The Interface of Syntax and Semantics in L2

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Abstract

Data from adult L2 learners were used to test the psychological reality of the finding in linguistics that the reason some verbs alternate and others do not is strictly determined by the verb's meaning (Pinker, 1989; Levin and Rappaport Hovav, 1995). The paper outlines the syntactic and semantic structure of the English dative verbs and then examines the learners' knowledge of the syntactic consequences of the verbs the semantics of which they demonstrate to know. The results provide evidence for the lack of any overlap between the two types of knowledge. The learners demonstrate appropriate knowledge of the semantics of verbs. However, they exploit in a significant number of cases only one form of the two available syntactic forms. The paper concludes with a discussion of the implications of this study for learnability issues and outlines areas for further research.

Key Words: syntax-semantics interface, dative alternation, double object datives, prepositional datives, learnability issues.

Introduction

Many researchers in both first and second language acquisition have pointed out that dative alternation is one of the most problematic areas for both L1 and L2 learners. The problem is that many dative verbs allow both the prepositional construction and the double object construction.

The following example sentences show an alternation between dative structures in English:

1. a. John gave a book to Mary. Prepositional form

1. b. John gave Mary a book. Double Object form Encountering such instances where the double object corresponds to the prepositional form leads learners to infer regularities resulting in generalization of the rule to dative verbs that allow alternation. However, learners also mistakenly overgeneralize the rule to verbs which allow only the prepositional construction as in (2a), but not the double object dative construction as in (2b):

2. a. John reported the crime to the police.   Prepositional form

2. b. *John reported the police the crime.   Double Object form

Some researchers (Baker, 1979) have conjectured whether a verb alternates or not must be learned on a verb-by-verb basis, rather than as a general rule. This approach is called a conservative approach (Pinker, 1989, p. 17). But Pinker points out that the Double Object construction could not be learned conservatively. The reason he puts forward for rejecting the idea of conservatism is that verbs that have recently been introduced into the language are not used arbitrarily. He has defined a set of elements of meaning which contributes to characterizing verbs which undergo an alternation and verbs which do not.

Constraints on Dative Alternation

There are three types of constraints on dative alternation in English: phonological restriction, possession and semantic features.

Phonological Constraints

Based on this constraint, Latinate verbs, English verbs that ultimately come from Latin, do not allow the Double Object form. This explains why (3b) and (4b) below are not grammatical:

3. a. The millionaire donated a painting to the gallery.

3. b. *The millionaire donated the gallery a painting.

4. a. John constructed a house for his family.

4. b. *John constructed his family a house.

Most speakers of English have no idea about the history of their language. Not knowing which words come from Latin, how can they know whether they alternate or not? As a solution to this problem, Pinker suggests: "So the distinction would have to involve another property of verbs, not their etymology" (p. 46), So dative alternation only applies to verbs of one syllable or verbs with stress on the first syllable, which would rule out the (b) sentences in (3) and (4) above. (Though, as Melinger & Dobel (2005) put it, verbs like *fine*, a one syllable verb, only occur in dative sentences consisting of two consecutive noun phrases, i.e., the double object construction; the judge fined the driver fifty dollars. *The judge fined fifty dollars to the driver.)

Possession Constraint

Another constraint on dative alternation is transfer of possession. In the following sentences (5.b) is possible but (6.b) is not. Only an indirect object which is animate and is capable of possession can participate in a Double Object construction (Pinker, 1989, p. 110).If the indirect object is a location or inanimate, the Double Object construction cannot occur.

This explains why not all verbs that appear in the PD form may appear in the Double Object form and also why (6.b) below is wrong:

5. a. John sent a package to the boarder.

5. b. John sent the boarder a package.

6. a. John sent a package to the border.

6. b. *John sent the border a package.

Semantic Features Constraint

However, quite surprisingly, there are verbs that fit the possession and the phonological criteria but nevertheless do not alternate. These two criteria do not guarantee the grammaticality of every Double Object structure. In the following sentences consisting of indirect objects which are animate and bear the semantic notion of possession and satisfy the phonological constraints, one allows the Double Object construction while the other one does not:

9. a. Mary threw a ball to John.

9. b. Mary threw John a ball.

10. a. Mary pushed a ball to John.

10. b. *Mary pushed John a ball.

