Acquiring phenomena at the syntax/semantics interface in L2 Spanish

The personal preposition *a*

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Recent second language (L2) acquisition research has proposed that purely syntactic features are easier to acquire and less vulnerable than ones involving the interfaces (Sorace, 2004; Serratrice et al. 2004). The present paper addresses this issue by investigating the acquisition of the Spanish personal preposition *a* in English L2 learners of Spanish. The distribution of *a* in direct object NPs relates to the specificity/definiteness of the NP, the animacy/agentivity of the subject, and verb semantics (Torrego 1998; Zagona 2002). 33 English L2 learners of Spanish of different proficiency levels, and 14 Spanish controls participated in an acceptability judgement task. The results showed significant differences between native speakers and L2 learners of all proficiency levels, who performed at chance, and support the claim that L2 learners have difficulties acquiring structures involving the syntax/semantics interface. However, the advanced learners showed sensitivity to the least complex condition providing evidence that interface phenomena may be acquirable.

Introduction

Within the generative framework, grammar consists of the computational system or narrow syntax, the output of which feeds into phonetic form (PF) and logical form (LF) at the interfaces between these levels. Recently, structures involving the interfaces have received particular attention in adult second language (L2) acquisition research, and have provided controversial results. Some studies have shown that structures involving the interfaces are more difficult to acquire and more vulnerable to fossilisation than structures involving only narrow syntax (e.g. Sorace, 2004; Serratrice, Sorace & Paoli, 2004), but other studies have revealed that despite this difficulty, adult L2 learners are able to acquire structures involving the interfaces (e.g. Dekydtspotter, et al, 1999/2000; Borgonovo, Bruhn de Garavito &
Prévost, 2005). The present paper addresses this issue by investigating the acquisition of the Spanish personal preposition *a*, which involves the syntax/semantics interface in adult L2 learners of Spanish. The paper is organized as follows: first, we review previous research in the acquisition of structures involving the syntax/pragmatics and syntax/semantics interface. Then we present the syntactic assumptions underlying our research together with our research questions, the design of our study, and our results. Finally, we discuss our results in relation to previous findings and claims regarding the acquisition of interface phenomena.

**Interfaces in Second Language Acquisition**

Recent literature on L2 acquisition has proposed that structures involving the interfaces (e.g. syntax/pragmatics and syntax/semantics) are particularly ‘vulnerable’ to processes such as attrition, fossilization, and incomplete L2 acquisition (Bruhn de Garavito & Valenzuela, 2006; Montrul, 2002, 2004; Serratrice, et al., 2004; Sorace, 2004; Tsimpli, Sorace, Heycock & Filiaci, 2004). For example, Sorace (2004) and Serratrice et al. (2004) made the claim that structures involving narrow syntax are by and large easier to acquire and less vulnerable than the ones involving the interfaces. Such vulnerability has been in evidence in various acquisitional scenarios, i.e., bilingual acquisition, adult L2 acquisition, and language loss or attrition. For example, in contexts of language attrition, Sorace has put forward the idea that ‘aspects of the grammar at the syntax–information structure interface are more vulnerable to attrition than purely syntactic ones’ (Sorace, 2004: 143). That is, while formal syntactic mechanisms are resistant to attrition, interfaces are more probable candidates for attrition because they are more complex than narrow syntax, (e.g. the acquisition of referential subject pronouns vs. *that*-trace violations, properties related to the pro-drop parameter) and thus, they are inherently more difficult to acquire (Sorace, 2004: 144). One way of explaining this is by suggesting that at the syntax/discourse level the learner may hear apparently interchangeable sentences in the input, but with subtle contextual differences. Thus, the input for discourse related properties is perhaps ‘weaker’, resulting in the delay of acquisition or permanent optionality. L2 learners may also have processing difficulties in integrating different types of information pertaining to different domains. All this may yield constructions in interlanguage (IL) grammars that may differ in interface areas from native grammars in significant ways.

The studies above have focused on the acquisition of a relatively narrow set of structures, e.g. overt vs. null pronominal subjects, copula verbs and object expression. The acquisition of overt vs. null pronominal subjects relates to the pro-drop parameter involving the syntax–information structure interface. In pro-drop
languages, such as Greek and Italian, overt subjects are strongly favoured when they introduce new information or when a contrast is established or a focus is required. Contrary to this, null subjects are preferred when there is no switch in reference in a series of sentences in discourse, and when there is no need for focus and contrast. Serratrice et al. (2004) investigated the acquisition of overt vs. null pronominal subjects in an Italian/English bilingual child compared to two groups of MLUw-matched monolinguals. This study showed that in Italian the bilingual child produced overt pronominal subjects in contexts where monolinguals prefer a null subject. In addition, the bilingual child used postverbal strong object pronouns rather than preverbal weak pronominal clitics. Similar results were obtained in adult L2 acquisition. Adult L2 learners of null subject languages whose first language (L1) does not allow null subjects seem to use null subjects correctly in obligatory contexts, but overuse overt subjects in contexts requiring a null pronoun (Serratrice et al. 2004). These results indicate a cross-linguistic influence in specific contexts at the syntax–pragmatic interface.

