

On the structural basis of non-redundant acquisition

Evidence from Spanish bilingual L3 Portuguese

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This chapter has two goals: (a) to discuss the Spanish-Portuguese interface in current formal language acquisition research and (b) to highlight the contributions of this language pairing in the emerging field of formal third language acquisition. The authors discuss two L3 acquisition studies (Montrul, Dias, & Santos, 2011; Giancaspro, Halloran, & Iverson, in press) examining Differential Object Marking, a morphological case marker present in Spanish but not in Portuguese, arguing that the results show how data from Spanish-English bilinguals learning Brazilian Portuguese as an L3 illuminate the deterministic role of structural and typological similarity in linguistic transfer. The data provide supportive evidence for only one of three existing L3 transfer models: the Typological Proximity Model (Rothman, 2010, 2011, 2013).

Key words: L3 acquisition (L3), linguistic transfer, Differential Object Marking (DOM), Typological Primacy Model (TPM)

1. Introduction

Over the past few decades, the study of the acquisition of Spanish and Portuguese as a native language in childhood and a non-native language in adulthood has made significant contributions to many subfields of linguistic inquiry. Most relevant to the present chapter, however, are the influences such studies have had on our understanding of how the mind represents and processes language (see, e.g., Montrul, 2004; Santos, 2009) as well as the fruitful connections they have highlighted between acquisition data and formal linguistic theorizing (see, e.g., Pires & Rothman, 2009).

As it pertains to the many subcases of bilingual acquisition, a cursory survey of Spanish and Portuguese studies reveals that the majority has been done in which English is the first language (L1) (e.g. second language (L2) contexts) or, in the context

of simultaneous bilingualism (2L1), the other language. Relatively few are the studies that have examined the acquisition of Spanish where Portuguese is the L1 or other language and vice versa, despite compelling reasons to the contrary. To be fair, very recent research has sought to capitalize on what examining the Spanish-Portuguese language pairing can shed light on in unique ways.

For example, Rothman and Iverson (2013) have examined Brazilian Portuguese (BP) learners of L2 Spanish in the domain of null object constructions in an effort to observe the role of L1 preemption – the observation that acquisition of new L2 properties does not always entail the removal of the competing L1 structure for the same domain from the L2 interlanguage (e.g. Trahey & White, 1993) – has in explaining (some) L1/L2 differences. Rothman and Iverson argue that L1 preemption can arise differentially, conditioned on structural and typological similarities within specific language pairings. They show supportive evidence of this claim via a comparison of their data, which showed a clear L1 BP influence in Spanish L2 even at the highest levels of L2 proficiency, with that of Bruhn de Garavito and Guijarro-Fuentes (2001) who previously used the same methodology to test English native learners of L2 Spanish where there was no residual effect of L1 English.

Formal acquisition work of this type highlights the value of combining Spanish and Portuguese together as an L1–L2 pairing in an effort to tease apart variables deterministic for L2 development and even ultimate attainment that derive from the close proximity of the two languages in question. In turn, such research has farther-reaching implications for issues related to the language-cognition connection. What is it about the structural relationship between closely related languages that seems to confer both advantage and disadvantage to the L2 learner? In other words, how and why does the mind use this type of information to ease the burden of non-native language acquisition? As we will see, this is one of the primary questions motivating research programs that employ the Spanish-Portuguese pairing in multilingual acquisition.

In the domain of applied linguistics and language pedagogy, the Spanish Portuguese pairing has received more due focus, and for obviously practical reasons (e.g. Carvalho, 2002; Carvalho, Freire, & da Silva, 2010). Many, if not most, students of Portuguese as a non-native language come to Portuguese as either an L2 or an additional language in adulthood after having acquired Spanish (natively or non-natively). A quick survey of available textbooks in Portuguese shows that several textbooks capitalize on this and teach Portuguese somewhat comparatively with Spanish. Such applied linguistic research and materials development further highlights the intuitive notion that relatedness between languages in a native/non-native pairing is distinct in some ways to L2 acquisition where such a relationship does not exist.

Understanding what underlies this difference at a cognitive level is of great importance to formal and applied linguistics for interrelated reasons. Ultimately, understanding the dynamic nature of language acquisition more generally will have to include first revealing the way in which the mind accomplishes the learning task inclusive of how and why it makes use of previous acquisition experience and the role structural,

typological similarities play therein. From there, informed pedagogies can be enhanced that exploit such discoveries. The field of L3 acquisition endeavors to uncover the dynamic nature of acquisition appealed to just above, where the Spanish and Portuguese pairing has proved prominent in this emerging endeavor (e.g. Cabrelli Amaro, Iverson, & Judy, 2009; Carvalho & da Silva, 2006; Iverson, 2009, 2010; Rothman, 2010; Salaberry, 2005).

