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The relationship between L3 transfer and structural similarity across development

Raising across an experimenter in Brazilian Portuguese

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The present study examines three competing models of morphosyntactic transfer in third language (L3) acquisition, examining the particular domain of the feature configuration of embedded T in L3 Brazilian Portuguese (BP) at the initial stages and then through development. The methodology alternates Spanish and English as the L1 and L2 to tease apart the source of transfer to L3 BP. Results from a scalar grammaticality acceptability task show unequivocal transfer of Spanish irrespective of Spanish's status as an L1 or L2. The data thus support the Typological Primacy Model (Rothman 2010, 2011, 2013a, 2013b), which proposes that multilingual transfer is selected by factors related to comparative structural similarity. Given that Spanish transfer at the L3 initial stages creates the need for feature reconfiguration to converge on the target BP grammar, the second part of this chapter examines the developmental consequences of what the TPM models in cases of non-facilitative initial transfer, that is, the developmental path of feature reconfiguration of embedded T in L3 BP by English/Spanish bilinguals. Given what these data reveal, we address the role of regressive transfer as a correlate of L3 proficiency gains.

Keywords: third language (L3) acquisition; multilingualism; transfer; typological primacy; morphosyntax

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1. Introduction

The past decade or so has witnessed a sharp increase in studies on adult multilingualism within a formal paradigm.¹ One unique aspect of L3 acquisition research, which leads us to our current study, is the capability it affords of examining the selective and cognitive economy nature of linguistic transfer, i.e. how and why previous linguistic knowledge constrains successive L3/Ln acquisition in the ways it does.² In L2 acquisition, there is a single potential source of transfer, making it impossible to tease apart the many factors that possibly underlie the economy, complexity, and dynamics of transfer more generally (see Rothman 2011, for discussion). However, with a minimum of two established systems available for transfer in the initial stages of acquisition, researchers contend that L3 acquisition studies make significant contributions to a more global understanding of the elegant design and economy of linguistic representation, language acquisition and processing, as well as their interdependencies (see e.g. Flynn, Foley & Vinnitskaya 2004; García-Mayo & Rothman 2012; Rothman & Cabrelli Amaro 2010, *inter alia*).³

In this line of investigation, we seek first to understand what the driving force is behind transfer. That is, is there is a privileged status for one of the existing linguistic systems that motivates transfer (e.g. the L2 status factor, Bardel & Falk 2007, 2012; Falk & Bardel 2011; the L1 transfer scenario, Hermas 2014), or are there other elements at play, such as structural similarity (the Typological Primacy Model, Rothman 2010, 2011, 2013a, 2013b; Rothman & Cabrelli Amaro 2010) or maximum facilitation (the Cumulative Enhancement Model, Flynn, Foley &

1. We recognize that there is a rich body of work outside of the generative literature that investigates the dynamics of multilingual transfer effects, most notably with respect to of what influences transfer at the level of the mental lexicon (see foundational works such as those by Cenoz 2001; Dewaele 1998; Odlin 1989; Ringbom 1978, 1987; Singleton & Little 1984; Singleton & Ó Laoire 2006; Williams & Hammarberg 1998, *inter alia*). Despite sharing a keen interest in questions related to transfer at a more global level, this body of work is not concerned with the full gamut of questions we address herein, especially related to the domain of grammar that is our focus. For these reasons, the scope of this chapter is limited to research carried out within a generative paradigm. For recent comprehensive discussions of crosslinguistic research, we direct the reader to Jarvis and Pavlenko (2008), Ringbom (2007), and Rothman, Cabrelli Amaro & de Bot (2013).

2. Within a minimalist feature-based model, transfer refers to functional features and functional categories copied and transposed as initial hypotheses from the L1 or L2 to the L3 (Rothman 2013a).

3. We would like to clarify that the *initial stages* of L3 acquisition are the stages just beyond what the L3 learner brings to the table at the onset of acquisition. The *initial state*, on the other hand, consists of the L1 system, the end state of the L2 system, and access to UG (García-Mayo & Rothman 2012).

Vinnitskaya 2004)? The aforementioned questions embody the basis of the formal models of L3/Ln transfer cited. To date, few extensions of these models in terms of the developmental paths they predict have been investigated despite the fact that all make predictions for developmental sequencing. In this paper, one goal is to begin to fill this void by asking the following question: What shape does syntactic development take over the course of L3 acquisition after initial transfer obtains? Most interesting in this line of questioning would be to investigate what happens in development when initial stages transfer results in non-facilitation as predicted depending on the language triad (e.g. the TPM) or the order of acquisition (e.g. the L2 Status Factor). Do L3/Ln learners recover from non-facilitative transfer as a result of true L3 acquisition and, if so, what does this reveal for larger questions? Moreover, does overcoming non-facilitative transfer involve the L1 and/or the L2 grammar? These L3 developmental questions are examined in detail in this chapter.

The purpose of this study is thus twofold. The first objective is to further test the aforementioned initial stages transfer models via an examination of the source of transfer pertaining to the syntactic feature configuration of embedded T in L3 Brazilian Portuguese (BP), which is accomplished via an experiment examining raising across experiencer (RExp) structures. We employ a mirror-image methodology that tests highly advanced L1 English/L2 Spanish and L1 Spanish/L2 English learners at the very initial stages of L3 BP acquisition. Crucially, this language triplet allows us to determine the source of transfer, since Spanish is overall more structurally similar to BP, but only English and BP share the same syntactic feature configurations of embedded T. The second objective is to investigate development in the L3 after initial transfer, that is, acquisition as it relates to feature reconfiguration and also to the possibility of bidirectional crosslinguistic influence (i.e. possible BP influence on Spanish over time). The remainder of this chapter is organized as follows: Section 2 provides a discussion of the L3 models we test and the predictions they bear, followed by an overview of the syntactic property under investigation in Section 3. Section 4 presents the components of the first of two studies, reporting data collected at the L3 initial stages and the implications of the results. Section 5 addresses a second study that examines L3 BP at an advanced level of proficiency. Section 6 serves as a discussion of issues that arise when considering our results together and more general epistemological issues for the continued study of L3 development.

2. Models of L3 morphosyntactic transfer and development

As noted in Bardel and Falk (2007) and Rothman (2013a), there are four logical scenarios for transfer at the L3 initial stages: No transfer, absolute L1 transfer, absolute L2 transfer, and transfer of the L1 or L2. It is reasonable to dismiss from

further consideration the possibility that no transfer obtains, given the large body of evidence showing evidence to the contrary. In the remainder of this section, we turn to the other three logical possibilities and discuss the evidence that has led researchers to argue these possibilities and/or formulate models based on them.

2.1 Absolute L1 transfer

While a model of absolute L1 transfer has not yet been formally proposed, a number of studies suggest a privileged status for a native linguistic system in the process of L3 transfer. Such an account essentially assumes that (a) the L1 serves as a filter blocking access to an independently represented L2, or that (b) there are no independent L2 representations to access (e.g. surface behavior differences in L2 performance are taken to be epiphenomenal, relying on local surface-level adjustments to L1 representations). In the case of the former possibility, the L1 has some privileged status for all subsequent acquisition, while the latter possibility is consistent with the idea that the initial state of any language acquired after a particular age must be the L1 because there is no access to Universal Grammar (UG) in adulthood (e.g. Bley-Vroman 1989, 2009). If acquisition of new L2 morphosyntactic properties is impossible, the same will necessarily hold for L3 by default. Thus, only the L1 can form the basis of transfer, to the extent that transfer obtains at all. This idea starkly contrasts with the three models that will be discussed in the following sections, as they all assume access to UG in adulthood, by which there are two independent morphosyntactic systems available at the initial state of L3/Ln acquisition.

Several studies investigating L3 development have presented evidence of an L1 effect (Jin 2009; Lozano 2002; Na Ranong & Leung 2009), while another points to L1 transfer at the initial stages (Herms 2014). Lozano (2002) examined the acquisition of L3 Spanish properties at the syntax/discourse interface by L1 Greek/L2 advanced English/L3 advanced Spanish speakers, specifically VS word order in focus constructions and the distribution of overt/null subjects. He found that learners had converged on the Spanish target when the relevant property in the L3 was constrained by principles that were operative in the L1. However, learners had not acquired Spanish VS word order, because it is constrained by a language-specific principle.

