The acquisition of dative alternation constraints
by
Persian speakers of English

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Abstract
A yet unresolved debate among language acquisition researchers is the functioning of innate language principles in SLA. UG-compatible analyses of interlanguage representations are not sufficient for this purpose. A satisfactory rationale for the involvement of UG can be established by the "poverty of the stimulus" arguments. The study endeavours to contribute to the body of knowledge on the POS argument from the perspective of distributional syntax with regard to the morphophonological and semantic constraints in the acquisition of dative alternation structures. To this end, a grammaticality judgement task was administered to three groups of Persian L2 learners along with a native control group. The results reveal that the L2 learners can acquire semantic and morphophonological constraints on dative alternation structures. It is the knowledge of abstract Case and Case assignment which is restricting the hypothesis space of the L2 acquirers. This in turn implies the operation of a domain-specific learning system in SLA and adds plausible support to the "poverty of the stimulus" argument the evidence of which corroborates UG access view and theory development in L2 acquisition research.

Keywords: L2 acquisition, dative alternation, semantic and morpho-phonological constraints, poverty of stimulus

1. Introduction

The acquisition of argument structures of verbs has spawned a vast body of research within the past two decades (e.g. Gropen, Pinker, Hollander, Goldberg, & Wilson, 1989; Mazurkewich, 1984; Oh & Zubizarreta, 2005; Sawyer, 1996; White, 1987). Nonetheless, their acquisition has not been adequately considered in the light of the poverty of stimulus issue in the SLA context. The dative alternation structure can offer a plausible case for the establishment of the poverty of stimulus for L2 learners. Such a perspective has been investigated in the current empirical study.

Pinker (1989, p. 4) notes that "since verbs' argument structure assumes such a large burden in explaining the facts of language, how argument structures are acquired is a correspondingly crucial part of the problem of explaining language acquisition". The present paper investigates the acquisition of the realisation of argument structure in English dative alternation constructions by L2 speakers whose L1 is Persian. In particular, the broad-range rules (semantic and morphophonological constraints) associated with these verbs are dealt with. The acquisition of the dative alternation is further used to argue for the existence of the "poverty of the stimulus" issue in SLA.

Section 2 briefly reviews the syntactic status of dative alternation in English and Persian. Some of the notable L1 and L2 studies on dative alternation structures are reviewed in 3. Section 4 describes the methodology of the study followed by data analysis and results in section 5. Section 6 presents a discussion of the results with respect to the acquisition of the above-mentioned properties. Some concluding remarks with regard to the acquisition of the semantic and morphophonological constraints are made in section 7.

2. Dative Alternation in Persian and English

From the argument structure acquisition vantage point, dative alternation structures in English can manifest similar syntactic argument realisations. Each structure enjoys the same lexical conceptual structure (LCS) (Jackendoff, 1990) or thematic core (Pinker, 1989) with two syntactic linear realizations as illustrated in

(1).   To put it differently, the alternation between prepositional datives (1b) and double object datives (DODs) (1c) can be characterized by the systematic options of alternative structures for lexical items which have a single thematic core (Farrell, 2005). The syntactic alternations observed in (1) are subject to syntactic and semantic constraints. The task of language learners is to map from lexicon to syntax despite a lack of one-to-one mapping between the two levels. Such mapping creates a logical problem of language acquisition in the lexical domain (White, 2003).

(1)   a.   LCS of *give*:
              x does something to *y*
              Because of this *z* comes to have *y*.

       b. AS^1: give <*x, y, [z]*>
              The student gave the book to the teacher.

       c. AS^2: give <*x, z, y*>
              The student gave the teacher the book.
       (Farrell, 2005:132)

The dative alternation in English is governed by semantic and morphophonological constraints. The broad-range semantic constraint, argued to be universal, (Mazurkewich & White, 1984; Pinker, 1989) stipulates that the goal argument in the dative alternation structures must be animate and the prospective possessor of the theme argument. The morphophonological constraint, nonetheless, requires that the verb stem should be of native Anglo-Saxon rather than Latin origin. The verb stem should be either monosyllabic or bisyllabic with the stress falling on the first syllable (Mazurkewich & White, 1984; Stowell, 1981). Latinate stems which are polysyllabic cannot generally be used in the double object constructions. It is the universal linking rules which cause semantic structures to project to appropriate argument structures. For instance, linking rules map the agent to the subject position, the theme and recipient (Z in the thematic core of DODs) onto the direct object and goal onto the oblique argument (Pinker, 1989).

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Persian does not licence any alternation with dative verbs although it allows prepositional to-datives (goal) (2) and for-datives (benefactive) (3). However, the internal direct and indirect arguments within VP can also be scrambled (4) because of the specificity considerations.

(2) *Man be doostam   mâshinam ro forokhtam*.
      I   to   friend-my car-my SOM sell-past-1sg
      I sold my car to my friend/ I sold my friend
      my car.

(3) *Man ye kapshan baraye pesaram kharidam.*
      I   a   jacket   for   son-my buy-past-1sg.
      I bought a jacket for my son.

(4) *Man mâshinam ro be doostam forokhtam*.
      I   car-my   SOM to friend-my sell-past-
      1sg.
      I sold my car to my friend / I sold my friend
      my car.

Persian which allows only DP PP complements (4) is only a subset of English which allows both DP PP and DP DP complements. Persian disallows DODs with either full DPs (5-6) or pronominal DPs (7-8). Indeed, goal and benefactive double objects are not licensed in Persian. They require overt lexical morphology *be* (to) as exemplified in 2-3. The overt lexical morphology *be* (2) and *baraye* (3) can be considered as morphological licensors.

(5) * *Man dostam mâshinam râ forokhtam*
       I   friend-my car-my SOM sell-past-1sg.
       I sold my friend my car.

(6) * *Man doostam ketâbi   kharidam.*
        I friend-my book-a buy-past-1sg.
        I bought my friend a book.

(7) * *Man ou mashinam râ forokhtam*

       I   him   car-my SOM sell-past-1sg.
       I sold him my car.

(8) * *Man ou   ketâbi   kharidam*.
      I   him   book-a buy-past-1sg.
      I bought him a book.

Regarding the syntactic account of the prepositional datives, Karimi-Doostan (2005) has suggested that adding an indirect internal prepositional argument is licensed by P and should appear as a PP which is adjoined to TraP. What undermines his assumption is that an argument cannot function like an adjunct. In fact, arguments and adjuncts have different distributional properties. For instance, one can only extract out of an argument which is a complement, but not out of an adjunct. Hence, it is not possible to adjoin adjuncts to TraP as it is proposed by Karimi-Doostan. Bearing the above defect in mind, I propose that the prepositional datives in Persian can be syntactically accounted by positing that the lexical verb has two arguments, one as its specifier and the other as its complement in line with the vP shell analysis argued by Radford (2005). The example provided in (9) shows that, unlike English in which the ordering of arguments can depend on a projection hierarchy, the two internal arguments (PP *be man* and DP *toop-o*) are in free variation in Persian, i.e. they can either appear as the specifier or the complement of the verb.

(9) *Ali   toop-o be man partâb kard.*
    Ali ball-SOM to me throw do-past-3sg.
    Ali threw the ball to me.

