Implications of L1 versus L2 transfer in L3 rate of morphosyntactic acquisition

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This study explores the rate of L3 development among learners that transfer their L1 versus L2, via examination of differential object marking (DOM) by English/Spanish bilingual learners of L3 Brazilian Portuguese (BP). At the L3 initial stages, L1 English/L2 Spanish and L1 Spanish/L1 English speakers transfer non-facilitative DOM from Spanish (Giancaspro et al., 2015). We compare these groups with advanced L3 BP learners to test the hypothesis that L2 transfer is overcome faster than L1 transfer. Data from advanced L3 BP groups show that the L1 Spanish group patterns with both initial stages Spanish groups. However, the L2 Spanish group patterns with BP controls, suggesting that the L2 Spanish group has overcome non-facilitative transfer, while the L1 Spanish group has not.

Key words: Third language (L3) Acquisition, Multilingualism, Transfer, Direct Object Marking, Morphosyntax, Portuguese, Spanish

1. Introduction

A growing interest in the investigation of generative third language (L3) acquisition has been attributed to the acceptance that its study makes a unique contribution to our understanding of language acquisition and linguistic theory more generally. One of these contributions is the understanding of how previous linguistic knowledge constrains successive
acquisition when this previous knowledge consists of two or more systems. Most of this work has focused on the variable(s) that drive transfer of one (part of a) system or another in the early stages of acquisition. Although a number of distinct variables have been proposed to be deterministic in initial stages transfer (see García-Mayo & Rothman, 2012, for a review), a body of work examining English/Spanish bilinguals acquiring Brazilian Portuguese (BP) as a third language provides robust evidence of Spanish transfer during the initial stages of L3 BP acquisition. Spanish transfer has been found with native (L1) Spanish speakers, adult second language (L2) Spanish speakers, and early English/Spanish bilinguals for a number of morphosyntactic properties. These include adjective placement (Rothman, 2011), raising phenomena (Cabrelli Amaro, Amaro, & Rothman, 2015), word order and relative clause attachment preferences (Rothman, 2010), noun drop (Cabrelli Amaro, Iverson, & Judy, 2009; Iverson, 2009), mood distinction (Child, 2014, in press), and object expression (Giancaspro, Halloran, & Iverson, 2015; Montrul, Dias, & Santos, 2011), the last of which is the focus of the current study.\(^1\)\(^2\)

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\(^1\) The results from these studies support the notion that structural similarity drives transfer, at least for this language triad. This idea is the core tenet of the Typological Primacy Model (TPM; Rothman, 2010, 2011, 2013, 2015), which predicts full transfer as conceptualized in Schwartz and Sprouse (1996) (see e.g., Rothman, 2015, for discussion) of the existing grammar that is deemed by the linguistic parser to be more similar to the L3.

\(^2\) While we follow the assumption that full transfer occurs, it should be noted that two recent initial stages models of property-by-property transfer (the Scalpel Model, Slabakova, 2016, and the Linguistic Proximity Model, Westergaard, Mitrofanova,
Because of their considerable similarity, the transfer of Spanish when acquiring BP facilitates acquisition extensively. This claim has been substantiated in studies comparing English monolinguals and Spanish speakers (bilingual or monolingual) acquiring Portuguese (e.g., Cabrelli Amaro et al., 2009). In fact, Wiedemann (2009) estimates that English monolinguals will require twice as many hours to acquire Portuguese compared to Spanish speakers. However, these two languages do indeed diverge in various respects. These differences are exploited in the aforementioned studies such that the domains that are examined pattern differently in Spanish and Portuguese. Therefore, in each case of Spanish transfer, transfer is non-facilitative. The task of Spanish-speaking learners of BP in these cases is thus to overcome the non-facilitative influence of Spanish. For L3 learners of BP, we follow the assumption that probabilistic parsing in the L3 will eventually drive the learner to converge on the target configuration, either via access to the featural configuration in the learner’s English grammar or via UG access (see section 6 for further discussion). While studies of intermediate proficiency L3 Portuguese speakers have shown that non-facilitative Spanish transfer can be persistent in the domain of morphosyntax (Carvalho and da Silva, 2006; Montrul et al., 2011), others have shown that transfer of prior

Mikhaylyk, & Rodina, 2016) could also potentially explain initial non-facilitative transfer from the more similar background language. To test the hypothesis that drives our study, however, whether full transfer occurs is inconsequential as long as transfer is non-facilitative for the domain under investigation.
linguistic knowledge (particularly an L2) attenuates over time (Hammarberg, 2001), and that non-facilitative transfer can ultimately be overcome in L3 acquisition (Slabakova & García-Mayo, 2015), with some evidence that suggests that convergence might be more likely when the relevant features are available in the existing language that was not transferred (Hermas, 2014). With that said, we know very little about how the rate of acquisition and developmental path compares for different learner profiles. If L1 Spanish speakers and L2 Spanish speakers both transfer Spanish at the onset of L3 acquisition, and both groups are assumed to have the same grammar (at least for the domain under investigation), the null hypothesis is that both groups’ path and rate of L3 development will look the same. However, is it possible that variables associated with age of acquisition yield differences in L3 development? Specifically, how do sequential L1 English/L2 Spanish learners compare with a mirror-image L1 Spanish/L2 English group? Does the L1 or L2 status of the transferred language affect the rate of L3 acquisition?