Na Ranong and Leung (2009) looked at L3 acquisition of null objects in L1 Thai/L2 English/L3 Mandarin learners compared with L1 English/L2 Chinese learners. Thai and Mandarin pattern similarly in distribution of overt and null objects and differently than English, and the authors found that the L3 Chinese learners, who had been studying Chinese for an average of 1.5 years and were categorized as beginner/pre-intermediate, demonstrated higher sensitivity to the distribution of overt and null objects than the L1 English speakers. The authors take

this as evidence of a privileged role for the L1 in L3 morphosyntactic acquisition, but concede that, given the order of acquisition of the language triad, it is not possible to tease apart typology and an L1 effect.

In a cross-sectional study of the acquisition of overt and null object distribution in L3 Norwegian by L1 Mandarin/L2 English speakers, Jin (2009) found significant evidence of L1 influence in beginner and intermediate Norwegian learners, even though the learners patterned with native speakers in their rejection of null objects in L2 English, and English is typologically closer to Norwegian. However, the author noted that the advanced speakers had moved toward convergence on the target, contradicting the fossilization effect that Lozano (2002) posits.

Most recently, an L1 factor scenario has been proposed by Hermas (2014), although he emphasizes that additional supporting data from larger sample sizes and different language triads are needed before a model of absolute L1 transfer can be proposed. The evidence he provides in support of absolute L1 transfer comes from two studies of L1 Moroccan Arabic/L2 French speakers acquiring L3 English. An earlier study (Hermas 2010) looks at acquisition of English verb movement, whereas the more recent 2014 study examines two properties of the Null Subject Parameter (NSP), null-lexical expletive constructions and word order in declaratives. In both cases, he presents evidence of exclusive non-facilitative L1 Arabic transfer obtained in the initial stages of L3 English, even though French, the L2, is typologically more similar to English and, with respect to the NSP study, English and French are both non null subject languages.

2.2 The L2 Status Factor

According to the L2 Status Factor, the initial state of the L3 morphosyntax is the L2 grammar. Initially, Bardel and Falk (2007) extended Meisel's (1983) foreign language effect and Williams and Hammarberg's (1998) notion of an L2 status factor in L3 development of the lexicon to L3 morphosyntax transfer. Recently, following Paradis' (2004) claims of how L2 systems are acquired and stored in the brain, Bardel and Falk (2012) have appealed to the higher degree of cognitive similarity between two non-native linguistic systems (the L2 and the L3) to explain why there should be a privileged role for the L2. Given the reliance on the implicit/explicit divide assumed between native L1 and non-native L2 systems, Bardel and Falk (2012) essentially claim that multilingual transfer has a metalinguistically driven *modus operandi* that tends to favor the L2. It is of note that the authors do not wholly discount language distance and psychotypology (unconsciously perceived similarity between languages, Kellerman 1983, 1986) as a possible intervening variable, but rather state that it is unclear how closely related the language pairing must be to trump the L2 Status Factor (Falk & Bardel 2012). Most recently, the same authors show that the L1 can play a role when the L3 speaker is

metalinguistically trained in their L1 and thus able to note explicitly the typological similarity between the L1 and the L3 (Falk, Lindqvist & Bardel 2014). However, this seems to follow from their assumption about the *modus operandi* underlying the default nature of the L2 Status Factor and presents little challenge to the claim that the L2 is the preferred default for multilingual transfer.

Evidence in favor of the L2 Status Factor stems first from Bardel and Falk's (2007) study on negation placement in initial stages L3 Swedish or Dutch (both V2 languages) by two groups of bilinguals: L1 V2/L2 non-V2 and L1 non-V2/L2 V2. The authors claim that sole L2 transfer is supported by the data, since the L2 V2 speakers' production of post-verbal negation exceeded that of the L2 non-V2 speakers. The authors provide further support for the L2 Status Factor in their study of the acquisition of object pronoun placement by L3 German learners that are L1 French/L2 English or L1 English/L2 French speakers. Both the L2 English and L2 French groups transferred facilitative and non-facilitative knowledge, indicative of a robust L2 effect that extends to an intermediate level of proficiency.

2.3 The Cumulative Enhancement Model

The Cumulative Enhancement Model (CEM, Flynn et al. 2004) posits that existing language systems have a cumulative effect on subsequent language acquisition, such that any previously acquired system can potentially shape the path of L3 development. In this scenario, it is assumed that the process of acquisition is not redundant, and transfer is predicted to occur on a property-by-property basis, obtaining only if it is facilitative. Differently than the L2 Status Factor, non-facilitative transfer is predicted never to occur.

Flynn and colleagues' first support for the CEM stemmed from a study of L3 Complementizer Phrase (CP) development via the investigation of three types of restrictive relative clauses in adult and child L1 Kazakh/L2 Russian speakers acquiring L3 English. Prior language-specific CP development in the learners' L2 Russian was found to enhance L3 English acquisition with respect to specific types of relative clauses, quashing the idea that the L1 has a privileged status for transfer and leading them to promote a cumulative effect. However, without data from a mirror image sample, i.e. L1 Russian/L2 Kazakh/L3 English, it was not possible to dismiss the role of the last learned language (i.e. an L2 Status Factor).

To address this confound, Berkes and Flynn (2012) again tested CP development, this time in a cross-sectional study of L1 Hungarian/L2 German/L3 English learners compared with L1 German/L2 English learners. Hungarian and English pattern similarly to one another with regards to CP-related properties, but differently than German with regards to relative clause constituent word order. Data point to facilitative transfer from L1 Hungarian to L3 English, i.e. the learners do

not pattern developmentally with the L1 German/L2 English learners; if they were to do so, it would be a result of non-facilitative transfer. Taken together with the results of Flynn et al. (2004), Berkes and Flynn conclude that there is sufficient evidence to support the CEM and to dismiss the possibility of a negative impact from the last learned language (the L2).

2.4 The Typological Primacy Model

The Typological Primacy Model (TPM, Rothman 2010, 2011, 2013a, 2013b) shares a common thread with the CEM in that both models maintain that a learner's L1 and L2 grammars are available at the L3 initial state. However, the TPM considers transfer to be selective as mediated strictly by factors associated with structural similarity, that is, actual typological proximity of the cues used early on by the linguistic parser. It stipulates, following the basic tenets of Full Transfer (Schwartz & Sprouse 1996), that transfer is complete (a full copy) at the earliest possible moment. The TPM thus predicts that transfer can be both facilitative and non-facilitative, in contrast with the CEM, which maintains that any negative transfer will be blocked. In the most recent instantiation of the TPM, Rothman (2013a) explicates the internal mechanisms responsible for transfer driven by structural similarity. He states that, in the interest of cognitive economy, assessment of typological/structural proximity by the linguistic parser must occur early in L3 acquisition, that is, as soon as the parser has minimally sufficient input to evaluate proximity. Once a system has been determined to be holistically most proximate to the L3/Ln, the system will be transferred in its entirety as opposed to gradually. Rothman spells out an implicational hierarchy of linguistic cues that guide the internal parser to determine what the best candidate is for transfer, which begins with the lexicon and continues with phonological/phonotactic cues, functional morphology and its features, and finally syntactic structure. The organization of the hierarchy is motivated by the idea that the detection of lexical similarity is less ambiguous than detection of phonological, morphological, and syntactic commonalities.

The basics of the TPM were first introduced in Rothman and Cabrelli Amaro (2010) in a study examining properties related to the Null Subject Parameter. They tested L1 English/L2 advanced Spanish learners of L3 French or L3 Italian, as well as L1 English/L2 Italian and L1 English/L2 French comparative groups. It was predicted that typological proximity would spur transfer of the L2 Spanish system to L3 French and L3 Italian alike, although such transfer would be non-facilitative for L3 French while facilitative for L3 Italian, and that the L3 learners would pattern differently than the L2 learners since only the former had access to a null subject (Spanish) grammar. The authors' prediction was met, although the methodology

left it impossible to disentangle structural similarity and absolute L2 transfer. As such, the study only presented problems of explanation for the CEM.