3. Studies on Dative Alternation Structures

There have been many studies conducted on the L2 acquisition of dative alternation constructions (Bley-Vroman & Yoshinaga, 1992; Hawkins, 1987; Oh & Zubizarreta, 2005; Sawyer, 1996; Whong-Barr & Schwartz, 2002). Hawkins found out that goal datives were less marked than benefactive datives and concluded that L2 learners progressively introduced the syntactic features of the dative

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alternation into their grammars on the basis of "learning complexity". Bley-Vroman and Yoshinaga concluded that their study supported the Fundamental Difference Hypothesis because the learners could not acquire the new L2 properties absent in their L1. Nonetheless, Sawyer's study indicated that native and non-native speakers were not "qualitatively" different from each other, thereby refuting the Fundamental Difference Hypothesis argued by Bley-Vroman and Yoshinaga.

To see the effects of morphological and syntactic transfer in child L2 acquisition, Whong-Barr and Schwartz (2002) carried out a study on the English goal and benefactive dative alternation using three language groups: L1 English (N=6), L1 Japanese (N=5) and L1 Korean (N=5). The subjects were given an oral grammaticality judgement task preceded by a context in which different props were used to enact some short stories. The results obtained indicated that both native and non-native subjects had acquired the PDs. All three groups evinced overgeneralization of the goal datives in DODs. However, this was not the case for the benefactive dative sentences. The Japanese children overgeneralized DODs (e.g. * *The tiger held the sheep the money.*) in 70% of cases whereas the Korean children did not (14.3%). The Korean children responded in a target-like way, similar to the L1 English children. The comparison of the Korean results in goal and benefactive datives supports the hypothesis that transfer of a morphological requirement from the L1 inhibits the formation of productive syntactic rules in the L2. Korean children were initially restrictive in allowing benefactive DODs because of the existence of an overt morphological marker in Korean DODs. The results are consistent with Montrul's (2001) study who argues that transfer at the level of morphology affects the argument structure alternations at the syntactic level.

In an attempt to investigate the behavior of goal and benefactive DODs, Oh and Zubizarreta (2005) replicated Whong-Barr and Schwartz's (2002) study with adult Korean and Japanese L2 learners of English who were assigned to three language proficiency levels of beginners, low and high intermediates on the basis of a cloze test. 11 native speakers of English served as the control group. The main task was a written grammaticality judgement task with 20 pairs of target sentences in PD and DOD

forms. The target constructions included licit goal, illicit goal, licit benefactive and illicit benefactive DODs.

The results showed that the non-native subjects experienced little trouble in acquiring goal and benefactive PDs. Both Korean and Japanese learners had a similar performance on licit DOs in English. They rejected licit benefactive DOs more than licit goal DOs. Nevertheless, both groups treated the illicit goal and benefactive DOs differently. The learners at all proficiency levels rejected illicit benefactive DOs more strongly than illicit goal DOs.

Taking the above results into consideration, Oh and Zubizarreta argue for a transfer-based account of dative structures. They conclude that the L1 transfer of benefactive verbal morphology can have a negative effect on the acquisition of benefactive datives by Korean and Japanese learners of English. The main reason for the learners' rejection of licit and illicit benefactive DOs is attributed to the lack of benefactive morphology in English. Such a tendency to reject licit benefactive DOs, which was not observed in Whong-Barr and Schwartz's study, decreases along with an increase in the proficiency level.

The main study described in the next section will also consider the role of L1 morphological transfer in the acquisition of goal and benefactive dative alternation constructions as discussed by Oh and Zubizarreta (2005). Morphological transfer in the present study refers to the preference for prepositional datives by the learners. If Persian learners of English tend to prefer prepositional datives over DODs, it can be argued that they have been affected by morphological transfer.

4. Methodology

L2 learners are expected to generalize the DODs repeated here in (11b) and (13b) on the basis of positive input from examples like (10). The transitive verb "*fax*" in (10) has been used both as a PD (10a) and DOD (10b). The question arising here is how L2 learners can retreat from these overgeneralizations. They are faced with a learnability problem because neither positive evidence nor the L1

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appear sufficient to allow them to infer the distinction between these verb classes.

(10)   a. He faxed the problem to Michelle.
           b. He faxed Michelle the problem.
(11)   a. He explained the problem to Michelle.
        * b. He explained Michelle the problem.
(12)   a. He solved the problem for Joan.
        * b. He solved Joan the problem.

The acquisition of Case properties of DODs can cause learning problems for those learners whose native languages disallow such constructions. The semantic and morphophonological constraints interact with the Case assigning properties of DOD verbs. In line with Chomsky (2006), our assumption is that lexical verbs and null light verbs assign Case to the theme and goal/benefactive arguments of DODs respectively. Bearing such an assumption in mind, the morphophonological constraint pertinent to Latinate verbs places restrictions on their Case-assigning properties. Such a constraint does not license the goal or benefactive argument to be Case assigned by null light verbs. Furthermore, the semantic (possession) constraint has a similar behaviour in that it blocks the Case-assignment of goal or benefactive arguments (not conforming to the semantic constraint) by the null light verb.

These Case properties associated with DOD verbs are a source of underrepresentation of knowledge faced by Persian speakers of English. L2 acquirers are faced with a "poverty of the stimulus" paradox (Baker, 1979) in restricting these verbs to certain subclasses. Additionally, there is no real evidence or direct negative evidence to inform learners of these language specific constraints. The asymmetric performance of the L2 learners in sentences such as *He faxed John the puzzle* versus *He solved John the puzzle* can be an indication of L2 learners' sensitivity to the semantic constraint which can in turn lend support to the learnability problem discussed above. In other words, if L2 learners correctly identify the ungrammatical structures, the POS phenomenon can be supported.

Given the above points, the following research questions were entertained here:

(a) Can English L2 learners restrict the double object constructions to the proper semantic or morphophonological constraints?

(b) How does the learners' overall performance on DODs and PDs interact with their L1?

(c) Do English L2 learners distinguish between double objects involving pronouns and the full determiner phrases (DP)?

4.1 Subjects, materials, and procedure

Three groups of learners took part in this study along with a control group of adult native speakers (n=14). Their bio-data is summarised in Table 1.

Table 1: Participants' information

	N.	Age range	Age mean	OQPT range	OQPT mean
Elementary	18	18-44	24	17-27	22.4
Intermediate	25	18-32	21	33-41	37
Advanced	22	19-42	29	48-58	53.3
Native Speaker	14	20-45	31	N/A	N/A

* OQPT stands for Oxford Quick Placement Test.

All the L2 subjects took the Oxford Quick Placement proficiency test (2001) after which they were assigned to three groups: elementary, intermediate and advanced. To tap the subjects' knowledge of semantic and morpho-phonological constraints on the DODs, a grammaticality judgement task (GJT) was designed and administered.

The grammaticality judgement task in this study consisted of 110 declarative sentences. There were three warm-up items at the beginning of the task to make the subjects more familiar and relaxed with the test-taking method. 50 stimuli were designed for the dative alternation test and the rest of items acted as fillers. Both grammatical and ungrammatical constructions were used in the

main test. Furthermore, the task was based on a five-point Likert rating scale. A sample stimulus is given in (13).

(13) *I poured some coffee for the guests.*   *-2   -1   0   1   2*
I don't know
> -2 = Completely impossible
>   -1 = Fairly impossible
>   0 = Neither possible nor impossible
> +1 = Fairly possible
> +2 = Fully possible

25 test verbs (goal and benefactive) were considered in the study. Each verb was tested in both prepositional (DP PP) and double object (DP DP) constructions separately. The test tokens are included in Table 2. All of the verb tokens are among the most frequent verbs in L2 textbooks as all the L2 learners in the study have gone through a similar learning experience. To ascertain if the subjects have encountered such verbs before, the subjects' English textbooks at the high school level were examined to see if these verbs are included. The result was affirmative. Therefore, it is safe to claim that even our elementary learners have already encountered these verbs.