In a case study of two early English/Spanish bilinguals and two sequential L1 English/L2 Spanish learners of L3 BP, Cabrelli Amaro and Rothman (2010) first suggested that learners with less experience with the transferred language (i.e., L2 Spanish) might overcome non-facilitative transfer more quickly. They posited that, in the case of L1 Spanish transfer to L3 Portuguese, the length of experience with Spanish might (at least
temporarily) hamper the mechanisms that propel development. Cabrelli Amaro (2015a) found evidence for this hypothesis in reaction time data for phonological processing, and this question has recently been considered for morphosyntactic representations. Cabrelli Amaro (2015b) compares acceptance of raising across a dative experiencer (RExp) in initial stages learners (using data from Cabrelli Amaro et al., 2015) versus advanced L3 BP learners. The L1 English/L2 Spanish and L1 Spanish/L2 English groups both show evidence of Spanish transfer at the initial stages. That is, they reject RExp structures, which are illicit in Spanish but acceptable in English and BP. However, the advanced data indicate divergence between the two groups. While both advanced groups show higher acceptance of RExp structures than their initial stages counterparts, demonstrating evidence of L3 development, the ratings of the L1 Spanish group are still significantly different than the BP controls while those of the L2 Spanish group are not. These results point to differential rates of acquisition which are posited to stem from factors related to transfer of a (domain of a) language acquired in childhood versus adulthood, and can include critical period effects, dominance, exposure, domain of use, and effects on executive control (including activation/inhibition), among others.

The purpose of the current study is to determine whether similar results obtain while investigating differential object marking (DOM) in the
L3 development of BP. Specifically, we investigate whether L1 Spanish speakers are slower than L2 Spanish speakers to converge on the BP featural configuration that will yield rejection of DOM, a property of Spanish but not English or BP. We compare L1 English/L2 Spanish and L1 Spanish/L2 English speakers across two levels of proficiency: initial stages and advanced learners. The data from the advanced learners suggest that non-facilitative transfer can be overcome, at least if the L2 (and not the L1) transfers at the L3 initial stages. The advanced speakers’ data corroborate those of Cabrelli Amaro (2015b): The L2 Spanish group patterns with the BP control group while the L1 Spanish group continues to accept DOM with objects that require marking in Spanish. These findings inform our understanding of the variables that condition adult language acquisition beyond initial transfer when learners have two previously existing systems. Specifically, by comparing L3 development in learners that transfer their L1 versus their L2, we are able to show that previous language experience (specifically, whether you transfer your first or second language) modulates the rate at which a learner overcomes an entrenched routine copied to the L3 from that language. While our study design does not allow us to isolate the deterministic variable responsible for this impparity (see section 6), this study is a first step in identifying potential age-related effects in L3 development. Observation of L3
development thus has the capacity to further elucidate our understanding of differences in systems that are acquired in childhood versus adulthood.

2. Differential Object Marking

In the present study, we examine DOM, a property of Spanish (and other languages, see Aissen, 2003) that has received considerable interest from language acquisition researchers in recent years (e.g., Montrul, 2004; Montrul, Bhatt, & Ghirju, 2015). DOM is an ideal testing ground for the study of L3 morphosyntactic development in this linguistic triad for two reasons. First, DOM exists in Spanish, but not in English or BP. Therefore, if Spanish/English bilinguals transfer Spanish at the initial stages of L3 acquisition of BP (or at least Spanish DOM), they will face the task of overcoming this transfer and learning that BP lacks DOM. Second, the results of Giancaspro et al. (2015) suggest that both L1 Spanish/L2 English and L1 English/L2 Spanish bilinguals do transfer DOM to BP at the initial stages of L3 BP. Consequently, we assume that both groups of successive Spanish/English bilinguals, irrespective of their ages of acquisition of Spanish, make the same initial-stages hypotheses about DOM in BP and start the L3 developmental process without any apparent advantage over one another, i.e., they both use Spanish as the initial hypothesis for the BP grammar.
2.1. DOM in Spanish

DOM, as its name suggests, is the morphological marking of some, but not all direct objects in a given language. Of the three languages in the present study, only Spanish has DOM, which is overtly realized with *a*, as in (1). While many factors govern the appearance of DOM in Spanish, the most important are animacy and specificity (Aissen, 2003; Leonetti, 2004; Rodríguez-Mondoñedo, 2007; Torrego, 1998; Zagona, 2002), which together trigger most uses of Spanish DOM.

The most unambiguous use of Spanish DOM is with direct objects that are both animate and specific, as in (1), where the animate, specific direct object *María* makes DOM obligatory. In other cases, however, the presence or absence of DOM impacts the interpretation of animate and seemingly non-specific direct objects, as in (2). Without DOM (2a), the animate direct object, *una secretaria*, is interpreted as non-specific, meaning that the speaker does not have a specific secretary in mind. With DOM (2b), however, the direct object is interpreted as specific (i.e., the speaker is looking for a particular secretary). Crucially, this interpretive contrast emerges despite the fact that the direct object in both cases is preceded by the same indefinite article, *una* (‘a’).
(1)  \textit{Juan besó *}(a) \textit{María [+animate, +specific]}
\textit{Juan kissed} DOM \textit{María}

‘Juan kissed María’

(Rodríguez-Mondoñedo, 2007, p. 91)

(2) a.  \textit{Busco} una secretaria [+an, -sp]
\textit{I am looking for} DOM a secretary

‘I am looking for a [non-specific] secretary’

b.  \textit{Busco} a una secretaria [+an, +sp]
\textit{I am looking for} DOM a secretary

‘I am looking for a [specific] secretary’

(Zagona, 2002: p. 13)

However, Leonetti (2004) points out that not all animate, DOM-marked objects are specific: DOM is also possible with \textit{non-specific}, animate direct objects, calling into question the transparency of the relationship between DOM and specificity. In (3), DOM is grammatical, although the direct object is a non-specific, negative quantifier, \textit{nadie} (‘nobody’). In (4), DOM is optional before the bare plural indefinite object, \textit{trabajadores} (‘workers’) even when the object is non-specific in nature.

