The acquisition of dative alternation in English by Spanish learners

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Abstract

This study investigates the acquisition of double object constructions (DOCs) *(Mary gave George a biscuit)* by 90 L1 Spanish learners of English as a second language. Its goal is to assess whether: (i) learners showed any difference in evaluating prepositional phrase constructions (PPC) *(Mary gave a biscuit to George)* as opposed to DOC as well as asymmetries in goal and benefactive verbs, (ii) L2 learners were sensitive to the morphological (i.e. Latinate) and the semantic (i.e. possessor) constraints, (iii) proficiency had any effect on the sensitivity of learners' judgments. Participants from three proficiency levels (elementary, intermediate and advanced) completed two acceptability judgment tasks: an auto-paced reading task and a self-paced reading task. Findings revealed that learners at the lowest proficiency level showed full transfer effects from their L1. However, at higher proficiency levels overgeneralization and negative blocking effects were found, although they decreased with increasing proficiency.

Keywords: dative alternation, double object constructions, EFL, morphological constraint, semantic constraint

Resumen

Este estudio investiga la adquisición de Construcciones de Doble Objeto (DOC) (*Mary gave George a biscuit)* por parte de 90 hablantes de castellano como primera lengua (L1) e inglés como segunda lengua (L2) El objetivo es determinar si (i) los aprendices muestran alguna diferencia cuando evalúan construcciones preposicionales (PPC) *(Mary gave a biscuit to George)* en contraste con DOCs, así como si se aprecian asimetrías en verbos meta e benefactivos, (ii) los hablantes de L2 son sensibles a restricciones morfológicas y semánticas, (iii) el nivel de inglés tiene algún efecto en la sensibilidad de los juicios emitidos por los aprendices. Los participantes en el estudio, con distintos niveles de conocimiento (principiantes,

intermedios y avanzados), completaron dos tareas de juicios de aceptabilidad: una tarea de lectura auto-pautada y otra de lectura auto-dirigida. Los resultados muestran que en los hablantes con nivel principiante se observan una transferencia total de su L1. Sin embargo, entre los hablantes con mayor nivel de conocimiento de la L2 se observan efectos de sobregeneralización y de bloqueo negativo, aunque se reducen con un mayor conocimiento de la L2.

Palabras clave: variación en complemento indirecto, construcciones de doble complemento, inglés como lengua extranjera, limitaciones morfológicas, limitaciones semánticas

1. Introduction

Second language (L2) acquisition has been claimed to be fundamentally different from first language (L1) acquisition since, among other issues, L2 learners resort to their L1 in the L2 acquisition process (Gass and Selinker, 1992; Schwartz and Sprouse, 1994, 1996). Dative alternation has been widely recognized as an instance of a poverty-of-stimulus phenomenon since, from a limited set of data in the input, the language learner must somehow determine which verbs allow alternating syntactic forms and which ones do not (Perpiñan and Montrul, 2006). For example, it is target-like in English to *give money to someone* and *donate money to someone* as is also to *give someone money* but definitely not to **donate someone money*.

The acquisition of dative alternation in English has been studied with learners of different L1s learning English as an L2 (Brazilian Portuguese: Zara, Oliveira and Souza, 2013; French: Hawkins, 1987, Mazurkewich, 1984, Wurm, Konieczny and Hemforth, 2012; Japanese and Korean: Oh, 2006, 2010; Oh and Zubizarreta, 2006a; Whong-Barr & Schwartz, 2002; German: Woods, 2012). Dative alternation has also been examined in Spanish as an L2 (Cuervo, 2007; Perpiñan and Montrul, 2006). Spanish and English feature similar syntactic properties –both languages allow prepositional phrase constructions (PPC) and double object constructions (DOCs)- but differ in the semantic contexts where dative alternation is allowed, which makes them an interesting pair of languages to study. Previous research on the topic in L2 English and L2 Spanish has reported higher accuracy in PPCs over DOCs (Cuervo, 2007; Perpiñan and Montrul, 2006; Oh, 2010), sensitivity to both morphological and semantic constraints (Oh, 2006, 2010; Oh and Zubizarreta, 2006a; Whong-Barr and Schwartz, 2002) and proficiency effects (Oh, 2010). However, to the best of our knowledge, no research has used online methodology to assess these findings in foreign language settings. Online methodology may identify structures in which nonnative learners show difficulties in real time reading. Thus, the aim of the present

study is to consider whether previous findings on dative alternation will be confirmed using two online acceptability judgment tasks. More specifically, this study examines the asymmetries between syntactic structures (i.e. PPCs vs. DOCs), and sensitivity to the morphological and semantic constraints with Spanish learners at different English proficiency levels. Findings reveal that L1 Spanish learners of various proficiency levels in L2 English show difficulties when completing the two online tasks even though both Spanish and English share some properties.

The rest of the article is structured as follows: section 2 outlines the main characteristics of dative alternation in Spanish and English; section 3 reviews the most relevant findings with regard to the acquisition of dative alternation; section 4 highlights the importance of online tasks for current research. Section 5 presents the methodology used in this study. The following section, section 6, reports the results and section 7 discusses findings in the light of current hypotheses in the L2 acquisition literature. Section 8 concludes the article.

2. Dative alternation in English and Spanish

This section summarizes the distribution of dative alternation in the two languages considered in this study, English and Spanish. In English, the thematic roles associated with the internal direct and indirect arguments are theme and recipient. These roles can alternate between a PPC, in which the DP is the theme and the prepositional phrase (PP) the recipient, as in (1) and a DOC where the recipient appears before the theme, as in (2).

(1) Jane gave an apple $_{\text{THEME}}$ **to Susan** $_{\text{RECIPIENT}}$.

Prepositional phrase construction (PPC)

(2) Jane gave **Susan** $_{\text{RECIPIENT}}$ an apple $_{\text{THEME}}$.

Double object construction (DOC)

PPCs are introduced by the preposition *to*, in the so-called goal constructions (as in (3)), and by the preposition *for* in benefactive constructions, as in (4).

(3) Elizabeth explained her plan **to** Gabriel. Goal verb

(4) Peter drew a colorful picture **for** John. Benefactive verb

Regarding semantics, English DOCs feature two constraints: a morphological or Latinate constraint and a semantic or possessor constraint. The morphological or Latinate constraint (Pinker, 1989:45) refers to the fact that dative alternation is only

allowed with verbs with a Germanic origin and disallowed with verbs of Latinate origin, as in (5).

(5) a. Mary **gave/donated** her fortune to the orphanage.

b. Mary **gave/*donated** the orphanage her fortune.

There is no grammatical reason why this morphological constraint holds but it has been argued that it still remains from the Germanic origins of the DOC (cf. Green, 1974; Oehrle, 1976).

