue)

Intransitive verbs:

(1) Oo Khoshhal benazar mirese. (seem)
(2) Hava garm shod. (become)
(3) Bacheh motela illeg be-injast. (belong)
(4) Ali khob nemishnavad. (hear)
(5) Maryam be-arami sohbat mikonad. (speak)
(6) Mamooriat anjam shod. (accomplish)
(7) Jalase saate daho-nim sobh shoroo mishavad. (begin)
(8) Khorshid boshte abrha napadid shod. (disappear)
(9) Ghatar dar saate panzdah miresad. (arrive)
(10) Latifahaye ou hamishe maram khandane nad. (laugh)
(11) Bachche bemodate yek so-at gerye kard. (cry)
(12) Nima be madrese miravad. (go)
(13) Khanande mashhoor dar sene chelo-hasht salegi mord. (die)
(14) Baad-az chand rooz madaram behbod yaft. (recover)
(15) panjaho-haft maadanchi zendeh dafan shodand. (bury)
(16) baad-az tofan khaneha viran shodand. (ruin)

Ditransitive verbs:

(1) Oo barayam arezooye khoshbakhti kard. (wish)
(2) Emsal pedaram behem ghole ye docharkhe dadeh. (promise)
(3) Oo natavanest hichiziro-az pesarash darigh konad. (deny)
(4) Man baraye shoma sandali khaham avard. (get)
(5) Farda barayat keiki dorost khaham kard. (make)
(6) Az doostam meghdari pool gereftam. (take)
(7) Polis mashinash-ro barayash peyda kard. (find)
(8) An mard be hamsarash kadoye tavalod dad. (give)
(9) behet rastesh-ro migam. (tell)
(10) Mishe baraye shoma albuhejadidam-ro benavazam? (play)
(11) Ali baraye dostash name:ee nevesh. (write)
(12) Madaram barayam dastani khand. (read)
(13) Oo baraye bachcheha khanee derakhti sakht. (build)
(14) ezdevaj barayeman hazine ziyadi dasht. (cost)
(15) Mishe baraye shoma meghdari shokolat bekharam? (buy)
(16) Oo braryam aksi ziba keshid. (draw)

Appendix C: Grammaticality Judgment Test
Choose the sentences which are grammatically possible or impossible

Transitive verbs:

(1) He has an expensive car.
(2) Plants need light in order to survive.
(3) I like my coffee quite weak.
(4) We sat and watched.
(5) I remember my father bringing home a huge Christmas tree.
(6) Bob uses the van for picking up groceries.
(7) The scientists need to organize and work as a team.
(8) Julian lost and fell.
(9) Neil tried to repair the damage that his statements had caused.
(10) Spoon the filling onto the dough, fold over, and press down the edge.
(11) The thief killed yesterday.
(12) Herbal products that help you to relax and sleep.
(13) Paul couldn't move a muscle.
(14) I had to break to get into the house.
(15) I know her from school.
(16) She died trying to rescue her children from the blaze.

Intransitive verbs:

(1) Anna didn't seem very sure.
(2) Slowly my eyes became accustomed to the darkness.
(3) The book belongs Dan.
(4) A loud voice was heard at the cave.
(5) He spoke me very softly.
(6) The first part of the plan has been safely accomplished.
(7) The evening began well.
(8) The Magician disappeared the bird.
(9) The train arrived the station 20 minutes late.
(10) Eva laughed the audience because of her bad acting.
(11) He cried the baby.
(12) Dinah goes the kitchen.
(13) The fire died Michael last year.
(14) She needed time to recover the shock.
(15) Electric cables are buried the streets.
(16) My shoes were ruined in mud.

Ditransitive verbs:

(1) He shocked my hand and wished me luck.
(2) The company promised us a bonus this year.
(3) He denied all pleasures and luxuries.
(4) May I get you a glass of water?
(5) They made me a costume.
(6) They took the tip the rubbish.
(7) She found an out-of-print book for Adam.
(8) Angela gave a journal to me.
(9) I tell you the truth.
(10) She plays the piano for me.
(11) They wrote him a message.
(12) They read a paragraph to him.
(13) He built a play house for them.
(14) The book cost 20 dollars me.
(15) You bought for me a sandwich.
(16) Can you draw me a map of how to get there?