Table 2: Test tokens used in this study

Construction type	Test tokens
Native stems (to) DP PP/DP DP	pay, owe, hand, grant, rent
Native stems (for) DP PP/DP DP	bake, pour, build, order, cook
Latinate stems (to) DP PP/*DP DP	donate, contribute, announce, demonstrate, communicate
Latinate stem (for) DP PP/*DP DP	devise, obtain, construct, create, purchase
+/- Possession DP PP/ *DP DP	make, solve, owe, stir, paint

The dative objects were divided into full DPs and pronominal DPs. In each of the ten contexts tabulated in Table 2, three verbs were used with pronominal DPs and two verbs with full DPs. The DP length was also controlled not to exceed two words.

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To make sure the L2 learners understood the nature of the task, three training stimuli irrelevant to the dative constructions were included in the instructions and the appropriate responses were explained to the subjects by the researcher. Following the training stimuli, the subjects were given an opportunity to ask questions of clarification or to raise any doubts they had. They were instructed to respond by "feel", not to think too hard about their decisions and not to go back to a sentence once they had made a decision. No time limit was set for the task; however, all subjects completed the test in less than 35 minutes.

4.2 Data analysis

Upon the completion of the data collection, the SPSS software (version 11.5) was used to enter the data as it appeared in the Likert rating scale (-2 up to +2). The mean values of the five stimuli for each separate condition were calculated for each individual subject. Then, a two-way mixed ANOVA with post-hoc Bonferroni was conducted for the between group comparisons. The design included one between-subject factor (proficiency) which had four levels (elementary, intermediate, advanced and native speakers) and one within-subject factor (construction) with two levels (PD/DOD or dative/benefactive). The results of the study are fully described in the following section.

5. Results

A two-way mixed ANOVA with post-hoc Bonferroni for the between group comparisons was used in this study. The design included one between-subject factor (proficiency) which had four levels (elementary, intermediate, advanced and native speakers) and one within-subject factor (construction) with two levels (PD/DOD or dative/benefactive).

The dative alternation results are considered from the following perspectives. The subsection 5.1 presents the results of PDs and licit and illicit DODs in general. The results pertinent to the semantic (possession) constraint are analysed in 5.2. The data are further

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analysed with respect to goal and benefactive datives in 5.3. The subsection 5.4 compares the results in terms of the pronominal and full lexical indirect object.

5.1 Prepositional datives (PD) and DODs (DOD)

The data was firstly analysed to compare the subjects' overall performance on prepositional datives in both Latinate and native Anglo-Saxon stems. Table three displays the subjects' overall mean on prepositional datives.

Table 3: Overall mean performance on prepositional datives

Proficiency level			
Elementary	Intermediate	Advanced	NS
1.19 (.56)	1.27 (.35)	1.59 (.25)	1.82 (.16)

* Standard deviations are included in parentheses.

The analysis of the learners' rating of prepositional dative constructions shows a significant effect of the between-group proficiency factor ($F (3, 75) = 11.101$ p<.0001). The control group performed as expected in accepting "DP PP" (PD) constructions. The learners readily rated the PDs positively as possible English sentences and the strength of their ratings increased with proficiency. Pairwise comparisons revealed that the elementary and intermediate groups were not significantly different from each other (p=1.000). The advanced subjects were significantly different from the elementary and intermediate groups (p< (A/E).001; (A/I).021). Their performance, however, was not significantly different from the native speakers (p=.430). This indicates that the L2 learners experience no significant problems in acquiring PD constructions.

The analysis of the subjects' mean score on DODs in terms of native and Latinate verbs can reveal interesting facts about the subjects' interlanguage representations. Ideally, if the notion of the morphophonological constraint is psychologically real, it should lead the L2 learners to accept the DODs for the native stems and

reject them for the Latinate verbs. Table 4 shows the means for the different conditions at each proficiency level.

Table 4: Overall mean performance on DODs

Stem Type	Proficiency level			
	Elementary	Intermediate	Advanced	NS
DODs (Native stem)	.56 (.69)	.83 (.61)	1.15 (.46)	1.82 (.20)
DODs (Latinate stem)	.69 (.65)	.68 (.59)	-.10 (.82)	-.32 (.77)

* Standard deviations are included in parentheses.

A mixed two-way ANOVA (context by proficiency) revealed that there was a significant effect of the proficiency factor [$F (3, 75)$ =42.991, $p<.0001$]. The post-hoc test showed that for the native DODs the elementary group was not significantly different from the intermediates ($p=.719$) but different from the advanced group ($p=.028$). The advanced group was not significantly different from the intermediates ($p=.273$) although there was a linear progression pattern along with an increase in the proficiency level. There was also a significant difference between the advanced and native control group ($p<.0001$).

Turning to the pairwise comparison for the Latinate DODs, the results indicated that similar to the DODs involving native stems the elementary group behaved very similarly to the intermediates ($p=1.000$) but performed statistically differently from the advanced subjects ($p=.004$). The intermediate and advanced groups were also statistically different from each other ($p<.002$); nevertheless, no significant difference was observed between the advanced and native group ($p=1.000$). The advanced learners rejected the ungrammatical sentences to a statistically similar extent to the control group. The bar graph in Figure 1 compares the subjects' performance in both prepositional and DODs. The L2 learners' performance on DODs is not as high as their performance on prepositional datives. The L2 learners exhibited a significant asymmetry between the PDs and DODs ($p<.0001$).
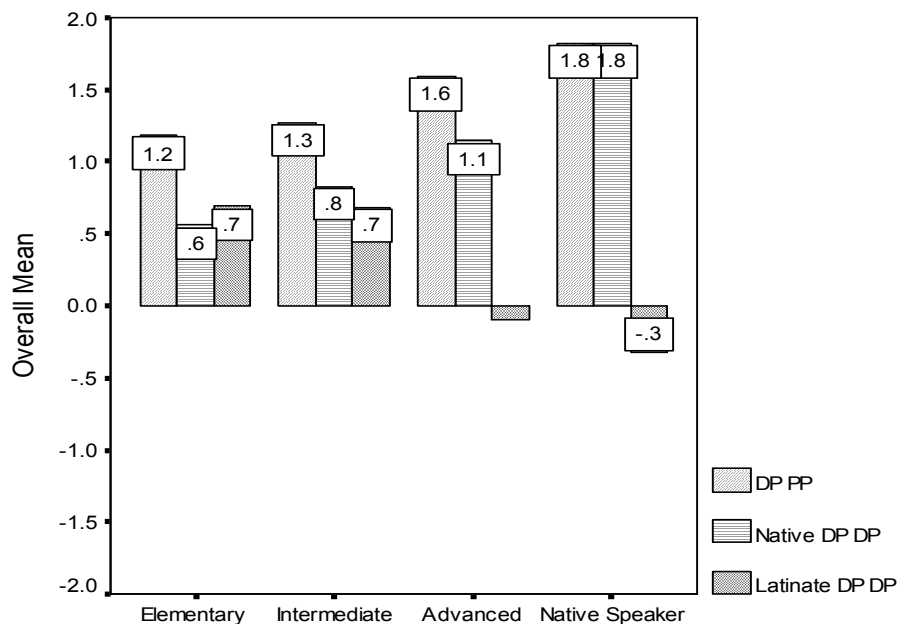
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Figure 1: Subjects' rating of PDs and DODs

The comparison of the results on the native and Latinate DODs indicated that the main effect of the native-Latinate variable was significant (p<.0001). The elementary and intermediates showed a symmetrical behaviour by allowing both licit and illicit constructions similarly (elementary: .56 vs. .69; Intermediates: .83 vs. .68). The advanced subjects, nonetheless, exhibited an asymmetry accepting the licit constructions (1.15) much more than rejecting the illicit ones (-.10). Statistically, the advanced subjects were not significantly different from the natives on the illicit Latinate DODs (p=1.000). In contrast, a significantly less successful performance was observed between the advanced and native control groups on the licit native DODs (p<.0001).