Rothman (2010) followed up with a novel methodology to tease apart these factors. In this study, he juxtaposed L1 English/L2 Spanish speakers with L1 Spanish/L2 English speakers at the initial stages of L3 Brazilian Portuguese (BP) acquisition. He examined word order restrictions and relative clause attachment, domains in which English patterns with BP, although Spanish and BP are typologically more proximate. In both cases, the L1 and L2 Spanish groups transferred their Spanish system to BP, despite the fact that English transfer would have been facilitative. The methodology used allowed him to conclude in both cases that the data support the TPM and provide evidence against the L2 Status Factor and the CEM. Additional support of the TPM in the L3 initial stages comes from, for example, a recent study by Giancaspro, Halloran and Iverson (2014) in which they implemented the same mirror image methodology with the same language triads. They found that learners transferred Spanish differential object marking (DOM) at the initial stages of L3 BP, irrespective of order of acquisition. This pattern of transfer obtained despite the fact that BP, like English, does not have DOM.

Beyond the initial stages, several studies point to residual effects of initial stages transfer driven by structural similarity at later stages of L3 development. Foote (2009) examined transfer of contrast in aspectual meaning in past tenses in L1 Romance/L2 English/L3 Romance, L1 English/L2 Romance/L3 Romance, and L1 English/L2 Romance learners across different levels of proficiency, and found evidence of transfer conditioned by typological proximity well after the initial stages. Montrul, Dias and Santos (2011), in their study of object expression in L3 BP by L1 English/L2 Spanish and L1 Spanish/L2 English speakers, present results similar to those found in initial stages research with the same language triplet, that is, there was unambiguous transfer of Spanish by both groups, even at intermediate proficiency. These data suggest a lasting effect of transfer conditioned by typological proximity, begging further analysis of L3 development to better understand the impact of transfer from the initial stages through ultimate attainment.

At present it is fair to say that there is growing support from independent sources that typological proximity is deterministic. In addition to the aforementioned studies in this section, this has been shown across a varied domain of morphosyntactic properties within Romance language pairings (Borg 2013; Ionin, Montrul & Santos 2011; Iverson 2009, 2010; Llama 2013; Núñez 2011). Of course, the question of whether or not this typological effect is limited to when the L3 is genetically related to either the L1 or the L2 is a reasonable one. Recent work shows this same effect based on the cues put forth in Rothman (2013b) for unique language triads such as Polish/French/English (Wrembel 2012), Uzbek/Russian/Turkish (Özçelik 2013), Tuvan/Russian/English, (Kulunday & Gabriele 2012) and

Basque/Spanish/English (Slabakova & García Mayo 2014), suggesting that the TPM has some universal predictive power.

3. Subject raising across experiencers

In the empirical part of this paper, we will examine the status of Subject-to-Subject (StoS) raising over an intervening dative experiencer (RExp) in the initial stages of L3 BP. While English is much more typologically distinct from BP than Spanish is, it shares important similarities with BP with respect to the feature configuration of embedded T, the syntactic domain implicated in whether or not a language allows for StoS RExp. Importantly, the Spanish configuration, which blocks RExp, is different from that of English and BP, which allows for RExp. Recent research from Campos Dintrans, Pires and Rothman (2014) has demonstrated that L2 Spanish acquisition of this particular featural configuration by L1 English speakers is possible, supporting the notion that the L2 configuration should be available for transfer at the initial stages of L3 BP. As such, this testing scenario meets the criteria to adequately test the three models. That is, one of the existing systems is underlyingly structurally similar to the L3, but this language is crucially not the language that would be selected by the parser based on typological similarity in a holistic sense.

In Spanish, when the raising verb *parecer* ‘to seem’ occurs together with a non-clitic experiencer (1), the experiencer must be doubled via a dative clitic. As long as the clitic experiencer is overtly realized, the non-clitic experiencer can be dropped⁴ (2). Thus, in the presence of an experiencer, the dative clitic is obligatory; without it, the construction is ungrammatical (3).

(1) A Pedro le parece que María es bella
 Pedro.EXP 3P.SG.CL.EXP seems that María is beautiful
 ‘It seems to Pedro that Maria is beautiful.’

(2) le parece que María es bella
 3P.SG.CL.EXP seems that María is beautiful
 ‘It seems to him/her that Maria is beautiful.’

4. Torrego (1996) claims that the experiencer cannot be dropped in the preterit, present progressive, or past progressive. However, Ausín and Depiante (2000) explain that such a restriction only applies when *parecer* projects as a modal verb, as opposed to a main verb, which selects for an embedded CP with [+finite] T. The latter *parecer* is the focus of the current discussion.

- (3) *A Pedro Ø parece que María es bella
 Pedro.EXP Ø seems that María is beautiful
 'It seems to Pedro that Maria is beautiful.'
 (Campos-Dintrans, Pires & Rothman 2014: 41)

Recall that English and BP pattern similarly in that they both permit RExp; neither requires doubling of an experiencer with a clitic. While English lacks clitics, an experiencer can be doubled through a dative clitic in BP (4). However, such doubling is not obligatory, and is found to be dispreferred in colloquial BP (5).

- (4) A(o)/para (o) Pedro lhe parece que (a) Maria é bela
 Pedro.EXP 3P.SG.CL.EXP seems that (the) Maria is beautiful
 'It seems to Pedro that Maria is beautiful.'
- (5) A(o)/para (o) Pedro Ø parece que (a) Maria é bela
 Pedro.EXP Ø seems that Maria is beautiful
 'It seems to Pedro that Maria is beautiful.'

Ausín and Depiante (2000) compare StoS raising structures between Spanish and English, and attribute the distinct differences in these structures to the feature specification of embedded T in the complement clause of *parecer* 'to seem'. Recall that English cannot double a clitic and experiencer and BP can optionally double a clitic and experiencer; both allow RExp (6–7). However, Spanish, which requires that an experiencer be doubled via a dative clitic, does not permit RExp (8) (Torrego 1996).

- (6) Peter_i seems to me [T_[def] t_i to love Mary]
 me.EXP
- (7) Pedro_i me parece [T_[def] t_i amar (a) Maria]
 Pedro me.EXP seems to.love (the) Maria
 'Pedro seems to me to love Maria.'
- (8) *Pedro_i me parece [T_[non-def] t_i amar a María]
 Pedro me.EXP seems to.love to Maria
 'Pedro seems to me to love Maria.'
 (Campos-Dintrans, Pires & Rothman 2014: 41)

Following Ausín and Depiante's (2000) analysis, Spanish and English have different feature specifications in embedded non-finite T. With respect to BP, Pires (p.c.) confirms our tentative analysis that English and BP share similar feature configurations in embedded T, and thus both languages allow RExp. In Spanish, RExp is argued by Ausín and Depiante (2000) to be blocked because embedded T is non-defective ([+finite], and an embedded subject is obligatorily assigned the Case feature. Assignment of Case blocks the embedded subject from raising across the experiencer to the matrix clause (8). However, in English (and by extension,

BP), T is [-finite] and therefore defective. Since T cannot assign the experiencer nominative case, the experiencer can overtly raise, as in (6–7). Case is checked by non-defective T in the matrix ‘seems’ clause.

Given Campos-Dintrans et al.’s (2014) evidence that adult English natives of L2 Spanish do acquire the feature specification of Spanish embedded T, that is, they can reconfigure uninterpretable features in the target L2, we presume that our learners have the Spanish and English feature specifications of embedded T available for transfer. We further maintain that experimental evidence that shows acceptance or rejection of RExp in the initial stages of L3 BP will give us some reliable indication of which language, English (acceptance) or Spanish (rejection), is transferred.

4. Experiment 1: L3 transfer at the initial stages

We tested two groups of English-Spanish sequential bilinguals at the initial stages of L3 BP: L1 English/L2 advanced Spanish speakers and L1 Spanish/L2 advanced English speakers. The experiment, a grammaticality acceptability task, examined relevant properties of raising structures with and without an intervening dative experiencer and with and without an embedded T.

4.1 Research question and predictions

Assuming as we do that the feature reconfiguration of embedded T is in fact possible for the L2 end state, the specific research question at the center of this experiment is the following:

At the L3 initial stages, do these advanced successive bilingual speakers:

- a. always transfer the L1 feature configuration of embedded T to the L3 (supporting the L1 transfer scenario);
- b. always transfer the L2 feature configuration to the L3 (supporting the L2 Status Factor);
- c. transfer the configuration from the linguistic system, L1 or L2, that is holistically typologically more similar to the L3 (supporting the TPM);
- d. transfer the configuration that is maximally facilitative (supporting the CEM)?⁵

5. Notice that we specify transfer of a feature configuration, as opposed to transfer of a linguistic system. This is due to the CEM’s conception of transfer on a property-by-property basis.