(3)  \textit{Raúl no ayuda *(a) nadie [+an, -sp]}
\textit{Raúl does not help} DOM nobody

‘Raúl does not help anybody’

(4)  \textit{La empresa ha contratado (a) trabajadores con experiencia [+an, -sp]}
\textit{The company has hired} (DOM) workers with \textit{experiencia}

‘The company has hired experienced workers’
DOM is not used with inanimate direct objects, such as *juguete* (‘toy’) in (5) and *hueso* (‘bone’) in (6), regardless of specificity.\(^3\)

\[(5) \quad \text{Bucky agarra} \text{ (*a)} \quad \text{el} \quad \text{juguete}. \quad \text{[-animate, +specific]} \]
Bucky grabs (*DOM) the toy.
‘Bucky grabs the toy’

\[(6) \quad \text{Chico entierra} \text{ (*a)} \quad \text{un} \quad \text{hueso}. \quad \text{[-animate, -specific]} \]
Chico buries (*DOM) a bone
‘Chico buries a bone’

Following others, we assume that DOM in Spanish is an example of non-structural case marking, perhaps in addition to structural case (Hopp & León Arriaga 2016; Nediger, Pires, & Guijarro-Fuentes, 2016a, 2016b; Torrego 1998, 2002). An *a*-marked object raises out of VP to check and delete the associated (uninterpretable) semantic features of animacy and specificity encoded in a higher structural position (e.g. vP or a dedicated functional category). Unmarked objects in Spanish, objects in

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\(^3\) One notable, if also very infrequent, exception to this generalization is sentences with inanimate subjects and objects, as in (7), where DOM is used to disambiguate two potential interpretations, e.g., ‘the calm comes before the storm’ or ‘the storm comes before the calm’ (Rodriguez-Mondoñedo, 2008).

\[(7) \quad \text{La calma precede} \quad \text{a} \quad \text{la tormenta} \quad \text{[-animate, -specific]} \]
The calm comes before DOM the storm
‘The calm comes before the storm’

Other factors which can influence the presence or absence of DOM include agentivity of the subject, affectedness of the object, and aspectual class of the predicate (Guijarro-Fuentes & Marinis, 2007), all of which were taken into account in the design of the experimental task and, consequently, are not discussed further here.
English and BP remain in VP and receive only structural (accusative) case.\textsuperscript{4}

2.2 Acquisition of DOM in Spanish

The focus of this paper is not the acquisition of Spanish DOM, which we assume has been acquired by all participants (see Giancaspro et al., 2015). Nonetheless, it is worth reviewing what we know about the acquisition of DOM in L1 and L2 Spanish contexts since we will ultimately compare differences in L3 development between Spanish-English bilinguals who acquired their knowledge of Spanish DOM in either an L1 or an L2.

Monolingual Spanish-speaking children acquire DOM quite early, reaching 98\% accuracy in the production of obligatory DOM (i.e., animate and specific objects) as early as 2;9 (Rodríguez-Mondoñedo, 2008). Not surprisingly, Montrul and Sánchez-Walker (2013) found that 20 older monolingual Mexican children (ages 6 to 17) were also very accurate (97.9\%) in the production of DOM with animate, specific direct objects. Monolingual children do not master all subtleties of DOM early (Guijarro-Fuentes, Pires & Nediger, 2015), but they do learn to mark animate, specific objects from a young age.

\textsuperscript{4} As pointed out by Schwenter (2014), there are two exceptions in BP: Perini (2002, p. 444) reports that DOM occurs before a direct object when the object is a) Deus ‘God’ or another religious noun or in written BP when the direct object is modified or emphasized, such as in Ronaldo não te odeia, ele odeia a mim ‘Ronaldo does not hate you, he hates DOM me’. Ramos (1989) found this marking in .7\% of the cases he analyzed in a corpus of written BP from the twentieth century. Neither of these exceptions is represented in the test items in the current study.
Second language learners, on the other hand, struggle to acquire DOM even with animate, specific direct objects (e.g., Guijarro-Fuentes & Marinis, 2007; Bowles & Montrul, 2008). However, L2 learners at advanced levels can develop sensitivity to the roles of animacy and specificity in Spanish DOM, as shown by Guijarro-Fuentes (2012), who tested learners’ judgments of sentences—without DOM—which included animate and inanimate as well as specific and non-specific direct objects. In a judgment task, advanced L2 learners performed above 70% accuracy with (a) +animate, +specific, (b) – animate, +specific, and (c) +animate, -specific direct objects.

2.3. Transfer of DOM at the Initial Stages: Giancaspro et al. (2015)

Giancaspro et al. (2015) tested three groups of Spanish/English bilinguals’ (L1 Spanish/L2 English, L1 English/L2 Spanish, and early English/Spanish bilinguals) acceptance of sentences with and without DOM in L3 BP, which lacks DOM. All participants were in the initial stages (i.e., the first semester) of acquisition of L3 BP and were required to demonstrate target knowledge of DOM (or its absence) in Spanish and English to be included.

Each of the L3 groups demonstrated robust transfer from Spanish. In both +animate object conditions, the L3 groups showed a higher
acceptance of +DOM sentences and a lower rejection of –DOM sentences than the BP controls, who rejected +DOM sentences across the board. In the –animate object conditions, however, the L3 groups rated –DOM sentences higher than +DOM sentences, patterning with the BP controls. These results provide evidence that the L3 BP learners have transferred their Spanish grammatical systems at the initial stages of L3 acquisition, supporting the predictions of the TPM.

In light of the findings of Giancaspro et al. (2015), we follow the assumption that learners will transfer DOM from Spanish, including the animacy and specificity requirements and the association of these features with vP. Since this transfer is non-facilitative for the acquisition of BP, the learning task will be to revise the featural configuration in BP such that learners reject DOM across the board.

3. Research question and predictions

Our research questions are as follows:

i) Are acceptability judgments in native and non-native Brazilian Portuguese conditioned by the presence of the preposition a, which is the differential object marker in Spanish?
ii) Is the rate of L3 development conditioned by the status (L1 versus L2) of the language that is transferred at the L3 initial stages?