5.2 The "possession" constraint

There are many verbs whose indirect object can start with the preposition *for* but do not involve the notion of possession transfer.

These verbs are used in PD not DOD contexts. The verbs used to test this construction in this study are: *owe, make, solve, stir* and *paint*. Table five shows the subjects' performance on PD and DOD contexts.

Table 5: Subjects' mean rating on non-possessive verbs

Stem type	Proficiency level			
	Elementary	Intermediate	Advanced	NS
No possession (DP PP)	1.11 (.83)	1.27 (.55)	1.65 (.39)	1.73 (.41)
No possession (DP DP)	.13 (.77)	.06 (.85)	-.62 (.79)	-.70 (.61)

* Standard deviations are included in parentheses.

The analysis of the learners' correctness score in PD contexts revealed that there was a significant effect of grouping factor [F (3, 75) =4.812, p<.004]. The post-hoc test indicated that the experimental groups despite having an incremental progression were not significantly different from each other (p= (E/I).985; (E/A).115; (I/A) .054). Furthermore, a similar performance was observed between the native and advanced subjects (p=.992). The data shows that the subjects experience no serious problem in the acquisition of the PD context as indicated earlier in this section.

A one-way between-subject ANOVA on the DOD contexts revealed a significant main effect between the groups [F (3, 75) = 5.907, p<.0001] with the advanced group being significantly different from the elementary and intermediate groups (p= (A/I) .024).   Similar to the non-possessive PD constructions, no significant difference was observed between the advanced and native control groups (p=1.000) implying that both groups disallowed DODs with the non-possessive verbs.

The comparison of the results in the non-possessive verbs showed that the subjects fared significantly better in the grammatical than ungrammatical DODs. Figure 2 displays the comparison of the subjects' means in the non-possessive contexts
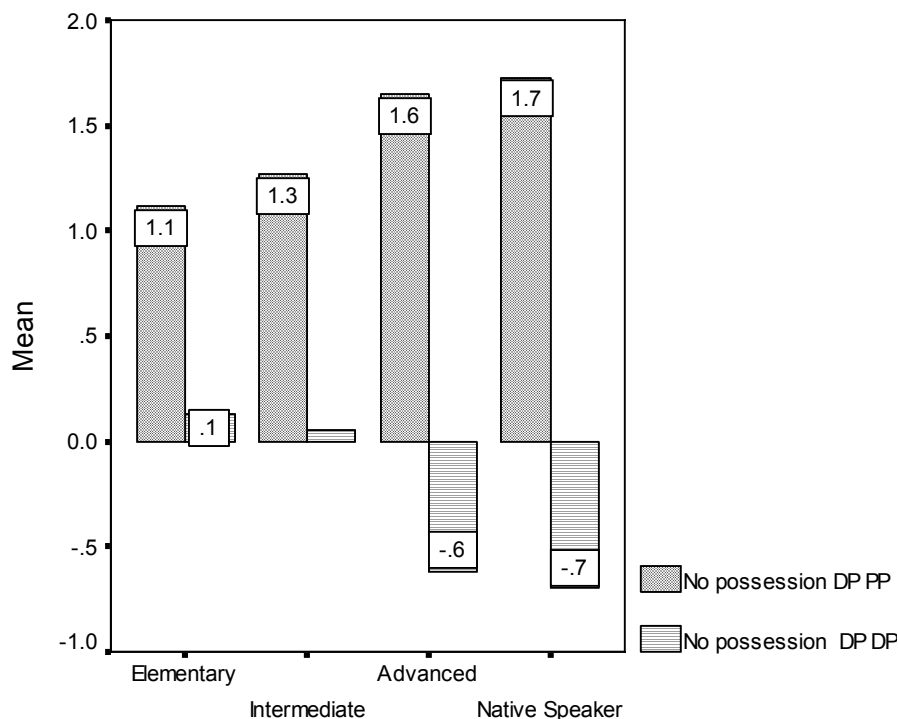
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Figure 2: Mean comparison of PDs and DODs in non-possessive contexts

A one-way repeated measures ANOVA revealed a significant main effect of construction type between the PDs and DODs [$F_{(3, 75)} = 82.730$, $p<.0001$]. As is evident from the above figure, all groups have an asymmetrical performance with regard to the concept of "transfer of possession". The elementary and intermediate groups are beginning to make distinctions between the grammatical and ungrammatical structures implying that they are also sensitive to the semantic constraint albeit they need more positive linguistic exposure to fully recognize the constraint. The mean score of the advanced subjects on both licit and illicit structures is not significantly different from the mean score of the native control group implying that the advanced L2 learners have acquired the possession constraint in English and are rejecting the illicit sentences similar to the native speakers. Therefore, it seems

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that the possession constraint is psychologically real for the advanced L2 learners.

5.3 Goal and benefactive datives

The data were analysed to see whether any sequence in the acquisition of goal and benefactive datives can be observed. The comparison of native goal (*to*) and benefactive (*for*) DOD structures shows that the subjects are treating these structures differently.
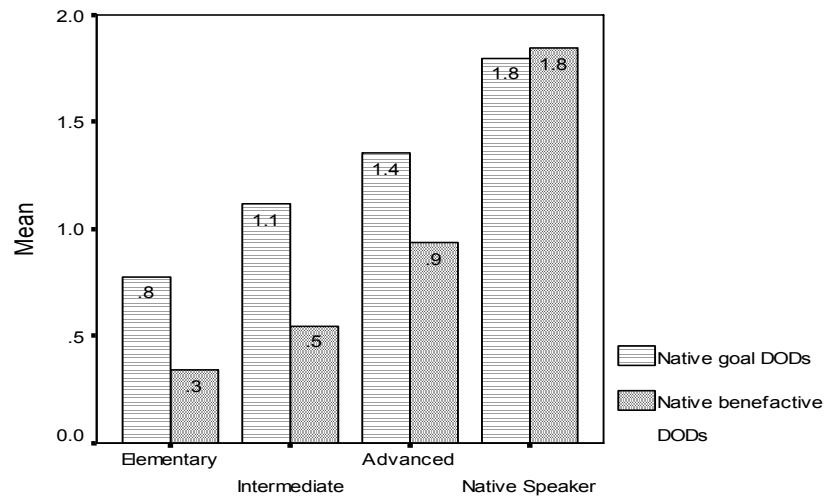