Pinker tries to show that the restrictions on dative alternation are semantically motivated. In order to occur in a Double Object form, the verb first needs to possess the semantic properties of a Broad Range Rule (BRR henceforth). The possession constraint, a BRR, is a constraint on alternation. However, possession is not sufficient to decide the grammaticality of the Double Object structures. It is a necessary condition but not sufficient. Besides satisfying the constraints of the BRR, the verb must further possess the semantic properties of Narrow Range Rules (NRR henceforth). NRRs define semantic subclasses of verbs that allow the dative alternation to occur.

The class of verbs denoting "instantaneous importing of force causing a ballistic motion" allow the dative alternation (*throw* class verbs), but the verbs denoting "continuous imparting of force in some manner, causing accompanied motion", do not (*push* class verbs).

Another class of verbs introduced by Pinker is the "verbs of communication" versus "verbs of manner of speaking" (Pinker, 1989, p. 215). If the NRRs of a verb denote only communication (like *teach* in

11.a), Double Object constructions are allowed; whereas if the NRRs of verbs specify the manner of communication, too, (like *shout* in 12.b), then Double Object construction is ungrammatical:

    11. a. Mary taught English to John.

    11. b. Mary taught John English.

    12. a. Mary shouted the news to John.

    12. b. *Mary shouted John the news.

Moreover, the class of verbs containing the NRR of "possession" allows alternation but verb classes denoting only a "benefactive action", an unpossessed benefit, do not allow Double Object construction. The following sentences provide examples for this class of verbs:

    13. a. I passed the salt to Mary.

    13. b. I passed Mary the salt.

    14. a. I washed the dishes for Mary.

    14. b. *I washed Mary the dishes.

Thus, three constraints, i.e., possession, phonological, and semantic features of the verb, determine dative alternation in English.

Acquisition of Dative Alternation in L1

Argument structure alternations, and in particular the dative alternation, have been a very debated topic in first language acquisition research (Berman, 1982, 1993, 1994; Bowerman, 1987, 1990; Gropen et al., 1989; Maratsos et al., 1987; Pinker, 1987, 1989; Tomasello and Akhtar, 2003). One of the mysteries in this regard is the mechanism that underlies children's mastery over argument structure alternations. Researchers in the generative tradition assume that children receive very little information about what is grammatical or not in their language. Caretakers rarely correct their children's grammatical mistakes, and even if some do, it is not clear that this kind of information is available

for all children universally. Most researchers assume that negative evidence in the form of correction does not play a significant role in language acquisition (But see Hirsch-Pasek, et al (1984) for an opposite view). The mystery then becomes where this knowledge as to which verbs alternate and which verbs do not come from.

Pinker (1989) suggests that learning argument structure alternations forms a paradox. On the one hand, it is assumed that children have no access to negative evidence (explicit information about what is grammatical or not in the language). On the other hand, children use those alternations productively. In other words, they do not just repeat what they hear in the input, as he says "children clearly violate adult narrow-range semantic constraints on the dative" (p. 289). He refers to Mazurkewich and White's (1984, p. 269) data from 9-, 12-, and 15-year-olds who over-generalized Double Object structures. As sentences 22 and 23 below show, the possession constraint is violated, because the benefactors (*Ted* and *Alice*) cannot possess the themes (*the car* and *the house*) as a result of the verbs:

*Nancy drove Ted the car.

*Ben painted Alice the house.

Pinker's solution to this problem is that lexicon is non-arbitrary. The reason children are able to use alternations productively is that they extract regularities from the input. Pinker suggests that dative alternation should be determined based on classes of verbs which share the same semantic features, and children are sensitive to constraints on the dative alternation and once they are acquired, overgeneralizations will cease. Pinker has shown how, based on semantic criteria, verbs can be grouped into certain classes, so that some classes have the alternation and others do not.

