

The scalpel model of third language acquisition

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Abstract

Aims and Objectives: This article proposes the “scalpel model,” a new model of third and additional language (L3/Ln) acquisition. The model aims to identify and examine what happens beyond the initial state of acquisition and what factors may influence change from one state of knowledge to another.

Methodology: The article briefly examines the currently proposed hypotheses and models and evaluates the existing evidence for their predictions. It highlights several cognitive and experiential factors affecting crosslinguistic influence that are not taken into account by the current models. These factors include: structural linguistic complexity; misleading input or lack of clear unambiguous evidence for some properties or constructions; construction frequency in the target L3; and prevalent language activation or use.

Data and analysis: Findings of recently published research are discussed in support of the scalpel model. In particular, findings of differential learnability of properties within the same groups of learners suggest that L1 or L2 transfer happens property by property and is influenced by diverse factors.

Findings: The scalpel model explicitly argues that wholesale transfer of one of the previously acquired languages does not happen at the initial stages of acquisition because it is not necessary. It also argues that transfer can be from the L1 or the L2 or both, but it is not only facilitative.

Originality: The new model increases the explanatory coverage of the current experimental findings on how the L3/Ln linguistic representations develop.

Implications: The model emphasizes the importance of the cognitive, experiential, and linguistic influences on the L3/Ln beyond transfer from the L1 or L2. Thus, it aligns L3/Ln acquisition with current debates within L2 acquisition theory.

Keywords

L3/Ln acquisition, multilingualism, morphosyntactic development, crosslinguistic influence, facilitative transfer

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Introduction

Research on third language (L3/Ln) acquisition within formal linguistics perspectives has enjoyed enhanced attention in the last decade. This heightened interest is warranted because new knowledge on the competence of L3/Ln learners is in a position to inform key theoretical views on how additional (non-native) language knowledge comes to be in the mind/brain of the multilingual speaker. An additional important concern is how the two (or more) languages already represented in the brain influence each other. Beyond the recognition that multilingualism is not simply bilingualism squared, many theoretically intriguing questions remain. At issue is which factors play a decisive role in this crosslinguistic influence: (a) cognitive and psychological prominence (native, adult-onset or child-onset, strong additional or weak additional language, etc.); (b) the typological characteristics (languages consciously or unconsciously perceived as typologically/structurally related); or (c) the linguistic characteristics of the languages acquired. L3/Ln linguists working within formal linguistics theory have recently proposed several hypotheses and models accounting for whether the L1 or the L2 or both influence the L3/Ln. These three dimensions, let's call them the psycho-cognitive, the psycho-typological, and the structural linguistic dimension, create different levels of investigation.

Of course, crosslinguistic influence by either the L1 or the L2 or both should be considered at each of these levels of investigation. In order to investigate the psycho-cognitive dimension, one needs to consider the individual learner characteristics and group them along common traits of linguistic experience. In order to examine the effect of unconscious psychotypology, one needs to investigate carefully selected triads of languages. Finally, in order to assess the contribution of linguistic factors, different properties and constructions with different relations between them (overlap, mismatch, or contrast) should be investigated. The big picture of the L3 initial state and, more importantly, of language development beyond the initial state, will emerge only from combining knowledge achieved at all three levels of investigation.

My goal in this article is to briefly examine the hypotheses and models currently on the table and square the existing evidence with their predictions. These are: the privileged L1 transfer hypothesis (Hermas, 2010; Jin, 2009; Na Ranong & Leung, 2009); the L2 status factor model (L2 status) (Bardel & Falk, 2007; Falk & Bardel, 2011); the cumulative enhancement model (CEM) (Flynn, Foley, & Vinnitskaya, 2004); and the typological primacy model (TPM) (Rothman, 2011, 2015). While the latter is a model focusing on the initial stages of third language acquisition (L3A), the L2 status makes implicational predictions and the CEM makes explicit predictions on how linguistic development will unfold beyond the initial state. I would like to argue that it is high time we focus our theoretical thinking beyond the initial state. Researchers of multilingual competence need to formulate theories of what happens beyond that state, because there are intriguing new findings on the differential learnability of properties within the same groups of learners, and because the initial state, while important, is not the whole picture of this complex linguistic process. As in L2 acquisition, where the focus on the initial state from the 1990s was succeeded by focus on factors effecting subsequent interlanguage change and ultimate attainment (see the interface hypothesis, Sorace, 2011; the feature reassembly hypothesis, Lardiere, 2009; the bottleneck hypothesis, Slabakova, 2008), the field of generative multilingualism should formulate testable predictions on later stages of L3 development. In addition, experiential factors modulating acquisition have emerged in some recent studies as very significant.