Each of the models tested in this study yields specific predictions (Table 1). If there is categorical transfer of the participants' L1s, the L1 English speakers will accurately allow for RExp in BP, while L1 Spanish speakers will not. If the L2 Status Factor is supported the opposite should be observed, that is, the L1 English group should incorrectly reject RExp in BP and the L1 Spanish speakers should correctly accept this. Data in favor of the CEM will indicate transfer of the English configuration by both experimental groups regardless of order of acquisition, since its feature configuration of embedded T is facilitative while the Spanish configuration is non-facilitative. If the data support the TPM, the inverse should obtain: Rejection of RExp by both groups should be evident irrespective of order of acquisition. This is due to the fact that RExp is blocked in Spanish, which is the system that should be perceived as typologically more similar.

Table 1. Predictions for initial stages L3 BP derived from possible transfer scenarios

	L1 transfer	L2 Status Factor	CEM	TPM
L1 English/ L2 Spanish	Accept RExp	Reject RExp	Accept RExp	Reject RExp
L1 Spanish/ L2 English	Reject RExp	Accept RExp	Accept RExp	Reject RExp

4.2 Methodology

4.2.1 Participants

Results are reported from two experimental groups: Group A, an L1 English/L2 Spanish group ($n = 18$) with a mean age of 21.95 years ($SD = 3.19$) and its mirror image, an L1 Spanish/L2 English group ($n = 15$) with a mean age of 22.67 years ($SD = 3.9$) (Group B). While Group A provided the English native control data and Group B provided the Spanish native control data, BP control data was collected from BP native speakers ($n = 20$).

Given that Campos-Dintrans et al.'s (2014) study points to successful L2 feature reconfiguration only at the advanced level of L2 proficiency, we limited our sample to initial stages L3 BP learners who tested at an advanced level in their L2, either Spanish or English. The independent measurements used to determine proficiency were based on either the Diploma of Spanish as a Foreign Language (DELE) test or the Michigan Test of English. The Spanish assessment consisted of the vocabulary and cloze portions of the DELE and had a maximum point value of 50. In line with a number of peer-reviewed L2 generative Spanish studies (e.g. Campos-Dintrans et al. 2014; Montrul 2006, *inter alia*) learners with a score between 40 and 50 were classified as advanced. The group's mean score was 44.4 ($SD = 2.87$). The English assessment had a maximum score of 60, and a score between 45 and 60 was considered advanced. The L1 Spanish group had a mean

English proficiency score of 50.9 ($SD = 3.77$). The 33 experimental participants were part of a 6-week BP immersion program in northeastern Brazil, and at the time of testing had been in Brazil between two and four weeks, with 12 to 24 hours of BP classroom instruction.

4.2.2 Grammaticality acceptability task

A scalar grammaticality acceptability task was administered to the 33 L3 learners in English, Spanish, and BP. BP was always tested first so as to avoid a possible priming effect. The order in which Spanish and English were tested was counter-balanced across participants. Selected for inclusion in this study were learners who showed that they had, in principle, both the relevant Spanish and English grammar available for transfer. The evaluation of 49 sentences was based on naturalness using a Likert scale of 1 (odd/strange) to 5 (completely natural). Three conditions were tested, as described below.

Condition 1 (TPExp) consists of *parecer*/'to seem' with an embedded TP complement, projecting an experiencer. Given that the subject DP of the embedded TP raises to the matrix Spec, TP, the sentences in this condition are analyzed as RExp. Spanish does not project an embedded defective TP in this domain, while English and BP do. Therefore, this condition is ungrammatical in Spanish (SP), but grammatical in English and BP:

- (9) a. BP: Rodrigo me parece [_{TP} saber inglés]
 b. SP: *Rodrigo me parece [_{TP} saber inglés]
 c. EN: Rodrigo seems to me [_{TP} to know English]

Acceptance of the structure in this condition would indicate transfer of the English feature configuration, while rejection would point to Spanish transfer.

Condition 2 (vPnoExp) comprises sentences similar to those in Condition 1, but which importantly lack an overt experiencer. Inclusion of this condition allowed us to confirm whether the presence of an experiencer was deterministic in the rejection of test sentences in Condition 1. In these cases, *parecer* is a modal verb with no projection of an embedded TP, and thus the structures do not involve RExp. This condition is thus grammatical in all three languages, leading to the prediction that learners would accept them regardless of the source of transfer.

- (10) a. BP: Cristina parece [_{vP} precisar de algo]
 b. SP: Cristina parece [_{vP} necesitar algo]
 c. Cristina seems [_{vP} to need something]

Finally, the sentences in Condition 3 (APExp) are similar to those in Condition 2 in that they do not project an embedded TP. While these cases involve StoS raising, the origin of the raised subject is the AP domain. Since Spanish only blocks raising

from an embedded TP but not from an AP, this case is grammatical in Spanish (as well as in English and BP).

- (11) a. BP: João me parece [_{AP} cansado]
 b. SP: Juan me parece [_{AP} cansado]
 c. John seems to me to be [_{AP} tired]

For each of the three conditions, there were 8 exemplars, 4 with proper names and 4 with other subject DPs. Filler sentences ($n = 25$, 12 grammatical and 13 ungrammatical) did not contain any experiencers, raising verbs, or infinitival complements.

4.2.3 Results

Considering the presumed (un)grammaticality of the three conditions in each language tested (which, as will be seen, is confirmed by our data), together with results from Campos-Dintrans et al. (2014) that show that L1 and L2 Spanish speakers distinguish Condition 1 (TPExp) from Conditions 2 (vPnoExp) and 3 (APExp), we predicted several expected outcomes. First, if learners rated Condition 1 in BP as ungrammatical, but rated Conditions 2 and 3 as grammatical, such results would indicate transfer of the Spanish system. Conversely, if the learners accept all three conditions, i.e. they pattern with the BP native controls, there will be an indication of English transfer.

This section is structured as follows: First, we present data from the native speaker controls in English, Spanish, and BP to establish a baseline in each language. Second, we compare the performance of each experimental group in its L2 with native controls of the relevant language, to confirm acquisition of the L2 feature configuration of embedded T. Finally, we examine the results of the BP test, comparing acceptability ratings by the two experimental groups and the BP control group. To evaluate the statistical significance of the observed values, a series of repeated-measures (RM) ANOVA were used to compare the three control groups, the L2 ratings and relevant control ratings, the experimental groups and BP controls in BP, as well as to make intragroup comparisons with respect to the conditions tested in each language. The alpha level was set at .05 for all tests.

The mean acceptability ratings for the three control groups are detailed in Table 2 and illustrated in Figure 1.

Table 2. Mean acceptability ratings in English, Spanish, and BP

	TPExp	SD	vPnoExp	SD	APExp	SD
English	3.26	.37	4.45	.29	4.39	.31
Spanish	1.49	.46	4.49	.34	4.56	.29
BP	3.26	1.09	3.88	.57	4.14	.61

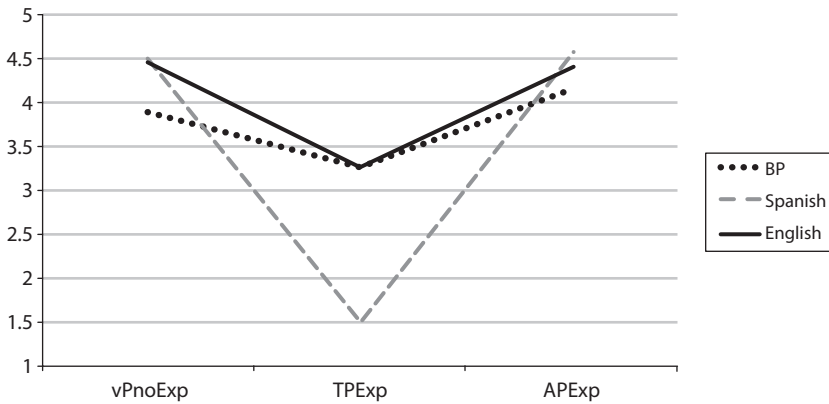


Figure 1. Mean acceptability ratings for BP, Spanish, and English controls

The results of an RM one-way ANOVA with the between-subjects factor “L1” and within-subjects factor “Condition” showed a significant L1*Condition interaction ($F(3.073, 76.816) = 26.432; p < 0.001$). The assumption of sphericity was violated for the within-subjects effect of Condition ($X_2(2) = 17.604, p < .001$), therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates ($\epsilon = .768$). Pairwise comparisons confirm that all three languages differentiate significantly between the TPExp condition and the APExp and vPnoExp conditions, as illustrated in Table 2. On the other hand, they rate the vPnoExp and APExp conditions as equally grammatical ($p = 1.000$). This finding is not surprising given the syntactic descriptions in the literature for these languages. English and BP pair together, which follows from the status of embedded T in the two languages. The pattern evidenced in English and BP, together with the fact that Spanish differs from English and BP only in the condition that follows from a different feature configuration of embedded T (TPExp), shows that the syntactic analyses adopted herein are on the right track.