In light of the evidence that L3 BP learners accept DOM at the initial stages, we are interested in the shape that morphosyntactic development takes over the course of L3 acquisition for learners who acquired Spanish in childhood versus adulthood. Based on Cabrelli Amaro and Rothman (2010) and Cabrelli Amaro (2015b), we posit that the rate of L3 acquisition depends on the source of transfer, and that non-facilitative transfer will be more quickly overcome when the source of transfer is the L2 as opposed to the L1. Speculation as to why this might be is left for the discussion section.

4. Methodology

4.1. Participants

In order to assess the aforementioned predictions, we tested four experimental groups: L1 English/L2 Spanish (\(n = 16\)) and L1 Spanish/L2 English (\(n = 13\)) learners at the initial stages of acquisition of BP\(^5\) and L1 English/L2 Spanish (\(n = 19\)) and L1 Spanish/L2 English (\(n = 16\)) advanced learners of BP. The data from these groups were also compared to those from a control group of native speakers of BP. Group placement

\(^5\)These groups are the participants from Giancaspro et al. (2015).
was determined by participants’ completion of university-level BP courses for Spanish speakers as well as a 100-point BP proficiency test implemented as a placement exam by the Brazil-United States Cultural Association (ACBEU); this assessment has been used in Cabrelli Amaro, (2016) and Rothman and Iverson (2009, 2011). In order to qualify as having an advanced level of L3 BP, participants completed at least one semester of university-level BP and scored above 80 points on the proficiency test. Those that had completed at least one semester and did not score at least 80 points were excluded from the data set. The initial stages groups were composed of participants that were enrolled in a first-semester university-level BP course at the time of testing.

The control group \((n = 22)\) was comprised of native speakers of Brazilian Portuguese (mean age 24.39, range 19-35) who participated in the study either in Brazil or in the US. All of these BP speakers spoke English to some degree and most also spoke Spanish to some degree. As such, their linguistic composition was relatively comparable to that of the experimental groups. The L1 English/L2 Spanish/initial stages BP group was comprised of native speakers of English from the United States who had acquired Spanish at or after the age of 12 and began studying BP at or after the age of 18. The L1 Spanish/L2 English/initial stages BP group was comprised of native Spanish speakers from Spain or Spanish-speaking countries in Latin America who had acquired English at or after the age of...
9 and began studying BP at or after the age of 18. As reported in Giancaspro et al. (2015), both groups of initial stages learners tested within the native range for DOM in their L2.

The L1 English/L2 Spanish/advanced BP group was comprised of native speakers of English from the United States with Spanish as an L2 who qualified as having an advanced level of BP as an L3 (see Table 1 for the experimental groups’ age and age of acquisition of the L2 and L3). Participants had to have scored a minimum of 40 out of 50 on a written Spanish proficiency measurement composed of portions of the Diploma of Spanish as a Foreign Language (DELE) and Modern Language Association (MLA) Spanish proficiency exams, following e.g., Cabrelli Amaro (2017) and Giancaspro (2015). While all participants in this group had completed at least one semester of BP, most had completed more, with some participants having completed up to four semesters. Several participants in this group had experience in Brazil; 10 of the participants participated in the study while abroad (during their fourth or sixth week of study abroad), while the remaining eight participants completed it while in the US. The L1 Spanish/L2 English/Advanced BP group was comprised of native speakers of Spanish from various Spanish-speaking countries with English as an L2 who met the advanced L3 proficiency requirements. Most participants in this group had also completed more than one semester of BP, with one participant having completed at least five semesters. All
of the participants in this group completed the study in the US; only one participant reported having previous experience studying abroad in Brazil and this was the same participant who had completed at least five semesters of study. Table 1 provides further information regarding the experimental groups.

Table 1. Experimental groups

<table>
<thead>
<tr>
<th>L3 BP Group</th>
<th>N=</th>
<th>Age (yrs) Mean</th>
<th>Age of initial exposure to L2 (yrs) Mean</th>
<th>Age of initial exposure to BP (yrs) Mean</th>
<th>Range</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Stages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 Eng/ L2 Span</td>
<td>16</td>
<td>21.06</td>
<td>19-25</td>
<td>13.88</td>
<td>12-18</td>
<td>19-25</td>
</tr>
<tr>
<td>L1 Span/ L2 Eng</td>
<td>13</td>
<td>24.54</td>
<td>18-34</td>
<td>12.69</td>
<td>9-19</td>
<td>18-31</td>
</tr>
<tr>
<td>Adv.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1 Eng/ L2 Span</td>
<td>19</td>
<td>23.12</td>
<td>19-32</td>
<td>12.74</td>
<td>5-18</td>
<td>15-32</td>
</tr>
<tr>
<td>L1 Span/ L2 Eng</td>
<td>16</td>
<td>27.80</td>
<td>18-40</td>
<td>13.06</td>
<td>10-21</td>
<td>15-37</td>
</tr>
</tbody>
</table>

Note: The information provided for the Adv L3 BP L1 Span/L2 Eng group represents 16 of the 17 participants, as information was not available for one of the participants.

4.2. Judgment Task

The task employed to investigate the acceptability of DOM was a scalar acceptability judgment task (see Giancaspro et al., 2015). All experimental and control group participants completed the judgment task, which was presented via surveygizmo.com. The task contained 120 BP
sentences\textsuperscript{6} which participants were instructed to rank on a scale of 1 to 4, with a rating of 1 indicating complete confidence that the sentence was bad, 2 indicating that the sentence was likely bad, 3 indicating that the sentence was likely good, and 4 indicating complete confidence that the sentence was good. Of these 120 sentences, there were 64 target sentences, 16 DOM-related fillers, and 40 unrelated filler sentences. The 64 target sentences consisted of a subject DP followed by a transitive verb and a direct object of one of four types: (i) [+animate, +specific] (ii) [-animate, +specific] (iii) [-animate, -specific] and (iv) [+animate, -specific]. For each object type, half of the sentences included DOM and half did not. The fillers consisted of sentences containing a definite article used with [+animate, +specific] direct objects (+DOM $n = 8$, - DOM, $n = 8$), since BP allows for the optional use of the definite article before proper nouns, which could possibly be interpreted as DOM by L3 learners. Given that our data analysis did not yield any significant differences between the items with and without definite articles for any of the experimental groups or BP control (all Bonferroni-adjusted $p$s $> .126$), we limit our results to the items without a definite article. Table 2 contains examples from the task.