The semantic or possessor constraint refers to the fact that DOCs encode a possession relationship between the two DPs, since the referent of the first object has a possession relationship with the second object (Green, 1974; Harley, 2002; Oehrle, 1976). The semantic or possessor constraint applies to both goal and benefactive verbs, as illustrated in (6) and (7).

(6) a. Lucy sent a package to New York / * Lucy sent New York a package.

a. Lucy sent a package to Mary. / Lucy sent Mary a package.

(7) a. John poured some coffee for Mary. / John poured Mary some coffee.

b. John poured some cement for Mary. / *John poured Mary some cement.

(Oh, 2010:410)

Syntactically, Spanish also has a PPC with a direct and indirect argument, as (8a) illustrates, which alternates with dative constructions. Demonte (1995) proposed that clitic doubling structures are equivalent to English DOCs. In DOCs, the indirect argument is always doubled by a clitic and the dative case is introduced by an *a* marker, as in (8b)[1].

(8) a. *Pedro entregó el paquete a Ana.*

Peter hand.PST DET.MASC package DAT.GL Ana

'Peter delivered a package to Ana.'

b. *Pedro le entregó el paquete a Ana.*

Peter CL.DAT hand.PST DETMASC package DAT.GL Ana

'Peter gave Ana the package.'

When the goal is not doubled by a clitic, the *a*-phrase is a PPC, as in (8a) above. In contrast, when the *a*-phrase is doubled by a clitic, Demonte (1995) claims that this

structure corresponds to a DOC, although its surface form is the same as a PPC as in (8b). In this structure the 'a' is claimed to be a pseudopreposition (Cuervo, 1995, 2007, Demonte, 1995). Benefactive datives lend support to this hypothesis because the preposition '*para*' appears in the DOC (9b), but not in the PPC (Cuervo, 2007), as (9a) illustrates:

(9) a. *Sara hizo el almuerzo para su hijo.*
Sara cook DET.MASC lunch DAT.BEN her son
'Sara cooked the lunch for her son.'

b. *Sara le hizo el almuerzo a su hijo.*
Sara CL cook DET.MASC dinner DAT.GL her son
'Sara cooked her son the dinner.'

Semantically, Spanish DOCs denote two meanings: source and possessor. A dative argument with a transitive verb that expresses transfer of possession is interpreted as a possessive source, as in (10).

(10) El niño le robó el juguete
DET.MASC child CL.DAT steal DET.MASC toy
a la mujer
DAT.GL DET.FEM woman
'The child stole the toy from the woman.'

In sum, Spanish DOCs have been claimed to have an underlying structure similar to English DOCs. Nonetheless, a difference between the two languages lies in the fact that English DOCs featuring morphological and semantic constraints disallow alternation whereas Spanish DOCs are only found in clitic doubling constructions. Regarding semantics, DOCs can be used with a greater variety of verbs in Spanish. In the case of English, benefactive verbs are restricted to possessor conditions.

3. The acquisition of dative alternation in a second language (L2)

Dative alternation has been claimed to be an interesting example of a learnability problem in language acquisition (Pinker, 1989). In L1 acquisition, learners have to discover the rules and restrictions that allow dative alternation. Mazurkewich and

White (1984) claimed that ditransitive verbs illustrated two sub-categorization frames ruled by lexical redundancy: [NP PP] (i.e *Peter gave a pen to Susan*) and [NP NP] (i.e. *Peter gave Susan a pen*). They proposed that children learning English as their L1 are not conscious of the semantic and morphological constraints of the lexical redundancy rule, and, consequently, they tend to overgeneralize DOCs with verbs that do not allow alternation, as in (11) (Mazurkewich and White, 1984).

(11) *Nancy drove Ted the car.

(Mazurkewich & White, 1984: 269)

More recently, Bresnan (2007) and Kendall, Bresnan and Van Herk (2011) examined variability and probabilistic aspects of dative alternation by learners from different varieties of English. Findings in these studies revealed that English native speakers from different varieties were not consistent in identifying ungrammatical DOCs. Besides, animacy and length were identified as two predictors for variability in judgment (Wolk, Bresnan, Rosenbach and Szmrecsányi, 2013).

This learnability problem has also been examined for L2 learners of Spanish (Cuervo, 2007; Perpiñan and Montrul, 2006) and English (Oh, 2010; Oh and Zubizarreta, 2006, 2010; Whong-Barr and Schwartz, 2002). In a first attempt to analyze this phenomenon, Mazurkewich (1984) examined the acquisition of dative alternation by French learners of English with special focus on the Latinate constraint. L2 learners of three proficiency groups acquired PPCs before DOCs, whereas in Latinate DOCs learners accepted illicit alternation constructions. Thus, like in L1 acquisition, overgeneralization effects were also found in L2 acquisition. Hawkins (1987) also reported that L1 French learners of L2 English acquired PPCs earlier than DOCs. Besides, his findings revealed that L2 learners were more accurate in goal verbs than in benefactive verbs in DOCs. On the basis of these findings, Hawkins suggested the following developmental sequence for the acquisition of DOCs in English:

- Stage 1: the acquisition of PPCs precedes the acquisition of DOCs.
- Stage 2: In PPCs, the acquisition of *to*-verbs precedes the acquisition of *for*-verbs.
- Stage 3: In DOCs, the acquisition of *to*-verbs precedes the acquisition of *for*-verbs.
- Stage 4: The acquisition of specific language constraints.

Whong-Barr and Schwartz (2002) analyzed whether L1 Japanese and L1 Korean children acquired goal and benefactive verbs in English. DOCs are not allowed in

Japanese, and Korean has a form equivalent to English goal and benefactive datives. Results from an oral grammaticality judgment task (GJT) showed that both learner groups overgeneralized illicit DOCs. Besides, L1 Japanese learners, unlike Korean learners, accepted illicit benefactive DOCs. This finding was explained under the Full Transfer/Full Access (FT/FA) model (Schwartz and Sprouse, 1994, 1996) since learners acquired L2 English properties similar to those of their L1.

Oh (2006), and Oh and Zubizarreta (2006a) replicated Whong-Barr and Schwartz's methodology with 65 adult L1 Korean learners and 73 Mandarin speakers of L2 English. Findings revealed differences in accuracy between the acquisition of goal and benefactive verbs. These asymmetries showed that learners in both groups were more accurate in goal DOCs than in benefactive structures, as Hawkins (1987) had already reported. Nonetheless, findings indicated that asymmetries decreased as L2 proficiency increased.

In a subsequent study, Oh (2010) examined the acquisition of DOCs by 33 Korean speakers of English while completing two acceptability judgment tasks targeting dative alternation. Results indicated that learners overcame negative transfer effects with increasing proficiency. Indeed, advanced learners attained native-like accuracy in some semantic properties of English DOCs.