According to Pinker (1989), complex constraints on argument structure alternation are learnable due to children's ability to learn verb meanings. By successfully categorizing verbs according to syntactically-relevant aspects of their semantic composition, children come to know, through semantic-syntactic linking rules, which argument structures are

allowed for the verb. Specifically speaking, Pinker proposed two levels of semantic criteria by which verbs fall into a limited number of classes: a general broad range rule (BRR) based on the criterion of potential change of possession, and a set of very specific narrow range rules (NRRs), based on identity of grammatically relevant aspects of semantic structure in closely related subclasses of verbs. In Learnability and Cognition, Pinker (1989) has shown that the seemingly arbitrary restrictions on dative alternation are, in fact, semantically motivated. He says:

If children could come to know the criteria distinguishing, say, dativizable from non-dativizable verbs, they could append a condition onto a productive dative rule constraining it to apply only to verbs that meet the condition. Therefore, they would apply the rule productively only to the sets of verbs for which the alternation applies.

(Pinker, 1989, p. 5)

Thus, as a resolution to the learning paradox, mentioned above, Pinker suggested that children use rules productively but respect semantic criteria determining which verbs they apply to.

Chung and Gordon (1998), studying L1 acquisition of Chinese dative alternation, reveal that "children's acquisition of the dative in Chinese is guided by a set of Narrow Range Rules that define semantic subclasses of verbs that are permitted to alternate within the language" (p. 1). They show that the Narrow Range Rules figure prominently in helping the child to acquire a productive system.

Acquisition of Dative Alternation in L2

There are many studies examining dative alternation in SLA to see whether the constraints which have been proposed to underlie the dative alternation in English can be acquired by child and adult learners of English as a second language.

In an experiment, Bley-Vroman and Yoshinaga (1992) gave English speakers and Japanese learners of English some written paragraphs including six real and six novel verbs. The verbs included

both dativizable NRRs and non-dativizable NRRs. Subjects were asked to give a grammatical judgment on a scale of -3 (completely odd) to 0 (do not know) to +3 (fully natural). The results showed that as for the real verbs, both native speakers and Japanese learners of English correctly distinguished between dativazable and non-dativazable real verbs. But for novel verbs, the Japanese learners could not make a distinction between the two types of verbs. Bley-Vroman and Yoshinaga concluded that the Japanese speakers have not acquired the English NRRs that would allow them to decide whether a verb alternates or not. They add that when there is exposure, the constraints can be learned from input frequency, but where novel verbs are concerned, the learners are different from native speakers.

The point about Bley-Broman and Yoshinaga's study is that they have taken it for granted that knowledge of the dative alternation depends on knowledge of the constraints governing the verbs. That is why when Japanese learners do not perform well in the Grammaticality Judgment Test, they conclude that the learners have failed to acquire the language specific NRRs. But this study questions that very assumption: if the learners know the NRRs, does it mean that they also know the syntactic consequences of that?

This Study

This study aims at finding whether the claim in linguistics that the reason some verbs alternate and others do not is strictly determined by the verb's meaning has psychological reality for L2 learners or not.

Research Questions

Are adult L2 learners sensitive to semantic-syntax correspondences? In other words, if second language learners know the semantic constraints that affect dative alternation, will they also know the syntactic consequences of this knowledge?

Does level of proficiency play a role in the subjects' sensitivity to semantic-syntax correspondences?

To what extent are the subjects influenced by their L1 with respect to dative alternation in English?

Method

Participants

The participants were 175 undergraduate and graduate students from different faculties of the University of Tehran who took part in the study in exchange of partial credit for their final exams. They were classified into 3 levels of proficiency based on the results of a Michigan Proficiency Test. The choice of the 35 elementary subjects was not based on their Michigan Test scores because the test had proved to be very difficult for them. Moreover, although the tests of the study were administered on the elementary subjects, too, the results were not submitted to analysis because they proved not to know the translation of the verbs selected for the study.(Subjects whose scores on the Verb Translation Test were lower than 20 were excluded.)

Materials

The materials consisted of a Michigan Proficiency Test, a pre-recorded audiotape and two tests: Grammaticality Judgment Test and Vocabulary Test including two tasks: one task was for measuring subjects' knowledge of semantics of dative verbs (Verb Classification Test, VCT henceforth); and the other one required subjects to translate the verbs into Persian (Verb Translation Test, VTT henceforth).

Verbs

The verbs were selected from three verb classes of Narrow Range Rules:

Group 1: "verbs of transfer of possession" which allow alternation Vs "verbs denoting a benefactive action" which do not alternate:

Group 2: "verbs of instantaneous causation of ballistic movement" which can alternate" Vs "verbs of continuous causation of accompanied motion";

Group 3: "verbs of type of communicated message" which are dativizable Vs "verbs of manner of speaking" which are nondativizable.