The purpose of the present chapter is to introduce the reader to the emerging field of L3 acquisition while at the same time, in line with the topic of the volume in which it is housed, highlighting the significance that Spanish and Portuguese as objects of multilingual acquisition have played in the most contemporary L3 theorizing. To be sure, examining the acquisition of Portuguese as a third language by Spanish-English bilinguals has been the hallmark pairing in recent years used to argue for and support the position that structural and typological similarity between previously acquired systems and the target L3 is deterministic (e.g. Montrul, Dias, & Santos, 2011; Rothman, 2010, 2011; Giancaspro, Halloran, & Iverson, in press). In what follows, we review this literature and offer the reader some argumentation as to what it tells us beyond the descriptive level of the trends that the data clearly reveal. Before doing so, however, the next section makes the case for why L3 acquisition is distinct from L2 acquisition and why they must be kept distinct empirically.

2. L3 is NOT L2

In recent years, L3 epistemological pieces have offered convincing argumentation as to why L3 acquisition must be examined independently from L2 acquisition and why it requires theory building of its own (e.g. De Angelis, 2007; Rothman, Cabrelli Amaro, & de Bot, 2012). One might be surprised to learn that many researchers have not distinguished among adult non-native learners, including L3/*L_n* learners in populations that are reported as L2 adult learners. After all, the fact that we have different labels, L2 and L3, already acknowledges the need to make the distinction. Collapsing L2 and L3 learners into one group, especially without reporting this, essentially operationalizes the term *L2* for reasons that must seem justifiable to the researcher as a descriptive label covering all instances of non-native acquisition (see De Angelis, 2007 for extensive discussion). To be sure, even among researchers who focus on adult multilingual acquisition the criteria used to define the parameters of what constitutes a proper third (or fourth, fifth and so on) language are not only vaguely defined, but are debated (see Hammarberg, 2010 for discussion). The position we adopt is that defining an L3 is simply chronological, that is, the third language acquired in the literal sense. This means that our definition will include all bilinguals who attempt acquisition of a countable third language in adulthood, be they simultaneous child bilinguals or successive child or adult L2 learners. For others, the label L3 is understood as a description of current acquisition for anyone who is already a speaker of at least two languages. With

such an understanding in mind, the label L3 could actually be, in a chronological sense, the fourth (or more) language learned. Still for others, proficiency attainment in previous languages is the ultimate criteria used to qualify a subsequent language as L3/Ln. In other words, someone can only be an L3 learner if they have achieved high levels of success in L2 acquisition. Given the topic of determining previous transfer effects in L3 acquisition, we join others in our assumption (supported by the research to be reviewed below) that any and all previous linguistic experience can play a role and as such chronology should supersede proficiency and recency in defining the status of an L3.

Why is it so important to differentiate true L2 acquisition from L3 acquisition? Not doing so can have unintended, detrimental effects for important questions studied under the guise of a broadly defined SLA (see De Angelis, 2007). For example, Cenoz (2003) claims that there is an additive effect of bilingualism on third language acquisition stemming from, at least in part, the superior metalinguistic knowledge bilinguals often have. If bilinguals bring more to the table in this regard, this obviously needs to be controlled for. L2 acquisition studies often report high levels of variability in individual performance on empirical tasks. If some or many so-called L2 learners in studies that report this are in fact L3, L4 or more learners then some reported individual variation might be a byproduct of this experience alone. Not knowing this information and reporting the group as L2 may inadvertently hide some crucial information that could help explain some instances of individual variation. From any cognitive linguistic perspective (UG, connectionism, construction grammar) that assumes adults can form new L2 representations of grammar, it follows that L3 learners have access to more grammatical options when it comes to initial hypotheses that feed into L3 interlanguage development.

Although we do not all agree about all that is entailed in defining a label itself, what we can agree on is that L2 acquisition as a descriptive label should be used for cases of additive bilinguals and that beyond this the term multilingualism or some variant thereof, like L3, should apply. Crucially, we should also agree that reporting previous linguistic experience in research and/or carefully selecting participants with clear inclusion and exclusion criteria for previous acquisition experience is paramount for multilingual studies, especially those that hinge upon understanding the role of transfer in the initial stages.