More recently, Zara, Oliveira and Souza (2013) examined the acquisition of English DOCs by Brazilian Portuguese learners. Participants from three proficiency groups completed an acceptability judgment task. The researchers used learnability and generalization measures to identify whether learners had acquired dative alternation in English and whether they showed L1 overgeneralization effects, since Brazilian Portuguese also accepts DOCs even though the use of these constructions is more restricted than in English. Although L1 transfer effects were reported, results confirmed that these effects were not pervasive. In contrast, selective transfer effects were found confirming previous research on psychotypology (Kellerman, 1983). In other words, learners showed positive transfer effects, bringing those aspects that were available in the L1 Brazilian Portuguese to their L2 English.

4. Online tasks in current L2 acquisition research

A limited number of studies in second language acquisition (SLA) have used online techniques to investigate how L2 learners process sentences in real time (Marinis, 2003). Research has provided powerful insights into language specific processing strategies by comparing real time reading processes of L2 learners and native speakers as well as strategies that hold across languages (Felser, Roberts, Gross

and Marinis, 2003; Papadopoulou and Clashen, 2003). Evidence from online studies has shown that although learners evaluate linguistic violations as ungrammatical during offline tasks, they may not be able to use the information in online tasks when the feature under study is not instantiated in their L1 (Roberts and Liszka, 2008).

Self-paced reading tasks have been used to assess learners' sensitivity to certain ungrammaticalities during L2 processing (Hopp, 2010; Sagarra and Herschensohn, 2011) in order to assess their interlanguage (IL). Besides, word by word measures have been claimed to tap the specific points in the sentence that may pose processing difficulties for learners (Marinis, 2003).

Online methodologies have also been used to assess highly proficient L2 learners' persistent problems with morphosyntax (Roberts, 2012). These morphosyntactic deficits have been characterized as representational (Hawkins and Chan, 1997; Tsimpli and Dimitrakopoulou, 2007), when they affect those structures or features that are not present in the L1 and to which learners are exposed after puberty, or as processing, when learners are claimed to have problems. in accessing underlying knowledge in real time (Goad and White, 2006; Prévost and White, 2000; Slabakova, 2009).

Hopp (2010) conducted a number of experiments with advanced and near-native Russian, Dutch and English learners of German using both offline and online grammaticality judgment tasks (GJT) in order to measure learner preferences with object-subject word order. Findings from the offline tasks of German native speakers and of Dutch and English L2 learners were used as evidence against the claim that learners could not acquire features that were not available in their L1. Results in the online task revealed that L2 learners were slower when processing ungrammatical items. The author claimed that his findings indicated that learners could employ their grammatical knowledge during real-time processing, thus supporting the idea that processing difficulties underlie L2 learners' non-nativelike performance (Goad and White, 2006).

Using online methodologies we can gather more information about the specific points in a sentence that are problematic for L2 learners and provide information about the strategies they use to process the L2 input.

5. The present study

The main goal of this study is to examine dative alternation by L1 Spanish L2 learners of English when completing two online tasks in order to analyze whether structural similarities and differences affect learners' accuracy and reaction delays.

On the basis of the literature reviewed above, the following research questions are entertained:

RQ 1: Are L1 Spanish learners sensitive to double object constructions (DOC) in L2 English? If this is the case, are asymmetries found between goal and benefactive verbs?

Following Mazurkewich (1984, 1985), Cuervo (1995, 2007) and Oh (2010), learners are expected to show higher accuracy rates in PPCs due to the fact that a similar structure is found in Spanish. Assuming FT/FA (Schwartz and Sprouse, 1994, 1996), the similarities between both languages in terms of DOCs should facilitate their acquisition. We expect learners to show asymmetries in evaluating goal and benefactive verbs. Following previous findings (Hawkins, 1987; Oh, 2010), participants are expected to be more accurate in goal verbs since they have been claimed to be the unmarked form as opposed to the marked benefactive form.

RQ 2: Are L1 Spanish speakers sensitive to semantic and morphological constraints?

Considering the differences between Spanish and English in dative alternation, different hypotheses can be entertained regarding morphological and semantic constraints. Concerning the morphological constraint, participants are expected to show difficulties in discarding Latinate DOCs. Thus, learners are expected to accept illicit Latinate DOCs, especially at low proficiency levels.

On the other hand, given the similarities between the two languages in displaying the semantic constraint participants are expected to show native-like accuracy in evaluating illicit DOCs.

RQ 3: Does proficiency have an effect on learners' sensitivity to DOCs?

Proficiency is expected to play an important role on learners' sensitivity to DOCs. Higher proficiency learners are expected to be more native-like in all conditions than lower proficiency participants (Oh, 2010; Perpiñán and Montrul, 2006) in PPCs and in DOCs. However, assuming full transfer effects (Oh, 2010), L1 Spanish learners are expected to show native-like performance in the semantic constraint (i.e. possessor).

5.1 Participants

Ninety (n = 90) adult L1 Spanish learners of L2 English (age range: 18-28) and 30 adult native English speakers (age range: 21-25) participated in the study. Experimental participants were undergraduate students enrolled at a major university in Spain. They

completed an Oxford Placement Test (OPT) (Syndicate, 2001) in order to determine their proficiency level in English. On the basis of the results, the participants were classified as elementary (n = 30), intermediate (n = 30) and advanced (n = 30) learners. Table 1 displays the information of the participants in this study.

Table 1. Description of the participants in this study.

		N	Age	OPT score range	Mean	SD
L2 English speakers	Elementary	30	20.96	17-23	20.66	1.80
	Intermediate	30	20.23	27-43	35.20	4.65
	Advanced	30	22.26	48-55	50.83	2.00
L1 English		30	23.04			

Besides, all learners in the three groups had been first exposed to English during primary education (age 6) in a minimal input setting (3/4 hours per week). None of the participants had spent more than three months in an English speaking country at the moment of data collection.

5.2 Materials and procedure

Participants completed two online acceptability judgment tasks: an auto-paced reading task (henceforth, APRT) and a self-paced reading task (henceforth, SPRT). These tasks were designed in order to tap processing difficulties that might result in difficulties to assess dative alternation in L2 English. In both tasks, sentences were presented word by word but in the APRT words appeared automatically every 2500 ms, whereas in the SPRT they were shown when participants pressed the space bar key. Thus, the SPRT was untimed whereas the APRT was timed. Participants evaluated whether the sentences shown on a computer screen were acceptable in English in a 7 point Likert scale (1 being completely acceptable and 7 completely unacceptable). An acceptability judgment task was used in order to analyze learnability and generalization effects (Gass and Mackey, 2005). In fact this task has been widely employed in L2 studies on argument structure (White, 2003). When piloting the experiment, these participants preferred having 1 as the figure meaning "completely acceptable" and 7 as "completely unacceptable" in the Likert scale. Hence, on the basis of the participants' preferences in the pilot study, this layout for the Likert scale was chosen. Besides, in order to be included in the data analysis, participants needed to reach a 60% accuracy rate in the filler sentences.