In this article, I extend the current models' initial-state predictions to later-development predictions and examine which predictions appear to be supported. The critical research questions I will focus on, beyond whether the L1 or the L2 structure has an effect in L3/Ln acquisition, is whether the totality of the impacting grammar is transferred as an L3/Ln initial stage (a TPM claim), and

whether transfer can only be facilitative (a CEM claim). Furthermore, I will offer theoretical and empirical evidence for the scalpel model of L3 acquisition, a new model which is in marked agreement with the recently proposed linguistic proximity model (Westergaard, Mitrofanova, Mykhaylyk, & Rodina, 2016). The neurocognitive and psychological foundation of the model is the emerging functional picture of the multilingual brain, where all linguistic knowledge is interconnected and the different languages of an individual are not functionally separated (Abutalebi & Green, 2007; Paradis, 2004). From a representation point of view, multilingual linguistic competence is composed of sub-grammars coming from all previously acquired languages, where grammatical rules and lexical items are tagged for differentiation purposes (Amaral & Roeper, 2014). To give the reader a taste of what is to come and to explain the name of the model, the scalpel metaphor reflects a proposal opposed to the TPM's wholesale transfer idea. I argue that the grammars already acquired act with a scalpel-like precision to extract the L1 or L2 options relevant to the acquisition task at hand. Therefore, transfer is selective and works property by property. However, scalpels cannot cut through bone. There are many additional factors affecting transfer beyond the L1 transfer, L2 transfer, and psychotypology, such as construction frequency, availability of clear unambiguous input, prevalent use, and structural linguistic complexity, among others. When we investigate the same groups of learners' performance on different properties, such additional factors can give rise to differential outcomes that cannot be explained by unconscious psychotypology or the wholesale influence of only one previously acquired language. The need for such a new model arises because some recent findings cannot be squared with previous models. The structural and experiential dimensions of each property under investigation can have a large effect on L3 acquisition, and thus explanations of such effects necessitate a more precise approach.

The current proposals of morphosyntactic transfer into the third language

The L1 factor hypothesis

Although never formalized as a model, the L1 factor (Hermas, 2010; Jin, 2009; Leung, 2005; Na Ranong & Leung, 2009) is in one sense the default proposal, postulating that the native language has a privileged role and thus the most decisive influence over the newly acquired linguistic structure. Is there any empirical evidence for this claim? Jin (2009) and Na Ranong and Leung (2009) provide some such evidence from the area of null object acquisition. For example, Jin (2009) compared grammaticality judgments (GJ) of null main clause and embedded objects by L1 Chinese–L2 English–L3 Norwegian learners. An advantage of the design is that the researcher tested these multilinguals both in their L2 and their L3. English and Norwegian null objects are not acceptable, while Chinese allows them. Group results of a GJ task (with error correction) show that learners are much more accurate in rejecting English null objects (72%) than they are in rejecting Norwegian null objects (57%). Thus, it seems that these learners had the opportunity to transfer L2 knowledge that would have been helpful in their L3, but Chinese L1 influence remained stronger until advanced levels of development were gained. Antonova-Ünlü and Sağın-Şimşek (2015) also provide evidence for lingering L1 influence in very advanced L1 Russian–L2 English–L3 Turkish learners.

Despite this evidence, we must draw careful conclusions when trying to ascertain L1 influence. We can claim that the L1 is privileged *only* after making sure that the relevant L2 properties have been successfully acquired, and so the L1 and L2 are in fact both available sources of transfer. Recent work by Hermas (2015) provides a cautionary tale. The author looked at knowledge of restrictive relative clauses (RCs), as in Flynn et al. (2004). The learners were L1 speakers of Moroccan Arabic whose L2 was French and L3 was English. In terms of relative clause formation,

French and English work more or less the same way. The low intermediate learners' accuracy was around chance (50–60%), which is not surprising for that level of proficiency. However, the advanced learners had reverted back to L1 influence. The same test was given to the learners in their L2 French. Their accuracy on the crucial construction, indefinite head of RC with an overt complementizer, showed that they had not learned that construction in French, either, as their accuracy hovered around 50% on a binary choice. Thus, this experiment only offers evidence that a property not acquired in the L2 (obviously) cannot exert any influence on the L3.

In sum, while a number of studies have documented L1 influence in L3 acquisition, none have shown the privileged role of the native language to the exclusion of L2 influence. This state of affairs, especially if supported with further experimental findings, attests to the fact that acquiring a second language changes the cumulative grammatical knowledge in the mind/brain, and so acquisition of an L3 does not proceed from a clean L1 slate.

