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Title: L3 Syntactic Transfer Selectivity and Typological Determinacy: The Typological Primacy Model

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L3 Syntactic Transfer Selectivity and Typological Determinacy: The Typological Primacy Model*

Abstract

The present article addresses the following question: what variables condition syntactic transfer? Evidence is provided in support of the position that L3 transfer is selective, whereby, at least under certain conditions, it is driven by the typological proximity of the target L3 measured against the other previously acquired linguistic systems (cf. Rothman and Cabrelli-Amaro, 2007, 2010; Rothman 2010; Montrul et al., this volume). To show this, we compare data in the domain of adjectival interpretation between successful L1 Italian learners of L2 English at the low to intermediate proficiency level of L3 Spanish, and successful L1 English learners of L2 Spanish at the same levels for L3 Brazilian Portuguese. The data show that, irrespective of the L1 or the L2, these L3 learners demonstrate target knowledge of subtle adjectival semantic nuances obtained via noun-raising, which English lacks and the other languages share. We maintain that such knowledge is transferred to the L3 from Italian (L1) and Spanish (L2) respectively in light of important differences between the L3 learners herein compared to what is known of the L2 Spanish performance of L1 English speakers at the same level of proficiency (see e.g. Rothman et al., 2010; Judy et al., 2008). While the present data are consistent with Flynn et al.'s (2004) Cumulative Enhancement Model, we discuss why a coupling of these data with evidence from other recent L3 studies suggests necessary modifications to this model, offering in its stead the Typological Primacy Model (TPM) for multilingual transfer.

I Introduction

As pointed out by Flynn, Foley and Vinnitskaya (2004) the study of (adult) multilingualism provides an unparalleled opportunity to begin to properly contextualize and thus understand the dynamic role that previous linguistic knowledge plays in the acquisition process and ultimate attainment of subsequently acquired linguistic systems, which, in turn, helps refine what is known about the mental constitution of grammatical knowledge more generally. This is true since only in the case of successive multilingualism – different than the case of L1 acquisition for which there is no possible transfer source and the case of L2 acquisition where there is only one available source – does the occasion present itself through which one can meaningfully disentangle possible variables that conspire to condition syntactic transfer that otherwise might not be appreciated. Not surprisingly, the role of transfer at the level of mental linguistic representation has taken center stage within the nascent field of linguistic approaches to

successive trilingualism (e.g. Flynn et al., 2004; Bardel and Falk, 2007; Rothman and Cabrelli-Amaro, 2007, to appear). Nevertheless, there is to date no consensus as to what one should expect in terms of transfer of syntactic representation at the L3/Ln initial state.

In recent years a few tenable proposals for L3 transfer have been put forth, which are discussed in detail below (see section II). Insofar as they make different predictions for L3/Ln development depending on the language pairings, they are amendable to empirical verification/falsification. This article endeavors to test three such proposals: the Cumulative Enhancement Model (Flynn et al., 2004); the 'L2 status factor' (Bardel and Falk, 2007) and the Typological Primacy Model (see section III). Ultimately, it is argued that the third model of transfer is the most explanatory given that the data reviewed provide robust evidence in favor of the position that proximity in actual or perceived linguistic typology between the target L3/Ln measured against the grammars of the L1 and L2 is the most deterministic variable to predict which of these previous systems is selected for adult multilingual syntactic transfer (cf. Rothman and Cabrelli-Amaro, 2010).¹

Before taking on such a task, working assumptions must be contextualized in order to justify how and why this article and its argumentation proceed as they do. In line with a popularly held view of adult L2 acquisition (see White, 2003; Slabakova, 2008, for discussion), the type of bilingual (child vs. adult) one studies as a multilingual learner is of considerable consequence for the research questions under investigation herein. According to adult language acquisition theories that claim adult acquisition is accomplished strictly by explicit domain-general learning – irrespective of the general model they assume – the semblance of a native type L2 grammar at the steady state is assumed to be an artifact of a combination of L1 transfer and a manipulation of rote learned information at the surface level (e.g. Bley-Vroman, 1990; Clahsen and Hong, 1995; DeKeyser 2003; Meisel, 1997; Paradis, 2004; Ullman 2001 among many others). If such is the case, this fact would *a priori* mean that adult L2 learners acquiring an L3 should only be able to transfer the mental grammar of the L1 (precisely because the underlying mental constitution of the adult learned L2 is necessarily that of the L1 at the representational level). Under such a scenario child bilinguals (simultaneous, heritage bilinguals as well as child L2 learners) would be the only set of bilinguals of interest for the questions we pursue here since they would be the only cohorts of bilinguals to have two distinct syntactic systems that could theoretically be transferred to the L3/Ln initial state. In line with much evidence to the contrary for the above L2 acquisition theories (see e.g. White, 2003; Rothman, 2008; Rothman and Iverson, 2008) I reject such a notion under the assumption that adults continue to have access to the implicit acquisition mechanisms that guide L1 acquisition, which are taken herein to be Universal Grammar (UG). As a result, all successful bilinguals irrespective of the timing of their bilingual acquisition should theoretically be able to transfer properties from more than one system in the process of L3/Ln interlanguage development. Furthermore, it follows from this line of reasoning that whatever variables conspire to determine which properties from previously acquired languages transfer in L3/Ln acquisition for child bilinguals would also be the same variables for adult bilinguals acquiring yet another language as an adult.² This assumption is supported empirically by recent L3 research that has compared the L3 initial state of simultaneous and successive adult bilinguals showing no significant

differences for transfer between these groups (see e.g. Iverson, 2009) as well as evidence demonstrating that the L1 is not the only source of transfer for initial state hypotheses in an L3/Ln from the relatively few generative L3 studies available that focuses mainly on successive bilinguals' L3 acquisition (e.g. Bardel and Falk, 2007; Flynn et al., 2004; Cabrelli-Amaro, Iverson and Judy, 2009; Leung, 2005, 2007; Rothman and Cabrelli-Amaro, 2007, 2010).