Eight verbs were selected for each group of verbs. In each group half of the verbs allowed alternation and the other half did not. In other words, four verbs could take both Prepositional Dative and Double Object Dative forms; but the other four could appear only in the Double Object Dative form. Table 1 shows a classified representation of the verbs.

Table 1
Classification of verbs used in tests for study

	Group 1	Group 2	Group3
Alternate	Give	Kick	Tell
	Pass	Throw	Write
	Send	Toss	Read
	Sell	Fling	Teach
Cannot alternate	Drive	Lift	Shout
	Donate	Pull	Whisper
	Wash	Push	Yell
	Paint	Lower	Murmur

Grammaticality Judgment Test

The Grammaticality Judgment Test included 100 sentences. The test was balanced for the number of grammatical and ungrammatical items.

Based on the 24 verbs selected for the study, 48 test sentences were constructed: 12 verbs could alternate between the two forms, so 24 grammatical sentences were produced; 12 verbs did not allow the double object form, thus only 12 more grammatical sentences were added and the other 12 sentences made up the ungrammatical sentences of the test. In this way, the test sentences included 36 grammatical and 12 ungrammatical sentences. The rest of the sentences functioned as distracters.

The distracters included 52 sentences 14 of which were grammatical and the remaining 38 sentences were ungrammatical. In this way, there was an equal proportion between the grammatical and ungrammatical sentences.

Vocabulary Translation Test

The Vocabulary Translation Test required the subjects to write the meaning of the verbs in Persian. The purpose of this test was to ascertain the learners' knowledge of individual verbs to see if they could make judgments about them in a given grammatical context. Obviously, if an individual does not know the meaning of a verb, then s/he might not know its syntactic behavior. The test consisted of a list of the verbs selected for the study, which the learners had to translate into their native language. The verbs were presented in their infinitive form.

Verb Classification Test

The Verb Classification Test requiring the subjects to classify the verbs based on their meaning nuances was constructed out of the same verbs used in the translation task. For each category of verbs, the meaning nuances were provided and the subjects were asked to classify the verbs based on them. Table 2 provides a sample of ballistic versus continuous motion verbs.

Table 2
Sample vocabulary test item for classifying verbs based on their semantics

Verb	Meaning in Persian	Cause of movement happens in an instant and doesn't accompany the subject	Cause of movement accompanies the object and if not, the object no more moves; movement stops
Fling			
Kick			
Lift			
Lower			

Procedure

The Michigan Proficiency test was administered in separate sessions. The tests were administered to different intact classes of Persian learners of English. The Grammaticality Judgment Test was distributed first; and when subjects returned the test, the vocabulary tests (VTT and VCT) were given to them. Before the initiation of the test, the subjects were given examples of how to complete the test. For the elementary subjects, the instructions were provided in Persian.

Scoring

Each of the assessment tasks had its own scoring procedure. As for the Grammaticality Judgment Test, each correct response received a score of one point for a possible total of 48 points. So if the sentence was incorrect and was judged so by the subject, one point was awarded; and if it was deemed correct, zero point was given. In the Vocabulary Translation Task, the accepted translations received a score of one point for a possible total of 24 points. In the case of the Verb Classification Test, if the subject marked the correct cell for each verb, s/he received a score of one point. Thus, if a verb was correctly classified, the subject received one point for a possible total of 24 points. Before starting the data analysis, the scores in the GJT were converted from the scale of 48 to the scale of 24 in order to be able to conduct the ANOVA tests.

Data Analysis

In this study, the dependent variables were subjects' scores on Grammaticality Judgment Test and Verb Classification Test. The independent variables included level (advanced, high-intermediate, low-intermediate; elementary subjects were all excluded due to their poor performance on the Verb Translation Task, as elaborated above), Test Type (Grammaticality Judgment Test and Verb Classification Test), and Sentence Construction Type (Double Object Dative and Prepositional Dative). Descriptive statistics were computed. The internal reliability

was calculated using Cronbach Alpha. Several repeated-measures ANOVAs were conducted with level as the between group factor, Test Type and Sentence Construction Type as the within group factors. Several one way ANOVAs besides several t-tests were also conducted. In all cases the null hypotheses of no difference between levels, test types and sentence types were adopted. The α was set at .05.