In contrast to the studies above, some recent studies have revealed that native-like competence can be attained, even in areas that rely heavily on context for interpretation and involve the interfaces (Borgonovo, et al., 2005; Borgonovo, Bruhn de Garavito, Guijarro-Fuentes, Prévost & Valenzuela, 2006; Dekydtspotter & Sprouse, 2001; Dekydtspotter, et al., 1999/2000). For example, Borgonovo et al. (2005) investigated the acquisition of mood (the distinction between indicative vs. subjunctive) in Spanish relative clauses by adult English learners of Spanish at different proficiency levels (8 intermediate, 8 advanced) compared to a group of 17 native speakers of Spanish using a Grammaticality Judgement and a Truth-Value Judgement task. In Spanish, mood in such contexts signals the specificity status of the modified DP: the presence of indicative correlates with the specificity of the DP, whereas subjunctive is needed when the head is non-specific. Although in English mood does not signal specificity, English learners of Spanish were shown to acquire target distinctions (the contrast between the indicative vs. subjunctive in a variety of contexts) despite a lack of explicit teaching of this phenomenon.

In a different study, Borgonovo et al. (2006) investigated syntactic correlates of the semantic notion of specificity by looking at the acquisition of object drop and topicalisation by Brazilian Portuguese (BP) learners of Spanish as L2. In Spanish, specific objects may not be dropped, and topicaized specific DPs take the clitic left dislocation (CLLD) construction (Cinque, 1990). On the other hand, non-specific objects may be dropped while non-specific topics take the non-clitic left dislocation (non-CLLD) construction. These facts contrast in important ways with Brazilian Portuguese, in which object omission and non-CLLD are not related to specificity in any direct way. The results from this study showed that BP learners of Spanish were able to make the correct association between the interpretation of
specificity and its effects on syntax in spite of the fact that specificity does not play
the same role in their L1. This indicates that interfaces may be inherently difficult,
but acquisition is still possible.

Finally, Dekydtspotter & Sprouse (2001) and Dekydtspotter, et al. (1999/2000)
investigated knowledge of event sensitivity associated with quantification at a dis-
tance by English L2 learners of French at different proficiency levels (from be-
ginners to advanced) compared to French native speakers using an interpretative
task. These studies showed that semantic knowledge is acquirable. In addition, L2
learners and native controls showed similar behaviours with structures involving
quantification at distance, which are related to the syntax–semantic interface.

To summarise, whereas one set of studies looking at the acquisition of inter-
face phenomena suggest that L2 acquisition of structures involving the syntax/dis-
course and syntax/semantics interface are late acquired, and can cause difficulties
even at the very advanced stages of development, others seem to show conflicting
results. However, there is no necessary contradiction between the sets of results
from the studies presented above. One way of explaining the differences between
the two sets of results would be by considering that there is a dissimilar pattern
of performance between the acquisition of phenomena related to the syntax–se-
manics and syntax–discourse interface. Whereas the syntax–discourse interface
entails a ‘higher’ level of integration with properties outside the grammar proper
(although see Belletti 2004 for a different view on this), the syntax–semantics in-
terface involves the interaction of syntax with interpretable features internal to
the language system (Tsimpli & Sorace, 2006). In addition, another distinction to
bear in mind is that while phenomena at the syntax–discourse interface normally
implicate preferences and (in)appropriateness of use, syntax–semantics interface
phenomena typically concern (un)grammaticality distinctions.

A more recent study by Sorace and Filiaci (2006) presents interpretive data
from L1 English near-native speakers of L2 Italian. Sorace and Filiaci found that
near-native speakers showed identical performance with native speakers of Italian
in the interpretation of null subject pronouns. However, in the interpretation of
overt subject pronouns, near-natives assigned a significantly higher proportion of
interpretations of overt subject pronouns as co-referential with a topic antecedent
compared to natives. The authors offered a processing explanation for this pattern
of results and suggested, following Carminati’s 2002 study, that near-natives may
make more extended use of an option that is also used by native speakers.

In the light of these findings, what is needed is a more precise analysis of what
is entailed by the various interface phenomena. To address this issue, we investi-
gated a different linguistic phenomenon involving the syntax/semantic interface,
the Spanish personal preposition a in English adult learners of Spanish of differ-
ent proficiency levels. Further research may uncover that different phenomena are
subject to different types of interface constraints. This can, in turn, provide different types of predictions about learnability in L2.

**Syntactic background: The distribution of the personal preposition a in Spanish**

Languages differ regarding their case system. Some languages have only structural case, whereas others have structural and inherent case. Following Chomsky (1986), structural case is licensed only by virtue of the configuration, whereas inherent case entails further requirements. One of the main properties of inherent case is that it is tied to 0-marking. In English, both nominative and accusative are structural cases. In Spanish, on the other hand, accusative is not always marked structurally. Accusative can be an inherent case in the so-called marked objects, which are objects of transitive verbs that appear with a dative preposition, the preposition a (Torrego, 1998). Based on the similarity between the accusative and the dative case in Spanish, Torrego (1998: 8) proposed that marked accusative objects with the dative preposition support the assumption that Spanish has an inherent accusative case. However, it needs to be pointed out that inherent case is available for a determinant argument of a verb depending on the type of structure. The overt marking of accusative objects in Spanish is not free, it is regulated by patterns of actions related to both structure and semantics of the predicates. Ultimately, these patterns of actions are tied to specific semantic classes of verbs.