One crucial question that remains unanswered in L3 acquisition thus involves determining in a principled and predictably verifiable manner which of the previously acquired linguistic systems transfers in L3/Ln acquisition and, in the case both can be shown to be available sources for transfer, what conditions the selection of one over the other. Based on the previously mentioned literature to be reviewed in more detail below, another assumption adopted in the present article is that the initial state of L3/Ln acquisition is not fated to L1 transfer alone (see section II). This position leads us to propose and venture to answer the following research questions:

- i. What determines/drives syntactic transfer when there is more than one option from which to choose?³
- ii. What do L3/Ln transfer patterns tell us about the mental constitution of linguistic systems and the process by which they come to be acquired?

II Background: L3 acquisition

Although adult L3 acquisition has been studied within its own right for several decades (see e.g. Cenoz, Hufeisen and Jessner, 2001), it is fair to say, barring isolated exceptions (e.g. Klein 1995), that interest in L3 from within generative approaches to language acquisition has only recently surfaced and now represents an emerging tradition with its own set of questions that underlie a common research program (see Rothman, Iverson and Judy this volume; Leung, 2007, 2009). One question of central importance to this general program involves the role of previous linguistic knowledge in the process of L3 interlanguage development. Since it is more or less uncontroversially accepted that transfer obtains at the onset of L3 acquisition (but see e.g. Håkansson, Pienemann and Sayheli, 2002), the question posed in generative L3 studies seeks to determine what the specific interplay between the two previously acquired linguistic systems is with the target L3. Is the only possibility in L3 transfer from the L1 (Leung, 2006), or is the chronologically last system acquired (the L2) the main source (Bardel and Falk, 2007), or can transfer come from either system (Flynn et al., 2004)? In the case both systems can contribute to L3 initial morphosyntactic hypotheses, is there a principled way to predict which system will be transferred, perhaps based on typological or psycho-typological similarities between the implicated languages? Building on Rothman and Cabrelli-Amaro (2007, 2010), the next section offers a formal hypothesis arguing that L3 syntactic transfer comes from either the L1 or L2 and is conditioned on typology/psycho-typology. The remainder of this section reviews the two other hypotheses of L3 transfer against whose predictions this new proposal will be assessed, namely the Cumulative Enhancement Model of Flynn et al. (2004) and the 'L2 status factor' of Bardel and Falk (2007, this volume).

1 Flynn et al. (2004)

This pioneering study demonstrated empirically that the L1 is not the only source for L3 transfer at the level of formal syntactic features and functional categories. Examining the production of restrictive relative clauses in L1 Kazakh/L2 Russian/L3 English speakers, Flynn et al. proposed that if the L1 is the transfer default for all subsequent language acquisition, and if typological differences are the sole determiner of development patterns, then given that Kazakh and Japanese have similar head direction, L3 acquisition of English by L1 speakers of Kazakh should resemble L2 acquisition of English by L1 speakers of Japanese (for which there is ample literature for comparison). However, if L1 Kazakh learners acquire an L2 grammar with a CP structure similar to the L3 English, Russian for example, then such an L3 learner can demonstrate acquisition patterns that are similar to that of an L1 Spanish speaker acquiring English as an L2 (i.e. free relatives will not precede a lexically-headed relative clause).

Their results demonstrate that the L2 can influence development of CP structures in L3 acquisition, and that experience in any previously acquired language can be taken advantage of in the acquisition of any subsequent language. They further maintained that developmental patterns are not redundant, thus supporting the Cumulative Enhancement Model (CEM) they proposed, arguing that language acquisition has a scaffolding effect in the sense that any prior language can either enhance subsequent language acquisition or, according to Flynn et al., crucially remain neutral. In this sense, previous linguistic knowledge is predicted to transfer in multilingual development only when such knowledge has a bootstrapping effect, otherwise, transfer is expected to not obtain.

2 Bardel and Falk (2007)

Research has shown that at the level of the mental lexicon the L2 plays a key, perhaps dominant, role in L3 transfer (see Cenoz, 2003; De Bot, 2004; Hammarberg 2001); however, few studies have attempted to model the so-called “L2 status factor” at the level of L3 underlying morphosyntax. In an effort to test the status of syntactic transfer at the L3 initial state under the hypothesis that the L2 serves as the privileged source of transfer, Bardel and Falk (2007) examined two different groups: L1 V2/L2 non-V2 and L1 non-V2/L2 V2, learning either Swedish or Dutch as an L3, focusing on the placement of negation. They maintained that the design of the study enabled them to test the following four hypotheses: (i) the Non-Transfer Hypothesis; (ii) the L1 Transfer Hypothesis; (iii) the L2 Transfer Hypothesis; and (iv) the Cumulative Enhancement Model.

Results showed the L2 Dutch/German group, who did not have a V2 L1, outperform the L2 English group, whose L1 is V2, in producing post-verbal negation. They maintain that only hypothesis (iii) is corroborated by the data, although English L2 does not appear to be transferred completely (see Bardel and Falk, 2007, for discussion). Following suggestions in this direction from previous work in other domains by Williams and Hammarberg (1998) and Hammarberg (2001), Bardel and Falk go beyond their demonstration that L2 morphosyntactic transfer is possible into the L3, claiming that it is privileged at the L3 initial state. This ‘L2 status factor’ maintains that L2 morphosyntax is more easily transferred than L1 morphosyntax since the L2 is argued to complicate/block straightforward access to the L1. Bardel and Falk (2007) briefly

entertain the possibility that typology might be at play, but conclude that the ‘L2 status factor’ is the stronger predictor of initial Transfer in L3. Crucially, Flynn et al.’s (2004) Cumulative Enhancement model does not seem to be supported by Bardel and Falk’s data.

III Hypothesis

In light of the work reviewed above, it seems clear that the L1 is not the default source of L3 initial state syntactic hypotheses. In fact, only under the CEM is it an hypothesized option for transfer. Nevertheless, the question remains as to whether or not there is a true ‘cumulative effect’ or an ‘L2 status factor.’ Fortunately, from an empirical viewpoint, these two positions make different predictions for L3 behavior both at the initial state and developmentally. The CEM predicts that transfer from the L1, the L2 or some type of enhancement via a compilation of both is possible and that transfer is either facilitative (in the sense of bootstrapping towards an accelerated interlanguage development) or remains neutral (i.e. not obtaining in the case it has no benefit to offer). Bardel and Falk’s model, on the other hand, suggests that the L1 is largely impeded for transfer by the L2 and, as a result, the L2 is greatly preferred for transfer whether or not such transfer is the most economical given the L1 and L2 choices.