\textsuperscript{6} The items were presented to participants on a single page, which, as an anonymous reviewer points out, could allow participants to compare grammatical and ungrammatical sentences.
Table 2. Sample sentences by object type

<table>
<thead>
<tr>
<th>OBJECT TYPE</th>
<th>BRAZILIAN PORTUGUESE</th>
</tr>
</thead>
<tbody>
<tr>
<td>[+animate,+specific] w/ definite article</td>
<td>*A gente ouve ao Pedrinho. (The people hear DOM Peter.)</td>
</tr>
<tr>
<td>[animate,+specific] w/o definite article</td>
<td>A gente ouve Pedrinho. (The people hear Peter.)</td>
</tr>
<tr>
<td>[+animate,-specific]</td>
<td>Laura observa um menino. (Laura observes a boy.)</td>
</tr>
<tr>
<td>[-animate,+specific]</td>
<td>Julia ama os filmes. (Julia loves movies.)</td>
</tr>
<tr>
<td>[-animate,-specific]</td>
<td>Juliana conhece um parque. (Juliana knows a park.)</td>
</tr>
</tbody>
</table>

For the purposes of the present study, the crucial object type is [+animate, +specific]. In Spanish, [+animate, +specific] objects are obligatorily marked with DOM, while in BP (and English) DOM is ungrammatical. Although in this case transfer from English would be facilitative, Giancaspro et al. (2015) show that Spanish/English bilinguals at the initial stages of L3 BP accept DOM with [+animate, +specific] objects in BP, despite its ungrammaticality. It is hypothesized that this acceptance is due to transfer from Spanish. Consequently, this object type provides an ideal test case to examine morphosyntactic development in L3 BP, particularly the ability to recover from non-facilitative L1/L2 transfer. If learners are able to overcome non-facilitative transfer, we expect them to reject DOM with [+animate, +specific] objects in BP. If they are not
able to overcome this transfer, we expect them to continue to accept DOM with [+animate, +specific] objects.

5. Results

The total number of ratings, from 1 to 4, that each group assigned to each item type are given in Table 3 below.

Table 3. Group 1-4 ratings by Item Type, Raw count

<table>
<thead>
<tr>
<th>Group</th>
<th>Rating</th>
<th>[+anim,+spec]</th>
<th>[-anim,+spec]</th>
<th>[+anim,-spec]</th>
<th>[-anim,-spec]</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>4</td>
<td>134 20 150 11</td>
<td>11 9 123 5</td>
<td>23 19 29 22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>26  27 17 32</td>
<td>21 19 29 22</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>10  39 7  62</td>
<td>14 44 17 41</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>6   90 2  71</td>
<td>3 104 7 108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adv</td>
<td>4</td>
<td>88  23 111 14</td>
<td>115 21 96 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1-E</td>
<td>3</td>
<td>31  27 24 19</td>
<td>26 10 30 17</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>19  31 13 40</td>
<td>10 29 17 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>14  71 4  79</td>
<td>1 92 9 96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In. St.</td>
<td>4</td>
<td>43  41 68 31</td>
<td>92 15 70 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L1-E</td>
<td>3</td>
<td>48  39 45 42</td>
<td>28 30 42 30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>23  27 11 27</td>
<td>8 42 10 37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>14  21 4  28</td>
<td>0 41 6 51</td>
<td></td>
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</tr>
<tr>
<td>Adv</td>
<td>4</td>
<td>47  46 84 40</td>
<td>109 15 100 7</td>
<td></td>
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</tr>
<tr>
<td>L1-S</td>
<td>3</td>
<td>31  13 17 19</td>
<td>9 23 18 12</td>
<td></td>
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<tr>
<td></td>
<td>2</td>
<td>22  33 18 26</td>
<td>6 27 8 30</td>
<td></td>
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<tr>
<td></td>
<td>1</td>
<td>29  35 9  31</td>
<td>3 62 2 79</td>
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<tr>
<td>In. St.</td>
<td>4</td>
<td>39  44 74 33</td>
<td>85 36 79 11</td>
<td></td>
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<tr>
<td>L1-S</td>
<td>3</td>
<td>34  21 20 29</td>
<td>12 27 15 25</td>
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<td>2</td>
<td>14  11 7  14</td>
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<tr>
<td></td>
<td>1</td>
<td>17  28 3  28</td>
<td>3 25 6 52</td>
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</tbody>
</table>

For analysis, the ratings were converted to a dichotomous response variable (accept or reject). Ratings of 1 or 2 were recoded as rejected, and ratings of 3 or 4 were recoded as accepted. This both facilitates the statistical analysis and interpretation, and, perhaps more importantly,
avoids the comparative fallacy (in the sense of Bley Vroman, 1989): We are interested in whether acceptability is conditioned by the presence of DOM, but not necessarily how extreme the distinction is or how it compares across groups.\(^7\) The flexibility of a four-point scale when coupled with explicit instructions that ratings of 1 and 2 are “bad” and 3 and 4 are “good” helps mitigate any effect of a given speaker’s internal rating criteria that might be problematic with a binary judgment task. For example, in a multi-point task a speaker may classify a sentence as acceptable even when not 100% certain (i.e., rate the sentence as a 3). In a binary task, the same speaker could rate that same sentence as unacceptable because of the lack of certainty. This is particularly relevant for non-native speakers, who have been found to be hesitant to use the extremes of a Likert scale (see e.g., Schmid, 2011, p. 166 for discussion).