The L2 status factor

Directly opposing the L1 factor is the L2 status factor model (Bardel & Falk, 2007, 2012; Falk & Bardel, 2011), which suggests that the psychological and cognitive prominence of the L2 structure allows it to take on a significantly stronger role than the L1 in the early stages of L3 morphosyntactic development. As these authors adopt the declarative–procedural memory dichotomy (Paradis, 2004; Ullman, 2001) they contend that the L2 and the L3 are stored in a different memory system from the L1, at least at early stages of acquisition: declarative memory (Bardel & Falk, 2012). Thus, the L2 and the L3 are cognitively more akin to one another, hence the stronger, even exclusive, L2 influence over the L3. The strongest support for the L2 status factor model comes from Bardel and Falk (2007), which demonstrated that learners with verb second (V2) languages¹ as L2s outperformed learners with V2 languages as L1s. Even the strongest proponents of the declarative–procedural memory model would allow that, at later stages of development, it is not feasible to maintain a strict divide between the memory systems. Thus, the explanation of the privileged status of the L2 loses some of its strength, especially pertaining to later stages of acquisition. However, this model remains a successful account of initial L2 transfer effects.

The cumulative enhancement model

The next two models hypothesize that any and all previously acquired languages might be a source of crosslinguistic influence or transfer. The CEM (Flynn et al., 2004) proposes that any previously acquired properties, both from the L1 and the L2, are readily available to the L3/Ln learner to use in parsing, comprehending, and producing language. Crucially for this model, prior language experiences can either *enhance* subsequent language acquisition or *remain neutral*. The empirical evidence for the CEM comes from Flynn et al. (2004), a pioneering study of the production of restrictive relative clauses in L1 Kazakh–L2 Russian–L3 English speakers. The acquisition of the trilingual group was compared to Spanish and Japanese learners of L2 English. While English, Spanish, and Russian are head-initial languages with right-branching relative clauses, Kazakh and Japanese are head-final with a left-branching structure. The authors demonstrated that the trilingual group resembled the Spanish–English bilingual group and differed from the Japanese–English group. They attributed this difference to the fact that the first two groups had already acquired a language with the head-initial parameter setting (L2 Russian and L1 Spanish, respectively), while the Japanese–English bilingual group did not have a head-initial language in their linguistic repertoire. Thus, the study showed that both previously acquired languages may aid the L3 grammar. Furthermore, Berkes and Flynn (2012, p. 1) argue that “syntactic knowledge acquired in the course of learning

more languages does not simply add up but rather has a multiplying effect on further language learning” by “rearranging the UG guided language development in a new and economical way.”

The typological primacy model

Finally, the TPM (Rothman, 2011, 2015) posits that initial L3 development is constrained by what the internal parser takes to be the (actual or perceived) *structural* similarity among the three grammars.² Potential cues for that development include similarities in the lexicon, phonetics/phonology, functional morphology, and syntactic structure, in that order. Of course, these linguistic levels are not mutually exclusive: they can all influence the parser’s (unconscious) perceptions of similarity, but the comparison for establishing proximity is assumed to start from lexical cues and go up the linguistic modules. In fact, Rothman, Alemán Bañón, and González Alonso (2015) stipulate that the list of factors is “implicationally hierarchical” (p. 5). As a result of this initial proximity perception exercise, the full grammar of the language perceived to be similar transfers and constitutes the initial *stages* of L3A. As with the CEM claim that there is only facilitative transfer, I will devote a whole section to discussing the wholesale transfer claim of the TPM (see section “Initial transfer is not wholesale”).

As of this moment, there is stronger support for the TPM than for the other three models, suggesting that the model is generally on the right track. Some early evidence comes from Rothman and Cabrelli Amaro (2010), who investigated knowledge of null subject related properties in the L3 Italian and French grammars of speakers whose L1 was English and L2 was Spanish. The most important finding was that these learners treated L3 French as a null subject language, while their native English would have been a better source of transfer, French and English being languages with obligatory overt subjects. French and Spanish both being Romance languages, typological similarity appears to have played a role.

To summarize this brief overview of existing hypotheses and models, currently the sources of crosslinguistic influence over the L3A are proposed to be either the L1 or the L2 for reasons of cognitive proximity, or both, based on selective or wholesale structural similarity. In the next section, we discuss recent findings that cannot be explained solely by these factors.

The scalpel model of third language acquisition

In this section, I outline a new model of L3 acquisition, which to my mind offers a better coverage of the existing findings. This model incorporates some features of the CEM and some features of the TPM, while crucially parting ways with other claims of these models. In a nutshell, this view of L3A argues that the activated grammatical possibilities of the L1-plus-L2 combined grammar act with a *scalpel-like precision*, rather than as a blunt object, to extract the enhancing, or facilitative, options of L1 or L2 parameter values. There is no need for wholesale initial transfer because the scalpel can successfully single out the uniquely relevant features and properties. However, the scalpel can be blunted or shunted or slanted by additional factors pertaining to the relevant properties, such as processing complexity, misleading input, and construction frequency in the target L3. I discuss the claims of this new model in turn.