Rothman and Cabrelli-Amaro (2010) tested these models by comparing the initial state knowledge of null-subject related properties for L3 learners of Italian and French whose L1s and L2s were English and Spanish, respectively. Originally endeavoring to test the role of typology, their data, which indicated that both sets of learners transferred the syntax of Spanish for null subjects irrespective of whether that matched the syntax of the target L3 (since French is like English and Spanish like Italian for this parameter) demonstrated that Transfer in L3 is not always facilitative as the CEM predicts and was consistent with both Bardel and Falk’s model and their notion that typology is a deterministic factor. Acknowledging the impossibility of teasing apart whether or not the L2 is always transferred or whether Spanish was transferred in this case because of the typological proximity of Spanish to both French and Italian, they offered a modified future methodology to distinguish between these factors, suggesting the possibility that the greatest factor for multilingual syntactic transfer is in fact linguistic typology or even psycho-typology.

The present study builds on the suggestions of (psycho-)typological factors by Rothman and Cabrelli-Amaro, drawing together data sets from language pairings that can determine whether or not Bardel and Falk’s (2007) ‘L2 status factor’ is the most explanatory account of Transfer in L3 or whether linguistic typology between the languages plays an even greater role. The data presented involve the syntax of adjectival placement and the ensuing semantic nuances that obtain in Romance languages (see section IV). The groups consist of Italian native L2 learners of English learning Spanish as an L3 from a previous published study (Rothman, Iverson, Judy and Guijarro-Fuentes 2009) compared against new data from English native L2 learners of L2 Spanish learning Portuguese as an L3. If Bardel and Falk are on the right track then the Italian natives, who would transfer L2 English, should demonstrate similar difficulty compared to English native intermediate learners of L2 Spanish for these properties (see e.g. Rothman, Judy, Guijarro-Fuentes and Pires, 2010). Additionally, the English natives acquiring L3

Portuguese should transfer L2 Spanish, thus performing at ceiling since these properties are the same across Spanish and Portuguese. If typology is, however, the deterministic factor then this predicts that both groups will perform the same at the intermediate level (even at the beginning level) since they should transfer the typologically similar language from their linguistic inventory, Italian and Spanish respectively. We note that this is also consistent with the CEM; however, since previous research has already demonstrated that transfer, under the right language pairings, can be non-facilitative (Rothman and Cabrelli-Amaro, 2007, 2010) a coupling of evidence, if obtained, would motivate a modification to the CEM. Anticipating the data, which bears out this latter possibility, I offer such a modification under the label *Typological Primacy Model* (TPM):

Typological Primacy Model: Initial State transfer for multilingualism occurs selectively, depending on the comparative perceived typology of the language pairings involved, or psycho-typological proximity. Syntactic properties of the closest (psycho)-typological language, either the L1 or L2, constitute the initial state hypotheses in multilingualism, whether or not such transfer constitutes the most economical option.

To be clear, by psycho-typology I am referring to a speaker's perception of typological proximity in the sense of Kellerman (1983). By *economical option* I am referring to which of the two systems actually provides the best source of transfer for the L3 whether or not it is in fact the language most (psycho)-typologically similar to the target L3. In many cases, psycho-typological and actual typological proximity are in fact one and the same, such as the case of the Romance languages for the properties under investigation in the present study. Crucially, this is not always the case. It is possible that one of the previously acquired systems provides the features and structures needed for (immediate) L3 convergence yet being perceived as the less typologically similar system to the target it is not activated for transfer, but the less economical language is activated based on perceived typological proximity. An example of this can be found in Rothman and Cabrelli-Amaro's 2010 study of the Null Subject Parameter. Recall from above that their learners are L3 speakers of Italian and French and that they are native speakers of English who are highly advanced learners of L2 Spanish. Given the psycho-typological similarity of the L2 Spanish to both French and Italian both groups treat the L3 as a null-subject language despite the fact that French is not and English would have been the most economical source of transfer for this property.

Like the CEM, the TPM anticipates that either the L1 or the L2 functional categories and their morphosyntactic features as evidence by corresponding morphological, syntactic and semantic reflexes can transfer in L3 acquisition. Crucially, however, the CEM and the TPM differ in that only the later anticipates the possibility of non-facilitative transfer based on overall typological proximity. Thus, the TPM can account for data of the type that Rothman and Cabrelli-Amaro (2010) offer unlike the CEM, which would have predicted that both learner sets transfer the correct value for the Null-Subject Parameter from Spanish and English on a continuum of whichever language provided the accurate setting for the target L3. Although given Rothman and Cabrelli-Amaro's methodology their data is consistent with the 'L2 status factor,' not all available L3 data is (see Leung, 2009, and chapters therein). The TPM reconciles the juxtaposing

observations that the L1 and L2 apparently both provide a viable source of transfer in L3 and not always in a facilitative fashion, by stipulating that comparative (psycho)-typology plays, when relevant given the grouping of languages, the most deterministic role in transfer selection. The TPM makes no predictions if typology is simply not a relevant factor given the language pairings, for example under the scenario that an English learner of L2 Arabic were to attempt to acquire L3 Japanese. This is relevant to state at the onset of proposing this hypothesis since it is possible *a priori* that the ‘L2 status factor’ is tenable, but that its effect is nullified under the right conditions by comparative typological considerations.