Test items were divided in three conditions: the structural condition, the morphological constraint condition and the semantic constraint condition (Appendix

1 includes the list of experimental items). All verbs were previously used by Oh (2010) but the stimuli were created by the researchers and piloted with native speakers. The structural condition was used to test the learners' sensitivity to PPCs in comparison to DOCs. The morphological condition determined whether L2 learners showed asymmetries in assessing goal and benefactive verbs. The semantic condition was used to examine the morphological and the semantic constraints for dative alternation found in English. Experimental items including Latinate verbs were used to test the morphological condition and exceptional verbs were used to assess sensitivity to the semantic constraint since neither verb type allows DOCs. Test materials included a total of 72 experimental items, which had PPC and DOC counterparts and each participant only evaluated the same items once. Besides, half of the items had 6 tokens and the other half had 7 tokens. Table 2 illustrates the distribution of test materials.

Table 2. Distribution of test materials

	Latinate verbs	**Exceptional verbs**	**Control verbs**
Goal verbs	*Suggest*	*Push*	Kick
	Return	*Pull*	Throw
	Explain	*Drag*	Tell
	Repeat	*Whisper*	Show
	Describe	*Shout*	Bring
	Recite	*Yell*	Hand
Benefactive verbs	*Construct*	*Solve*	Build
	Collect	*Keep*	Draw
	Obtain	*Fix*	Get
	Create	*Open*	Fix
	Select	*Finish*	Buy
	Design	*Wash*	Find

All items were divided in two lists of 36 experimental items and 36 fillers. The same materials were used in both experimental tasks and items lists were counterbalanced in order to avoid task effects as well as item repetition effects.

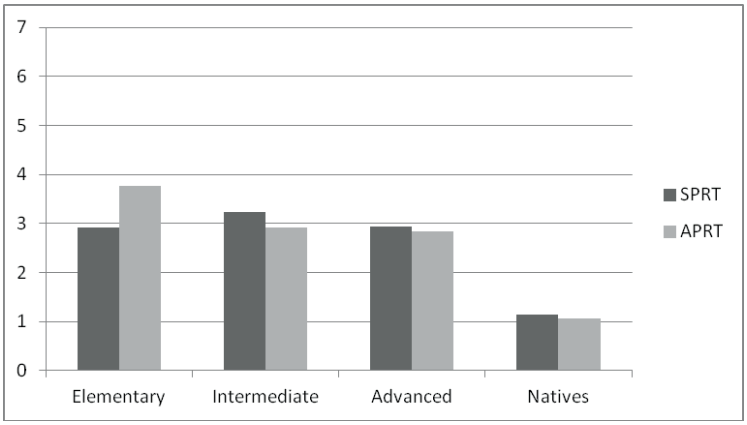
6. Results

6.1 Accuracy data

This section presents the accuracy and reaction time (RT) data from both the SPRT and the APRT. Participants' accuracy data were submitted to one-way

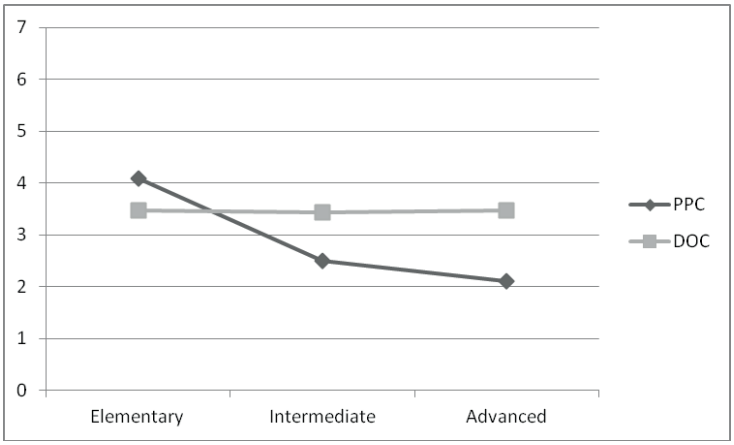
ANOVA analysis in order to answer the three research questions. The comparison of the findings in both online tasks revealed that statistically significant differences were found in accuracy in the elementary (F (1, 2159) = 103.665; p<.0001) and the intermediate groups (F (1, 2159) = 12.393; p<.0001). Thus, results for the APRT and the SPRT will be reported separately. In order to interpret learners' evaluations in the following figures, recall that when the mean evaluation was closer to 1 the judgments were more accurate, whereas the mean evaluation close to 7 showed inaccurate judgments. Figure 1 shows the accuracy means in both tasks in the three proficiency groups.

Figure 1. Accuracy means in the SPRT and APRT in the three proficiency groups



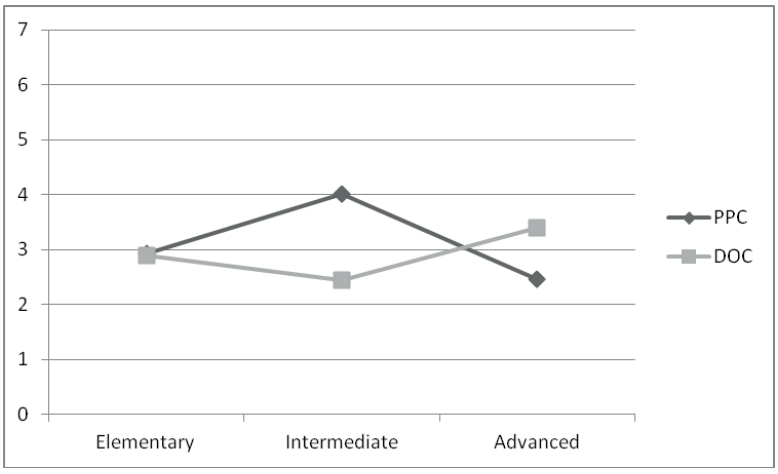
The first research question (RQ 1) examined whether L2 learners were sensitive to DOCs. In order to answer the question, PPCs were compared to DOCs. One-way ANOVA analyses revealed statistically significant differences in the three proficiency groups between prepositional and dative construction in the APRT (elementary: F (1, 1079) = 25.261; p<.0001; intermediate: F (1, 1079) = 62.769; p<.0001; advanced F (1, 1079) = 126.909; p<.0001). Unexpectedly, elementary learners were more accurate in evaluating DOCs than PPCs. However, as proficiency increased learners were more accurate in PPCs in both the intermediate and the advanced group. Regarding DOCs, the mean values in the three proficiency groups were similar. Figure 2 depicts the accuracy mean values in PPC and DOCs in the APRT:

Figure 2. Accuracy mean in PPC and DOC in the APRT



In contrast, in the SPRT, significant differences were only found in the intermediate (F (1, 1079) = 169.921; p<.0001) and in the advanced group (F (1, 1079) = 50.505; p<.0001). In the untimed task, elementary learners showed similarities in evaluating PPCs and DOCs. In the intermediate group, learners were more accurate in DOCs than in PPCs. In contrast, in the highest proficiency level group, the opposite tendency was found and participants were more accurate in evaluating PPCs than DOCs. Figure 3 describes the mean values in learners' accuracy rates in the PPCs and the DOCs in both experimental tasks.