Table 3. Pairwise comparisons of conditions for each language

Condition	vPnoExp	APExp
TPExp	EN < .001	EN < .001
	BP .018	BP < .001
	SP < .001	SP < .001

Crucially, when we compare conditions across languages, we confirm that the TPExp condition is rated significantly lower in Spanish than in English and BP ($p < .001$), a difference clearly reflected in Figure 1.

With an idea of how each of the native speaker control groups rate the three conditions, we turn to the performance of the experimental groups, starting with each group's ratings in their L2 compared to the native control data. Mean grammaticality ratings from the test taken in the experimental groups' L2 are contrasted with the relevant native control data in Table 4 and Figure 2.

Table 4. Mean acceptability ratings in L2 vs. native control

	TPExp	SD	vPnoExp	SD	APExp	SD
L1 Eng	3.26	.53	4.45	.36	4.39	.39
L2 Eng	3.48	.49	4.44	.32	4.33	.35
L1 Span	1.49	.38	4.49	.38	4.59	.36
L2 Span	1.47	.35	4.53	.36	4.49	.46

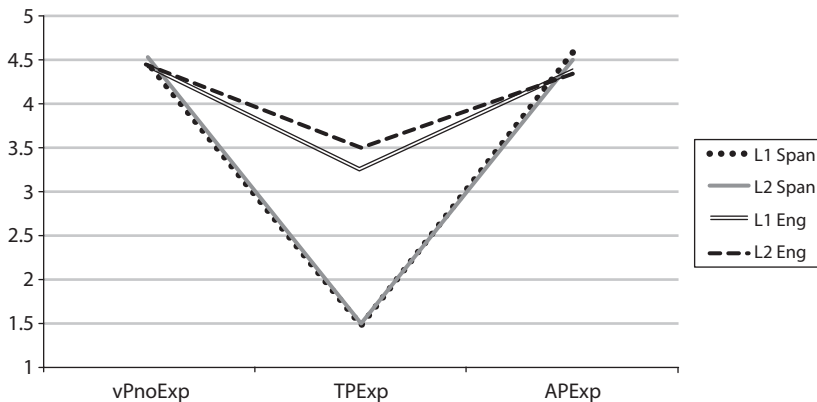


Figure 2. Mean acceptability ratings for L1 Spanish control vs. L2 Spanish and L1 English control vs. L2 English

A pair of RM one-way ANOVA was run for the experimental group vs. native control comparisons, with the between-subjects factor “Group” and the within-subjects factor “Condition”. Comparing the L1 Spanish speakers’ ratings of the conditions in Spanish with those of the L2 Spanish speakers, there was no significant interaction of Group*Condition ($F(2, 62) = .137; p = .872$), and there was no difference between the two groups ($p = .766$). We find similar results between the L1 English and L2 English speakers. That is, there was no Group*Condition interaction ($F(2.953, 45.765) = .709; p = .550$), and a pairwise comparison did not show a significant difference between the two groups ($p = .526$). The assumption of sphericity was violated ($X^2(2) = 13.143, p = .001$), so degrees of freedom

were again corrected using Greenhouse-Geisser estimates ($\epsilon = .738$). The lack of significant difference between ratings on the three conditions for both comparisons indicates that the L1 English speakers have converged on the L2 Spanish target, just as the L1 Spanish speakers have converged on the L2 English target.

Having established that the L2 Spanish and L2 English speakers have the feature configuration of embedded T in their respective L2s, meaning that each group has two distinct grammars to choose for transfer, we now report on the performance of each experimental group in the three languages tested. The means of grammatical acceptability for Group A (L1 English/L2 Spanish) and Group B (L1 Spanish/L2 English) are presented in Tables 5 and 6 and Figures 3 and 4.

Table 5. Mean acceptability ratings for Group A (L1 English/L2 Spanish)

	TPExp	SD	ν PnoExp	SD	APExp	SD
L1 Eng	3.26	.53	4.45	.36	4.39	.39
L2 Span	1.47	.35	4.53	.36	4.49	.46
L3 BP	1.53	.37	4.42	.29	4.51	.31

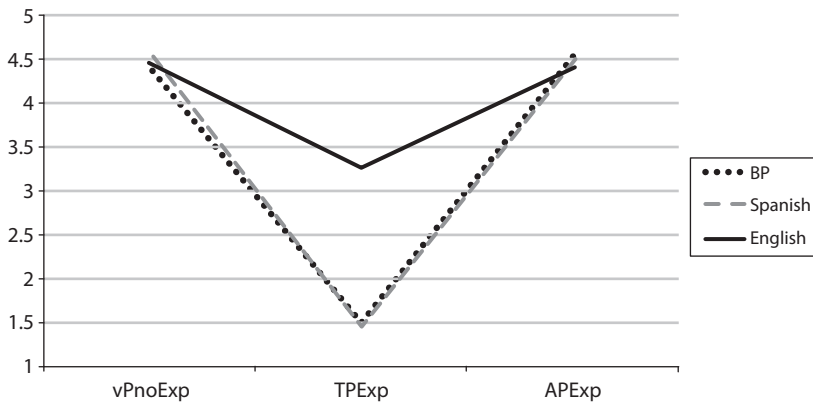


Figure 3. Mean acceptability ratings for Group A (L1 English/L2 Spanish) across conditions in English, Spanish, and BP

Table 6. Mean acceptability ratings for Group B (L1 Spanish/L2 English)

	TPExp	SD	ν PnoExp	SD	APExp	SD
L1 Span	1.49	.38	4.49	.38	4.59	.36
L2 Eng	3.48	.49	4.44	.32	4.33	.35
L3 BP	1.52	.46	4.48	.34	4.51	.29

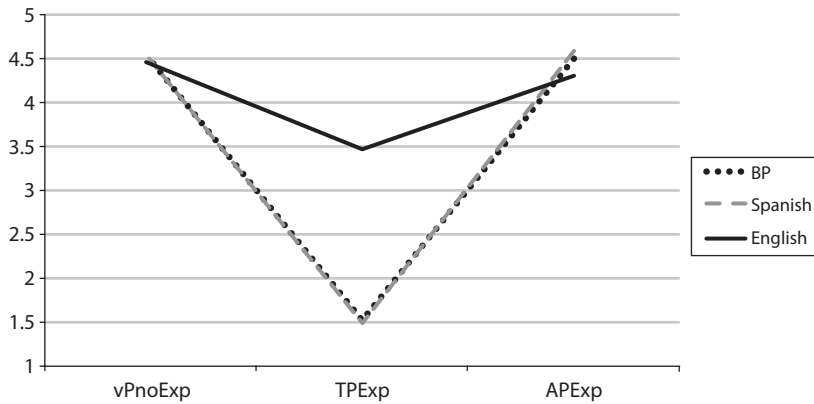


Figure 4. Mean acceptability ratings for Group B (L1 Spanish/L2 English) across conditions in English, Spanish, and BP

While the line graphs present a rather convincing picture on their own, RM two-way ANOVA were run for each group with the within-subjects variables of “Language” (English, Spanish, BP) and “Condition” (TPExp, VPnoExp, APExp). Results of both tests confirm Spanish transfer by both groups. For Group A, there was a significant Language*Condition interaction $F(4, 56) = 58.348$; $p < 0.001$, and pairwise comparisons showed that the group rated the TPExp condition higher in English than in Spanish and BP ($p < .001$), and there was no difference between the rating in Spanish and BP ($p = 1.000$). The output of the ANOVA run on the data from Group B (L1 English/L2 Spanish) also indicates a significant higher-order interaction of Language*Condition ($F(2.267, 38.546) = 44.016$; $p < .001$). The assumption of sphericity was violated ($X^2(9) = 23.075$, $p = .006$), so degrees of freedom were again corrected using Greenhouse-Geisser estimates ($\epsilon = .567$). Further examination of the interaction showed that, as with Group A, the TPExp condition was rated significantly higher in English than in Spanish ($p < .001$), while the difference in acceptability between Spanish and BP was not significant ($p = 1.000$). In fact, there was no significant difference ($p = 1.000$) between Spanish and BP across all three conditions for either group, and thus BP was treated like Spanish. The similarity between the experimental groups’ ratings is further illustrated in Figure 5, as the lines representing each group are barely distinguishable.