Results

The internal reliability, after deleting the subjects whose score on the Verb Translation Task was lower than 20, was .85. The means and standard deviations for Grammaticality Judgment Test and Verb Classification Test for each level of proficiency are shown in Table 3.

Table 3
Descriptive statistics for subjects' scores on grammaticality judgment test and verb classification test

Level	Grammaticality Judgment Task	Verb Classification Task
Advanced (31)	M =19.290	M=19.580
	SD=2.011	SD=3.030
High-intermediate (34)	M=18.147	M=19.911
	SD=2.261	SD=2.441
Low-intermediate (35)	M=16.514	M=18.028
	SD=2.164	SD=2.332

To address the first hypothesis in this study, i.e., to see if Test Type (GJT and VCT) had any effect on subjects' performance at different levels, repeated-measures ANOVA was conducted.

There were significant effects for level ($F_{(2, 97)}$=13.148) and Test Type ($F_{(1, 97)}$=16.127). The results of the analysis did not show any significant interaction between level and test type ($F_{(2, 97)}$=2.162). The results of the post-hoc Scheffe test showed that there is no significant difference between advanced and high-intermediate subjects in these two tests, but the difference between subjects in low-intermediate level and those in the other two levels is significant.

In this way, the null hypothesis of the study stating that there is no difference between the subjects' performance on Grammaticality Judgment Test and the Verb Classification Test at different levels of proficiency could not be retained.

Since both factors, i.e., test type and level, showed to have significant effects on subjects' scores, separate ANOVAs were conducted for each test. The null hypothesis of no difference between the levels in each type of test was adopted.

As far as the Grammaticality Judgment Test is concerned, the results of the ANOVA showed that there is a significant difference in performance of the three levels ($F_{(2, 97)}$=13.935). The post-hoc Scheffe test results showed that there is no difference between the advanced and high-intermediate levels but low-intermediate level was significantly different from the other two levels. As the results showed, advance and high-intermediate subjects performed significantly better than low-intermediate subjects in GJT.

As for the VCT, the ANOVA results showed a significant difference between the levels ($F_{(2, 97)}$=5.128). The post-hoc Scheffe test results showed that low-intermediate subjects performed, quite like Grammaticality Judgment Test, significantly poorer than the other two levels.

The results of the eta^2 strength of association for subjects' scores on different tests are presented in Table 4 below:

Table 4
Eta^2 strength of association for subjects' scores on GJT and VCT test

Source	Eta^2	% of variance
Test Type	.143	14.3
Level	.213	21.3
Test Type * Level	.043	4.3
Error	.601	60
Total	1	100

From the results of the eta^2, we can see that 14.3% of the variability in the subjects' scores has been accounted for by test type, 21.3% by level, and 4.3% by the interaction between test type and level. The remaining 60% has not been accounted for. There should be other variables unaccounted for in this analysis which can explain this variability.

In order to see in which test the subjects at each of the three levels performed better, separate t-tests were conducted. The advanced subjects' performance in GJT (M=19.29, SD=2.011) was not different from their performance on VCT (M=19.580, SD=3.03), t_{30}=.499. But high-intermediate subjects' performance on GJT (M=18.147, SD=2.261) was meaningfully different from their performance on VCT (M=19.911, SD=2.441), t_{33}=3.479. This group found GJT more difficult than the VCT. As for the low-intermediate level, too, their performance on GJT (M=16.514, SD=2.164) was significantly different from their performance on VCT (M=18.028, SD=2.332). This group, too, performed significantly poorer on GJT than on VCT.

The findings for high-intermediate subjects were not congruent with those of the advanced subjects because although they showed to know the semantics of verbs (quite as well as the advanced subjects showed to know), they did not show to know the syntactic consequences of that knowledge.

At this point, to address the third research question, i.e., to look for L1 effect, the researcher decided to explore the details of subjects' performance on different types of sentences in Grammaticality Judgment Test. Thus, subjects' performance on Double Object Datives and the Prepositional Datives were compared. Descriptive statistics for the two types of sentence constructions in GJT at the three levels are shown in Table 5.