It is important to note that multilingual initial state transfer makes developmental predictions for target/non-target behavior. Thus, one is not limited to looking at the initial state to test the TPM, or the other hypotheses for that matter. Since the developmental effects of transfer of many L2 properties are well documented for various L1 groups, one can compare the patterns established for L2 acquisition at any given level of proficiency against the same level of proficiency in that language as an L3. Assuming successful L2 acquisition of the properties under investigation in the L3, if the L2 is always transferred in L3 acquisition and the L2 and L3 share the same properties under investigation, then transfer at the L3 initial state and the developmental pattern in the L3 should correlate to that of native speakers of the L2 learning the target L3 as an L2. What should not be observed is an L3 developmental sequence akin to their L2 acquisition, as such would be indicative of L1 transfer for both L2 and L3 acquisition. This of course assumes full transfer (Schwartz and Sprouse 1996) and puts aside issues that would pertain should transfer be partial (e.g. Vainikka and Young-Scholten 2009) or does not pertain at all (e.g. Epstein et al. 1996)

Related to what is investigated herein, Italian learners of L2 English acquiring L3 Spanish should perform in disaccord with the Italian grammar and in accord with English for adjectival interpretation (they should have, at least, some level of variability with obligatory noun raising and its semantic reflexes) and this behavior should persist through intermediate stages of proficiency to a similar degree as to what has been shown for English learners of L2 Spanish (Rothman et al. 2010). For the same reasons, English learners of L2 Spanish at the intermediate level of L3 Portuguese should perform better than English learners of L2 Spanish or L2 Portuguese at the intermediate level of proficiency for these properties since having acquired L2 Spanish should provide facilitative Transfer in L3 with a bootstrapping effect. If this outcome for both groups does not obtain, this could mean that there is no ‘L2 status factor’ or that typology is a stronger factor determining L3 syntactic transfer that, when relevant, trumps the otherwise applicable “L2 status factor”.

IV The syntax of the Determiner Phrase (DP) and adjectival semantics

Since Abney (1987), the study of the Determiner Phrase (DP), a proposed functional category offered to demonstrate how reference is added to complement noun phrases has been central to much syntactic research (see Bernstein, 2008, and works cited within). The DP hypothesis maintains that determiners (e.g., definite articles, demonstratives) are the head of their own functional projection, which must select an NP as its complement. Given space limitations and the scope of the present article, I will not detail all that could

be related to the syntax and semantic reflexes of the Romance and English DP. Instead, I will focus on related grammatical feature compositional differences between Romance languages and English that determine whether or not the language has obligatory noun-raising for feature checking. It is this difference between the two language sets that determines the overt syntactic relationship to how the semantics of adjectives is calculated. Even so, I will simplify both the description and explanation of these properties, detailing what is known to be the learning task irrespective of any particular syntactic analysis that runs the risk of modification over time. Thus, I will stick to a more descriptive analysis of this phenomena and what must be acquired in a more general sense, i.e., the acquisition of whatever features result in obligatory noun-raising in Romance languages, whatever these features turn out to be.

In light of the participant groups being compared herein in which the languages are not held constant, it is important to justify why the comparison between these two groups is a justified one notwithstanding on syntactic grounds. Since Italian, Portuguese and Spanish do differ with respect to DP properties at the micro-parametric level it is necessary to state that they do not differ for the properties under investigation here. For example, Chierchia (1998) and Bernstein (2008) are among many linguists who have repeatedly used the macro-label Romance languages as opposed to French, Italian and Spanish when referring to DP phenomena comparatively demonstrating that these languages do not differ in any crucial manner for properties related to the Nominal Mapping Parameter and the Noun-Raising Parameter respectively. Following Bernstein (2008), whatever syntactic features and subsequent movement operations conspire to explain the unambiguous interpretations of attributive adjectives with respect to kind and group-denoting reference in Spanish are also responsible for these same facts in Brazilian Portuguese and Italian. And so, that the two L3 participant groups have different Romance language combinations does not weaken the comparative power of these populations in any way. And so, I use the term Romance languages in this section to refer to Italian, Portuguese and Spanish collectively as what is true syntactically for one is equally accurate for the others.

At the level of mere description, we note that Romance languages unlike English have grammatical gender, which forms part of the so-called nominal *phi*-features of Romance languages (e.g., Chomsky, 1981, 1995). Nouns are inflected overtly for gender and number and overt morphological marking is also visible on the modifying determiner (where it is an interpretable feature) and on the accompanying adjective (where it is uninterpretable).

(1)	<i>la</i>	<i>chica</i>	<i>gorda</i>	(<i>Spanish</i>)
	<i>la</i>	<i>ragazza</i>	<i>grossa</i>	(<i>Italian</i>)
	<i>a</i>	<i>menina</i>	<i>gorda</i>	(<i>Portuguese</i>)
	the.FEM.SG	girl.FEM.SG	fat.FEM.SG	

While there is a fixed word order for determiners related to the head noun, as seen in (1), adjectives most normally appear in a postnominal position.⁴

Most attributive adjectives, however, may appear pre- and post-nominally, entailing a change in semantic value from the canonical position, highlighted in the contrast between (2a) and (2b). Thus, unlike in English where the prenominal position (the only

hand, N raises to NumP, so that any prenominal adjective must be non-intersective, and any postnominal adjective must be intersective. Consequently, the meanings are uniquely determined by the syntactic position of the adjective *valiente/coraggioso/valente* ‘brave’ and, therefore, adjectival interpretation in this respect is a strong indicator of the underlying mental representation of syntactic features that regulate it.

V The study

1 Participants and Methodology

A total of 60 subjects participated in this study. The control group consisted of 33 native speakers of Spanish and Brazilian Portuguese (n=17 Spanish and n=16 Brazilian Portuguese) and there were two L3 subject groups both at the intermediate level for the L3: Italian-natives of L2 English learning Spanish as an L3 (n=12) and English-native L2 Spanish learners of L3 Portuguese (n=15). Each L3 participant was tested, via both a cloze test and a general grammar test, for overall proficiency in both the L2 and the L3 and was selected only if he/she tested at the advanced to near-native level for the L2 and the intermediate level for the L3. In addition to the experimental tasks completed by all subjects, each subject completed an extensive linguistic history background questionnaire, probing for their experience with the L2 and L3.

Herein, we report the findings of two experiments designed to test their acquisition of the syntactic and semantic properties of the Romance DPs outlined in the previous section.⁷ The first experiment was a Semantic Interpretation task in which the subjects read a short sentence that contained a DP with either a prenominal or a postnominal adjective. There were two language versions; Spanish and Brazilian Portuguese. From the target sentence provided, they were asked to choose the correct meaning based on two interpretations provided to them. Example (5) is a prenominal token (n=5) and example (6) is a postnominal token (n=5). The correct interpretation is bolded. There were an equal number of filler sentences, which tested for knowledge of anaphora resolution and other properties used in other studies with the same populations.