There is a cluster of properties which are responsible for Spanish accusative objects to be marked by the dative preposition. The first property, which connects with Chomsky’s (1995) inference of a D-feature in v, relates to specificity and definiteness. Objects marked by a in Spanish are necessarily interpreted as specific and definite as shown in (1a) and (1b) below.

(1) a. **Busco** a una secretaria.  
   I-am-looking for a (specific) secretary  
   b. **Busco** una secretaria.  
   I-am-looking-for some secretary

The second property relates to the animacy of the object. In Spanish, a is restricted to animate accusative objects, as illustrated in (2a) and (2b) below, and this is irrespective of the specificity and definiteness of the object.

(2) a. **Ayer vi** a los vecinos.  
   yesterday I-saw the neighbours  
   b. **Ayer visité el hospital.**  
   yesterday I-visited the hospital
The third property relates to the \( \theta \)-role of the subject (Torrego, 1998). The preposition \( a \) is compulsory with verbs that take an agent or cause as subject, as in (3a), but not in (3b).

(3) a. El paciente reclamaba a una enfermera.
the patient demanded a nurse

b. *La situación reclamaba a una enfermera.
the situation demanded a nurse

In (3a) the object of the transitive verb is overly marked by the preposition \( a \) because the subject of ‘reclamar’ demand is agentive. (3b) is ungrammatical because here the subject of ‘reclamar’ demand is not agentive.

The fourth property relates to the aspectual class of the predicate. Marking of accusative objects either morphologically or structurally relates to (inherent/lexical) aspect (Comrie, 1976). Aspect is relevant for verbs, predicates, and sentences. Verbs are classified depending on whether or not they have an endpoint (telic vs. atelic) together with the contrast between stative vs. dynamic and durative vs. punctual. One of the factors that determine the use of the preposition \( a \) with accusative objects is the aspectual class of the verb. Following Vendler’s (1967) and Dowty’s (1979) classification of verbs, there are four basic categories: activities (e.g. walk ‘caminar’), states (e.g. know ‘conocer’), accomplishments (e.g. build ‘construir’), and achievements (e.g. find ‘encontrar’). In principle, accomplishments and achievements indicate an end in time (telic), whereas states and activities do not (atelic). Objects of verbs classified as accomplishments and achievements are therefore telic, (e.g. jail ‘encarcelar’) and require the object of the sentence to be marked with the preposition \( a \) regardless of whether or not the subject of the predicate is animate (4a–b).

(4) a. Pedro emborachó a los invitados
Pedro made-drunk the guest

b. El vino emborracho a varios invitados
the wine made-drunk several guests

In contrast, with stative and activity verbs \( a \) is required only when the subject is animate, as shown in (5a) and (5b) below. Here, the marked accusative on the object carries an intentional reading of the subject, a reading which is lacking in the corresponding sentence with structural case (Torrego, 1998).

(5) a. Inés conoce a varios artistas
Ines knows various artists

b. La ópera conoce (*a) muchos aficionados
opera knows many fans
‘Opera has many fans’
Finally, the preposition *a* is obligatory when the object is understood as ‘affected’ by the action described by the verb (Torrego, 1998). An object is understood to be affected when it changes its location or when it changes physically or psychologically. Hence, an unaffected object does not require the presence of *a*, as shown in (6a), whereas an affected object does, as illustrated in (6b).

(6) a. El policía vio (a) un delincuente
   the policeman saw a criminal

b. El policía golpeó *(a) el delincuente
   the policeman beat a criminal

Summarising, the distribution of *a* in direct object NPs in Spanish relates to: (a) the interpretation of the accusative object as specific and definite, (b) the animacy/agentivity of the object, (c) the aspectual class of the verb, and (d) the affectedness on the object (Torrego, 1998; Zagona, 2002). This paper focuses on the first three properties.

From the perspective of L2 acquisition, our intuitive assumption is that these properties can be ranked based on their complexity. The requirement that the preposition *a* cannot be used with inanimate objects irrespective of the specificity of the object is the least complex one because its distribution depends on only one feature [-animate], and the preposition *a* does not affect the interpretation of the object as specific or non-specific. The use of the preposition *a* with animate objects is more complex because it involves two features [+animate] and [±specific], and the presence of the preposition forces a specific interpretation, whereas its absence a non-specific one. The most complex properties are the ones involving the theta-role of the subject (as shown in (3a) and (3b)) and the aspectual class of the verb (as shown in (4a–b) and (5a–b)). For these to be acquired, the learner has to find out that verbs of different aspectual class behave in a different way. In addition, for stative and activity verbs, the animacy of the subject is relevant for the distribution of *a* in the object. Thus, for the correct use of *a* this context requires knowledge about the verb (aspectual class), and then depending on the verb class, information about the animacy of the subject.

To investigate the acquisition of the syntax/semantics interface, we will address the following research questions:

a. Is there a difference between English learners of Spanish and Spanish controls in the distribution of the personal preposition *a*?

b. Are there differences between the proficiency levels in the distribution of the personal preposition *a*?

c. Are there differences between the contexts that may or may not require the use of the personal preposition *a*?
Methodology

Participants

33 English learners of Spanish and 14 Spanish controls participated in this study. All English learners of Spanish learned Spanish in a classroom setting, and the controls were monolingual speakers of Spanish from Spain. The English learners of Spanish had a mean age of 28.45 (SD = 11.88) and Spanish controls a mean age of 24.21 (SD = 3.09). There was no significant difference in age between the two groups (t (45) = −4.240, p > .1). Table 1 shows the age of onset and length of exposure for the English learners of Spanish.