Table 5
Descriptive statistics for prepositional and double object dative sentences in GJT

	Grammaticality Judgment Task	
Level	Prepositional dative	Double object dative
Advanced	M=10.435	M=8.854
(31)	SD=1.243	SD=1.177
High-	M=10.234	M=7.911
intermediate	SD=1.567	SD=1.083
(34)		
Low-intermediate	M=9.357	M=7.157
(35)	SD=1.337	SD=1.041

The results of repeated measures ANOVA showed that there were significant effects for level ($F_{(2, 97)}=13.935$) and sentence type ($F_{(1, 97)}=252.270$). No significant effects were found for the interaction between sentence type and level ($F_{(2, 97)}=3.050$).

The post-hoc Scheffe test results showed that low-intermediate level subjects performed significantly differently from the advanced and high-intermediate subjects; but advanced and high-intermediate subjects' performance were not different from each other. In other words, as far as subjects' performance on the two types of sentence constructions is concerned, low-intermediate subjects performed differently from the subjects in the other two levels.

Since level showed to have a significant effect on subjects' performance, separate ANOVAs were conducted to examine their performance on each type of sentence.

First, subjects' performance in prepositional dative sentences was brought into consideration. The ANOVA results showed a significant difference between the levels ($F_{2, 97}=5.723$). The post-hoc Scheffe test results showed that low-intermediate subjects performed significantly differently from advanced and high-intermediate subjects, but the performance of advanced and high-intermediate subjects was not significantly different from each other.

Next, Double Object Dative sentences were considered. The ANOVA results showed a significant difference between the three levels

$(F_{(2, 97)}=19.621)$. The post-hoc Scheffe test results showed that the three groups performed significantly differently from each other in the Double Object dative sentences.

The results of eta^2 strength of association for subjects' scores on different sentence types are presented in Table 6 below.

Table 6
Eta^2 strength of association for subjects' scores on prepositional and double object datives

Source	Eta^2	% of variance
Sentence Type	.722	72.2
Level	.223	22.3
Sentence Type * Level	.059	5.9
Error	.004	-.4
Total	1	100

From the results of eta^2, we can say that 72.2% of the variability in subjects' scores has been accounted for by sentence type, 22.3% by level, and 5.9% by the interaction between sentence type and level. As can be seen, the greatest amount of the variability has been accounted for by the sentence type factor.

In order to find out in which type of sentence construction subjects at each level of proficiency performed better, separate t-tests were conducted. As far as advanced subjects are concerned, their scores in Prepositional Dative sentences (M=10.435, SD=1.177) were significantly better than their scores on Double Object Dative Sentences (M=8.854, SD=1.243), $t_{30}=6.527$. The high-intermediate subjects' performance on Prepositional Dative sentences (M=10.235, SD=1.567) was much better than their performance on Double Object Dative sentences (M=7.911, SD=1.083), $t_{33}=9.240$. In case of subjects in low-intermediate level, too, subjects performed significantly better on Prepositional sentences (M=9.357, SD=1.337) than on Double Object sentences (M=7.157, SD=1.041), $t_{34}=12.631$.

On the whole, these results showed that the three levels performed significantly better on the Prepositional type sentences. But as far as Double Object sentences are concerned, they either rejected the grammatical Double Object sentences or accepted the ungrammatical Double Object sentences as accurate. Their problems on Double Object sentences were more than those on prepositional ones. This might be quite natural because of the fact that these subjects' L1 lacks Double Object constructions.

Discussion

Based on the results of this study, one may conclude that knowledge of semantics of a verb does not effect knowledge of syntactic consequences of these meanings. Of course, in case of advanced students, there was no significant difference between the subjects' performance on these two types of knowledge, a finding that may lead one to conclude that if one knows the meaning of the verb, s/he also knows the syntactic consequences of that. But this was not true with regard to high-intermediate subjects. Although no meaningful difference was found between high-intermediate and advanced level subjects in their performance on the test eliciting their knowledge of the semantics of verbs, their performance on the syntactic consequences of this knowledge were significantly different from each other. Put another way, although the high-intermediate subjects showed to know the narrow range rules governing the verbs, they did not show to know which verbs do and which verbs do not alternate. Thus, although in linguistics the reason some verbs alternate and others do not is strictly determined by their meaning, this has no psychological reality.