3. Models of L3 initial stages and transfer

Here we set aside questions related to development and ultimate attainment in multilingualism and focus on morphosyntactic transfer at the initial stages of multilingual acquisition. Determining what transfers during the initial stages of third or more language (L3/Ln) acquisition, and, perhaps more importantly, explaining *why* transfer occurs when it does, can help us better understand both the dynamic nature of transfer and, more generally, the mental representation of grammar (See Rothman, Cabrelli

Amaro, & de Bot, 2012, for discussion). Over the past decade, three formal syntactic models have been introduced, each making unique claims about the source and selection of transfer at the L3 initial stages.¹

3.1 The Cumulative Enhancement Model (CEM)

The Cumulative Enhancement Model (Flynn et al., 2004) suggests that multilingual acquisition is a non-redundant process and, moreover, predicts that transfer will occur only in instances where it is facilitative to the L3/Ln acquisition process. As such, transfer can come from any of the previously acquired linguistic systems and, only when it is facilitative, will occur regardless of typological similarities or differences between the existing linguistic systems and the L3/Ln which is being acquired. In sum, the CEM predicts that facilitativeness is the sole factor which determines the source and selection of transfer at the initial stages of multilingual acquisition.

Evidence for the CEM is presented in Flynn et al.'s 2004 study which looked at branching in relative clause structures in the acquisition of L3 English by L1 Kazakh/L2 Russian speakers. The results of this study show facilitative transfer from Russian in the initial stages, which confirms predictions made by the CEM, as the property under investigation is shared by English and Russian (right branching relative clause structure) and not by Kazakh (left branching relative clause structure). However, these results are also consistent with predictions made by the L2 Status Factor, as transfer, while facilitative, came exclusively from the L2. It is also unclear when considering the economic nature of language and language acquisition, how the internal parser would be able to determine which structures would be facilitative/non-facilitative in the acquisition process, with only minimal input from the L3/Ln. As facilitativeness (in this case meaning those structures shared between languages) is not necessarily linked to language typology, this suggests that the process of determining facilitativeness would have to be completed on a structure-by-structure basis, and it remains unclear how this is achieved.

3.2 The L2 status factor

The L2 Status Factor (Bardel & Falk, 2007; Falk & Bardel, 2011) predicts that the L2 is the primary, default source of transfer at the initial stages of multilingual acquisition,

1. We would like to note that although they are not discussed herein, several recent studies have reported evidence of transfer from the L1 at the L3 initial state (see e.g. Lozano, 2002; Jin, 2009; Na Ranong & Leung, 2009; Hermas, 2010). We do not include these in our discussion of L3 'models' precisely because they do not provide support for a specific model, as a formal cognitive model of absolute L1 transfer has not been put forth and systematically tested. Additionally, it is unclear whether some (or all) of the evidence provided in these studies could follow from the predictions of the CEM or the TPM, which both predict that transfer from the L1 is possible, but not inevitable.

resulting in both facilitative and non-facilitative transfer, depending on whether particularly relevant morphosyntactic structures are shared between the L2 and L3. Within this model, the L2 is granted a preferred status due to proposed cognitive differences between the L1/L2 in terms of representation and storage. Falk and Bardel (2011) call upon previous claims made in neurolinguistics (Paradis, 2004; Ullman, 2001, 2005) suggesting that the L2 has a different status than the L1 based on the distinction between procedural and declarative memory. The claim is that the L2 is stored within declarative memory, whereas the L1 is stored separately in procedural memory. Assuming this is true, it supports the authors' hypothesis that the L2 is more accessible during the L3/Ln acquisition process, and thus becomes the primary source of morphosyntactic transfer.²

Evidence for the L2 Status Factor has been presented in various empirical studies over the past several years, including Bardel and Falk (2007) and Falk and Bardel (2011). The former tested verbal negation in two groups of bilingual learners in L3 Dutch and Swedish, one group whose L1 was a V2 language and whose L2 was a non-V2 language, and vice versa. The authors claim that the results, which show that the non-V2 L1 group performs significantly better in post-verbal negation, suggest that the syntactic structure of negation was transferred more easily from the L2 than the L1. Falk and Bardel (2011) look at object pronouns in L3 German with mirror-image groups of English and French. Results show that transfer comes primarily (although not exclusively) from the L2 in both groups, resulting in both facilitative and non-facilitative transfer depending on the language combination. This, according to the authors, supports their prediction that the L2 holds a special status for transfer in multilingual acquisition and this transfer will occur regardless of facilitativeness. As we continue to review additional studies on multilingual acquisition, however, particularly those looking at the acquisition of L3 Portuguese, it seems logical to conclude that the L2 is not necessarily the primary source of transfer, but rather there are more deterministic factors.