At the time of testing, all participants were University students in the UK, and underwent two placement tasks. The placement tasks comprised the vocabulary and cloze sections of a standardized Spanish proficiency test (*Diploma Español de Lengua Extranjera* — DELE (2002)). For the L2 learners, this was to determine their level of proficiency. Based on the results of the placement tasks, the learners of English were divided into three proficiency levels, an advanced group who scored above 39 (n = 15), a high intermediate group who scored between 25 and

<table>
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<tr>
<th>Table 1. Participants details</th>
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<tr>
<td>Age of onset</td>
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<td>L2 learners</td>
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<tr>
<th>Table 2. Results from the placement tasks</th>
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<tr>
<td>Placement 1 (N = 20)</td>
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<td>----------------------</td>
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<tr>
<td>L2 Low intermediate</td>
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<tr>
<td>L2 High intermediate</td>
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<td></td>
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<tr>
<td></td>
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<tr>
<td>L2 Advanced</td>
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<tr>
<td>L1 controls</td>
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39 (n = 11), and those scoring 24 and below who were classed as low intermediate (n = 7). Table 2 shows the results from the placement tasks for these three L2 learner groups and the L1 controls.

**Materials and procedure**

To test the participants’ knowledge of the usage of the personal preposition *a* we used an Acceptability Judgment task. Participants were asked to read sentences, such as (7) to (8) below preceded by a short background story.

(7) Pedro no tiene tiempo para hacer las tareas de la casa, pues trabaja más de 40 horas a la semana. Un día, Pedro le pregunta a su madre sobre su mujer de la limpieza:

Busco tu mujer de la limpieza, ¿sabes dónde Luisa vive ahora? (not acceptable)

*Pedro does not have time to do the housework because he works more than 40 hours per week. One day, Pedro asks his mother about her cleaner. I’m looking for your cleaner. Do you know where Luisa lives?*

(8) Theo está de vacaciones en el Canadá. Me escribe un mensaje diciéndome lo que hizo a penas llegó. Dice:

Ayer visité el Museo de Arte Contemporáneo. (acceptable)

*Theo is on holiday in Canada. He wrote a text message telling me what he did when he arrived. He said: Yesterday I visited the Contemporary Art Museum.*

The background story provided the appropriate context that made the experimental sentences acceptable or not acceptable. All aforementioned properties from Section 3 were considered in creating the tokens included in this task, as shown in Table 3 below.

For conditions 4, 5 and 6 the inherent aspectual class of the verb was determined taking into consideration the distinctions [+−] telic, [+−] stative and [+/−] punctual. We created 42 experimental items, 6 for conditions 1–5, and finally 12 for condition 6 (6 with +human subject and 6 with −human subject) which allowed for

<table>
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<th>Table 3. Conditions of the Acceptability Judgment</th>
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<tbody>
<tr>
<td>Condition 1 +animate, +specific</td>
</tr>
<tr>
<td>Condition 2 −animate, +/-specific</td>
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<tr>
<td>Condition 3 +animate, −specific</td>
</tr>
<tr>
<td>Condition 4 stative/activity verb, +human subject</td>
</tr>
<tr>
<td>Condition 5 stative/activity verb, −human subject</td>
</tr>
<tr>
<td>Condition 6 accomplishment/achievement verb, +/−human subject</td>
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</table>
an equal number of acceptable and not acceptable sentences in the task. There were two versions of each experimental item, one acceptable and one not acceptable. The two different versions were distributed across two different lists, and each participant encountered only one version of each experimental item. All participants were familiar with the vocabulary used in designing the experimental sentences.

Participants received a booklet containing two examples and 42 experimental sentences, and had to judge the acceptability of the sentences according to the linguistic context provided on a scale from 1 to 4 (1 = sounds very bad, 2 = sounds relatively bad, 3 = sounds relatively good, 4 = sounds very good). In addition, we included a category 'I don't know', in order to analyse separately the responses to sentences participants were not sure about. Instructions were given in writing, for the L2 group in English and for the Spanish control group in Spanish. Participants were told to judge the acceptability of the sentences based on their first intuition, and not to go back and change their answers later. There was no time limit for the task, and all participants completed it within forty five minutes.

Results

First we calculated the 'I don't know' responses for the two groups of participants. Only 2.1% of the total number of responses belonged to this category, which was used by only one native speaker and 13 out of the 33 L2 learners. Given the very small number of data in this category, we were not able to conduct statistical analyses to evaluate whether the participants were uncertain for some of the experimental conditions, and thus, we excluded this data from further analyses.