Moreover, the findings of this study showed a developmental sequence in the process of learning dative constructions. As far as Prepositional Dative forms are concerned, mastery is achieved sooner, as no meaningful differences were found between advanced and high-intermediate subjects in this regard. But when it comes to the Double Object Datives, each higher level performs significantly better than the

preceding level. Even high-intermediate subjects, who performed similarly to the advanced students in the case of Prepositional Datives, lagged far behind them in the case of Double Object Dative forms.

Suggestions for Further Research

To further understand the L2 acquisition of the dative alternation, further research is needed. In the specific case of Persian learners, for example, further study is needed to determine the full extent of the learners' exposure to the two constructions. Then, research should be conducted to see if varying degrees of exposure lead to different results.

The methodology employed in this study for eliciting learners' knowledge of the Narrow Range Rules governing the verbs was a Verb Classification Test. It is suggested to see if other methods will affect the same results.

References:

Baker, C. (1979). Syntactic theory and the projection problem. *Linguistic Inquiry*, 10, 533-81.

Berman, R. (1982). Verb pattern alternation: The interface of morphology, syntax and semantics in Hebrew child language. *Journal of Child Language*, 9, 169-191.

---------- (1993). Marking of verb transitivity by Hebrew-speaking children. *Journal of Child Language*, 20, 642-669.

---------- (1994). Developmental perspectives on transitivity: A confluence of cues. In Y. Levi (ed.), *Other children, other languages*, (pp.189-241). Hillsdale, NJ: Erlbaum.

Bley-Vroman, R. (1989). What is the logical problem of foreign language learning? In S. Gass & J. Schachter (eds.), *Linguistic perspectives on second language acquisition*. Cambridge: CUP.

Bley-Vroman, Robert & Yoshinaga, Noriko. (1992). Broad and narrow constraints on the English dative alternation: some fundamental differences between native speakers and foreign language learners. In *University of Hawaii Working Papers in ESL,* 11, University of Hawaii at Manoa.

Bowerman, M. (1987). The 'no negative evidence' problem: How do children avoid constructing an overly general grammar. In John Hawkins (ed.), *Explaining language universals*. New York: Basil Blackwell.

---------- (1990). Mapping Thematic roles onto syntactic functions: Are children helped by innate linking rules? *Linguistics*, 28, 1253-1289.

Chung, T. R. & Gordon, P.(1998). The Acquisition of Chinese Dative Alternation. In A. Greenhill, M. Hughes, H. Littlefield, & H. Walsh (eds.), The proceedings of the 22nd Annual Boston University Conference on Language Development. Somerville, MA: Cascadilla Press. (pp. 109-120.) [On-line]. Available: http://www.pitt.edu/~ting/bu.rtf

Gropen, J. Pinker, S., Hollander, M., Goldberg, P., and Wilson, R. (1989). The learnability and acquisition of the dative alternation in English. *Language,* 65, 203-257.

Hirsch-Pasek, K., R. Trieman & M. Schneiderman. (1984). Brown & Hanlon revisited: Mothers' sensitivity to ungrammatical forms. *Journal of Child Language*, 11, 81-88.

Levin, B., and Rappaport Hovav, M. (1995). Lexical semantic and syntactic structure. In S. Lappin (ed.), *The handbook of contemporary semantic theory* (pp. 487-509). Oxford: Blackwell.

Melinger, A. and Dobel, C. (2005). Lexically-driven syntactic priming. *Cognition*, 98, 1, B11-B20.

Maratsos, M. P., R. Gudeman, P. Gerad-Ngo, & G. DeHart. (1987). A study in novel word learning: The productivity of the causative. In B. MacWhinney (ed.), *Mechanisms of language acquisition* (pp. 89-113). Hillsdale, NJ: Erlbaum.

Mazurkewich, Irene and White, Lydia. (1984). The acquisition of the dative alternation: Unlearning overgeneralizations. *Cognition*, 16, 261-283.

Pinker, S. (1984). *Language learnability and language development*. Cambridge, MA: Harvard University Press.

---------- (1987). The bootstrapping problem in language acquisition. In R. J. Matthews & W. Demopoulos (eds.), *Learnability and linguistic theory* (399-441). Dordrecht: Kluwer.

---------- (1989). *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.

Tomasello, M. and Akhtar, N. (2003). What paradox? A response to Naigles (2002), *Cognition*, 88, 317–323.