3.2 The Typological Primacy Model

The Typological Primacy Model (TPM) (Rothman, 2010, 2011, 2013) predicts that transfer at the initial stages of multilingual acquisition is determined by linguistic structural cues, which the linguistic parser is pre-determined to use for transfer selection. Rothman (2013) claims that the TPM is a model that describes what is a cognitive

2. Claims that L2 knowledge is stored exclusively or in its majority as explicit learning that becomes proceduralized is not uncontroversial. In fact, we reject such claims *a priori* based on a large body of research that shows L2 grammars demonstrate the same logical problem as L1 grammars (see Schwartz, 1998; Rothman, 2008). This has implications for the very conceptualization of what transfer is; apparently for the L2 Status Factor it has a much more metalinguistic basis than what the TPM and CEM envision.

reflex, essentially, the mind's default partiality toward reducing redundancy in the process of acquisition. Under the argument that the linguistic parser is the driving force behind this reflex and under the stipulation that the design of the linguistic parser is one that only uses linguistic information, Rothman describes four cues in linguistic terms available to the parser to determine-- at the earliest of possible stages of L3 acquisition-- which system of the previous two is to be transferred in its entirety based on structural similarity between the L3 target and the other grammars. In a hierarchical order based on saliency and availability to novice L3 learners, these cues are: (1) the lexicon, (2) phonology/phonotactics, (3) morphology (form and function) and (4) syntactic surface reflexes.³

The TPM maintains that transfer is a holistic process, coming entirely from either the L1 or the L2⁴, once enough L3 input is parsed. The argument for full transfer in L3 acquisition is parsimonious with general principles of cognitive economy, for the same reasons such claims are tenable for the initial state of L2 acquisition (Schwartz & Sprouse, 1996). Differently, however, from the L2 initial state-- where only the L1 is available-- the L3/Ln initial state has two sources, the L1 and L2. This must change quickly, since otherwise, contributions of multiple grammars could conflict with universal linguistic stipulations of the form grammars can take (e.g. multiple settings for a single parameter). The TPM, thus, provides a principled explanation of how the transition from the very initial state in multilingualism is modified for the initial stages in which L3 grammar construction can take place.

Evidence for the TPM has been presented in recent studies, several of these dealing with the acquisition of L3 Brazilian Portuguese (e.g. Rothman, 2010, 2011; Rothman & Cabrelli Amaro, 2010; Montrul, Dias, & Santos, 2011; Giancaspro, Halloran, & Iverson, in press). For example, Rothman (2010) looked at word order in L3 BP in mirror-image groups of English/Spanish bilinguals. The results of this study show that

3. Other authors in the field have discussed the role of psycho-typology, particularly in terms of its role in the lexicon of multilinguals (see e.g. Ringbom, 1987; Jarvis, 2011). Rothman (2011) specifically references psycho-typology as it is defined by Kellerman (1983): "a speaker's perception of typological proximity." This is further clarified in Rothman (in press) as follows: "By psychotypology, the TPM refers to an unconscious perception, for lack of a better descriptive word, of comparative structural similarity globally, i.e. not in a domain-by-domain sense, from the point of view of the linguistic parser or the abstract mechanism charged with grammatical competence (re)-structuring. In this sense, the TPM claims that the selection of underlying morphosyntactic transfer is an involuntary reflex dependent on parsing and processing mechanisms. If on the right track, it should be clear that the TPM is able to make predictions beyond L1/L2/L3/Ln language pairings for which actual typological proximity is obvious. By assuming that the mind inherently seeks to avoid acquisition redundancy and that it attempts to employ from its previous linguistic knowledge bases the best bet for initial hypothesis transfer, assessing structural proximity itself is a reflex of general cognitive economy."

4. In other words, transfer, unlike for the CEM, is not envisioned to obtain on a structure-by-structure basis.

transfer from both groups yields from Spanish, despite the fact that this transfer is non-facilitative, as, in this case, English parallels more closely with BP word order restrictions. Transfer from Spanish also appears to occur regardless of order of acquisition. Rothman argues that Spanish transfer occurs in both bilingual groups due to typological proximity.