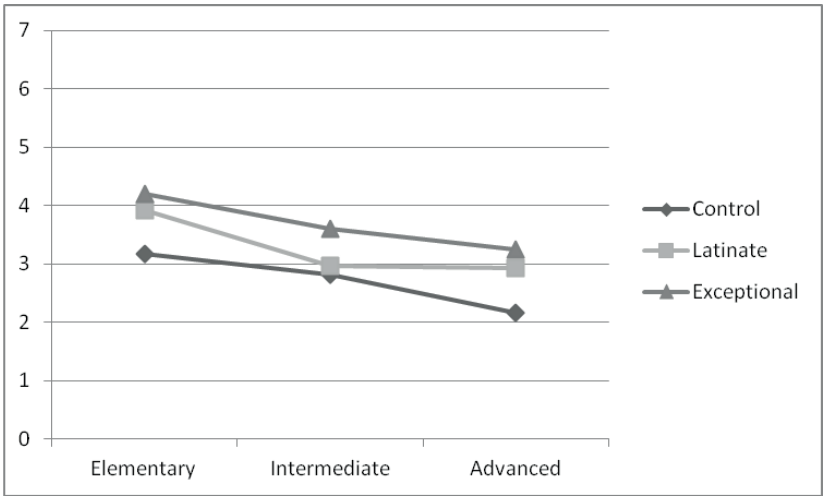
Figure 3. Accuracy mean in PPCs and DOCs in the SPRT



On the other hand, accuracy means in goal and benefactive verbs were calculated for L2 learners. ANOVA analyses did not reveal any asymmetries between both verb types in any of the three proficiency groups in the timed and the untimed tasks.

Regarding the second research question (RQ 2), sensitivity to DOCs was measured by comparing the accuracy data of L2 learners in the control DO condition, where alternation is licit, as opposed to the Latinate and the exceptional condition, where this structure is inaccurate. In the APRT, one way ANOVA analyses revealed statistically significant differences between experimental goal conditions in the three proficiency groups (elementary: F (2, 539) = 12.733; p<.0001; intermediate: F (2, 539) = 7.536; p = .001; advanced F (2, 539) = 12.924; p<.0001). Besides, post-hoc Tuckey analyses showed significant differences between control DOCs and Latinate DO conditions (elementary: p = .001; intermediate: p = .001; advanced: p = .002) and exceptional DO conditions (elementary: p<.0001; intermediate: p = .009; advanced: p<.0001). In the three proficiency groups learners were more accurate in control conditions than in Latinate and exceptional verb conditions. Figure 4 features the means in accuracy in both morphological and semantic constraints in goal verbs:

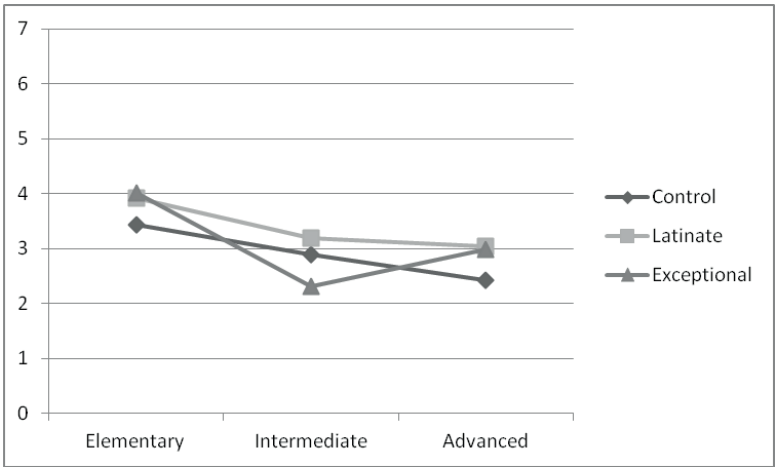
Figure 4. The means in accuracy in morphological and semantic constraints in goal verbs:



Similarly, in benefactive verbs, statistically significant differences were also found for the experimental conditions in the three proficiency groups (elementary: F (2, 539) = 4.120; p = .017; intermediate: F (2, 539) = 9.618; p<.0001); advanced: F (2, 539) = 4.862; p = .008). Post-hoc pairwise analyses revealed significant differences

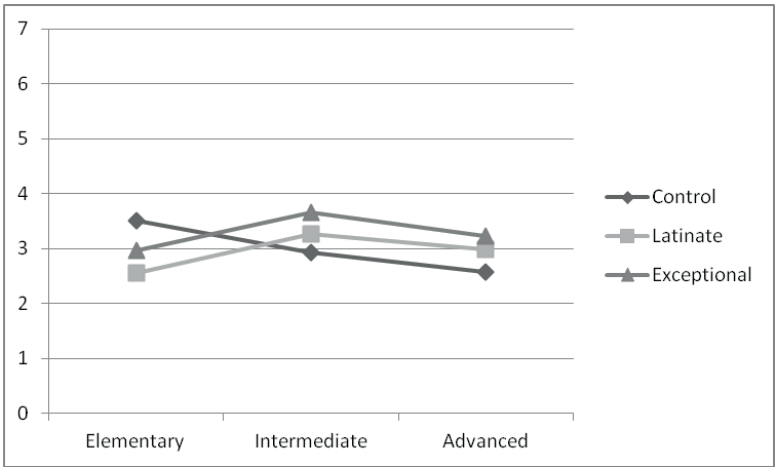
between control and constraint conditions in the intermediate (Latinate: $p = .013$; exceptional: $p<.0001$) and the advanced group (Latinate: $p = .014$; exceptional: $p = .027$), whereas in the elementary group differences were only found between the control condition and the exceptional verb condition. As was the case with goal verbs, elementary and advanced learners were more accurate in control conditions than in the two constraint conditions. However, in the intermediate group, learners were more accurate in the exceptional verb condition. Figure 5 displays the means in accuracy in both morphological and semantic constraints in benefactive verbs:

Figure 5. Accuracy mean in morphological and semantic constraints in benefactive verbs in the APRT