Figure 3: Subjects' rating of native goal and benefactive DODs

A repeated measures ANOVA revealed a significant main effect of construction type between goal and benefactive DODs (F $(3, 75) = 14.040$, p<.0001). As indicated in Figure three above, the subjects acquired goal datives earlier than benefactive datives in DODs. The elementary and intermediate groups accepted goal datives more than twice as much as the benefactive datives. This indicates that goal datives are less marked than *for*-datives. The native control group is behaving in both constructions equally. Nonetheless, the subjects' performance on native goal and benefactive PD structures is different from that of DOD constructions as Figure 4 depicts such a difference.
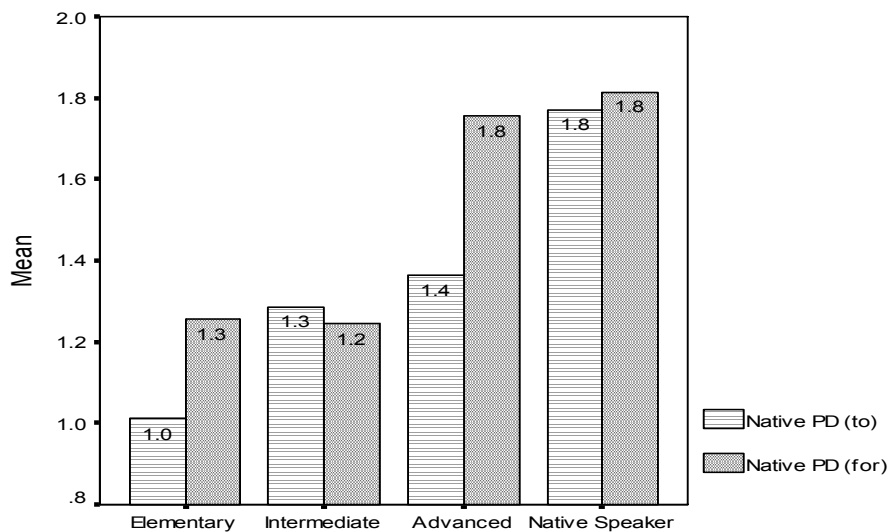
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Figure 4: Subjects' rating of native goal and benefactive PDs

A one-way repeated measures factor ANOVA revealed a main effect of the construction type for PD constructions [F (3, 75) = 5.458, p=.022]. The overall mean score of the subjects on the benefactive datives looked better than that of the goal datives. The elementary subjects had a higher performance in the benefactive PDs compared to the goal PDs; however, this difference was statistically non-significant (p=.127). Both goal and benefactive PDs were treated equally by the intermediates (p=.762). Nevertheless, a significant asymmetry between the two constructions was observed in the advanced group (p<.003).

Overall, it can be reasonably stated that in PD constructions, the experimental groups with the exception of the advanced subjects are showing a non-asymmetrical behaviour. They allow both the goal preposition (to) and benefactive preposition (for) to be used in PD contexts. In contrast, the subjects are showing an asymmetry and making distinctions between goal and benefactive datives in double object construction implying that goal DODs are acquired earlier than benefactive DODs.

5.4 Full and pronominal DPs

An analysis was made to see if the subjects treated indirect objects in DODs with pronouns and full lexical DPs similarly or not. The native and Latinate-class verbs were considered separately. Comparing the subjects' performance on pronouns versus full DPs with native-stem verbs reveals that there is no main effect of the pronominality factor [p (goal datives)=.165; p (benefactive datives)=.119]. In contrast, there was a main effect of pronominality in Latinate-stem verbs (p<.0001). Figure 5 displays the subjects' mean scores on native DODs in terms of the pronominality factor.
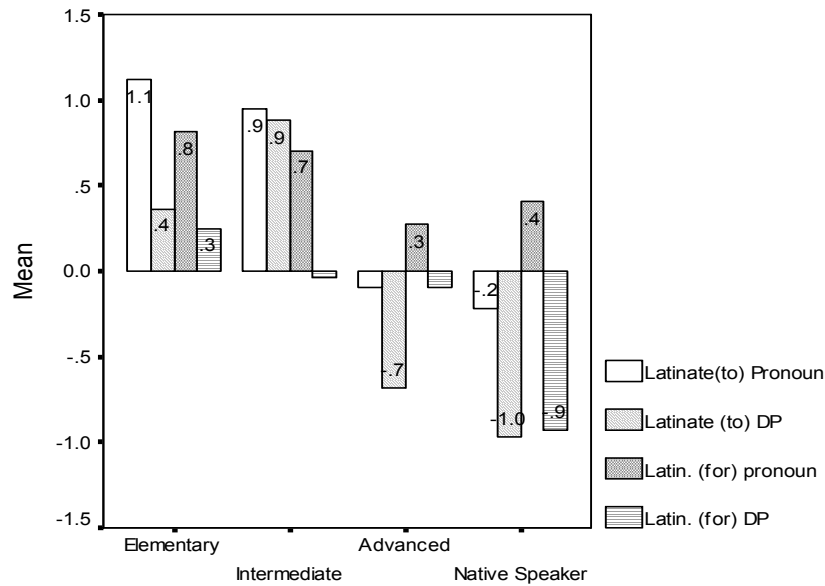

Figure 5: Subjects' rating of native verbs with pronouns and DPs

All the experimental groups in the above figure rated native goal pronominal DPs more highly than the full DPs. They generally associated the pronominal DPs with DOD constructions. However, with the benefactive DODs, the situation was different. With the exception of the elementary subjects who showed an asymmetry (.55 vs. -.17), all other groups did not differentiate between the pronominal and full DPs. The frequency of goal DODs may have contributed to the subjects' better performance between the two

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contexts.   The data analysis of the subjects' performance on Latinate DODs is displayed in Figure 6.
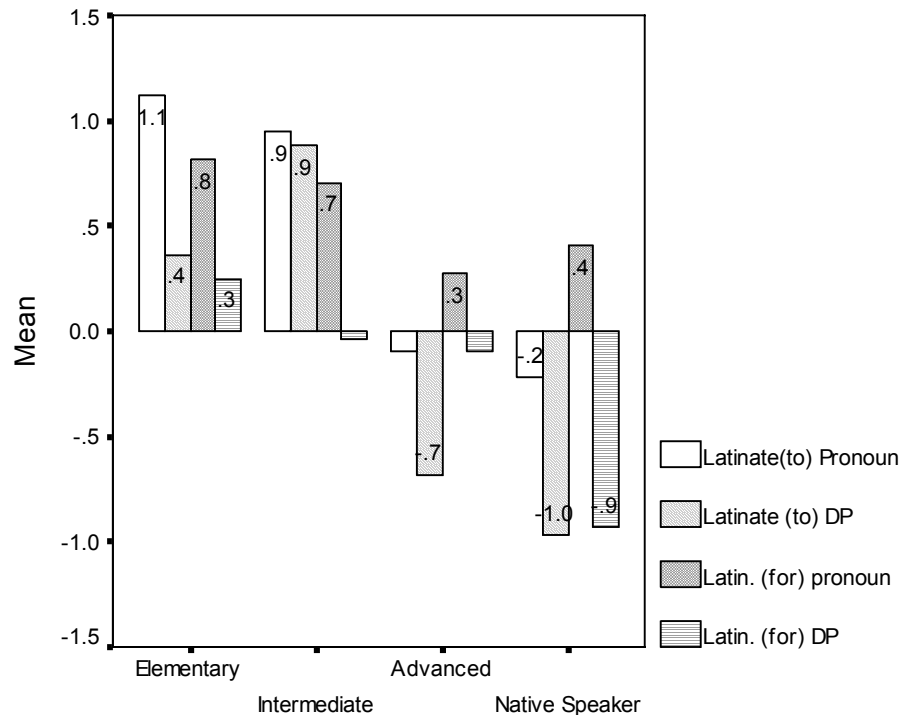

Figure 6: Subjects' rating of Latinate verbs with pronouns and DPs

The elementary subjects clearly made a distinction between the pronominal and full DPs. They were not aware of the fact that these constructions are disallowed in English. The intermediates treated both pronominal and full DPs similarly with Latinate goal DODs. With Latinate benefactive DODs, benefactive DODs with full DPs were rejected but accepted with pronominal DPs (.71 vs. .04). On the other hand, the pronominal and full DPs in both goal (.10 vs. .68) and benefactive datives (.27 vs. -.10) were differentiated by the advanced group. Interestingly, the same pattern held true for the native control group who also made a distinction between the two structures with both goal and benefactive datives. Both advanced

and native control groups allow the DODs with Latinate-class verbs to be violated with pronominal DPs.