In the remainder of this article, we will use additional studies from L3 Brazilian Portuguese to claim that the TPM is the most explanatory model of the three. To do this, we will focus on two studies (Montrul, Dias, & Santos, 2011; Giancaspro, Halloran, & Iverson, in press) which provide evidence for the TPM via L3 Brazilian Portuguese in Spanish bilinguals. Both of these studies look at the transfer of Differential Object Marking (DOM), a syntactic property which is present in Spanish, but lacking in both English and Portuguese. Before discussing these studies at length, we present a brief overview of the syntax and distribution of DOM in Spanish and discuss why it is an interesting and worthwhile structure to investigate in the context of multilingual Portuguese acquisition.

4. Differential Object Marking

Differential object marking (DOM) is a linguistic phenomenon which exists in Spanish, but not in English or Portuguese. The acquisition of this property thus becomes particularly illustrative when we consider multilingual acquisition within a Spanish/Portuguese interface. Looking carefully at DOM in the context of Portuguese acquisition when Spanish is available for transfer provides an opportunity to answer important empirical questions about how speakers parse non-native input in multilingual contexts and how such parsing is deterministic for initial stage morphosyntactic transfer.

DOM is essentially the use of some type of overt morphological (case) marking to distinguish some direct objects from others. In Spanish, certain direct objects are marked with the DOM marker *a*. Languages that lack differential object marking are of two types. Some languages, like Latin, mark all direct objects with an accusative case marker. Other languages, like English and Portuguese, do not use any type of morphological case marker to indicate direct objects. This raises the question, why then, in Spanish, do some direct objects need to be distinguished from others? It has been claimed that DOM is used in Spanish in order to determine topicality and affectedness, and in some cases to avoid confusion with the subject (Rodríguez-Mondoñedo, 2007).

4.1 Differential Object Marking in Spanish

Although there are diverse accounts of the distribution of differential object marking in Spanish, it is generally agreed that the use of DOM depends primarily on the animacy and specificity of the direct object (Torrego, 1998; Leonetti, 2004; among other).

Table 1. (Rodríguez-Mondoñedo, 2007).

Marked Object	[+animate] [+specific]
	[+animate] [-specific]
Unmarked Object	[-animate] [+specific]
	[-animate] [-specific]

As shown in Table 1, [+animate] [+specific] objects are the only direct objects that are obligatorily marked with the DOM marker *a* as in (1).

- (1) a. Juan besó ^{*}(a) María.
 b. Juan kissed (A⁵) María.

In some [+animate] cases, differential object marking conveys a tangible semantic contribution, overly indicating specificity of the object as in (2).

- (2) a. David quiere a un abogado. [+animate] [+specific]
 David wants (A) a (specific) lawyer.
 b. David quiere un abogado. [+animate] [-specific]
 David wants \emptyset a lawyer (any lawyer).

As (2) also shows, differential object marking is not used in [+animate] [-specific] cases, and the same is true for all cases of inanimate objects, as in (3)–(4).

- (3) Ana quiere (a^{*}) la manzana. [-animate] [+specific]
 Ana wants \emptyset the apple.
 (4) Ana quiere (a^{*}) una manzana. [-animate] [-specific]
 Ana wants \emptyset an Apple.

Given space limitations and the goals of the present article, we have elected not to elaborate on the formal morphosyntactic analyses of how this is represented computationally within Spanish syntax; however, we refer the reader to Lopez (2012) for a synthesis of previous research and the most contemporary syntactic analysis.

4.2 Conflicting evidence from Portuguese

Differential object marking does not exist in Portuguese; however, we find that Portuguese input provides some evidence that could easily be confusing for the multilingual learner. For example, in Portuguese, definite articles (reduced phonological forms /o/ and /a/ representing the masculine and feminine definite articles, respectively) are

5. Throughout this section we use a capital 'A' to translate the DOM marker *a*, although in English this translations can have different values such as direction 'toward' or temporal 'at' (see Rodríguez-Mondoñedo, 2007).

often used with proper nouns, corresponding to some of the environments in which the DOM marker *a* would be used in Spanish, as in (5).

- (5) a. Gabriel conhece a Isabel. [+animate] [+specific] (PORTUGUESE)
 Gabriel knows Ø [def. article] Isabel.
- b. Gabriel conoce a Isabel. [+animate] [+specific] (SPANISH)
 Gabriel knows A Isabel.