Linguistic representations in the multilingual brain

Before we discuss concrete claims, it is important to articulate a theoretical view of the multilingual mind/brain and the place of the different grammars in it, because this view determines specific further features of the model. The view I espouse here is widely shared by many psycholinguists and neurolinguists and is supported by experimental evidence. In a nutshell, the multilingual brain

is one human brain operating with multiple grammars. Grosjean (1989) famously argued that a bilingual is not two monolinguals in one person. To extend Grosjean's claim to the multilingual situation, a multilingual is not three (or more) separate monolingual brains in one individual's head. Neurolinguistic localization of language-related brain areas tells us that the same brain areas subserve the different languages of multilinguals, just as in bilinguals and monolinguals (Abutalebi & Green, 2007). Furthermore, there are organizational and functional parallels between the three languages in the brain, although there are also clear age-of-acquisition and proficiency effects. The evidence from multilingual brain organization suggests that "everything that is said about bilingualism applies *mutatis mutandis* to multilingualism" (Paradis, 2004, p. 226). Trilinguals have been shown to be somewhat slower in certain tasks and to experience crosslinguistic influence from two languages rather than one (e.g. González Alonso, 2012). Patterns of interference from and to the L3 are not *qualitatively* different from those from and to the L2.

There are various accounts of multilingualism that concur with the idea that the languages of a multilingual individual are functionally not separate. One non-generative proposal, Cook's multi-competence proposal describes multi-competence as "the compound state of a mind with two grammars" (Cook 1991, p. 112) or "knowledge of two or more languages in one mind." (Cook 1992, p. 557) A recent generative proposal made by Amaral and Roeper (2014) also specifically endorses and explains the mechanism of how all the grammars of a multilingual can arise and function in tandem. "[A]ny language contains properties of several recognizable language types, i.e. the grammar of a language L1 can have elements that form sub-grammars compatible with L2, L3, Ln" (Amaral & Roeper 2014, p. 4). According to this view, L3/Ln acquisition is a natural proliferation of sub-grammars, a process that helps L3A with various properties even if they are not represented in the L1 and L2 (see also Foote, 2009; Klein, 1995). If we accept this view of the multilingual linguistic competence as an amalgamation of sub-grammars coming from the previously acquired languages, equipped with some sort of differentiation mechanism (such as a tagging device for the rules and lexicon of grammar A or grammar B), then the two consequences described in the next subsections follow.

Neither the L1 nor the L2 have a privileged status with respect to transfer

If an L1 and an L2 grammar have been acquired, they are already grammars in a bilingual mind, competing with and influencing each other. If this is indeed the case, no previously learned grammar would have an *a priori* privileged position with respect to influencing the next grammar, although predominance of communicative use, hence activation, may certainly modulate this influence. L1 transfer seems to be exclusive only in cases where the particular L2 property has not been successfully acquired, as in Hermas's (2015) study. While there is ample evidence for this view, it does not mean that we should disregard the data in support of the L1 transfer hypothesis and the L2 status factor model, but that we have to find a place for those findings in the increasingly complicated picture of crosslinguistic influence in multilingualism. Research clearly shows that transfer from the L1 or the L2 or both is possible. The TPM and the CEM share the claim that neither the L1 nor the L2 have a privileged status for initial state L3/Ln morphosyntactic transfer. The scalpel model adopts this claim as consistent with current views of linguistic representation in the brain and sufficiently supported by existing data.

Transfer can be detrimental as well as facilitative

The scalpel model rejects the CEM claim that transfer can be only facilitative or neutral. Of course, we need to evaluate such a claim with respect to concrete properties of grammar. Compared to L2A, L3A has to contend with the added factor of (perceived) typological proximity. As mentioned

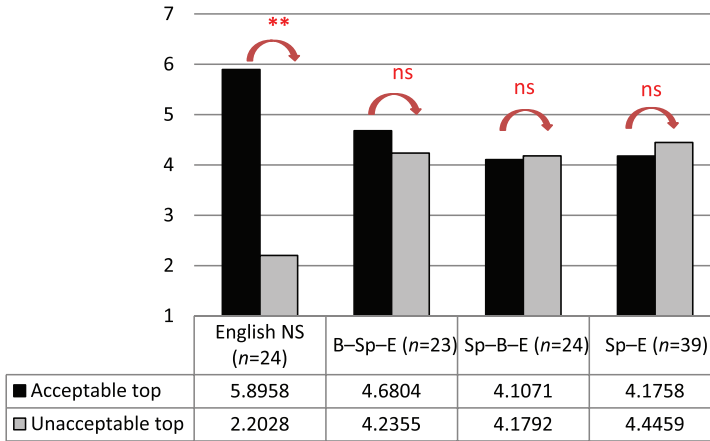


Figure 1. Mean ratings of acceptable and unacceptable English topicalizations.

ns: not significantly different; NS: native speakers; B: Basque; Sp: Spanish; E: English.