6. Discussion

The current section will address two main issues in light of the results obtained: the underdetermination problem posed by the acquisition of the dative alternation structures and the effect of morphological transfer caused by the learners' L1. Furthermore, the effects of pronominalisation on the acceptance of illicit DODs will be discussed.

6.1 Dative alternation and the constraints

The results of the current study in general show that the Persian L2 learners have firstly recognized the fact that in English, contrary to Persian, there is not a consistent mapping between the lexical conceptual structure and syntax in dative constructions. The same arguments with identical theta roles may appear in two different syntactic positions. Secondly, their interlanguage representations are constrained by semantic and morphophonological criteria. The advanced L2 learners have made a distinction between the native and Latinate-stem verbs indicating that their interlanguage representation is sensitive to the morphophonological constraint. With respect to the semantic constraint, they are correctly rejecting the double object structures which do not involve possession even though the verbs belong to the native stem or have identical morphological forms with the native stem (e.g. *make & owe*). This ability to form Broad Range Rules (BRRs) which allow alternation in case of their compatibility with the causation of possession change can be used as evidence that adult L2 learners can attain UG-like knowledge in the L2. The L2 learners can indeed apply UG knowledge to new domains including the DODs which are syntactically non-existent in their L1.

The advanced subjects have similar intuitions to the native control group with respect to the Latinate (goal and benefactive) DODs (p=1.000) not native-stem DODs (p<.0001). Also, their

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performance on the semantic constraint shows that they are not significantly different from the native speakers (p=1.000). Comparing the subjects' performance on the native and Latinate DODs, it is interesting to notice that the subjects are not significantly different from the native group in the illicit Latinate verbs. The L2 learners are hesitant in accepting the illicit structures similar to the native speakers. For Persian L2 learners, this hesitant behaviour is further observed with the grammatical native DODs whereas the native speakers are responding with more certainty in this particular structure (1.15 vs. 1.82). All in all, the asymmetrical behavior of the L2 subjects on native and Latinate DODs indicates that their interlanguage grammars are sensitive to the morphophonological constraint.

The mismatch between the primary linguistic data and the complex knowledge relevant to the distinction between morphophonological and semantic constraints acquired by the L2 learners lends plausible support to the "poverty of the stimulus" argument in second language acquisition (Schwartz & Sprouse, 2000). Given the absence of negative evidence and transfer from L1, it is really hard to account for the data on the basis of purely data driven procedures in language acquisition. The learners have not received any negative or metalinguistic evidence as to the ungrammaticality of the sentences violating the semantic and morphophonological constraints. The knowledge of DOD properties, on the other hand, is not deducible from the L1 because DOD structures are disallowed in Persian. Moreover, it cannot be argued that the learners are rejecting the illicit structures because they have not encountered them in their L2 input. Indeed, as Pinker (1989) points out one can find many sentences that learners have not encountered but are nevertheless possible sentences of the language. Hence, the acquisition of the dative alternation structures despite the lack of negative evidence leads us to the conclusion that dative structures constitute a plausible case for the operation of the "poverty of the stimulus" in SLA. This learnability paradox can be explained in terms of universal linking rules (Pinker, 1989) which are discussed below.

How can one account for the operation of the broad range rules, i.e. semantic constraints in the acquisition of the dative alternation

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structures? The sensitivity of the L2 learners to the use of DODs and the complexity of their end-state grammar show that the lexical alternations are not arbitrary and can be explained on the basis of innate principles of language acquisition, thereby providing a solution to Baker's paradox (1979). In DODs, a predicate meaning "to cause x to go to y" is converted into another predicate meaning "to cause y to have x". Semantic constraints are "operations on semantic structures whose effects on syntactic argument structure are mediated by linking rules (Gropen et al., 1989)". The linking rules, for instance, map the agent argument to the subject position and the patient to the object position in the sentence (See Pinker, 1989 for a list of linking rules). Pinker (p. 74) further states that "linking rules are regular ways of mapping open arguments onto the grammatical functions or underlying syntactic configurations by virtue of their thematic rules". Such linking rules are among the properties of UG and need not be learned by the language learners. By implication, these universal aspects of language can be proposed to solve the 'poverty of the stimulus' problem in language acquisition.

Furthermore, the verbs fitting the DOD pattern should be compatible with 'cause to have' structures, otherwise the rule cannot apply. The verb *"pay"* looks compatible with the 'cause to have' structure in "*He paid John the salary"* but *solve* in *"He solved me the problem"* is indeed incompatible with such a constraint because the semantic change does not make sense when applied to the verb "*solve*". The L2 learners in this study are sensitive to this constraint and are clearly differentiating between the licit and illicit structures.

The arguments pushed so far leave no doubt that the semantic 'possession' constraint is at work in dative verbs. The question which may be raised here is whether there can be a semantic motivation for the morphophonological constraint. Pinker (1989) presents a possible solution not fully developed. He cites two morphological classes: basic native words and marked 'foreign-sounding' words. The basic native words are the ones which undergo the morphological processes in the language. He further argues that the Latinate verbs are semantically and phonologically more complex. Therefore, they are resistant to morphological

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changes. Another justification is that the Latinate-stem verbs, unlike the native-stem verbs, do not convey a sense of direct action on the recipient of the verb. This is because of the "abstractness and semantic complexity" of the Latinate verbs. For instance, in the verb *donate,* the recipient should be an institution or a person representing that institution and the donor should have some charitable intentions. Pinker concludes that the morphophonological constraint on dativizability requires that there should be a direct interaction between the subject and the direct complement (x and y). The verb *tell*, for instance, entails a direct interaction between the subject and its direct complements whereas the verb *announce* targets a general unspecified audience.

The results of the current study further reveal that the L2 learners have acquired the Case properties of dative verbs. The PDs are more readily acquired since both the theme and recipient have separate Case-assigners/checkers which are transparent. The theme is Case-assigned / checked by the transitive lexical verb and the recipient or beneficiary receives Case by the transitive preposition *to/for*. However, the complexity of Case assignment in DODs with regard to the lack of licensing mechanisms in Persian makes the acquisition task difficult for the L2 learners. In a sentence like *Angela faxed him the document,* the status of Case-assignment on the recipient argument is less clear. Indeed, as Chomsky (2006) suggests, the transitive lexical verb assigns Case to the nominal goal *the document* which it c-commands. This operation is done through an abstract agreement operation between the verb and the object invisible in English. The transitive null light verb in turn assigns dative Case to the indirect object *him*. The analysis offered satisfies the Case adjacency constraint which requires a transitive probe to be adjacent to a nominal goal which receives accusative Case.