Looking at the Portuguese and Spanish examples in (5a) and (5b), they read nearly identically, despite the fact that in this case, DOM is obligatorily used in Spanish and is lacking in Portuguese. As the Spanish morpheme 'a' is morphophonologically identical to the definite article *a* in Portuguese, it seems reasonable, and perhaps even likely, that a Spanish learner of Portuguese could misinterpret this definite article as a differential object marker.⁶

5. Previous research

We remind the reader that our goal is to use previous research on the acquisition/transfer of DOM in L3 Portuguese contexts to highlight an epistemological discussion that bridges research on the Spanish/Portuguese acquisition interface and contemporary L3 acquisition theory. As such, this section details two specific studies from which our epistemological contribution will follow.

5.1 Montrul, Dias, & Santos (2011)

Montrul, Dias, and Santos (2011) contrastively tested the CEM, the L2 Status Factor, and the TPM in a study of Spanish-English bilinguals acquiring Brazilian Portuguese (BP) as an L3. The study was comprised of two tasks – an oral production task and an acceptability judgment task testing clitic placement. Due to space limitations, we will not discuss the acceptability judgment task here. Instead, we will focus on the oral production task, which, simply as a byproduct of the methodological design, provides interesting data on differential object marking, and which inspired the work of Giancaspro, Halloran, and Iverson (in press).

Montrul, Dias, and Santos (2011) tested two groups of Spanish-English bilinguals from a sampling of students in first or second semester courses at the University of Illinois – 18 L1 English speakers and 18 L1 Spanish speakers – and then compared the bilinguals' oral performance on a spontaneous production task with that of 18 BP native speakers. It should be noted, however, that participants' proficiency in Spanish and

6. Although Portuguese articles are differentially inflected for gender and number, it is possible that learners also interpret articles in masculine and plural environments to be language specific allomorphs of differential object marking.

English was not independently assessed. All participants, including the controls, completed an elicited oral production task in which they listened to a brief narration and then retold the story of Little Red Riding Hood in Portuguese with the assistance of picture cues. They were recorded and their usage of clitics and object expression was coded for accuracy and compared to the control group's oral production.

The focus was on clitic and DP/NP object expression due to the fact that there are considerable differences between BP and Spanish with respect to these syntactic structures, despite the structural and typological similarity between the two languages. Among the specific differences between these properties in Spanish and BP are differences in null object usage, clitic doubling, and clitic placement in finite, non-finite, and restructuring contexts. Crucially, these differences between BP and Spanish allow for the possibility of non-facilitative transfer from Spanish, which is necessary to differentiate the predictions made by the TPM and the CEM. Most relevant for the current discussion, however, is the difference between the two languages with respect to DOM.

It has been hypothesized that if overall typological/structural similarity were truly the most deterministic factor in L3 transfer, both bilingual groups would “produce Spanish-based errors” (Montrul, Dias, & Santos, 2011, p. 34) due to non-facilitative transfer in their BP oral production task. In other words, if typological/structural similarity determines the source of L3 transfer, the Spanish-English bilinguals would not only produce incorrect clitic *forms* (as any non-native learner of BP might), they would also produce syntactic structures, such as DOM and clitic doubling, that are licensed in Spanish but illicit in BP.

The results of this task indicate that both bilingual groups, regardless of order of acquisition, produced such errors. 15 of 18 L1 Spanish bilinguals produced DOM in their oral BP production while eight of 18 L1 English bilinguals did so.⁷ Additionally, ten of the 18 L1 Spanish bilinguals produced clitic doubling in BP, although just two L1 English bilinguals did so. Putting aside the differences between the groups with regards to frequency of errors (which may be attributable to the lower Spanish proficiency of some of the L1 English bilinguals), it becomes clear that in general the two groups are showing transfer from Spanish in their L3.

These data are problematic for the L2 Status Factor, which predicts transfer exclusively from the L2, because the L1 Spanish bilinguals show transfer from their L1. Likewise, the results are problematic for the CEM because both bilingual groups show robust, non-facilitative transfer from Spanish, a pattern inconsistent with the CEM. The TPM, which predicts transfer – including non-facilitative transfer – from the most

7. Here we emphasize that these numbers do not represent statistics or percentages of the actual usage of DOM. They merely indicate which of the participants in the experimental groups were found to produce DOM at any point in their BP speech sample. The results presented indicate that transfer from Spanish (i.e., the use of DOM in BP) is evidenced in the production of eight L1 English participants and 15 L1 Spanish participants, of 18 total in each group.

typologically similar language, is the only presently available model whose predictions are consistent with the results obtained by Montrul, Dias, and Santos (2011).