The percentage of binary ratings (accept or reject) that each group assigned to each item type are given in Table 4.

\(^7\) In response to questioning of the decision to collapse the 4-point scale by an anonymous reviewer, we ran a linear mixed model with the scalar data as a continuous dependent variable and the model yielded the same outcome (a significant Group*Item Type effect with the same significant pairwise contrasts). Specifically, only the BP control group and the L1 English/L2 Spanish/L3 Advanced BP group rate sentences from the [+animate, +specific] condition without DOM higher than sentences with DOM (\(p < .001\)). For the remaining conditions, all within-groups comparisons were significant, which is the same outcome we report with the binary dependent variable.
Table 4. Group binary acceptance by Item type, estimated marginal means

(standard error)

<table>
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<tr>
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<tbody>
<tr>
<td>BP</td>
<td>95.0 (2.4)</td>
<td>20.8 (7.5)</td>
<td>96.8 (1.7)</td>
<td>16.1 (6.4)</td>
</tr>
<tr>
<td>Adv. L1</td>
<td>84.2 (6.4)</td>
<td>27.5 (9.4)</td>
<td>92.5 (3.6)</td>
<td>15.0 (6.3)</td>
</tr>
<tr>
<td>Init. L1</td>
<td>77.3 (8.9)</td>
<td>66.7 (11.2)</td>
<td>91.8 (4.2)</td>
<td>60.8 (12.1)</td>
</tr>
<tr>
<td>Spanish</td>
<td>62.8 (11.5)</td>
<td>44.6 (12.4)</td>
<td>83.4 (7.2)</td>
<td>43.4 (12.2)</td>
</tr>
<tr>
<td>Init. L1</td>
<td>75.0 (10.4)</td>
<td>67.5 (12.2)</td>
<td>94.5 (3.4)</td>
<td>62.2 (13.1)</td>
</tr>
</tbody>
</table>

The data were entered into a mixed-effects logistic regression model using the GENLINMIXED procedure in SPSS 23, with variables of Group (BP, L1 English/L2 Spanish/Advanced L3 BP, L1 Spanish/L2 English/Advanced L3 BP, L1 English/L2 Spanish/Initial Stages L3 BP, and L1 Spanish/L2 English/Initial Stages L3 BP) and Item Type (all 8 combinations of [±animate, ±specific, ±DOM]). The random effects structure was the maximal structure supported by the data (see e.g. Barr, Levy, Scheepers, & Tily, 2013), and included random by-subjects intercepts and slopes, and random by-item intercepts. The model returned a non-significant effect of Group \( (F(4,70) = 1.957; p = .111) \), and significant effects of Item Type \( (F(7,132) = 51.293; p < .001) \), and the interaction of Group*Item Type \( (F(28,531) = 2.736; p < .001) \).

Although the significant interaction of Group*Type indicated that it would be appropriate to proceed with all pairwise comparisons, we limit...
the analysis to preplanned contrasts that are relevant to our research questions regarding within-group distinctions. Within each group, we examined acceptance of sentences with and without DOM for each combination of \([\pm\text{animate}, \pm\text{specific}]\) features, for a total of 20 comparisons (5 groups x 4 \([\pm\text{animate}, \pm\text{specific}]\) combinations). Accounting for multiple comparisons, the resulting \(p\) values of the preplanned contrasts were adjusted with the False Discovery Rate adjustment (Benjamini & Yekutieli, 2001), with the rate set at .05. This approach limits the number of false positives to a predetermined proportion; in this study, this proportion is .05 or 5%. So, we could expect at most one of every 20 significant comparisons to be a false positive. The corrected significance level was .043.

For \([+\text{animate}, +\text{specific}]\) items, the planned contrasts showed that both the BP and L1 English/L2 Spanish/Advanced L3 BP groups made a significant distinction between these items with DOM and without DOM, accepting those items without DOM and rejecting those with DOM (BP group: odds ratio = 72.34\(^8\), \(p < .001\); L1 English/L2 Spanish/Advanced L3 BP group: odds ratio = 14.05, \(p < .001\)). All other groups did not significantly distinguish between these items with and without DOM (odds ratio = 2.10, \(p = .210\) for L1 Spanish/L2 English/Advanced L3 BP; odds ratio = 1.70, \(p = .388\) for L1 English/L2 Spanish/Initial stages L3 BP;

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\(^8\) Odds ratios serve as effect size in logistic regression. The odds ratio of 72.3 here can be interpreted as meaning that with \([+\text{animate}, +\text{specific}]\) objects the BP group's odds of acceptance are 72.3 times higher for items without DOM compared to items with DOM.
odds ratio = 1.44, \( p = .586 \) for L1 Spanish/L2 English/Initial Stages L3 BP). For those items which were [+animate, -specific], [-animate, +specific], and [-animate, -specific], each group made a significant distinction based on the presence (or not) of DOM, accepting items without DOM more readily than items with DOM (odds ratios > 6.55, \( ps < .013 \) for all groups).

6. Discussion

The goal of this experiment was to examine how L3 development is affected (if at all) when a native versus a non-native (i.e. L2) language forms the initial linguistic hypotheses for the L3. Conclusions drawn from research on the initial stages of L3 acquisition have been at times contradictory, but in the case of DOM, L1 English/L2 Spanish and L1 Spanish/L2 English learners transfer Spanish. Given that initial transfer has resulted in symmetrical behavior for these two groups, it is not unreasonable to expect that this symmetry will extend to L3 development, in the sense that mirror-image language groups will show a similar path and rate of L3 acquisition. However, this is not the only possibility. Non-native speakers of a given language, even at the highest of proficiencies, typically differ from natives in some respect; if not in linguistic criteria (e.g., phonology), then in extra-linguistic criteria (e.g., amount of input
over a lifespan. If some learners transfer a native language and others transfer a (same) non-native language, then the asymmetries in these variables might lead to a reasonable expectation of asymmetry in L3 development; in this case, we refer specifically to a difference in L3 BP input thresholds yielded by differences in Spanish input. We now return to our data and research questions to see if this is the case.