The morphophonological constraint pertinent to Latinate verbs places restrictions on their Case-assigning properties. Such a constraint does not license the goal or benefactive argument to be Case assigned by null light verbs. Furthermore, the semantic constraint blocks the Case-assignment of goal or benefactive arguments (not conforming to the semantic constraint) by the null light verb. In sum, the L2 learners in this study have progressively

acquired the different Case marking possibilities in English nonexistent in their L1.

The elementary and intermediate subjects are generally performing differently from the advanced subjects regarding the semantic and morphophonological constraints. Compared to the advanced learners whose interlanguage grammar converges with the native speakers on the above constraints, the elementary and intermediates have not yet fully established the constraints associated with the application of dative verbs. They need to be exposed to more samples of dative verbs so that the interaction of the input and UG would help them to fully establish the properties pertinent to the dative alternation structures. Nonetheless, the within-group comparisons show that both elementary and intermediates are sensitive to the semantic constraint in dative verbs. The elementary subjects' mean score for PDs in non-possessive verbs is 1.11 whereas it is .13 for DODs. The intermediates' mean score, on the other hand, is 1.27 for PDs and .06 for illicit DODs. This distinction between the two structures implies that they are beginning to show sensitivity to the semantic constraint. Such a distinction is not observed in the acquisition of the morphophonological constraint leading us to the conclusion that the acquisition of the semantic constraint precedes that of the morphophonological constraint. This conclusion is attributed to the fact that the acquisition of the morphophonological constraint involves familiarity with the Latinate-stem verbs to which the elementary and intermediates have not adequately been exposed.

The data further reveals the pattern of acquisition by the lower proficiency groups. Both elementary and intermediates have acquired PD constructions earlier than the DODs. The mean acceptance of PDs for elementary and intermediates is 1.19 and 1.27 respectively whereas it is .56 and .83 for native DODs. Such findings are fully consistent with previous studies conducted on the acquisition of the dative alternation structures (Hawkins, 1987; Mazurkewich, 1984; Oh & Zubizarreta, 2005; White, 1987)

The comparison of the elementary and intermediates on the native-stem DODs and Latinate-stem DODs, as displayed in Figure 7, indicates that the subjects are treating both structures similarly (elementary .56 vs. .69; intermediate .83 vs. .68). It seems that

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initially the L2 learners are conservative about accepting DODs. They are accepting DODs less significantly than the PDs because they have not yet acquired the idiosyncratic Case properties of DODs in English.
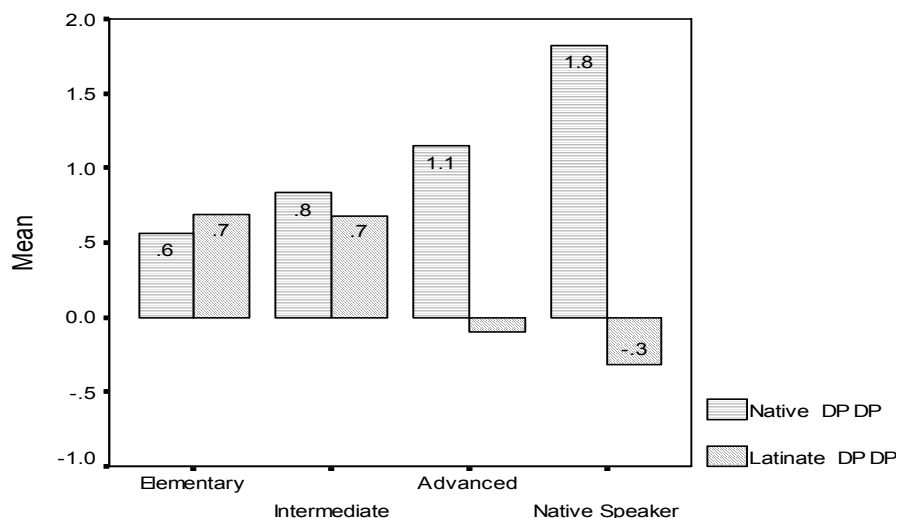

Figure 7: Subjects' rating of DODs with native and Latinate verbs

The results of the lower proficiency groups can also be explained on the basis of input frequency. The elementary and intermediate learners are not accepting the grammatical native double object structures because they have not encountered enough samples of such constructions in their L2 input. This can be a plausible argument considering the fact that the L2 learning environment for the subjects is EFL not ESL. They are not frequently exposed to natural input and they learn the L2 through classroom input.

Another pattern emerging from the results is that the L2 groups across proficiency level are showing an asymmetric behavior with goal and benefactive DODs. As illustrated in Figure three before, the elementary and intermediates are accepting the goal DODs more than twice as much as the benefactive ones. Such acceptability rate gap is reduced as the subjects get to the advanced state.

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The pattern observed can be linked to the structural differences between goal and benefactive DODs as argued by Jackendoff (1990), Shibatani (1996), and Goldberg (2002). The two types of DODs are not structurally identical. Firstly, it has been argued that goal DODs are ditransitive while benefactive DODs are transitive in nature. As a result, the first DP in goal DODs is considered an argument whereas the first DP in benefactive DODs constitutes an adjunct. Secondly, unlike goal DODs, benefactive DODs resist passivization (e.g. * *He was baked a cake on his birthday.*). Additionally, unlike goal DODs, it is not easy to show a c-command asymmetry for benefactive DODs. In fact, the construction of benefactive equivalent of the goal DOD (e.g. *They showed Mary herself.*) is disallowed because reflexives are not possible as themes in benefactive DODs (see Kay, 2005 for further details).

Following this account, the lower proficiency learners are allowing the goal DODs more than the benefactive ones because they are associating the former with two arguments required by the verb whereas this is not the case with the latter. Therefore, it can be inferred that the L2 learners' interlanguage representations are sensitive to the distinction between arguments and adjuncts. The implication of the above claim is that goal DODs are prototypical constructions while benefactive DODs can be considered as atypical.

Turning back to Figure seven, it can be seen that although the advanced L2 learners' performance has remarkably improved in comparison with the lower proficiency subjects in all constructions tested, they have a significantly less successful performance than the native control group in licit native goal and benefactive DODs (p<.014 and <.0001). This observation can be attributed to three reasons. First, the DODs have a marked status cross-linguistically. Second, the subjects' L1 does not have a morphological licensor for DODs thereby disallowing these constructions in their L1. Another possible reason can be the inclusion of pronouns in 60% of the items in each particular construction. Comparing the subjects' performance on pronominal objects as well as noun phrase objects, as will be discussed in 6.3, shows that the subjects are mostly

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rejecting the noun phrase objects more than the pronouns. However, the difference was not significant in both constructions.

One should not disregard the fact that the comparison of the subjects' performance to the native control group can mistakenly lead us to the comparative fallacy issue as noted in Bley-Vroman (1983). White (2003) argues that interlanguage representations of the L2 learners do not necessarily have to be identical to the grammars of the native speakers to show that the interlanguage representation is UG-constrained. Similarly, Birdsong (1989) has argued that in grammaticality judgement data the resemblance of L2 learners to the native speakers of the L2 is not what counts. Rather, if L2 learners are making distinctions between the licit and illicit dative structures as observed in the present study, it implies that their interlanguage representations are UG-constrained.