5.2 Giancaspro, Halloran, & Iverson (in press)

Giancaspro, Halloran, and Iverson (in press) sought to build upon the results of Montrul, Dias, and Santos (2011) in a study designed to specifically target DOM via a Scalar Grammaticality Judgment Task (SGJT). The authors employed a mirror-image methodology (c.f. Falk & Bardel, 2010; Rothman, Iverson, & Judy, 2011), recruiting two groups of Spanish-English bilinguals: that is, one group of L1 Spanish speakers and one group of L1 English speakers. Participants in both groups were recruited from first-semester accelerated BP courses and, crucially, began acquiring their second language after puberty. The performances of the two bilingual groups on the SGJT were tested against a native BP control group. Additionally, the learners were tested for proficiency in both Spanish and English. To ensure that DOM transfer was, in principle, possible, only those subjects showing knowledge of DOM comparable to that of Spanish and English controls were selected for inclusion in the BP study.

The bilingual participants completed a three-part SGJT. First, a BP section that consisted of 120 sentences (60 grammatical, 60 ungrammatical) in written and audio form. Participants rated each sentence on a scale from 1 (ungrammatical) to 4 (grammatical.) Each sentence included a DP subject and a direct object of one of four types. There were 32 sentences with [+animate, +specific] direct objects and 16 sentences for each of the following three types of direct objects: [-animate], [+specific]; [+animate], [-specific]; [-animate], [-specific]. 40 filler sentences consisted of verbal agreement errors. Chronologically, the second and third parts tested equivalent environments in Spanish and English.

Given that DOM is obligatory in Spanish when a direct object has the features [+animate] and [+specific], but is ungrammatical in both English and BP regardless of the animacy or specificity of the direct object, testing the two mirror-image L3 groups for this property creates an ideal scenario to compare the predictions made by each of the three transfer models. Based on the predictions of the CEM, non-facilitative transfer from Spanish should be blocked (apparently supported by previous linguistic knowledge of English, which lacks DOM)⁸, and subjects should therefore behave like

8. It follows from the CEM that this is possible because the Spanish L1 group has acquired a language in which DOM does not obtain, thus having linguistic experience indicating a grammar can exist without DOM. Under the CEM, this would not be expected for L2 BP from Spanish natives who lack such acquisition experience. So, while we cannot claim that English transfer has obtained – logically one cannot transfer the lack of instantiation of a formal property in a grammar – it would follow that the English competence plays a role in blocking the Spanish transfer, were the CEM correct. The scenario depicted here, comparing L2 and L3 BP by Spanish natives embodies a unique perspective for testing the CEM independently from the other L3 models, which we are currently undertaking.

the BP native controls with respect to [+animate, +specific] direct objects. That is to say, if the CEM is correct, the bilingual groups should accept BP sentences with [+animate, +specific] direct objects and no differential object marker while rejecting sentences that include the object marker before such [+animate, +specific] objects.

Based on the predictions of the L2 Status Factor, both groups of bilinguals will transfer from their L2. In other words, the L1 English group will transfer from Spanish, diverging from the BP controls, while for the L1 Spanish group transfer from Spanish will be blocked, converging with the BP controls. Lastly, based on the predictions of the TPM, both bilingual groups should show evidence of Spanish transfer, and therefore diverge from the BP controls by rejecting sentences with [+animate, +specific] direct objects and no differential object marking.

The results, in line with other studies of L3 Portuguese acquisition by Spanish-English bilinguals (e.g. Montrul, Dias, & Santos, 2011; Iverson, 2010; Rothman, 2010, 2011), provide robust support for the Typological Primacy Model. On grammatical BP sentences with a [+animate, +specific] direct object and no differential object marker, both groups of bilinguals gave considerably lower ratings than the BP control group, thus displaying evidence of transfer from Spanish. Convincingly, the bilingual groups accepted ungrammatical BP sentences with a differential object marker preceding the [+animate, +specific] direct object, showing significant transfer from Spanish, while the native BP controls uniformly rejected such sentences. These data, although preliminary, complement the spontaneous oral production data of Montrul, Dias, and Santos (2011) by showing evidence of Spanish transfer from Spanish-English bilinguals acquiring BP in the context of an acceptability judgment task regardless of order of acquisition.