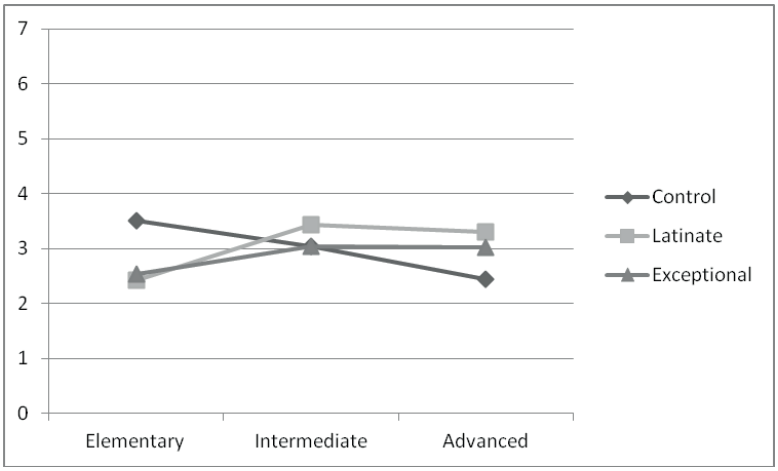
In the SPRT, one way ANOVA analyses showed statistically significant differences between the three goal conditions in all the proficiency groups (elementary: F (2,539) = 12.352; $p<.0001$; intermediate: F (2, 539) = 5.479; $p = .004$; advanced: F (2, 539) = 4.100; $p = .017$). Besides, post-hoc pairwise analyses indicated learners were more accurate in Latinate ($p <.0001$) and exceptional ($p = .014$) verb conditions as opposed to the control goal verb conditions in the elementary group. But differences were only found between the control and the exceptional verb condition in the intermediate ($p = .003$) and in the advanced ($p = .013$) groups. In fact, results indicated that learners showed more difficulties in accepting control goal items than in the Latinate and exceptional constraint items in the elementary group. However, learners in the intermediate and the advanced groups were more accurate in the control condition whereas their accuracy rates decreased in the constraint conditions. Figure 6 illustrates the accuracy means of in goal verbs:

Figure 6. Accuracy mean in morphological and semantic constraints in goal verbs in SPRT



However, in benefactive verbs differences between Latinate, exceptional and control verbs were only found in the elementary (F (2, 539) = 19.300; p<.0001) and the advanced group (F (2. 539) = 7.215; p = .001). The pairwise Tuckey analyses revealed that advanced learners were more accurate in control verbs when compared to Latinate (p = .001) and exceptional verbs (p = .036). In contrast, elementary level learners showed more targetlike accuracy means in both Latinate (p<.0001) and exceptional (p<.0001) verbs than in the control verbs. Similar to the timed task, elementary learners tend to evaluate illicit Latinate and exceptional DOC items more accurately than control benefactive DOC items. However, as proficiency level increased, judgments were more accurate in the control condition items than in the constraint contexts. Nonetheless, intermediate and advanced learners showed higher accuracy means in the Latinate constraint, whereas in benefactive verbs learners were more accurate in exceptional conditions. Figure 7 shows the accuracy mean in the experimental constraint conditions in benefactive verbs:

Figure 7. Accuracy mean in morphological and semantic constraints in benefactive verbs in SPRT.



Regarding proficiency effects (RQ 3), multivariate ANOVA analyses in the accuracy of the APRT revealed statistically significant proficiency effects in the goal PPCs (F (2, 269) = 5.761; p = .004) and in goal DOCs (F (2, 269) = 3.445; p = .033). A post-hoc Tuckey analysis showed significant differences between intermediate and advanced groups for the former condition (p = .002), whereas differences were found between elementary and advanced learners in the latter condition (p = .045). In benefactive conditions, significant differences were found in Latinate DOCs (F (2, 269) = 3.838; p = .023). A pairwise analysis revealed significant differences between the intermediate and the advanced group (p = .033). In all these conditions, advanced learners were more accurate than intermediate or beginner learners, whereas no differences were found between elementary and intermediate learners in any of the conditions. However, none of the experimental groups reached native-like accuracy in this task (elementary: F (2, 2159) = 119.549; p< .0001; intermediate: F (2, 2159) = 96.608; p< .0001; advanced: F (2, 2159) = 81.959; p< .0001).

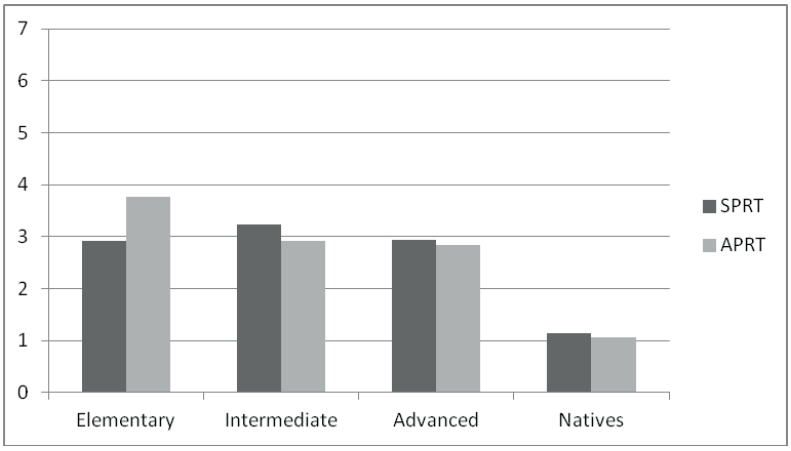
Nevertheless, in the SPRT, statistical analyses indicated significant proficiency effects in all experimental conditions in both goal and benefactive conditions (except for the Latinate DOC): control PPC (goal: F (2, 269) = 3.793; p = .024; benefactive: F (2, 269) = 4.894; p = .008), Latinate PPC (goal: F (2, 269) = 3.831; p = .023; benefactive: F (2, 269) = 5.769; p = .004), exceptional PPC (goal: F (2, 269) = 3.268; p = .040; benefactive: F (2, 269) = 5.751; p = .004), control DOC (goal: F (2, 269) = 7.112; p = .001; benefactive: F (2, 269) = 5.719; p = .004) and exceptional PPC (goal: F (2, 269) = 3.329; p = .037; benefactive: F (2, 269) = 3.221; p = .041). Post-hoc

analyses revealed significant differences between the higher proficiency group and the two lower proficiency groups. In contrast, non-native learners did not obtain native-like accuracy in any of the proficiency groups (elementary: F (2, 2159) = 1139.000; p< .0001; intermediate: F (2, 2159) = 1139.955; p< .0001; advanced: F (2, 2159) = 837.278; p< .0001).