The remaining data were analysed in terms of absolute judgments and in terms of gradient judgments. The analysis of absolute judgments could reveal how accurate the responses were irrespective of whether or not the item was acceptable, and also irrespective of how high/low the rating was. In the analysis of gradient judgments we broke down the responses into acceptable and not-acceptable sentences and explored whether or not there were differences based on the un/acceptability of the construction. In addition, the analysis of gradient judgments could tap into how strong the participants’ judgments were. Acceptable and not-acceptable sentences could be rated as very or relatively good or bad. This could provide more subtle judgments for the acceptability of the sentences. To analyse the data in terms of absolute judgments, we transformed them into a binary scale. Judgments of 1 and 2 (sounds very bad, sounds relatively bad) were scored as not acceptable, and judgments of 3 and 4 (sounds very good, sounds relatively good) as acceptable. To analyse the data in terms of gradient judgments, we calculated means for each condition. Each one of the two analyses will be presented in turn.
If L2 learners have difficulties acquiring phenomena at the syntax/semantics interface, we predict that they will perform significantly worse than native speakers, and their performance could be at chance level. If constructions involving the syntax/semantics interface can be acquired, then we predict that there will be an effect of proficiency with advanced learners performing significantly better than learners at the intermediate level. If differences in complexity affect acquisition, L2 learners are predicted to perform better in conditions with less compared to more complex properties.

**Analysis in terms of absolute judgments**

The results in Table 4 show that the Spanish controls scored very highly, in contrast to L2 learners, who were at chance in all conditions.

**Table 4. Accuracy in the acceptability task**

<table>
<thead>
<tr>
<th>Conditions</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L1 group</strong></td>
<td>Mean</td>
<td>91.67</td>
<td>95.24</td>
<td>90.48</td>
<td>90.48</td>
<td>88.1</td>
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<tr>
<td></td>
<td>SD</td>
<td>10.84</td>
<td>7.8</td>
<td>14.19</td>
<td>10.77</td>
<td>12.11</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>67–100</td>
<td>83–100</td>
<td>50–100</td>
<td>67–100</td>
<td>67–100</td>
</tr>
<tr>
<td><strong>L2 group</strong></td>
<td>Mean</td>
<td>50</td>
<td>53.03</td>
<td>53.54</td>
<td>46.46</td>
<td>47.47</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>19.98</td>
<td>24.1</td>
<td>21.95</td>
<td>19.88</td>
<td>18.22</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>0–83</td>
<td>17–100</td>
<td>0–100</td>
<td>0–67</td>
<td>0–83</td>
</tr>
</tbody>
</table>

**Figure 1. Accuracy in the acceptability task per proficiency group**
To investigate effects of proficiency, based on the placement tasks we divided the L2 learners into three proficiency groups (advanced = 15, high intermediate = 11, low intermediate = 7) following the criteria established by the proficiency measure used.

A repeated measures ANOVA with the factors ‘Group’ (L1, L2 Advanced, L2 High Intermediate, L2 Low Intermediate), and ‘Sentence Type’ (6 conditions) showed a main effect of ‘Group’ (F (3, 43) = 75.759, \( p < .001 \)), and a significant interaction between ‘Group’ and ‘Sentence Type’ (F (5, 215) = 1.841, \( p < .05 \) reflecting differences in the performance of the groups in the experimental conditions. To determine the source of the interaction, we conducted post-hoc Bonferroni tests. These showed a significant difference between Conditions 1, 3, 4, 5, and 6 versus Condition 2. In conditions 1, 3, 4, 5, and 6, L1 controls differed significantly from all L2 groups, but the L2 groups did not differ from each other. In contrast, in Condition 2 [−human, +/−specific] (animate), which is the least complex of all six, the L1 controls differed significantly from all L2 groups and the advanced L2 learners also differed significantly from the high and low intermediate groups, reflecting that the advanced L2 learners showed sensitivity to the least complex condition.

Analysis in terms of gradient judgments

To analyse the data in terms of gradient judgments, we calculated means for each condition for acceptable and not acceptable sentences separately. Table 6 shows the results from this analysis.

To investigate effects of proficiency, we divided the L2 data into the three proficiency groups. Figure 2 shows the results from the acceptable sentences and Figure 3 the results from the not acceptable ones for each proficiency group.

Table 6. Mean response in the Acceptability Judgment Task

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
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<tr>
<td><strong>Acceptable</strong></td>
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<tr>
<td>L1 Mean</td>
<td>3.54</td>
<td>3.6</td>
<td>3.62</td>
<td>3.55</td>
<td>3.45</td>
<td>3.5</td>
</tr>
<tr>
<td>SD</td>
<td>0.31</td>
<td>0.16</td>
<td>0.32</td>
<td>0.43</td>
<td>0.36</td>
<td>0.25</td>
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<tr>
<td>Range</td>
<td>3–4</td>
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<td>3–4</td>
<td>3–4</td>
<td>3–4</td>
<td>3–4</td>
</tr>
<tr>
<td>L2 Mean</td>
<td>3.05</td>
<td>3.19</td>
<td>2.99</td>
<td>2.81</td>
<td>2.76</td>
<td>2.79</td>
</tr>
<tr>
<td>SD</td>
<td>0.59</td>
<td>0.58</td>
<td>0.61</td>
<td>0.76</td>
<td>0.68</td>
<td>0.64</td>
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<tr>
<td>Range</td>
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<td>2–4</td>
<td>1–4</td>
<td>1–4</td>
<td>2–4</td>
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<tr>
<td><strong>Not acceptable</strong></td>
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<tr>
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<tr>
<td>L2 Mean</td>
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A repeated measures ANOVA with the factors ‘Group’ (L1, L2 Advanced, L2 High Intermediate, L2 Low intermediate), ‘Acceptability’ (acceptable, not acceptable), and ‘Sentence Type’ (6 conditions) showed a main effect of ‘Acceptability’ (F (1, 43) = 33.717, p < .001) reflecting that participants gave different ratings to acceptable and not acceptable sentences, and a main effect of ‘Sentence Type’ (F (1, 43) = 2.928, p < .05) reflecting differences between the 6 sentence types. There was