(5) Los maridos honestos se merecen el respeto de sus mujeres.

De todos los maridos que hay solo algunos, los que son honestos merecen el respeto de sus esposas.

Todo marido se merece el respeto de su esposa porque todo marido es, por ser marido, honesto.

(6) Los valientes Incas tenían mucho éxito.

Entre los incas
había los
valientes y los
no valientes,
así que todo
inca que era
valiente
también tenía
éxito

Ser Inca
equivale a ser
valiente, así
que todo Inca
tenía éxito.

For the second task, the Context-based Collocation task, subjects were instructed to read a short story and to fill in at the end of the token either the prenominal or postnominal blank for the adjective also provided. Example (7) is a prenominal token (n=5) and example (8) is a postnominal token (n=5). Double the number of fillers testing for properties used for different studies with the same populations were used to offset the target sentences.

(7) Mi esposa se llama Magda. Ella es una persona muy amable y cariñosa. Aunque solo tenemos 22 años, hace mucho tiempo que somos amigas. Magda es una vieja amiga _____ (viejo).

‘My best friend is named Magda. She is a very nice and affectionate person. Even though we are only 22 years old, we have been friends for a long time. Magda is an old friend.’

(8) Creo que la gente que tiene mucho dinero puede ser muy arrogante. Pero la semana pasada conocimos a unos millonarios que no son así. Los _____ millonarios simpáticos (simpático) que conocimos me cayeron muy bien.

‘I think that people that have a lot of money can be very arrogant. But, last week we met some millionaires that aren’t like that. I really like the nice millionaires that we met!’

The results of these empirical experiments are presented in the following section, inclusive of a statistical analysis as well as an interpretation of them.

VI Results

In this section, the results of the two experimental tasks are statistically analyzed and this analysis is followed by a discussion that correlates with what the statistical analyses tell us with respect to the goals of the present article. Each of the analyses compares the performance of the three participant groups, the native control and the two L3 groups, using a mixed-model ANOVA. Post-hoc tests were not necessary since there were no

significant interactions or effects. Furthermore, all analyses used a significance level of $\alpha = 0.05$.

1 Statistical results

Results of the first experiment, the Semantic Interpretation Task, are presented in figure X as number (n=5 for each target item) correct in line the target grammatical analysis.

[Insert Figure X here]

As seen from the figure, all groups performed comparably on this experiment, deriving about the same number correct interpretations for both preposed and postposed adjectives. A statistical analysis showed that there were in fact no significant interactions between item type and group ($F(2,57)=.105$; $p=.901$). Furthermore there was no significant effects for item type (preposed v. postposed: $F(1,57)=0.011$; $p=.917$) and no for language group ($F(2,57)=0.404$; $p=0.669$). Therefore, the null hypothesis is not rejected; that is, it cannot be assumed that the groups are performing differently. Although there is some individual variation in performance, such variation for both experimental groups did not constitute non-target behavior inasmuch as the native controls also demonstrated similar individual subject differences. That is, all L3 individuals performed within the range of the native control individual performances.

Results of the second experiment, the Collocation Task, are presented in figure Y as number (n=5 for each target item) correct in line the target grammatical analysis.

[Insert Figure Y here]

As appreciated in the above figure, all groups performed comparably, providing about the same number correct adjective placements based on context for both preposed and postposed adjectives. A statistical analysis showed that there were no significant interactions between item type and group ($F(2,57)=.288$; $p=.751$). Moreover, a statistical analysis showed that there were no significant effects for item type (preposed v. postposed: $F(1,57)=2.526$; $p=.118$) and for language group ($F(2,57)=0.272$; $p=0.763$). Therefore, correlating to the conclusion for experiment 1, the null hypothesis cannot be rejected as the groups are not performing differently. As in experiment 1, individual variation obtained, but in every case fell within the range of individual variation of native control participants.

2 Discussion

The statistical analyses presented above demonstrate that both sets of L3 learners were successful on the experiments without any statically significant deviance from the native speaker controls. As such, it goes without saying, but is noteworthy, nonetheless, that they did not differ from each other either. Since the tasks were of two complimentary types, the experiments demonstrate that both sets of learners not only intuit the semantic nuances signaled by the overt syntactic position of the adjective in Romance languages,

which already indicates that the syntax of the L3 DP is target-like, but they also produce adjectives in the correct corresponding position in light of the meaning most felicitous with a given context. Thus, it is reasonable to claim that each L3 group (and each individual learner – as there were no significant individual differences falling outside the range of the native controls) at the intermediate level of L3 Spanish and L3 Portuguese respectively has a native-like target grammar for this property, which includes obligatory noun raising.

If, based on the outcomes of these experiments, we accept that both groups of learners indeed have target knowledge for the L3 properties under investigation than this is significant on many planes. Relating to the main goal of this article, which is to attempt to tease apart the variables that determine syntactic transfer when there is an opportunity to see selective/differential transfer, it is crucial that we meaningfully determine the most likely source of such L3 knowledge. Recall that it was argued that the experimental design and selection of the language pairings of the present L3 groups would ultimately permit a comparative test for the tenability of Bardel and Falk's 'L2 status factor' and the currently proposed Typological Primacy Model (TPM). Indeed, only the predictions of the TPM anticipated the observed outcomes in the experimental data. That is, transfer from the previously acquired Romance language and not from English was anticipated irrespective of the order of acquisition, or its status as an L1 or L2. Since the L3 was a Romance language, Spanish or Portuguese respectively, the L3 was thus typologically much more similar to the L1 (Italian) in the case of the L3 Spanish learners and the L2 (Spanish) in the case of L3 Portuguese, and so chronological order/timing of their acquisitions was hypothesized to be nullified as a deterministic factor for Transfer in L3 for these learners. Nevertheless, the 'L2 factor' maintains that the foremost factor determining multilingual syntactic transfer is the order of successful acquisition, whereby the L2 essentially acts as an obstacle to the accessing of the L1 grammar. Under such a scenario, the typological proximity of the language pairing should have no bearing. This is not supported by the present data, which alternatively show that L2 English did not have the effect it was predicted to have on the performance of the L3 Spanish group. Although it seems clear that the data set provided only supports the TPM, there are two issues that must be addressed.