6.2 Reaction time measurements

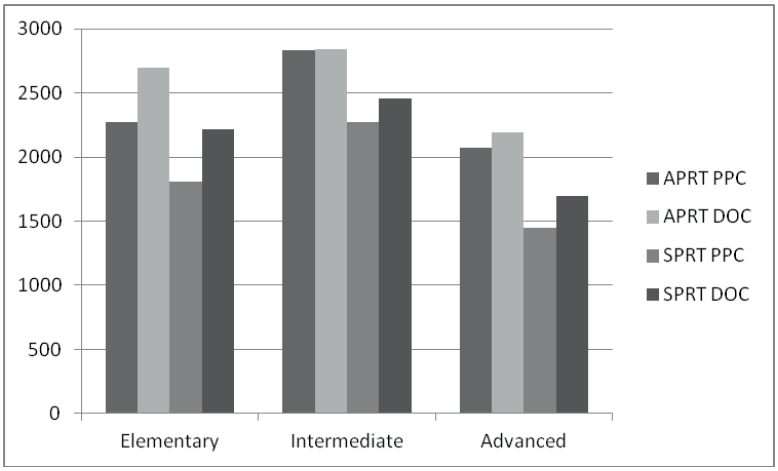
The comparison of the RT measurements in the self-paced and the auto-paced tasks revealed statistically significant differences in the elementary (F (1, 2158) = 32.740; p<.0001), intermediate (F (1, 2158) = 19.352; p<.0001) and the advanced (F (1, 2158) = 42.319; p<.0001) groups. Regarding native speakers of English, their RTs were slower in the timed task than in the untimed one but no differences were found between the two tasks. Figure 8 displays the RTs of all groups in both tasks:

Figure 8. Mean RTs of native and nonnative groups in the SPRT and the APRT



RT measurement for RQ 1 analyzed whether learners displayed longer delays in DOCs when compared to PPCs. One-way ANOVA analyses revealed statistically significant differences between PPCs and DOCs. In the APRT, statistically significant differences were only found in the elementary group (F (1, 1079) = 11.864; p = .001). Learners had slower RTs in the DOCs when compared to PPCs. However, in the SPRT, statistically significant differences were found in the elementary (F (1, 1079) = 13.895; p<.0001) and the advanced (F (1, 1079) = 6.364; p = .012) groups. In both groups learners showed shorter RTs in PPCs than in DOCs. Figure 9 shows the mean RTs in PPCs and DOCs:

Figure 9. Mean RTs in PPC and DOCs



However, the RT measurements did not reveal any differences between goal and benefactive verbs in any of the three proficiency groups. Besides, this same result was found in control, Latinate and exceptional conditions.

Concerning proficiency effects, the comparison of the RT measurements between the three experimental groups featured statistically significant differences in both control goal PPCs (F (2, 269) = 5.761; p = .004) and control goal DOCs (F (2, 269) = 3.445; p = .033) as well as in the Latinate benefactive DOC (F (2, 269) = 3.838; p = .023) in the APRT. In all these conditions, advanced learners showed shorter RTs than lower proficiency learners. In contrast, in the SPRT larger differences were found in the three proficiency groups. Statistical analyses revealed significant proficiency effects in both goal and benefactive contexts in the control PPCs (goal: F (2, 269) = 3.793; p = .024; benefactive: F (2, 269) = 4.894; p = .008), Latinate PPCs (goal: F (2, 269) = 3.831; p = .023; benefactive: F (2, 269) = 5.769; p = .004), exceptional PPCs (goal: F (2, 269) = 3.268; p = .040; benefactive: F (2, 269) = 5.751; p = .004), control DOCs (goal: F (2, 269) = 7.112; p = .001; benefactive: F (2, 269) = 5.719; p = .004) and exceptional DOCs (goal: F (2, 269) = 3.329; p = .037; benefactive: F (2, 269) = 3.221; p = .041). In most conditions, advanced learners showed shorter RTs when compared to elementary and intermediate learners. However, no differences were found between elementary and intermediate groups. Moreover, the comparison of the non-native learners with the native ones indicated that RTs were significantly different in both the SPRT (elementary: F (2, 2159) = 291.770; p< .0001; intermediate: F (2, 2159) = 347.282; p< .0001; advanced: F (2, 2159) = 114.645; p< .0001) and

the APRT (elementary: F (2, 2159) = 395.995; p< .0001; intermediate: F (2, 2159) = 415.292; p< .0001; advanced: F (2, 2159) = 199.627; p< .0001).

7. Discussion

In this section, the findings from the APRT and the SPRT acceptability judgment tasks targeting dative alternation in English will be discussed in the light of the hypotheses outlined in the previous section.

The first research question aimed at examining whether L1 Spanish speakers were sensitive to DOCs in comparison to PPCs. Findings indicated that learners in the intermediate and the advanced groups were more accurate in PPCs than in DOCs. However, in the elementary group, learners were more accurate in DOCs than PPCs in the APRT, whereas learners showed similar acceptability values in both tasks. These results confirm previous research where learners showed higher accuracy in PPCs (Cuervo, 1995; Hawkins, 1987; Mazurkewich, 1984, Mazurkewich and White, 1985). In contrast, results from the elementary group seem to support FT/FA hypotheses (Schwartz and Sprouse, 1994, 1996), since learners seem to benefit from the similarities and differences between Spanish and English. In other words, these structures that both languages share seem to be accurately learned at lower levels of proficiency in the L2. Besides, RT data support these findings since elementary learners had shorter RTs in DOCs than in PPCs, whereas learners in the intermediate and the advanced groups had shorter reading delays in PPCs. However, the initial benefits in accuracy seem to disappear as proficiency increases.

An additional explanation for these findings could be that elementary learners accept DOCs, most probably because they resort to their L1 or because of overgeneralization effects, similar to the ones reported by Mazurkevich and White (1984) for L1 acquisition. However, as participants' proficiency level increases, they become aware of language specific constraints and have more doubts about their judgments, a fact that seems to be enhanced in the timed reading task. Therefore, intermediate learners accepted illicit Latinate and exceptional items and displayed slower RTs in these contexts when compared to the control goal and benefactive verbs.

The first research question also analyzed whether L1 Spanish learners showed asymmetries in evaluating goal and benefactive verbs. As previous research had showed learners were more accurate in goal verb alternation than in benefactive verbs' alternation (Oh, 2010). Findings in the present study do not support previous research as learners show no asymmetries in their accuracy to judge goal and benefactive verbs in the APRT or in the SPRT. Besides, RT data did not show asymmetries in learners'

behavior either. A possible explanation for this fact would be that dative alternation is also found in Spanish and, thus, similar accuracy means as well as RTs in goal and benefactive verbs could be due to the similarities between the two languages.