**refers to statistical significance of $p < .001$.

above, Rothman and Cabrelli Amaro (2010) offer an early indication that typology might trump helpful transfer. One of their trilingual groups treated their L3 French as a null subject language, while transfer from their native English would have been beneficial.

I will bring forward another set of results here that show detrimental transfer beyond any doubt: those presented in Slabakova and García Mayo (2015). This is a study of English left dislocation constructions (Birner & Ward, 1998). Here, we review the acquisition of topicalization and left dislocation only. The trilingual learners were either L1 Basque–L2 Spanish–L3 English or L1 Spanish–L2 Basque–L3 English. There was a bilingual L1 Spanish–L2 English group as well. With respect to topicalization, Basque and English work similarly (see example 1), allowing fronting of an object or another constituent without a resumptive clitic in the clause-internal (argument) position. In contrast, Spanish has a clitic left dislocation construction (CLLD), where the topicalized (fronted) object is doubled by an agreeing clitic. Unlike topicalization, left dislocation involves an adjoined phrase, and a pronoun in an argument position referring to the adjunct, as in (2). The pronoun is ungrammatical in (1) and obligatory in (2).

- (1) Q: Did Susie like the wine?
A: The wine she didn't drink *(it). She stuck to lemon ices. (Topicalization)
- (2) My wonderful Felix, everyone adores *(him). (Left dislocation)

The results on English topicalization were in marked contrast with the rest of the tested constructions. While the two trilingual groups and the bilingual group were relatively accurate on left dislocation, they could not reliably distinguish acceptable from unacceptable topicalizations. As Figure 1 illustrates, only the native English speakers evaluated acceptable topicalizations as in (1) with reliably higher ratings (5.9 versus 2.2 on a scale of 1 to 7), while the two trilingual groups and the bilingual group were unable to distinguish the two.

The authors explain these results by referring to the low frequency of topicalization in English, 1000 times less than CLLD in Spanish (see Slabakova, 2015), as well as with the misleading evidence of left dislocation (LD). LD and topicalization appear in similar contexts and their distinction is subtle, so it is easy to see how their presence in the language can be misleading.

Whatever the explanation, the fact we need to appreciate here is that Spanish, either as a first or as a second language of the trilingual groups, is exerting a negative influence on the L3 grammars, to the extent that these advanced English speakers offered ratings right in the middle of the scale.

Initial transfer is not wholesale

Wholesale transfer is another important claim that the scalpel model rejects. But let us see why wholesale transfer was proposed in the first place. Rothman (2015) argues that typological proximity assessment has to occur very early on in the L3/Ln acquisition process and, once typological proximity is assessed, the entire L1 or L2 is transferred in the sense of full transfer (Schwartz & Sprouse, 1996). The stipulation is motivated by economy considerations: “If transfer is essentially reflexive to avoid redundancy in acquisition and thereby lessen the cognitive burden of an additional grammar, it should then obtain as early and completely as possible to be maximally useful towards these fundamental goals” (Rothman, 2015, p. 184).

However, it is already a truism that L2 and L3 acquisition are very different processes. At the onset of L2A, only one grammatical system is available to transfer. With two grammatical systems available in L3A that are possibly amalgamated and appropriately tagged (as in Amaral & Roeper, 2014), transfer may become more dynamic. Why would wholesale transfer be more economical in creating new morphosyntactic representations? It stands to reason that at the initial stages, the Language Acquisition Device (LAD)/parser is adding new linguistic objects: words, grammatical features in old functional categories, maybe even some constructions. The influence of one grammatical system means blocking off or inhibiting the other grammatical systems already acquired, which is costly in terms of processing resources. Why would the LAD/parser expend resources on blocking off some crosslinguistic influence that may turn out to be profitable later on?³ In fact, from the point of view of what we know about language neural functional organization, interconnection, and interference between L1 and L2 in the brain, it may be more economical, as Amaral and Roeper (2014) suggest, to proliferate and then differentiate sub-grammars. In sum, it may be *more difficult* to block off some linguistic information than to take it on board and check if it works.