![Figure 2. Acceptability rating (1 to 4) for grammatical sentences](image1)

![Figure 3. Acceptability rating (1 to 4) for ungrammatical sentences](image2)
a significant interaction between ‘Group’ and ‘Acceptability’ (F (3, 43) = 54.016, \( p < .001 \)) reflecting differences in the acceptability rating between the groups, and a significant interaction between ‘Group’ and ‘Sentence Type’ (F (15, 215) = 1.985, \( p < .05 \)) reflecting differences in the sentence types between the groups. Paired sample t-tests were conducted to unpack the Group by Acceptability interaction. These showed that native speakers gave different scores to acceptable vs. not acceptable sentences (t (13) = 22.053, \( p < .001 \)). The same was true for advanced learners (t (14) = 3.044, \( p < .01 \)), but not for high and low intermediate learners (\( p > .1 \)). This shows that learners at the high and low intermediate level gave similar ratings to acceptable and not acceptable sentences, and thus, are not sensitive to the distributional properties of the preposition a.

To unpack the Group by Sentence Type interaction, we conducted paired sample t-tests at each proficiency level. In native speakers of Spanish, there was a significant difference between Conditions 1 and 3 (t (13) = −2.330, \( p < .05 \)), Conditions 2 and 3 (t (13) = −2.795, \( p < .05 \)), and Conditions 3 and 6 (t (13) = 2.279, \( p < .05 \)). In advanced learners, there was a significant difference between Conditions 1 and 6 (t (14) = 5.058, \( p < .001 \)), Conditions 2 and 6 (t (14) = 3.402, \( p < .01 \)), Conditions 3 and 6 (t (14) = 2.471, \( p < .05 \)), and Conditions 5 and 6 (t (14) = 3.427, \( p < .01 \)). In high intermediate learners, there was a significant difference between Conditions 1 and 2 (t (10) = −2.605, \( p < .05 \)), Conditions 1 and 6 (t (10) = 2.466, \( p < .05 \)), Conditions 2 and 4 (t (10) = 2.407, \( p < .05 \)), Conditions 2 and 5 (t (10) = 2.401, \( p < .05 \)), Conditions 2 and 6 (t (10) = 4.123, \( p < .01 \)), and Conditions 3 and 6 (t (10) = 3.095, \( p < .05 \)). Finally, learners at the low intermediate levels did not show any significant differences in their rating of the 6 sentence types. This shows that only advanced and high intermediate learners showed some difference in their performance in the 6 experimental conditions. This can be taken as evidence that interface phenomena are developmentally unstable and difficult to acquire completely in L2 acquisition. Given that Spanish allows a wide range of options for the realization of object marking, learners may opt for a more ‘economical’ option at the syntactic level (i.e., omission of the personal preposition a), compromising the semantic properties of the sentence. Finally, learners of different proficiency levels may process the syntax–semantic interface differently (learners at a low proficiency level may be less efficient in coordinating information from multiple levels).

**Discussion**

There is controversy as to whether or not structures involving the interface of syntax with semantics and pragmatics are more difficult in L2 acquisition and bilingualism, and more vulnerable to fossilisation than structures involving only
narrow syntax (Sorace, 2004; Serratrice et al. 2004; Dekydtspotter, et al, 1999/2000; Borgonovo, et al. 2005). However, the studies above are based on a small set of linguistic phenomena, and as discussed in Section 2, given the emerging pattern in some recent studies (e.g. Belleti, 2004; Tsimpli and Sorace, 2006) it is important to distinguish between interfaces. To address this issue, we investigated a phenomenon involving the syntax/semantic interface that has not been studied so far, the distribution of the Spanish personal preposition $a$. The first aim of this paper was to investigate the acquisition of the Spanish personal preposition $a$ in adult L2 learners of Spanish compared to Spanish controls. The second aim was to test how proficiency affects the learners’ accuracy in their judgements. The final aim was to test whether complexity of the requirements for the presence of the preposition $a$ affects the accuracy of the L2 learners. To that end, 33 English learners of Spanish and 14 Spanish controls undertook an Acceptability Judgment task. Two placement tasks were used to assess the L2 learners’ level of proficiency and assign them into different groups based on their proficiency. Overall accuracy results showed that Spanish controls performed very accurately, in contrast to L2 learners, who performed at chance level in all experimental conditions. The level of proficiency of the L2 learners did not affect their accuracy in the experimental conditions that required access to more than one semantic feature (Conditions 1, 3, 4, 5, 6). However, in Condition 2 (the property related to the animacy of the object; for example, ‘Ayer vi $a$ los vecinos’ vs. ‘Ayer visité el hospital) that required only access to the animacy feature there was an effect of proficiency: advanced L2 learners of Spanish performed significantly better than learners at the high and low intermediate level. Analyses of gradient judgments showed that overall L1 controls compared to L2 learners were more likely to give a high rating for acceptable sentences and a low rating for not acceptable sentences. In addition, in the L2 learners there was an effect of proficiency. Advanced learners of Spanish, similarly to Spanish controls, gave a significantly different rating to acceptable vs. not acceptable sentences. This was not the case for learners at the high and low intermediate levels, who gave similar ratings to acceptable vs. not acceptable sentences. In the rest of this section, we will discuss these results in relation to previous studies on the acquisition of interface phenomena in L2 acquisition.