The final comparison inspected the ratings on the BP test by the experimental and control groups (see Table 7 and Figure 6 for means). Results of a RM one-way ANOVA with the between-subjects factor “L1” and within-subjects factor “Condition” show an L1*Condition interaction ($F(3.16, 79) = 40.53$; $p < 0.001$). The

assumption of sphericity was violated ($X_2(2) = 15.142, p = .001$), so degrees of freedom were corrected using Greenhouse-Geisser estimates ($\epsilon = .790$). Post-hoc analysis confirms what the line graph indicates, which is that the experimental groups rate all of the conditions similarly ($p = 1.000$), and rate the TPExp condition lower than the BP control group ($p < .001$).

Table 7. Mean acceptability ratings on BP test

	TPExp	SD	vPnoExp	SD	APExp	SD
(A) L1 EN/L2 SP	1.53	.37	4.42	.29	4.53	.31
(B) L1 SP/L2 EN	1.52	.46	4.48	.34	4.51	.29
L1 BP	3.26	1.08	3.88	.57	4.14	.61

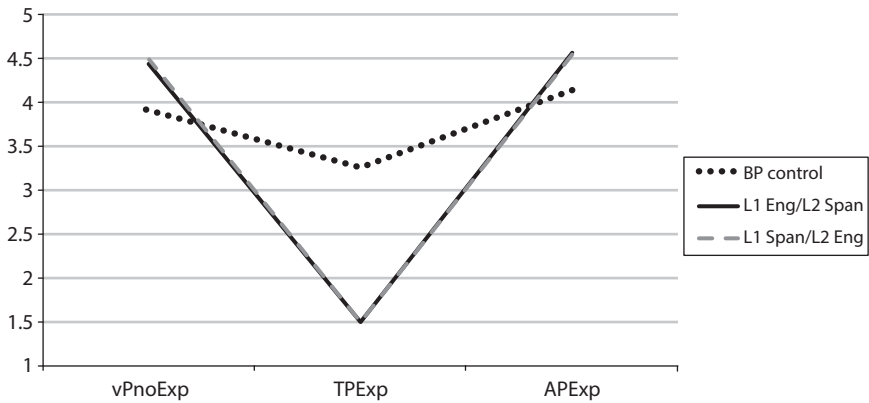


Figure 5. Mean acceptability ratings on BP test for experimental groups and BP controls

In sum, both experimental groups demonstrate the ability to distinguish between different complement types for the raising verb *parecer*/'to seem' in both their L1 and, crucially, their L2. Each group consistently rejected sentences with an embedded TP complement that projected an experiencer in Spanish, but found them to be acceptable in English. On the other hand, both groups rejected TPExp in BP, even though the structure is not ungrammatical. Taken together, the results from Groups A and B, which evidence non-facilitative transfer that originates from both the L1 and L2, support only the TPM. We submit that the behavior captured in this experiment must come from Spanish transfer and not some type of interlanguage developmental stage, precisely because these learners have had relatively little exposure to BP. Even with further exposure to BP, BP input would not permit such a structure.

5. Experiment 2: Feature reconfiguration and L3 development

Having established that both experimental groups transferred their Spanish system at the initial stages of L3 BP acquisition, a new pair of questions arises. Specifically, how robust is the effect of transfer driven by structural similarity, and at what point (if any) do learners successfully converge on the L3 target? Recall from Section 2.4 that Montrul et al. (2011) and Foote (2009) found evidence of structurally-driven transfer beyond the initial stages, that is, they showed robust lingering effects at least through intermediate L3 proficiency. Lozano (2002) also reports a failure of L1 Greek/L2 English/L3 advanced Spanish speakers to acquire pronominal constraints, citing fossilization as a result of lasting L1 influence. More recently, Slabakova and García Mayo (2014) show persistent effects of initial transfer at the syntax-discourse interface even in advanced L3 learners of English who are bilingual speakers of Spanish and Basque. The relevant questions here are the obvious ones: (a) Can L3 learners recover from non-facilitative transfer, and (b) if they can, what are the learnability constraints on such recovery (if any) that distinguish the L3 from the L2? The study we detail in this section attempts to address question (a), from which we will later expand on question (b). Using the same task from the first study, we tested advanced L1 English/L2 Spanish/L3 advanced BP learners with profiles similar to those of the initial stages participants. Taken together, these two experiments in fact constitute a cross-sectional study. We provide data from advanced learners that correspond to only one of the two initial stage bilingual groups (L1 English/L2 Spanish) because these are the data that were available. The results help paint a clearer picture of what happens after transfer beyond the initial stages. Indeed, there might be distinct learnability issues that arise in L3 acquisition of particular properties that differentiate L3 ultimate attainment from L2 ultimate attainment for L1 speakers of the same language (see Rothman 2013a, 2013b), a point to which we return in the conclusion section. Nevertheless, there does not seem to be any stipulation by the TPM or any other model that should predict that initial transfer in L3 cannot be reanalyzed as a natural byproduct of multilingual interlanguage development.

5.1 Learning task and research question

Taking into account the results of the initial stages study, we assume that the participants in the present study transferred their Spanish grammar at the initial stages, and thus the Spanish feature configuration of the embedded T complement of *parecer* ‘to seem’ when it occurs with an experiencer. With this configuration, the learners’ BP grammar will block RExp. Remember that, while in Spanish the main verb *parecer* together with an experiencer subcategorizes only

for a non-defective T [+finite], BP *parecer* with an experiencer subcategorizes for a defective T [-finite], requiring RExp. Thus, the task at hand consists of reconfiguring the feature specification such that BP *parecer* co-occurring with an experiencer will subcategorize for a defective T. With the learning task outlined, we turn to the research question that motivates this study:

Is feature reconfiguration possible after non-facilitative transfer? In other words, how robust is the effect of structurally-driven transfer at the initial stages?

If the answer to the first part of the question is yes, then learners' grammaticality ratings of the TPExp condition should pattern with those of the BP controls (recall that the mean BP control rating for the condition was 3.26/5, while the mean Spanish control rating was 1.49/5). Conversely, significantly lower means than the BP control would suggest that the learners have not yet converged on the L3 target.

5.2 Participants

A total of 15 L1 English/L2 advanced Spanish/L3 advanced BP learners participated in the study. While L1 Spanish/L2 English/L3 BP learners were also tested, only 4 met the BP proficiency criterion, and the sample size was deemed insufficient for inclusion in the study. The experimental group had a mean age of 24 ($SD = 4.19$), and their mean age of first exposure to Spanish was 12.53 ($SD = 3.18$) and to BP was 21.46 ($SD = 5.04$). Proficiency was independently measured in both Spanish and BP. BP proficiency was measured via a placement used by the Brazil-United States Cultural Association (ACBEU). The test has a maximum score of 100, and, as with the Spanish measurement, a cutoff of 80% was implemented. The participants included in the study scored a mean of 88.89/100 ($SD = 4.66$). For Spanish, the 50-point test based on the DELE was again used, and the same criterion of a minimum score of 40 was applied ($M = 43.46$; $SD = 2.72$). There were 14 BP controls (mean age = 25.57; $SD = 7.08$), and 15 Spanish controls (mean age = 22.26; $SD = 3.81$). The Spanish control data comes from the first study, while the BP control data is unique.

5.3 Results

As mentioned, the grammaticality acceptability task from the study outlined in Section 4 was administered to the learners in both Spanish and BP, and the means for each condition for each participant was submitted to statistical analysis. Since these learners were highly proficient in both languages, we were not as concerned with a priming effect and therefore randomly alternated the order in which they were tested in Spanish and BP. In this study, rather than a 5-point

Likert scale ranging from 1 (odd/strange) to 5 (completely natural), a 4-point scale was used. Learners were instructed to apply a rating between 1 (sounds very odd) to 4 (sounds natural), or to leave the answer blank if they did not know. It should also be noted that, because it was necessary to compare the Spanish control data reported in Experiment 1 that used a 5-point scale with experimental Spanish data that used a 4-point scale, a proportional transformation was used to convert the 4-point scale data to a 5-point scale. We recognize that, as stated by Colman, Morris and Preston (1997), implementation of a proportional transformation to compare two Likert scales of different lengths is a mathematical solution that is not empirically derived. However, *z*-score transformation is not compatible with a RM ANOVA, since each group ends up with a mean of zero, leading to *p*-values of 1.000 in the output. All other comparisons made herein are based on 4-point scales.