A second consideration comes from multilingual lexical processing, and is experimentally supported. The parasitic model (González Alonso, 2012; Hall & Ecke, 2003) suggests that new lexical representations in the third language are incorporated into the existing lexical network through “points of contact” with words *in the L1 and L2*. In the authors’ terminology, new L3 entries are parasitic upon well-established L1 and L2 hosts. González Alonso’s (2012) experimental study clearly shows that priming L3 words with L1 and L2 hypothesized “hosts” reduces the retrieval times of these items. Within this model, these common features between the new L3 words and the L1/L2 host representations serve as cues for retrieval of the new items. With time and repeated usage, the new items receive sufficient activation to become strong, independent representations. Note that from the very beginning of L3 acquisition, the two already functioning mental lexicons are invoked, not just one.

Some further empirical evidence against wholesale transfer comes from morphosyntactic acquisition. A recent study by Bruhn de Garavito and Perpiñán (2014) considered the properties of subjects in the trilingual grammars of L1 French–L2 English–L3 Spanish speakers. These learners were quite proficient in French and English, and were in their third week of exposure to Spanish in a classroom setting. Thus, their Spanish can be viewed as being at the initial stages. They completed a bimodal (written and aural) acceptability judgment task as well as a production task designed to elicit fragment subjects. The authors used distracters and clitic test sentences to establish the acceptance rate (75%) and the rejection rate (50%) for these learners. The researchers tested an array of properties (co-ordination of subject pronouns, focus constructions, adverb

placement, clefts, and object clitics), for most of which the native language, French, differed from the L2 English and the target L3 Spanish. While the results suggested that the L3 grammars of these learners were in flux, the researchers found evidence that the two previously acquired grammars, French and English, were in competition. In their own words:

These French L1 speakers learning Spanish in some situations rely on their French grammar to interpret the facts and in others on their English grammar. It is therefore not possible to assume that one of the two grammars is the initial state of third language acquisition, but rather both grammars are available and used whenever they facilitate processing of the input. (Bruhn de Garavito & Perpiñán, 2014, p. 10)

Crosslinguistic influence can be due to linguistic, experiential, and input factors, not only typology

The scalpel model specifies several more factors that may influence the success or failure of acquisition of a specific property in the L3 and often have the effect of thwarting the potential cumulative enhancement. In the section titled “Transfer can be detrimental as well as facilitative,” I suggested that misleading input may be one of the reasons why the trilingual groups in the Slabakova and García Mayo (2015) study did not show any knowledge of English topicalization. Another study carried out with the same learners by García Mayo and Slabakova (2015) provides a basis for comparison across properties. Such a comparison is valuable because we are able to sidestep issues of L1 or L2 influence on the L3 and focus on the linguistic variables.

García Mayo and Slabakova (2015) used exactly the same groups of learners as the Slabakova and García Mayo (2015) study mentioned above (L1 Basque–L2 Spanish–L3 English, L1 Spanish–L2 Basque–L3 English, L1 Spanish–L2 English) and tested knowledge that null objects are disallowed in English. While null objects in Basque are ubiquitous, in Spanish they are optionally possible in generic sentences.⁴ This time, learners were much more accurate in rejecting null objects in English, although still not free from the influence of Spanish. The comparison reveals one property that is apparently problematic to acquire (topicalization), and one showing successful acquisition (null objects). One explanation of difficulty can be found in the linguistic input: topicalization is very rare in English and learners are not exposed to it with sufficient frequency in order to notice and acquire it (Slabakova, 2015). Another possible reason for the diverging outcomes on the two properties is the need for negative evidence in the first case, and the availability of positive evidence in the second case.

Negative evidence is evoked when an overt correction of erroneous learner production is needed and offered. Generative SLA theory argues that negative evidence cannot alter grammatical knowledge states because it is not *reliably* provided to all learners to an equal degree and because learners do not attend to it, even if it is provided (White, 1989). Only positive evidence coming from abundant and comprehensible linguistic input can effect change in a learner’s grammar, coupled with the realization that her previous knowledge state is not capable of generating the string that the positive linguistic evidence provides. Consider again the learning task with respect to the two properties. In the topicalization example in (3), taken from the experiment, the learner has to realize that the resumptive *it* picking up the dislocated object is unacceptable in this context.

- (3) Last week I had the sole. It was delicious. The salmon I haven’t tried (*it) yet.

If the learner produces the equivalent of Spanish clitic left dislocation (CLLD) in English, some interlocutor needs to say: “No, you don’t need the pronoun in English,” or something along these lines. It is very likely the case that this overt correction is rarely provided, and even if it is provided

Table 1. Accuracy percentage on main and embedded subjects (S) and objects (O) for two groups of trilingual learners (L1 Chinese, L2 English), adapted from Kong (2015).