The second research question investigated whether L2 learners would observe any sensitivity to the morphological and the semantic constraint in English. On the basis of previous research, learners would be expected to show native-like accuracy in constructions found in their L1. Structures that are not present in the L1, on the contrary, would trigger negative blocking effects in the L2, which could disappear as proficiency increases. Based on similarities between Spanish and English, participants were expected to accept illicit Latinate DOCs but they were expected to discard illicit exceptional DOCs accurately.

Results indicated that participants were more accurate in accepting the control conditions than discarding illicit constraint conditions. Learners showed this tendency in the APRT in both goal and benefactive conditions. In the SPRT, intermediate and advanced learners illustrated this same tendency whereas elementary learners were more accurate in exceptional verbs than control goal and benefactive verbs. Nonetheless, RT measurements did not reveal any difference between control and constraint verbs. Hence, findings seem to partially confirm both FT/FA and negative blocking effects.

L1 Spanish learners were more accurate in discarding illicit DOCs. This finding seems to support the FT/FA hypothesis (Schwartz and Sprouse, 1994, 1996) since the possessor constraint is also found in Spanish. So, at the lowest proficiency level, learners seem to transfer this constraint to English. However, as proficiency increases, in the intermediate and advanced group, learners showed negative blocking effects since learners were not sensitive to illicit dative alternation as proposed by Oh (2010). Overgeneralization effects were also found because participants were not able to identify illicit DOCs, thus confirming previous evidence (Mazurkewich and White, 1984).

The third research question explored proficiency effects between the three experimental groups. Previous research with L2 English (Oh, 2010) and L2 Spanish (Cuervo, 2007; Perpiñan and Montrul, 2006) learners revealed more advanced learners were more native-like than lower proficiency learners. Findings in both the timed and the untimed task showed that advanced learners outperformed elementary and intermediate learners in all experimental conditions (i.e. PPC/DOC, goal/benefactive and morphological and semantic constraint). Moreover, reaction time delays also confirmed these findings since advanced learners showed shorter RTs than the other two experimental groups. Nevertheless, the comparison of the advanced

group with native speakers of English did not reveal any similarities between the two groups. In other words, learners did not reach native-like levels when evaluating dative alternation nor were their RT delays similar to those displayed by native speakers.

The results in the present study could be indicative of how dative alternation is processed in different proficiency groups and under different conditions (i.e. timed or untimed task). The findings in this study seem to provide evidence in favor of processing difficulties (Goad and White, 2006; Hopp, 2010) since L2 English learners show problems in evaluating DOCs, a structure present in both Spanish and English. However, this explanation should be further confirmed by triangulating the present online findings with offline data. Moreover, the fact that learners in all groups were less accurate as well as slower in the APRT than in the SPRT would support these findings in line with Hopp (2010). Learners seem to show processing difficulties in specific structures (i.e. Latinate constraint) but these problems, even in processing, as indicated by reaction time delays, do not seem to be similar in each structure or constraint. Besides, an interesting result found in these data is the role of proficiency in the L2. Learners with elementary proficiency level in English seem to show full transfer effects, in line with FT/FA (Schwartz and Sprouse, 1994, 1996). However, accuracy as well as RT data indicated that difficulties in evaluating dative alternation are overcome at the advanced proficiency level. These proficiency benefits found in online tasks are in line with previous evidence by Oh (2010) since elementary and intermediate learners seem to show negative blocking effects but these difficulties decrease for learners in the advanced group.

8. Conclusion

This study has considered whether L1 Spanish learners of L2 English show sensitivity to dative alternation structures when presented with relevant data in two online tasks. The findings of the two online acceptability judgment tasks used seem to go in line with previous research using offline measures and present new evidence on the relevance of proficiency and transfer effects in the processing of syntactic structures in an L2. L1 Spanish learners of English seem to resort to transfer at the lowest stages of proficiency in line with the FT/FA hypothesis. We found that elementary learners evaluate DOCs in English more accurately than PPCs. High accuracy rates were found in discarding illicit DOCs. Nonetheless, as proficiency level increases, learners seem to show overgeneralizations effects similar to those found for L1 acquisition (Mazurkewich and White, 1984) since learners accepted illicit DOCs at the intermediate and the advanced levels. Besides, negative transfer effects were also found at these stages since non-native learners accepted illicit Latinate structures. Accuracy data were confirmed by RT measurements.

These findings seem to indicate that learners in this study show processing difficulties in both Latinate and semantic constraints and, more specifically, at the intermediate proficiency level. Nevertheless, the overgeneralization and the negative blocking effects found in the intermediate group are overcome with increasing proficiency. We have not been able to clearly identify the extent to which L1 transfer affects learners' evaluations in the elementary and the intermediate groups. Further research should complement the findings of the present study with data from various tasks (i.e. both production and comprehension task) as they would shed more light on the question of dative alternation in the acquisition of this structure in L2 English. Besides, evidence from other language combinations (i.e. speakers of a language without dative alternation acquiring English) would provide further information on whether learners' (possible) processing difficulties may be due to maturational difficulties or real time processing costs. Studies with multilingual learners would also add interesting information as to the processing of dative alternation in English.

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Appendix 1

Natalie kicked the tennis ball to Mary.
John threw a paper plane to Patricia.
Peter told a coded message to Tom.
Mary showed Emily an old picture.
Vicky brought Matt some dark chocolate.
Mary handed Emma a beautiful flower.
James suggested a cartoon movie to Lucas.
Linda returned a chain letter to Robert.
Elizabeth explained her new plan to Gabriel.
* Richard repeated Mrs. Smith the tricky question.
* Jennifer described Alex the oil painting.
*Michael recited Sophie a long poem.
Margaret pushed a big dictionary to Chloe.
William pulled the electric blanket to Grandma.
David dragged a white sheet to Jimmy.
* Richard whispered Amy a love song.
* Nancy shouted Charles the winning number.
* Joseph yelled Ryan an important message.
Nick built a new house for Karen.
Julie draw a wonderful picture for Daniel.
Jack got a new car for Ethan.
Helen fixed Paul some turkey sandwiches.
Tim bought Laura some red roses.
Mark found Lisa an old photograph.
Tyler constructed a huge castle for Anna.
George collected some beautiful butterflies for Amelia.
Sandra obtained some chocolate cookies for Logan.
* Carol created Max a new poem.
* Steven selected Sarah some fresh fruit.
* Henry designed Samuel a luxury apartment.
Ruth solved a math problem for Austin.
Brian kept the photograph album for Sam.
Sharon fixed a car toy for Kevin.
* Peter opened Oliver the front door.
* Michelle finished Lucy a family portrait.
* Jason washed Dylan the red car.

Natalie kicked Mary the tennis ball.
John threw Patricia a paper plane
Peter told Tom a coded message.
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Vicky brought some dark chocolate to Matt.
Mary handed a beautiful flower to Emma.
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