Recall that in section III, it was acknowledged that the TPM made the same predictions for the present methodology as the Cumulative Enhancement Model (CEM). This was deemed not to be problematic since, under different language pairings, the CEM and the TPM do make different predictions and can thus be falsified or verified against one another. The CEM predicts that multilingual transfer is always facilitative; however, previous research has demonstrated that such an assumption was at the time it was put forth premature, and perhaps a bit naïve. In light of data from Rothman and Cabrelli-Amaro (2007, to appear) and Bardel and Falk (2007), we know that the CEM is not entirely correct insofar as transfer can be non-facilitative based on either an L2 effect or typological motivations. The TPM is in effect a modification of the CEM to the extent that both agree that transfer from either the L1 or the L2 is possible, but differently the TPM predicts that transfer always obtains from either the L1 or L2 (i.e. it is not neutralized simply when it is not facilitative) and this is based on overall typological proximity (perceived or actual typological proximity), whether or not the language selected for transfer is the most economical choice given the choices available.

Whereas Rothman and Cabrelli-Amaro (2007, 2010) could not differentiate between the two remaining models, the 'L2 status factor' and the TPM, the present methodology was able to do so. However, it could be argued that the fact that these L3 learners were intermediate and not beginners unfairly skews the results, insofar as it is possible that if the learners were tested at the actual initial state then they would have demonstrated transfer effects in line with the 'L2 status factor.' In turn, this possibility tacitly suggests that the current intermediate performance of the L3 Spanish group reflects (re-)acquisition of the L3 itself after having transferred L2 English and not a reflection of L1 Italian linguistic knowledge. It is reasonable to maintain that such a position is misguided on two distinct grounds. First, it is necessary to state that the term 'intermediate' here is used as a result of proficiency testing, which probes for overall proficiency including the lexicon and very language-specific structures, and does not necessarily reflect any significant amount of time studying and/or otherwise exposed to the L3. And so, while some of the 'intermediate learners' had been studying the L3 for as many as two college years, arguably well past the initial state, the more typical case was an L3 learner in his/her first semester of study and thus was in the initial state for the L3.⁸ Even so, there is a stronger problem of explanation that proponents of the 'L2 status factor' would have to account for. If English were transferred initially for the L3 Spanish group as anticipated by 'L2 status factor' and thus acquisition between the initial state and the time of testing obscures the expected effects that otherwise would have been observed, then one leaves unexplained why L2 English transfer is different from what has been demonstrated as L1 English transfer in L2 Spanish and Portuguese. In a series of studies probing for the exact same properties with comparable experiments, Judy et al. (2008), Guijarro-Fuentes et al. (2009), Rothman et al. (2009) and Rothman et al. (2010) demonstrate that English L1 learners of L2 Spanish and L2 Portuguese have indeterminate knowledge of the subtleties inherent to the semantic reflexes of adjectival placement at this level of proficiency. Alternatively, these same studies demonstrate that by the advanced level of proficiency these differences disappear and native-like convergence is possible, if not expected. So, since these L2 English learners of L3 Spanish perform like the controls at the intermediate level of proficiency whereas previous studies have shown that L1 English learners still have residual English transfer effects at the same level of proficiency, it is reasonable to argue that the difference between these two groups of intermediate learners is the source of transfer itself. In the case of L2 Spanish and Portuguese, English natives only have their L1 properties to transfer and clearly do (see Rothman et al 2010 and works cited within) whereas the present L3 group with L2 English can opt to transfer their L1 Italian, thus converging on the target L3 grammar immediately via transfer alone. This has the advantage of straightforwardly explaining the difference between what is known to occur when English is transferred as an L1 and the performances reported here for the L3 Spanish group in this domain.

VII Conclusion

This article endeavored to address two research questions, repeated here:

- i. What determines/drives syntactic transfer when there is more than one option from which to choose?
- ii. What do L3/Ln transfer patterns tell us about the mental constitution of linguistic systems and the process by which they come to be acquired?

As a partial answer to the first question, I submit that typological proximity, at least when relevant, is the strongest factor that determines multilingual syntactic transfer. The answer can only be provisional as there are other possible factors yet to be determined much less tested. We do not know, for example, the extent to which the typological proximity of the two languages needs to be conscious to the speaker, although in line with generative assumptions we anticipate that consciousness likely brings little to bear on this question. Furthermore, we do not know what variables determine transfer if typology is simply, given the particular combination of languages, not relevant at all. This would occur, for example, under two scenarios: (a) where the L3 is equally typologically similar to the L1 and the L2; or (b) the L3 is typologically not at all similar to either the L1 or the L2. Under such circumstances, it would be interesting to test whether or not there indeed is an L2 effect, or as the CEM would predict for the case of (b) transfer is simply neutralized. Importantly, it must be highlighted that the TPM does not preclude the 'L2 status factor' from being operative in general; it simply states that typological proximity takes precedence over the 'L2 status factor' in the case that they are in direct competition. Future studies that test a larger sample of language combinations and are thus able to pit the CEM, TPM and the 'L2 status factor' against each other while at the same time determining what happens when typology is excluded as a factor will help us to get a more fine-grained picture of the dynamic nature of linguistic transfer and the process of language acquisition throughout the lifespan. From a purely theoretical standpoint, it is not difficult to figure out what these ideal language pairings would be to meaningfully test between these three theories. From a practical point of view, however, finding the L3 learners with the specific profiles that we would need to accomplish this is likely to be a daunting task.