	Null S main clause	Null S embedded clause	Null O main clause	Null O embedded clause
L3 French	(*) 88	(*) 17.7	(*) 18.4	(*) 24.8
L3 Spanish	(✓) 100	(✓) 100	(*) 14.8	(*) 13.9

to some learners, it is not provided to all learners. Nor can we be guaranteed that the learners uptake the correction when provided. Thus, successful retreating from CLLD requires negative evidence, which may not be available. On the other hand, retreating from null objects only requires positive evidence. Consider example (4):

- (4) A: Did you buy milk?
 B: Yes, I bought *(some).

If a Basque–Spanish bilingual learning English thinks that generic indefinite pronouns as in (4) are optional, her working hypothesis about a possible null object will never be substantiated with linguistic input. She will consistently hear pronouns following the verb, and in time this positive evidence can lead to a change in her grammar.

Different learning patterns for different properties, depending on structural considerations

The scalpel model shares this claim with the linguistic proximity model (Westergaard et al., this issue). Since this model is separately presented in this special issue, I refer the reader directly to this paper. In this section, I present some experimental evidence for the same claim from Kong (2015), a study on L1 Chinese–L2 English speaking learners of French and Spanish as L3s. Null subjects and null objects in main and embedded clauses were investigated. Chinese, in this case Cantonese, is well known to allow both, while English, Spanish, and French do not. The typological proximity is likely perceived to be between the three Indo-European languages. Table 1 summarizes the accuracy results, marking the acceptable target constructions with a check mark and the unacceptable ones with a star.

The observed behavior suggests that the four structural positions – main clause subject, embedded subject, main and embedded object – are treated differently by adult L1 Chinese speakers of advanced L2 English who are elementary learners of L3 French and Spanish. This fact in itself argues that superficial L1 influence is not the whole story: if it were, the learners' behavior in Spanish and French would not have been different. The typologically close English does not seem to exert any significant influence. Although null objects are not allowed in English, Spanish,⁵ and French, these participants have not learned to reject them in their L3. Still under the influence of Cantonese, they are transferring null objects into their L3s. The interesting finding is that the learners of French treat main and embedded subjects differently (see Table 1). Kong argues that this is due to the fact that topichood is a generalized property of Cantonese. As long as the left-periphery topic position is filled, null objects and embedded subjects are *pro* elements bound by other discourse topics. Learners in the French group are interpreting French matrix subjects as overt Cantonese topics, and they correctly reject null main clause subjects. In this way, learners are resorting to other options made available by the L1 for L3 grammar building. However, they extend the L1 grammar analysis to null embedded subjects as well as null objects, which to them seem to

be licensed by the matrix topics (subjects). That is why the learners are only 17–18% accurate in rejecting null embedded subjects and null objects. This behavior of the French trilingual group is completely parallel to a bilingual Cantonese–English group that Kong tested earlier, reported in Kong (2005). The important conclusion we need to draw from these findings is that transfer of a linguistic analysis that is wrong for the L3 but sanctioned by the L1 grammar results in differential accuracy on main and embedded subjects for the French trilingual group. In this study, structural linguistic considerations trump psychotypology and complete L1 transfer in favor of structurally based transfer.

Considerations of language activation and use

Finally, I briefly discuss the results of another study that examined crosslinguistic influence in the acquisition of attributive possessives in L3 English by three bilingual Mazandarani–Persian groups: Fallah, Jabbari, and Fazilatfar (2016). All the participants were 13- to 14-year-old males, Mazandarani was the native language for two of the groups, and they had acquired L2 Persian to near-native-like levels, according to self-reports, starting at the age of seven. The only difference between these two groups was the language predominantly used for communication in three different settings: home, school, and with friends. While one group reported using Mazandarani over 90% of the time in home and social contexts, the other group reported using Persian over 90% of the time in all settings. I shall call the first group Mazandarani users and the second Persian users. The third group was Persian-native and Persian-dominant, with Mazandarani as an L2. All three groups were initial learners of L3 English. The possessive constructions in Mazandarani, Persian, and English are exemplified below.