The acquisition of interface phenomena in L2 acquisition

Based on the data from the acquisition of structures involving the interface of syntax with semantics and pragmatics, Sorace (2004) and Serratrice et al. (2004) argued that structures involving the interfaces are more vulnerable than structures involving narrow syntax because they are more complex than narrow syntax. Complexity was based on the type of input to the learner and the processing of
information from different domains. According to Sorace, at the syntax/discourse level the learner may hear apparently interchangeable sentences, but with subtle contextual differences. This may result in a delay of acquisition or optionality. Alternatively, L2 learners may have processing difficulties in integrating different types of information pertaining to different domains. Following Sorace (2004) and Tsimpli et al. (2004), complexity is not solely founded on the quality of input, but also on the specific phenomena under investigation, i.e. whether or not they possess interface conditions on syntactic realization. In the ‘representational’ approach (Tsimpli et al., 2004), interface features that control these conditions can remain, or become, unspecified because of the continuing presence of the ‘less complex’ option in the other language. By contrast, in the processing account offered by Sorace (2005) and Sorace & Filiaci (2006), L2 learners and some bilingual speakers may have lasting problems with interface phenomena because of their less-than-optimal ability to process them in real time. The processing account, unlike the representational account, envisages problems across the board regardless of the L1 properties, which is not the case in this study.

The results, nonetheless, from the present study are not able to disentangle both explanations. Future work using on-line processing experiments in L2 learners of Spanish from different L1 backgrounds is required in order to differentiate between the two accounts.

However, another set of studies revealed that native-like grammars can be attained in structures involving the interfaces, such as in the acquisition of mood and the distinction between indicative vs. subjunctive in Spanish relative clauses (Borgonovo, et al., 2005), the acquisition of object drop and topicalisation in Spanish, which relates to the semantic notion of specificity (Borgonovo, et al., 2006), and the knowledge of event sensitivity associated with quantification at a distance in French (Dekydtspotter & Sprouse, 2001; Dekydtspotter, et al., 1999/2000). The above studies showed that L2 learners were able to acquire structures involving the interfaces.

The results from our study on the one hand confirm Sorace’s claim that L2 learners have difficulties with structures involving interfaces, which are vulnerable for fossilisation. Overall, English L2 learners of Spanish showed chance level performance in the acquisition of the personal preposition a, which involves the syntax/semantics interface. This affected not only participants at the intermediate level, but also advanced learners of Spanish. In addition, L2 learners of Spanish did not give a different rating to acceptable compared to not acceptable sentences. This shows that they are not sensitive to the requirements regulating the distribution of the personal preposition a.
Differences in complexity and levels of proficiency

The analyses of the six different contexts requiring or disallowing the personal preposition *a* showed significant differences in the performance of both native speakers and L2 learners. First, the analysis of gradient judgments that is more sensitive to subtle judgments revealed differences in the acceptability of the 6 conditions in both native speakers and L2 learners. The results from the native speakers indicate that acceptability ratings involving interface phenomena are not categorical, which is in line with previous studies on the acquisition interface phenomena (Slabakova, 2006). The results from L2 learners showed an effect of complexity. In conditions involving two semantic features [±animate] and [±specific] (Conditions 1 and 3), and knowledge about the aspectual class of verbs and the animacy of the subject (Conditions 4 to 6), L2 learners of all proficiency levels did not show any clear tendency towards rejecting or accepting the preposition *a*. In contrast, in the least complex condition that involves only one semantic feature [-animate] (Condition 2), advanced learners of Spanish performed significantly better than learners at the high and low intermediate level. Thus, advanced learners of Spanish seem to be sensitive to the distribution of the preposition *a* in one context, the least complex one. This is in line with the studies by Borgonovo, et al. (2005), Borgonovo, et al. (2006) Dekydtspotter and Sprouse (2001) and Dekydtspotter, et al. (1999/2000) showing that the interface phenomenon under investigation may be acquired. First how can we account for the difficulties L2 learners have with most of the conditions, and second, why do they find Condition 2 comparably easier?