The second research question is, by its very nature, more difficult to answer. At this fledgling state of the emerging generative L3 acquisition field, one can only offer some insights towards answering this question more straightforwardly in light of studies to be undertaken (cf. Rothman, Iverson and Judy this volume). Nevertheless, proposing such a question is important now inasmuch as it highlights the mutually-inclusive relationship that studying adult L3 acquisition has with cognitive science and theoretical linguistics more generally. Notwithstanding current technological advantages that permit a glimpse into the neurological anatomy of linguistic processes and processing unlike ever before (e.g. ERPs, fMRI, eye-tracking and the like), we are far from being able to

directly tap the information we seek. All measure of linguistic competence, whether on-line or off-line, are indirect and as such a type of performance. Studying language, its acquisition and use is necessary for any complete theory-of-mind. Uncovering the mental landscape of grammars is an important step along this journey since mapping linguistic architecture can reveal among other things how/why we process information the way we do (linguistic and otherwise), how/why we learn the way we do and how/why our brains are constituted (linguistically and beyond) the way they are. Although, it has long been argued that studying transfer is a fruitful means of explaining non-native language behavior, determining what transfer can tell us beyond that can only be done under a scenario where transfer can be selective and/or dynamic. Moreover, the coupling of current and future research that involves charting the role of transfer and the selectivity of transfer in L3 acquisition will likely provide great insight for key debates within the larger fields of L1 and L2 acquisition such as, for example, providing crucial evidence from a novel source on the Critical Period Hypothesis applied to normal adult language learning that is currently lacking. At present, what studies like this can tell us is that language acquisition can be appreciated as a cumulative and selective process under the right conditions (i.e. seen within multilingualism) and operates under principles of universal economy. This economy is not just in the universal restriction of grammatical formation of individual grammars, but a larger sense of general cognitive economy that employs prior knowledge to streamline subsequent processes. There is little doubt that the collective effect of future studies that explore in depth others variables affecting multilingual transfer under different language pairings will tell us more about the dynamic nature of linguistic transfer itself and how understanding it helps us to more completely understand the complexity of human language and cognition.

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Figure W

(3)