The remainder of this section is divided into three parts: To begin, we report on data from the Spanish task, comparing acceptability by the learners in L2 Spanish and the Spanish controls to confirm that the experimental group blocks RExp in Spanish. Then, we detail two analyses used to measure the learners' development. First, we analyze the learners' BP results, matched with data from the BP controls. Second, we compare the learners' L2 Spanish and L3 BP.

To ensure that the learners had acquired the Spanish feature configuration of embedded T, we first ran a RM one-way ANOVA with the between-subjects factor "Group" and the within-subjects factor "Condition". The results are detailed in Table 8 and Figure 6. The assumption of sphericity was violated for the within-subjects effect of Condition ($X_2(2) = 7.821, p < .020$), therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates ($\epsilon = .779$). While there was no main effect for Group, the result of interest here is the mean rating for the TPEXP condition across the two groups. There was a significant Group*Condition interaction ($F(1.598, 44.747) = 26.193; p < .001$), and pairwise comparisons revealed that the L2 Spanish speakers rated the TPEXP condition significantly higher than the Spanish controls ($p < .001$), and the ν PnoExp condition significantly lower ($p = .004$). These data indicate that the experimental participants do not block RExp in Spanish. However, it must be emphasized that these learners had had exposure to BP that the initial stages participants had not had, and regressive L3 > L2 influence must be considered a possibility. Based on the L2 standard deviation for the TPEXP condition (as well as the other conditions), there is considerable individual variation indicative of the dynamic nature of a multilingual system. We will return to the issue of L3 influence and L2 Spanish attrition in Section 6. Despite the results presented here, we contend that it is reasonable to assume that the L3 advanced BP participants also blocked RExp in Spanish at the L3 BP initial stages. Campos-Dintrans et al. (2014) and the study in Section 4 used the

same proficiency criteria for inclusion in the study that we have used here, and the learners were taken from similar populations.

Table 8. Mean acceptability ratings by experimental group in L2 Spanish and Spanish controls

	TPExp	SD	vPnoExp	SD	APExp	SD
L2 Spanish ⁶	3.16	1.23	3.74	.83	4.08	1.17
Spanish control	1.49	.38	4.49	.38	4.59	.36

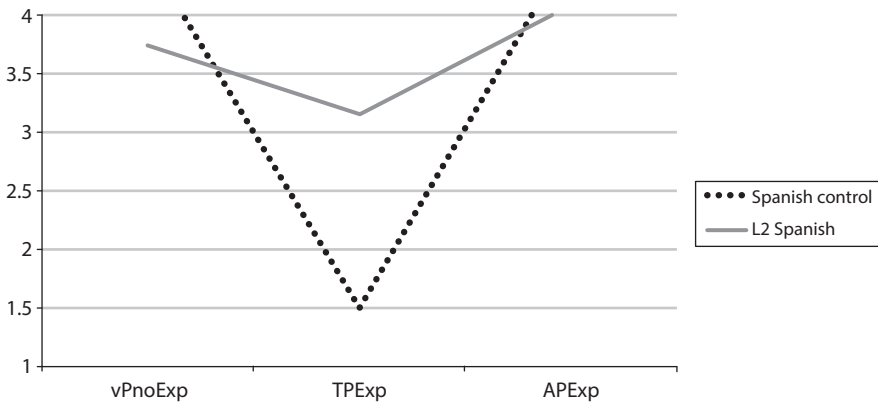


Figure 6. Mean acceptability ratings for L2 Spanish and Spanish controls

We now turn to a comparison of the means (using the 4-point scale) from the BP task for the learners and controls (Table 9 and Figure 7). A RM one-way ANOVA, again with the between subjects factor “Group” and within-subjects factor “Condition”, revealed a significant main effect of Condition ($F(2, 56) = 11.718$; $p < .001$), but crucially there was no significant Group*Condition interaction ($F(2, 56) = .789$; $p = .421$). Therefore, the advanced learners pattern with the BP controls. That is, they do not block RExp when the verb *parecer* ‘to seem’ co-occurs

6. Note the large standard deviations across all three conditions for the L2 Spanish group as compared to the standard deviations for the initial stages group (Table 5). In the APExp condition, one learner’s average ($M = 1$) falls below two standard deviations of the mean. Without this learner, the mean acceptability rises to 4.30, while the standard deviation falls to .83, but even excluding the outlier, the standard deviations for all three conditions are more than twice as large as the standard deviations in the L2 Spanish initial stages data. The difference in means and standard deviation are indicative of the group’s variability, which we discuss further in Section 6.

with an experimenter. Presuming that the group of learners tested was working with a Spanish feature configuration of embedded T at the initial stages of L3 acquisition, this advanced group has successfully reconfigured the feature specification.

Table 9. Mean acceptability ratings of BP controls and L3 advanced BP learners

	TPExp	SD	vPnoExp	SD	APExp	SD
BP Control	3.32	.58	3.59	.27	3.83	.37
L3 advanced BP ⁷	3.17	.70	3.52	.37	3.48	.61

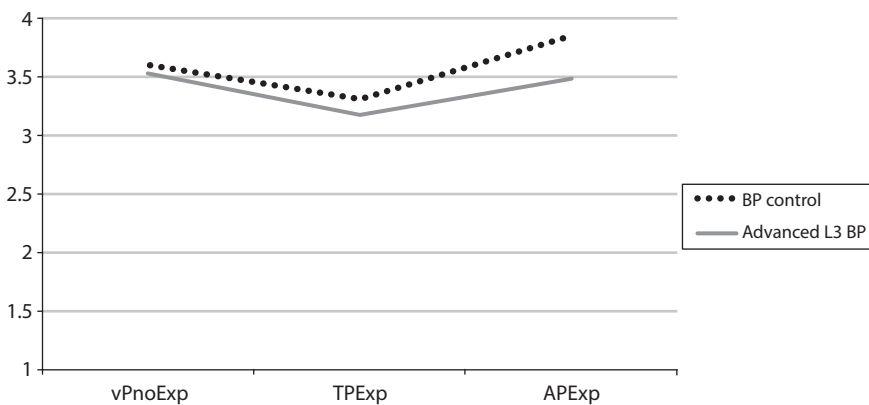


Figure 7. Mean acceptability ratings of BP controls and L3 advanced BP learners

Returning to the issue of stability of the L2 feature configuration, we turn to a comparison of the learners' L2 Spanish and L3 BP mean ratings using the 4-point scale (Table 10 and Figure 8). A RM two-way ANOVA with within-subjects factors of Language and Condition was run. The assumption of sphericity was violated for Condition ($X_2(2) = 7.532$; $p = .023$) and Language*Condition ($X_2(2) = 6.314$; $p = .043$), therefore, degrees of freedom were corrected using Greenhouse-Geisser estimates ($\epsilon = .695$ and $.721$, respectively). There were significant main effects of Condition ($F(1.389, 19.447) = 4.196$; $p = .043$) and Language ($F(1, 14) = 7.758$; $p = .015$), but critically, there was no significant Language*Condition interaction ($F(1.443, 20.197) = 1.758$; $p = .201$). That is, there were no differences between the learners' BP and Spanish ratings according to condition; they rate the TPExp

7. In the TPExp condition, one learner's mean falls below two standard deviations of the mean ($M = 1.63$). Without this outlier, the mean increases to 3.28 and the standard deviation drops to .58.

condition similarly across languages. The data thus indicate the learners have converged on the BP target, but that their Spanish feature configuration is no longer native-like. This indication begs the question of whether acquisition in this case has come at a cost to the Spanish system, which we will discuss in Section 6.