Our research question asked whether development in L3 BP would be conditioned by the status (i.e. L1 or L2) of the language transferred at the initial stages. The data suggest that yes, this is the case. Recall that DOM is required with [+animate, +specific] objects in Spanish, and ungrammatical with (most) other object types. Also, DOM of the Spanish type is almost never grammatical in BP (see footnote 4 for exceptions), which is reflected in the BP control group’s 20.8% acceptance of DOM in the [+animate, +specific] condition. A successful learner of BP, therefore, should be more likely to accept items without DOM than items with DOM. A learner of BP who has transferred Spanish should already perform this way with all but [+animate, +specific] objects, and must

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9 An anonymous reviewer inquired as to whether the proportion of acceptance was a reflection of item or participant variability. While we note that any variability across items (and subjects) is accounted for via the inclusion of by-item and by-subject random intercepts in the statistical mode, there do not appear to be specific items that attracted a particularly higher rate of acceptance. Most items had a rate of acceptance <20%. If we consider the items without a definite article, only one item reached 40% acceptance (Os cachorros atacam a Thiago ‘The dogs attack DOM Thiago’). Looking at individual participants, four of 22 BP controls accepted DOM in the [+anim, + spec] condition at a rate > 50% (two of whom have a rate of acceptance >70%). Without their data, the acceptance rate in this condition falls to 15%. It is possible that the proportion of acceptance is a reflection of the cases in which DOM occurs in BP (see footnote 4).
come to know that DOM with objects of this type is ungrammatical. The results revealed two patterns across groups. Both the BP control and L1 English/L2 Spanish/Advanced L3 BP groups accepted items without DOM significantly more than items with DOM, for all object types. On the other hand, both of the L1 Spanish/L2 English groups and the L1 English/L2 Spanish/L3 initial stages BP group did not significantly distinguish between those items with and those without DOM for [+animate, +specific] objects. For the other object types, they accepted items without DOM significantly more than items with DOM, like the BP control and L1 English/L2 Spanish/Advanced L3 BP groups. While these distinctions are indeed target like, they also align with both English and Spanish grammars, and are consistent with transfer of either one. As such, only the critical condition with [+animate, +specific] objects can show us the effects of transfer and any subsequent recovery from non-facilitative effects.

There are two observations of interest here. One is that the groups that do not make the same distinctions as the BP control group differ in the same way; namely, they are not sensitive to DOM for [+animate, +specific] objects. This result is consistent with transfer of Spanish. Although these groups do not perform in a strictly Spanish-like manner (i.e., rejecting these items without DOM), the fact that they make no significant DOM-conditioned distinction points to the continued influence
of Spanish in the face of BP input. The input may lead them to accept sentences in BP without DOM that would require it in Spanish, but they have failed to firmly reject BP sentences with DOM in these instances. In other words, they have transferred Spanish and developed to the point where they exhibit optionality in allowing sentences with DOM and without DOM. If, on the other hand, English served as the source of transfer, this is an unexpected result, since DOM is ungrammatical in English, and should straightforwardly lead to a BP-like pattern of performance.

The second observation of note, and that which is most relevant to the research question that drives this study, is the asymmetrical development of the advanced L3 proficiency groups. While the L1 English group patterns with the BP control group, the L1 Spanish group fails to do so, and importantly does not differ from the initial stages groups. Considering the performances of all groups, it appears that although the status of the transferred language (Spanish) as an L1 or L2 is not a factor at the initial stages of L3 acquisition, it becomes a factor at later stages of development. For this property, using the L1 as the source of transfer hinders development as compared to a transferred L2. This finding aligns with Cabrelli Amaro’s examination of raising across a dative experiencer (2015b) and phonological processing (2015a).
Why might this be? As stated earlier, the purely structural/linguistic variables may not be the answer. All groups of L3 learners were highly proficient in both their L1 and L2, had acquired the property in question (DOM), and transferred Spanish at the initial stages of L3 acquisition. Despite making similar mistakes at the outset, over time only L2 speakers of Spanish were able to make the necessary adjustments to expunge DOM from their BP grammar. In line with models of language development that account for cumulative input (e.g., Yang, 2016) we envision that making these linguistic adjustments is a probabilistic process in which incoming L3 data are compared with the structures of the developing L3 grammar (transferred from the L1 or L2). As L3 input forms a sufficient proportion of the learner’s linguistic experience, there will be a decrease in the plausibility of the (incorrect) initial hypothesis. This will drive reanalysis, eventually leading to convergence on the L3 target. Here, language experience should play a role. The cumulative experience that the learner has with the L1 (opposed to the L2) will be greater, and more L3 input will be required to reach the same proportional threshold and override non-facilitative transfer from the L1 than from the L2. It is thus predicted (and borne out in the data here) that an L1 Spanish/L2 English speaker acquiring L3 BP will require more input/experience in the L3 to override the L1 Spanish system than an L1 English/L2 Spanish speaker will. As a result, re-configuration will take
longer for the L1 Spanish/L2 English speaker. In contrast to the L1 Spanish group, the L1 English/L2 Spanish group is predicted to converge on the L3 target earlier. We posit that, since they have less cumulative experience with Spanish, less L3 exposure will be needed to reach the proportional threshold and trigger grammatical reanalysis, leading to earlier target convergence.