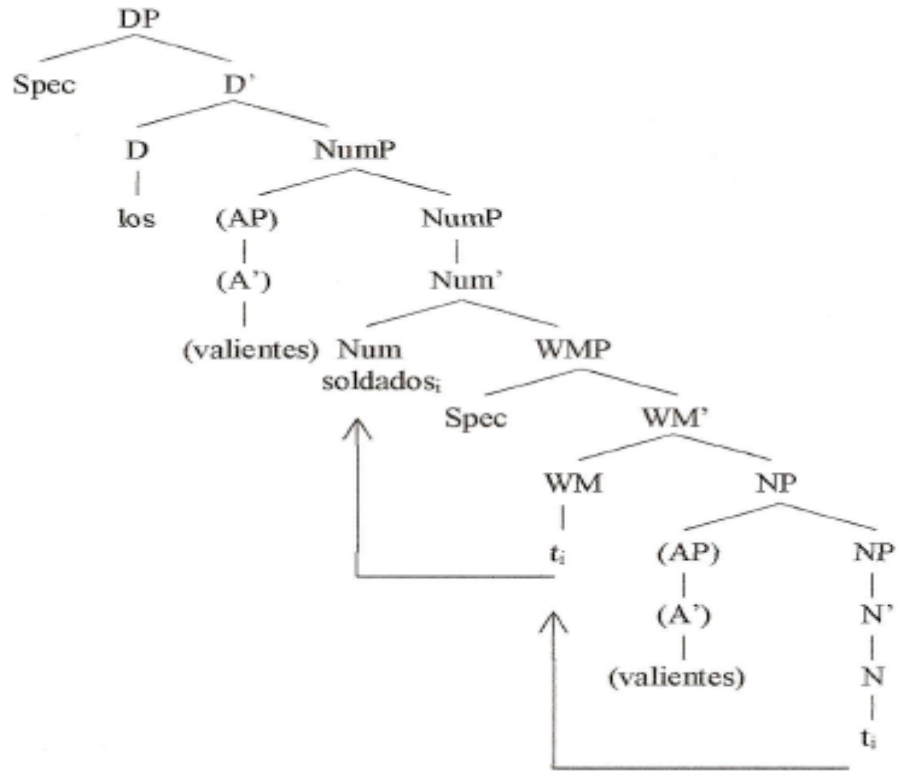


Figure X

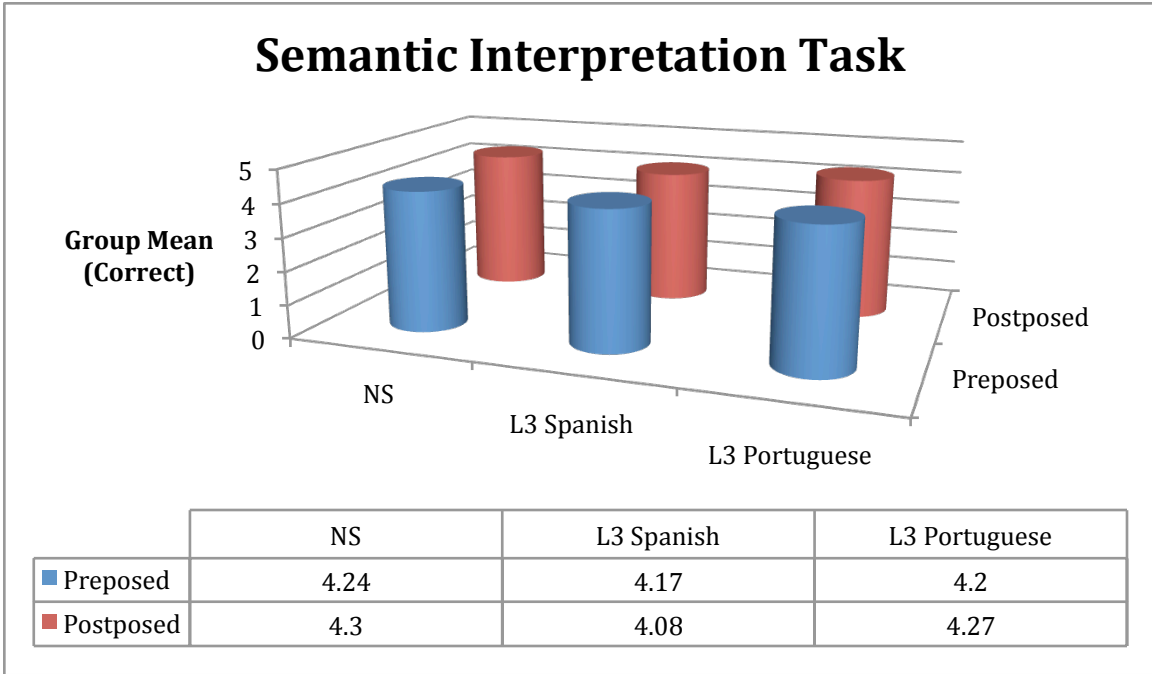
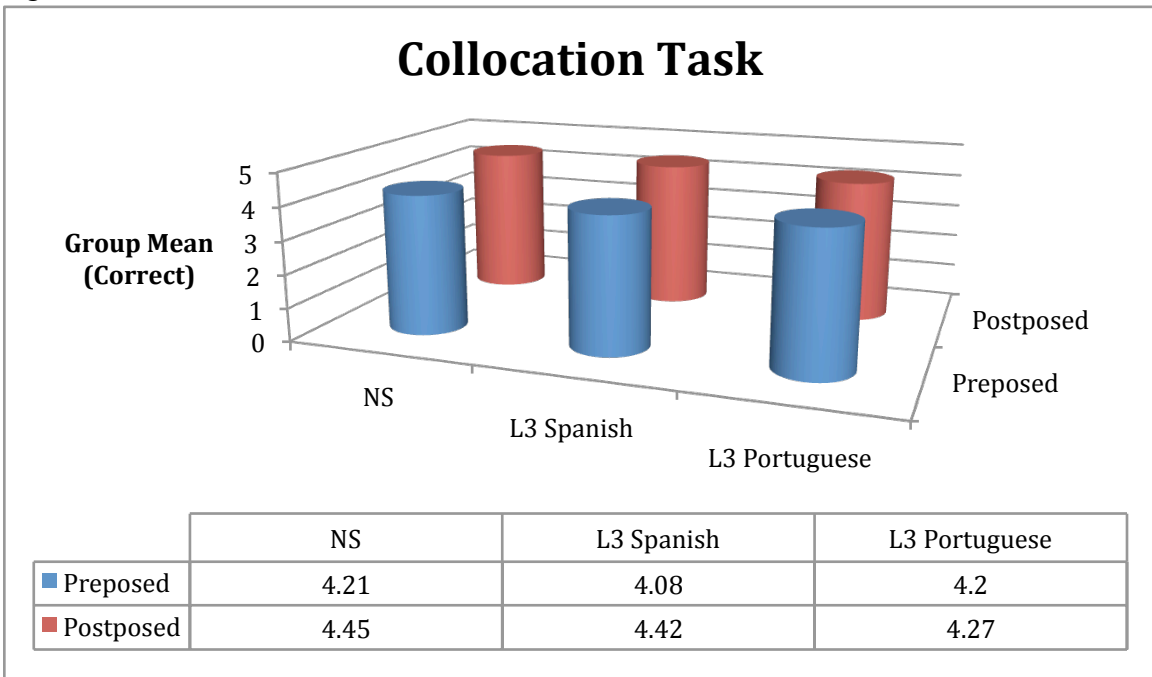


Figure Y



Notes

* I would like to thank several colleagues who have contributed in no small part to the genesis and development of many of the core ideas in this paper. First, I thank Nina Hyams whose discussions with me about her anecdotal experience with Transfer in L3 while learning Hebrew back when I was a student inspired me to look at L3 in the first place. I am grateful to Camilla Bardel, Yvla Falk, Suzanne Flynn, Michael Iverson, Ingrid Leung, Carol Jaensch, Pilar García-Mayo especially for discussions we have had on L3 acquisition in general and on facets of their wonderful L3 work in particular. I am especially grateful to my students Jennifer Cabrelli-Amaro, Michael Iverson and Tiffany Judy for their help with this and related work as well as their interest in L3 acquisition and subsequent push for me to continue down this research path. Any and all errors or oversights are completely my own.

1. The notion that typology and/or psycho-typology, in the sense of Kellerman (1983, 1986), plays a deterministic role in Transfer in L3 selection has been discussed for a long time with respect to the adult multilingual mental lexicon as well as more generally by functionalist approaches to adult acquisition (see e.g. Cenoz et al., 2001; De Bot, 2004). Herein, as in Rothman and Cabrelli-Amaro (2007, 2010), syntactic transfer is taken to be the actual grammatical system of abstract mental representation (features and functional categories) as conceived of within a Principles and Parameters framework (see Chomsky, 2007, for review), which is quite different from previous proposals that might be taken to be similar by mere terminology.

2. It is possible that adult L2 learners who are tutored would be more metalinguistically aware and thus more likely to select transfer based on psycho-typology, but this is unlikely since such would be to assume that transfer is at some level a conscious task. This possibility is, nevertheless, an empirical question which falls outside the remit of the current paper, but could be settled under a methodology that employs the same tasks with different types of L3 learners based on the timing of their bilingual acquisition.

3. Of course, it is possible that for any given property the L1 and L2 might have the same syntactic value. In light of this, we note that this question is only relevant and/or answerable in the case that differential transfer effects can logically be seen given the language pairings under investigation. In other words, it requires that the L1 and L2 have different values for the specific properties that are under investigation.

4. We are not ignoring the fact that some adjectives, however, are lexically subcategorized to only be pre- or post-nominal. For example, so-called ethnic and relational adjectives, always found in a postnominal position.

- | | | | |
|----|----------------------|----|------------------------|
| a. | Los niños italianos | b. | * Los italianos niños |
| | I ragazzi italiani | | * Gli italiani ragazzi |
| | Os meninos italianos | | * Os italianos meninos |
| | 'The Italian boys' | | 'The Italian boys' |

5. We are aware that more recent analyses motivate the placement of the adjectives in terms of the existence of some extra categories, for example, [nP] (e.g., Demonte, 2008).

6. For feature checking reasons, nouns must raise in Spanish. This must mean that adjectives when they appear to the right of the head noun move to a high functional category within the DP-layer.

7. All subjects took other experiments related to the Spanish DP that are not reported here (e.g. interpretation restrictions of definite and bare plurals), although we note that the performances across tasks correlate. I thank Pedro Guijarro-Fuentes and Tiffany Judy for their permission to use the Italian data reported here, which we collected together and appear in (Guijarro-Fuentes et al. 2009) used as evidence for an entirely different argumentation.

8. Finding L3 subjects who test at the beginning/novice level proved difficult, probably due to the fact that knowledge of Spanish and Italian, respectively, helped the individual on the L3 proficiency tests despite limited exposure and instruction.