One possible explanation for the first question could relate to the classroom setting and the input L2 learners receive. After a close examination of current Spanish textbooks, it needs to be pointed out that textbooks address the distribution of *a*, but not in a formal and systematic way. Textbooks typically mention that this preposition appears with specific and predominantly animate objects, and examples are limited to ‘I visit her brother’ vs. ‘I visit the hospital’. In addition, Spanish language instructors are typically unaware of the semantic factors involved in the distribution of *a*. As far as the input is concerned, L2 learners may hear apparently interchangeable sentences with or without *a*, but with subtle semantic differences. The learner has to find out the contexts in which *a* is required and also the contexts in which *a* is disallowed. Hence, the input is very much underdetermining what the learner needs to know, especially at lower levels of proficiency in which learners may have received minimal or no exposure to this interface phenomenon. The differences between the performance of advanced vs. intermediate learners could be attributed to differences in the length of exposure. A final reason could relate to processing difficulties. L2 learners may have difficulties incorporating semantic information, especially when more than one semantic feature is involved, and also when they
have to process information regarding verb class and animacy of the subject in order to decide whether or not the object should be marked with the preposition *a*. To summarise, a lack of systematic instruction regarding the use of the preposition *a*, fuzzy input, and processing limitations could account for the difficulties L2 learners have to acquire the conditions under which *a* is required or should be omitted. Why do L2 learners find Condition 2 easier than all the other conditions?

This could relate again to the way the distribution of *a* is instructed. As mentioned above, L2 learners of Spanish are taught explicitly that *a* appears with specific and predominantly animate objects, and textbooks include examples comparing animate specific objects, such as ‘I visit her brother’ vs. inanimate specific objects, such as ‘I visit the hospital.’ This is exactly the condition in which advanced learners of Spanish performed well. So, instruction may be one reason for greater accuracy. A second reason may relate to the lower complexity compared to the other conditions. This condition involves only one semantic feature [-animate]. Therefore, the input L2 learners receive may be less opaque than in the other conditions because there is a clear correlation between the presence of an inanimate object and the absence of the preposition *a*, and this may make this context easier to process. However, it should be noted that even in this condition, advanced L2 learners performed significantly worse than L1 controls, which shows that advanced L2 learners have started to be sensitive to the properties of *a* in this condition, but they have not yet fully acquired it. Therefore, it is not clear whether they will eventually master the distribution of the personal preposition *a* in this context or whether they will show effects of fossilisation. Future research with near-native speakers using a combination of off-line and on-line tasks should be able to resolve this issue.

Conclusion

This paper looked at the acquisition of interface phenomena by investigating the acquisition of the Spanish personal preposition *a* in English L2 learners of Spanish. The distribution of *a* in direct object NPs in Spanish relates to the specificity/definiteness of the NP, the animacy/agentivity of the subject, and verb semantics. Results from an Acceptability Judgment task revealed that in contrast to Spanish controls, L2 learners performed at chance level in all experimental conditions, and L1 controls compared to L2 learners were more likely to give a high rating for acceptable sentences and a low rating for not acceptable sentences. The level of proficiency of the L2 learners did not affect their accuracy in the experimental conditions that required access to more than one semantic feature. Only in one condition that required access to only the animacy feature did advanced L2 learn-
ers of Spanish perform significantly better than learners at the high- and low-intermediate levels. Finally, advanced learners of Spanish, similarly to Spanish controls, gave a significantly different rating to acceptable vs. not acceptable sentences. Our results support Sorace’s claim that interface phenomena are more difficult in L2 acquisition, and more vulnerable for fossilization. However, advanced L2 learners seem to be sensitive to conditions that are explicitly taught in a classroom setting, are less complex, have a less opaque input, and thus, may be easier to process.

References


Appendix. Examples of items included in the task

Condition 1: [+animate, +specific]

1. Hoy es San Valentín, el día de los enamorados. Llamé a la radio para sorprender a mi novia, y decir para que todo el mundo lo sepa:

   'Quiero mi novia más que nadie en este mundo'.

   1 2 3 4 100

Condition 2: −animate, +/-specific

2. Nunca he estado en New York. Un amigo mío estudió allí y le escribo para preguntarle dónde podría vivir sin peligro:

   ¿Tú conoces a New York muy bien? ¿Dónde podría vivir?

   1 2 3 4 100
Condition 3: +animate, −specific

3. En Inglaterra el pasado mes se produjo uno de los robos más importantes de su historia de aproximadamente 50 millones de libras. Los ladrones no dejaron huellas alguna.

La policía no conoce a los atracadores del robo, aunque ya tienen algunas pistas.

Condition 4: stative/activity verb, +human subject

4. La falta de médicos es grave, y el gobierno no sabe lo que hacer. Incluso, en las noticias de ayer estuvieron repitiendo varias veces que, debido a las recientes guerras,

Los heridos de guerra reclamaban un médico de forma inmediata.

Condition 5: stative/activity verb, −human subject

5. Esta mañana he escuchado en la radio que anoche se produjo un gran incendio donde murieron varias personas en una discoteca de la ciudad. La llegada de los bomberos fue demasiado tarde, y uno de los dueños dijo:

La situación reclamaba a los bomberos de forma inmediata.

Condition 6: accomplishment/achievement verb, +/-human subject

6. Juan vive con su madre desde hace algunos años, precisamente desde que su madre tuvo un accidente de coche y tiene que estar en una silla de ruedas porque no puede andar. ¡Pobrecita!

Al llegar a casa después del trabajo Juan encontró su madre en el suelo.

7. Todos los españoles aseguran que el atentado terrorista cometido en Madrid es una de las catástrofes más importantes de la historia reciente en España. Sin embargo, tanto la policía como los hospitales cercanos reaccionaron de forma inmediata para ayudar a los más afectados.

El hospital Ramón y Cajal operó casi todos los heridos del atentado.