In a sense, frequency and the relative proportion of linguistic input matters. What remains to be determined is whether convergence on the L3 target obtains by re-using existing linguistic resources from English, which, like BP, does not have DOM, or whether learners rely on UG access. For reasons of economy, it would make sense that learners would adapt or re-use existing hypotheses; when an initial hypothesis is deemed untenable in L3 acquisition, the learner could resort to another, already-formed hypothesis from the L1 or L2 (whichever language from which DOM was not transferred) rather than formulating a completely novel hypothesis (see Kiyono & Tsujii, 1993, for a proposal for a procedure used for re-using existing resources for new application domains). However, the current study’s design does not allow us to adjudicate between re-use of existing hypotheses and formation of novel hypotheses. To determine the source of convergence, we plan to examine a domain in which each of the three languages patterns differently (specifically, object drop) and follow learners longitudinally to capture development. If learners transfer
Spanish at the initial stages and are later found to (incorrectly) exhibit an English-like pattern before converging on the BP target, we will take that as evidence for re-use of existing hypotheses.

We recognize that amount of input is not the only possible explanation for the observed asymmetry; it could also be that the entrenched processing routines of the L1 system must be overcome for convergence on the L3 target. In other words, inhibiting a native language may cause difficulties that persist longer in L3 development than inhibiting a non-native language. While we maintain that this potential explanation as well as the explanation of differential input thresholds are both logical accounts with empirical backing (e.g., Linck, Kroll, & Sunderman, 2009), independent measures of relative inhibitory control as well as processing data in the form of reaction and reading times will further inform the role of language experience and use in L3 development.

There are two additional differences between the L1 and L2 Spanish groups that need to be addressed, both of which are related to context of acquisition. In section 4.1, we noted that 10 of the 19 L1 English/L2 Spanish/Advanced L3 BP group were tested in an immersion context, while all 17 of the L1 Spanish/L2 English/Advanced L3 BP group were tested in the US. It is therefore possible that the increased quantity of input could have contributed to the comparably faster rejection of DOM in L3 BP by the L2 Spanish group. This is an artifact of the populations we
are working with; most of the learners that participate in study abroad programs tend to be L1 English/L2 Spanish speakers or early English/Spanish bilinguals. For example, in Cabrelli Amaro (2016), only two of the 25 participants that were tested while enrolled in study abroad programs in Brazil were L1 Spanish/L2 English speakers. Going forward, it will be beneficial to control for context of acquisition to disentangle its effect in conjunction with language status (L1 vs. L2), although we recognize the inherent logistical challenges involved.

Another possible context-related distinction between the L1 and L2 Spanish speakers in this case is metalinguistic knowledge. All of the L2 Spanish speakers acquired Spanish in a classroom context (as opposed to naturally), and DOM is explicitly taught in Spanish classrooms (typically in the first year of instruction). It is therefore possible that L2 Spanish speakers notice the presence or absence of DOM more readily than L1 Spanish speakers; there is evidence that L2 speakers are more metalinguistically aware than L1 speakers, (e.g., Bialystok, 1987, 1988; Bialystok & Hakuta, 1994; Cook, 1997). However, while we acknowledge that there is a possible metalinguistic advantage is responsible for our findings, Cabrelli Amaro (2015b) presents similar findings to those in the present study, and does so with a property that is not explicitly taught and infrequent in the input (raising across a dative experiencer). While a future study with naturalistic L2 learners could rule out any effects of
instruction/metalinguistic awareness, these groups would be a challenge to find.

One criticism that tends to arise with cross-sectional studies in L3 development is the lack of a baseline measurement of the advanced learners’ L2. In a case such as this one in which the non-facilitative language and the L3 pattern alike, if the L1 speakers of the non-facilitative language (in this case, English) pattern with the native speakers of the L3 (in this case, BP), it is possible that the group of learners had never acquired the property in the facilitative language (in this case, Spanish). However, as we report in section 3, L2 research shows that advanced learners do develop sensitivity to the animacy and specificity requirements on Spanish DOM. Moreover, the initial stages data from the L2 Spanish group (taken from Giancaspro et al., 2015) indicate that these learners also demonstrate this sensitivity. Given that our advanced learners share the same profile as the initial stages learners, we contend that the learners made the same distinctions as these other advanced L2 Spanish learners, at least at the initial stages.

One immediate direction for future research is to test simultaneous bilinguals. In contrast to adult L2 learners, this population would be more similar with respect age of acquisition, mode of acquisition (i.e. naturalistic learning), and relative linguistic exposure. Controlling for these variables may allow a more precise examination of the effects of
language dominance and L3 exposure. The exact nature of the L1 effect in L3 development seen might become more clear. If L3 development is delayed until the proportion of L3 input relative to previously acquired languages meets a certain threshold, then we might expect that simultaneous bilinguals develop more quickly than their L1 Spanish/L2 English counterparts since the early bilinguals’ English input relative to Spanish is greater. If, however, the difficulty lies in inhibiting a native language, then their performance should be comparable.

Another possible direction involves exploring other language groupings. The English/Spanish/Portuguese triad offers certain benefits to researchers because these learners are relatively easy to find in the US, and because of the similarity between Spanish and Portuguese, L3 learners have enough lexical knowledge to be tested quite early. However, this apparent advantage might also lead to observations and conclusions that are not representative of the general nature of third language learning. In cases where the L3 is not easily accessed or parsed via the L1 or L2, initial hypotheses, learning strategies, and the path of development may be different or more variable. Testing other language triads will shed additional light on the generalities of L3 acquisition.
7. Conclusion

In this study, we have examined the role of language status in L3 development, and presented evidence that in the face of non-facilitative transfer, learners who transfer their L2 converge on an L3 target faster than learners that transfer their L1. We posit that this asymmetry is driven by the linguistic experience with the L1 versus the L2 and outline the next steps needed to confirm whether language status is the sole deterministic variable in L3 rate of development.

References


Cabrelli Amaro, J. (2015b, November). Does the source of transfer affect the rate of L3 morphosyntactic development? Poster session presented at the 40th Boston University Conference on Language Development, Boston, MA.