6. Discussion and conclusion

As stated from the outset, the goals of the present chapter were to introduce the reader to the emerging field of formal acquisition of L3 morphosyntax, specifically highlighting the role that Spanish and Portuguese have played together in advancing this field, as well as offer some thoughts on how studying L3 acquisition can inform important questions about the links between linguistics and cognitive science more generally. We have accomplished the first two objectives in the previous sections of this chapter. However, before moving on in this concluding section, we highlight with an interim summary what we have seen so far relating to the first aim.

We followed up a brief presentation on the three existing formal linguistic models of L3 morphosyntactic transfer, the CEM, the L2 Status Factor and the TPM with two studies on the acquisition of Brazilian Portuguese (BP) as an L3 by Spanish-English bilinguals. Montrul, Dias, and Santos (2011) provided evidence via oral production that Spanish's influence, irrespective of its order of acquisition (either L1 or L2), as seen in the L3 acquisition of BP in the domain where differential object marking would occur in

Spanish (and in fact does not in either English or BP). Giancaspro, Halloran, and Iverson (in press) built upon the findings of Montrul, Dias, and Santos (2011) in production, designing an experimental methodology testing the same domain in a more controlled manner. Their data confirmed experimentally the findings previously reported.

Taken together, the two studies discussed above provide evidence in favor of the TPM and seemingly counterevidence for both the CEM and the L2 Status Factor. More specifically, they provide evidence for the deterministic role played by typological similarity (as opposed to the domain of grammar) in determining grammatical influence from previous knowledge in L3. Moreover, these studies demonstrate not just that cross-linguistic influence can happen on the basis of typological similarity but also that such influence can and does result in non-facilitative transfer (i.e. BP, like English, does not have differential object marking) which is possible not only in the case that the typologically similar language is the L2. When considered alongside other studies examining L3 BP with similar English-Spanish bilingual populations in other domains of grammar (i.e., Foote, 2009; Ionin, Montrul, & Santos, 2011), the evidence from these studies for the deterministic role played by typological similarity---which is predicted only by the TPM and not by either the CEM or the L2 Status Factor---becomes particularly convincing.

Turning to our second goal of the chapter, which endeavors to take the evidence provided in these empirical studies beyond the level of description of the experimental performance of the learners therein, we will end with a discussion of high level generalizations and insights that we believe can be gleaned from these L3 BP data. As we have argued throughout, available L3 BP data by Spanish English bilinguals seem to favor the Typological Proximity Model (TPM), a model of L3 initial stages transfer based on the notion that uncovering, predicting and explicating the patterns of L3 transfer can be done via considerations of a linguistic parser driven by general cognitive economy (see Rothman, 2013, in press). To explain how the linguistic parser makes this early decision via linguistic information, Rothman offers a continuum of four information types employed by the parser: (1) the lexicon (and its feature composition), (2) phonological/phonotactic cues, (3) functional morphology (and its semantic import), and (4) syntactic structure.

Given this, it is clear that Spanish will be transferred for L3 BP since the highest level of this hierarchy, the lexicon, is largely shared across the two languages giving rise to what has been noted across the many cited relevant studies covered. In modeling this, the TPM embodies an attempt at explaining how the mind works for language acquisition more generally. Looking at transfer in L3 acquisition then provides a window into the economical nature of language acquisition that cannot be seen outside the confines of multilingual acquisition. After all, if what is observed in the L3 BP studies we have alluded to in this chapter happens to reduce the cognitive burden of multilingual acquisition and is an unconscious attempt at reducing what could be redundant acquisition, then looking at L1 acquisition where no transfer is possible or L2

acquisition where transfer can only come from a single source would not allow us to see these economically driven processes.

The TPM is a theoretical proposal as well as an empirical tool for research. Like all such entities, it is amenable to empirical scrutiny, it should be tested and will likely change overtime. Whether the TPM is the right proposal to explain the data from L3 Portuguese is somewhat tangential to the larger point. Data, when collected with good empirical design and methods, transcend the capricious nature of theory change and will always need to be explained. To this end, the L3 studies at the Spanish and Portuguese interface provide invaluable evidence that bespeaks some type of role for language relatedness transfer selection. As such, these languages have contributed and are likely to continue to offer significant impacts on the field of multilingual acquisition. We all share the same goal: to model and understand more completely the acquisition process and the links between language acquisition and the composition of the human mind. In a world where multilinguals outnumber monolinguals, understanding the processes of L3 acquisition should be of interest to all researchers. Those linguists working in Hispanic and Lusophone linguistics have before them a bridge for collaboration that promises to be fruitful for Romance linguistics and general linguistics as a whole.

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