6.2 L1 transfer and acquisition models

The second research question in this study is: "*How does the learners' overall performance interact with their L1?"* Recall that contrary to English, Persian has only one way of realizing the arguments of dative verbs (i.e. DP PP). Goal and benefactive double objects are not licensed at all. They require overt morphology which in turn renders them as PDs. The results obtained show that there is a significant difference between the subjects' performance on prepositional datives and the double object constructions across the proficiency level (p<.0001). The subjects significantly prefer PDs to DODs. In other words, the accuracy on PDs is in advance of that of DODs. The findings suggest that the acquisition of the dative alternation in English is governed by the properties of a similar syntactic structure in the L1. These results can bolster the hypothesis that there is L1 morphological influence on the subjects' preferences.

Comparing the subjects' performance on PDs, the advanced group has had a near native-like performance in goal and benefactive native-stem verbs (p=.076; p=.985) as well as goal Latinate-class verbs (p=1.000). However, their performance on benefactive Latinate stems is different from that of the native control group (p<.004). These results are consistent with

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Mazurkewich (1984) and Hawkins (1987) who conclude that the benefactive datives are more problematic than the goal datives. The low frequency of Latinate benefactive datives has contributed to such an asymmetry. In contrast, the subjects' performance on DODs shows that the learners are not responding as accurately as on the prepositional datives. They are acting conservatively due to the lack of morphological licensors in English DODs. Thus, the asymmetry between the prepositional and DODs corroborates the effect of L1 in second language acquisition given the fact that DODs are illicit in Persian.

The results of the study can be examined within the framework of the Full Transfer Full Access (FTFA) model as argued by Schwartz and Sprouse (1994, 1996) and White (2000). The model predicts that L2 learners initially adopt the L1 grammar minus phonological matrices as the initial L2 grammar (full transfer). The learners will subsequently restructure their grammar in response to L2 input. The FTFA model further claims that L2 learners may achieve native-like competence; nonetheless, this is not a necessary outcome for their grammars to be fully constrained by UG. Input may be insufficient to trigger restructuring of properties transferred from the L1. The subjects' initial transfer of L1 properties (the use of PDs) and their later performance with regard to the morphophonological and semantic constraints shows the results on these lexical properties are consistent with FTFA model of SLA.

The findings of the present study refute the Fundamental Difference Hypothesis (FDH) claim as supported by Bley-Vroman and Yoshinaga (1992). The FDH claims that L2 learners do not have access to new L2 properties which are not instantiated in their L1 and which are under-determined in L2 input resulting in their failure to attain native-like competence. Nonetheless, the results discussed so far imply that the L2 learners do have access to lexical conceptual properties lacking in their L1. It might be argued that the subjects' performance on native stems in double object constructions is not native-like. However, as mentioned earlier, the FTFA model does not claim that native-like performance is inevitable. In other words, "convergence on a grammar identical to that of a native speaker is not guaranteed (White, 2003, p. 68)".

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6.3 DODs and the pronominality factor

The third and final research question in the present study is: "*Do English L2 learners distinguish between double objects involving pronouns and full determiner phrases (DP)?"* The findings reveal that the L2 learners go through three sequential stages in the acquisition of DOD constructions. In the first stage, the L2 learners mostly allow pronominal dative objects and reject full lexical objects in both native and Latinate verbs. This asymmetry is observed in the elementary learners as displayed in Table six.

Table 6: Elementary subjects' performance on pronouns vs. full DPs

	Pronouns	Full DPs
Native stem (*to*)	1.03	.41
Native stem (*for*)	.50	-.18
Latinate stem (*to*)	1.12	.36
Latinate stem (*for*)	.81	.25

The difference between the pronouns and full lexical DPs decreases as the subjects get to the second stage where they allow both pronominal and full lexical DPs to the same extent. This behavior is observed by the intermediate learners who are allowing both constructions to co-occur. During the third stage, the learners exhibit an asymmetric treatment of the pronominality factor with native and Latinate-stem verbs differentiating between the pronouns and full DPs with Latinate not native-stem verbs. This is typical of the advanced learners. Interestingly, both advanced and native subjects have behaved similarly in grammatical native stems in that they are not differentiating between the full lexical and pronominal DPs. However, their performance is different with the ungrammatical Latinate stems. They are accepting the ungrammatical sentences with pronouns more significantly than the ones with full DPs. This implies that the degree of ungrammaticality with full DPs is more than that of pronominal dative objects. Indeed, the L2 learners' treatment of the Latinate-

class verbs indicates that they may violate the morphophonological constraints in favour of indirect pronominal DPs.

As discussed above, some L2 learners as well as some natives have overgeneralized the double object structure with pronoun (indirect) objects but not full DP objects. How can one account for such an observation? Three explanations merit consideration here. Firstly, the acceptance of the illicit pronominal DP with Latinate verbs depends on the information structure and discoursal factors available in the context. The information structure rules require that the presupposed or known information between the speaker and the hearer should precede the non-presupposed or new information in the sentence (Krifka, 2004; Zubizarreta, 1998). Both advanced and native speakers are allowing the indirect pronominal arguments to precede the direct theme arguments for the possible reason that pronouns have antecedents in the real world and are thereby regarded as old information. The status of the information structure may have overridden the morphophonological criterion. These findings are noteworthy when we find that the native speakers are also allowing the violation of the morphophonological constraint in favour of the pronominality factor.

The second reason for the asymmetry observed between the pronominal and full lexical DPs is related to the tendency of the learners to cliticize the pronouns to the lexical verb. The subjects treat a Latin verb like *construct* as taking a dative + accusative complement and assume that English dative nominals are of the form *to John* but *him* can function as a dative pronoun as it is found in some other languages like Italian where pronouns like *GLI = to him* and *LE = to her* have a special dative form (14), but the dative form of nominals is marked by the preposition *a = to* (15).

> (14)   *Gli ho dato il libro.*
>   To him I have given the book

> (15) *Ho dato il libro a Paolo*.
>   I have given the book to Paolo.

Thus, if weak pronouns are enclitics as argued in Postal (1974), they must immediately attach to the end of a verb and the pattern in

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(16) is expected. Taking this explanation into account, the illicit structures in (16b) could be accounted for.

(16)   a. He constructed a house for Mr Donegan.
       * b. He constructed him a house.

The final explanation for the overgeneralization of the DODs with pronominal objects but not full DP objects can be related to the principle of "Minimize domains" proposed by Hawkins (2000). The principle states that the human parser tends to identify the immediate constituents of a phrase by placing the lighter constituents leftward of the heavier ones. The preference of the subjects to place pronominal DPs before the full lexical DPs can be in line with the above principle (see Bresnan and Nikitina (2007) on the effects of pronominality on English DOD constructions).

7. Conclusion

The findings of this study offer credence to the "poverty of the stimulus" argument in the lexical domain as well as in the domain of distributional syntax. The L2 acquisition of the dative alternation shows that universal principles such as "linking rules" place constraints on the acquisition of argument structures and limit the ways in which argument structures can be realized (Gleitman, 1990; Grimshaw, 1981; Pinker, 1989). Negative evidence would have been essential if no semantic or morphophonological constraint had not been in operation. Furthermore, the discrepancy between the subjects' performance in native PDs and DODs firstly implies that acquisition of Case properties associated with PDs is acquired earlier than that of DODs and secondly emphasizes the role of L1 morphological transfer.

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