Table 10. Mean acceptability ratings by experimental group in L2 Spanish and L3 BP

	TPExp	SD	vPnoExp	SD	APExp	SD
L2 Spanish ⁸	2.62	.92	3.06	.62	3.31	.87
L3 BP	3.17	.70	3.52	.37	3.48	.61

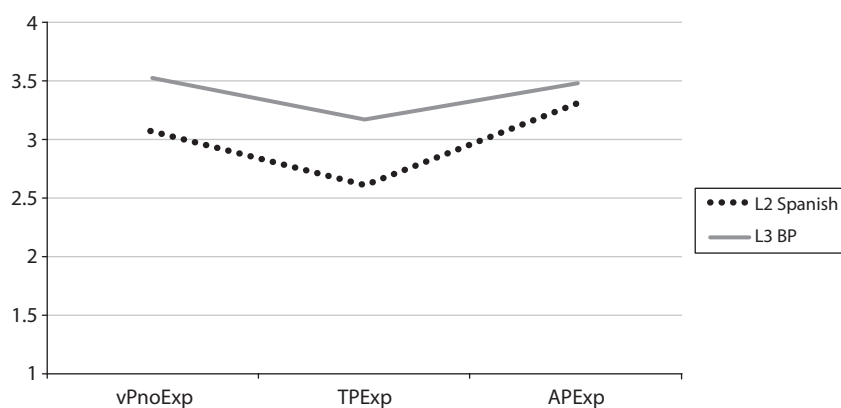


Figure 8. Mean acceptability ratings by experimental group in L2 Spanish and L3 BP

6. Discussion

Our discussion will cover three interrelated issues that emerge from the study we have presented, but will also highlight important current and future research foci of this young field. Recall that the goals of the paper were to continue the line of research that tests formal initial stages models, while showing how initial stages transfer research can naturally transition into developmental and ultimate attainment L3 studies. As we will now discuss, such a transition requires us to not only map out the learnability predictions that obtain as a byproduct of this

8. In the APExp condition, one learner's mean falls below two standard deviations of the mean ($M = 1.00$). Without this outlier, the mean increases to 3.47 and the standard deviation drops to .62.

multilingualism, but also to deal creatively with data that at first glance seem problematic and were not expected.

6.1 L3 initial stages transfer

The implementation of a mirror-image methodology and particular language pairings furnished the opportunity to make mutually exclusive predictions for each of the models tested. The experimental results support only one of the models, the TPM. Transfer was never observed from the typologically distinct language despite the fact that such transfer would have been more facilitative. On the whole, structural similarity to the L3 was the deterministic factor for L3 transfer herein. The data, specifically the lack of evidence of English as a source of transfer, clearly show that the predictions following from the CEM, L2 Status Factor, and L1 transfer scenario were not realized.

It is fair to say that looking at the language triads in this study does not put the TPM to its most stringent test. That is, the present study does not test whether the TPM applies in the absence of a genetic relationship between two of the languages. Rothman (2013a, 2013b) discusses how structural similarity always matters and is determined by a parser that knows not of shorthand linguistic notions such as language relatedness or anecdotal impressions thereof. Nevertheless, the evidence provided by this study certainly adds to what seems to be emerging as a very robust typological effect for L3 morphosyntactic transfer. A question to consider moving forward is whether this effect is found only for the domain of morphosyntax. While we could make claims by comparing our findings with those of studies that address phonological and lexical transfer, the fact remains that the data would be from different sets of learners. To move towards answering this question, longitudinal testing of phonology and syntax of L3 learners is currently underway.

6.2 L3 ultimate attainment

The data provided in the advanced experiment show that L3 ultimate attainment is possible. In fact, this result should not be surprising at all. We know that adult L2 learners can acquire a native configuration that is distinct from their L1 in the course of L2 acquisition, so why would this not be possible in the L3? The fact that overcoming non-facilitative transfer has been shown to be possible seems to indicate that L3 learning can be redundant. The CEM predicts that redundant acquisition is precluded from happening and that this is why acquisition in multilingualism proceeds more cautiously, that is, on a structure-by-structure basis. Taken together, the data from experiment 1 and experiment 2 clearly paint a different picture. So, that L3 acquisition can show initial transfer that is non-facilitative and reanalysis of this as a byproduct of L3 learning seems to suggest

that redundant acquisition is a reality. By redundant, we refer to the acquisition of something that had been previously acquired for another system and was, in principle, available for transfer. While full transfer of a system to the L3 might seem uneconomical given a redundancy effect, we submit that its seeming uneconomical nature is only so at the surface. The TPM argues that the selection of one system based on structural similarity is itself a reflex of economy to avoid redundancy. The economic push is the attempt to avoid redundancy that results in full transfer to the L3 in the first place. However, since real linguistic systems will never fully match one another, a byproduct of transfer of an entire system will mean that certain properties will have to be reanalyzed once the L3 learner has exposure to enough input to induce relevant parsing failures.

As an important aside, we should mention that it is not always the case that L3 reanalysis is predicted to take place. Such would be the case when typologically determined transfer results in the transfer for a given domain of a superset grammar. It might also be the case that native speakers of the same language X that are L2 and L3 learners of the same language Y would be predicted to have distinct developmental sequences and different potentials of ultimate attainment in language Y, depending on whether Y is the L2 or L3. For the L3 Y learner, if typologically determined transfer selects the L2 and only the L2 (and not the L1) is a superset grammar, we predict that the L3 learner's obstacle from L2 transfer of a superset grammar would distinguish the L3 learner from the L2 learner of Y. Since this is not an issue that obtains in the present study given what is examined, we refer the reader to Rothman (2013a, 2013b) and Rothman and Halloran (2013) for a more detailed discussion.

6.3 L3 acquisition at a cost?

In Experiment 2, we saw that the advanced L3 learners seemingly acquired RExp, meaning that they reconfigured the transferred Spanish. However, what we also saw is that this seemingly came at a cost to their Spanish, which now allows for RExp as well. This modification of the Spanish system could be explained in at least three ways, none of which we can definitively show here. However, each of the possibilities can be tested in future research, so we wish to explore each in turn.

First, it is possible that these learners never had acquired the Spanish value, in which case they would have transferred English. This seems unlikely given what we showed for entirely comparable learners in Experiment 1, as well as the overall Spanish proficiency equivalencies between these learners and those in Campos-Dintrans et al. (2014). A longitudinal as opposed to our cross-sectional methodology would, in the future, be able to test this more directly in the obvious ways.

Possibility number two would be that L2 attrition has occurred as a result of BP influence on Spanish. This would seemingly be the case if a longitudinal study were to show that beginning learners whose Spanish once blocked RExp no longer did so as a factor of reconfiguration in BP. It would be interesting to pursue in future research, the question of whether order of acquisition of the typologically similar language matters for L3 induced attrition on previously acquired systems. For various reasons, we would not expect what we have shown for L1 English/L2 Spanish bilinguals to be true of the Spanish system of the L1 Spanish/L2 English bilinguals. In fact, it might be the case that reconfiguring BP away from the Spanish transfer is not as easily accomplished for native speakers of Spanish as opposed to L2 Spanish learners. Of course, this is an empirical question that cannot be addressed here, so we leave it for now.

Possibility number three is that there has been no attrition at all, but rather there is some type of processing problem (e.g. relative activation or inhibition issues) or accessibility issue, and that the performance on the task is not indicative of Spanish representational competence. Similar to the initial stages learners in Experiment 1, our advanced learners were tested in Brazil during an intensive 6-week study abroad program, and therefore it is reasonable to assume that BP was highly activated at the time of testing. It should be noted that, of the advanced learners in the study, 73.33% reported using Spanish every day, while 20% reported several times a week and 6% ($n = 1$) reported using the language a few times a year. However, even for the majority that used Spanish daily in the L3 BP environment, BP activation should not be discounted. There is recent evidence to suggest that L3 learners experience rapid recovery of the L2 once placed anew in a situation where the L2 is the language of the environment (see Ecke & Hall 2013). Thus, a way to examine this possibility is to investigate what L3 BP learners do in their L2 Spanish once they are placed in an environment where the L2 is highly activated.

7. Conclusions

In the cross-sectional study presented in this chapter, we tested the predictions of the TPM, CEM, L2 Status factor, and L1 testing scenario for the initial stages of L3 transfer, as well as the developmental consequences of initial stages transfer. Doing so has provided a clear example of how links between initial stages L3 research can and should be made with developmental and ultimate attainment research in multilingualism. As discussed in Section 6 and throughout this paper, processes of L3 development and ultimate attainment are dynamic in nature. Further research is needed to fully explore the spectrum of predictions that have been highlighted herein, as well as the many others that have not been conceived of in this growing field.

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