- | | | |
|-----|---|---------------|
| (5) | Me kelas gæet hæsse.
My class big is | (Mazandarani) |
| (6) | Kelas-e mæn bozorg æst.
Class-EZ my big is | (Persian) |
| (7) | My class is big. | (English) |

Neither Mazandarani nor Persian share lexical, phonological, or morphological cues with English. However, in terms of the pre-nominal placement of the possessive, Mazandarani is structurally similar to English, unlike Persian. Knowledge of possessive pronoun placement was tested in an untimed grammaticality judgment task, an element rearrangement task, and an elicited oral imitation task. The results on all three tasks are consistent and very clear: the Mazandarani user group was about 80% accurate on L3 English possessive placement. In contrast, the Persian user group and the Persian-dominant group were about 15% accurate. The authors are careful to make the *use* versus *dominance* distinction, arguing that the first two groups are completely bilingual in Persian and Mazandarani, the only difference between them being time/percentage of communicative usage of one or the other language. Thus, Fallah et al. (2016) is another study contributing some evidence both against wholesale typology-based transfer and against facilitative transfer only.

Conclusions

This article set out to propose the scalpel model of L3A, a model that argues against wholesale transfer at the initial stages and against transfer being facilitative only. Various additional factors may induce crosslinguistic influence in L3/Ln acquisition beyond L1 and/or L2 influence. The list

of factors discussed here is certainly not complete. Since L3 acquisition arguably happens property by property and feature by feature, linguistic structure considerations are of utmost importance (Kong, 2015; Rothman, 2015; Westergaard et al., this issue). Perceived structural typology is certainly a factor affecting acquisition. However, variable construction frequency and misleading input can also impact the process, as argued by Slabakova and García Mayo (2015). In addition, properties may be harder to acquire when negative evidence is needed for their successful acquisition (see findings in Slabakova & García Mayo, 2015, versus García Mayo & Slabakova, 2015). Even in balanced bilinguals, communicative usage of the language that is similar to the L3 certainly tilts the scale, making successful acquisition faster (Fallah et al., 2016).

The scalpel model makes essentially the same predictions that are made for additional language acquisition by the feature reassembly hypothesis (Lardiere, 2009; Slabakova, 2009) and the bottleneck hypothesis (Slabakova, 2008). It shares several important claims with other L3A models. Together with the CEM and the LPM, it argues that acquisition happens property by property. Together with the TPM and the LPM, it claims that non-facilitative transfer is possible. Together with the LPM, it contends that multilingual grammars are sufficiently sophisticated not to need wholesale transfer at the initial stage. The activated grammatical possibilities of the L1-plus-L2 combined grammar act with a scalpel-like precision, rather than as a blunt object, to extract the enhancing, or facilitative, options of L1 or L2 parameter values. However, additional factors such as processing complexity, misleading input, and construction frequency in the target L3 are also operative property by property. They are the factors that can lead the scalpel away from precision. If negative evidence is needed, or if the evidence in the input is insufficient for acquisition, that property will be hard for learners and successful acquisition is not guaranteed.

Is the scalpel model falsifiable? Evidence against the model can come from empirical results demonstrating wholesale transfer at the initial stage(s), and exclusively facilitative transfer in the presence of factors militating against transfer. For example, in the Fallah et al. (2016) study, the converging behavior of all three experimental groups would have suggested that one of the available grammars had transferred wholesale, or at least had sidelined the Mazandarani users' advantage in terms of pre-nominal possessor placement in L3 English. Such findings would have constituted counterevidence to the scalpel model. Of course, refinements of any proposed model are possible and welcome, especially in the face of new evidence. The search for the definitive L3 acquisition account continues!

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Notes

1. V2 languages have a rule requiring that the verb appear as the second constituent (not necessarily the second word) in a declarative sentence. The sentence ‘Tomorrow he will eat cake’ would be ungrammatical in a V2 language, the correct version being ‘Tomorrow will he eat cake’.
2. Please note that typology that conditions transfer is understood to be different from “psychotypology” in the sense of Kellerman (1983). What Rothman means by typology is “structural similarity,” or “linguistic properties that overlap crosslinguistically at the level of mental representation, whether at the lexical or grammatical levels” (Rothman, 2015, pp. 179–180).
3. Furthermore, why would the parser engage in a comparison exercise between L1 and L2 lexicons, phonology, etc. in the absolutely initial stages, reach an unconscious conclusion on typology, and then transfer the whole grammatical system of the typologically closer grammar? Why doesn’t the parser continue to make the initial comparisons thus described at later stages, too?
4. Generic sentences express a regularity or a universal truth, e.g., “Dogs bark,” or “Milk is good for your health.”
5. As discussed in the section titled “Crosslinguistic influence can be due to linguistic, experiential, and input factors, not only typology,” null objects are optionally allowed in Spanish generic sentences. However, Kong (2015) tested only specific objects.

References

- Abutalebi, J., & Green, D. (2007). Bilingual language production: The neurocognition of language representation and control. *Journal of Neurolinguistics*, 20, 242–275.
- Amaral, L., & Roeser, T. (2014). Multiple grammars and second language representation. *Second Language Research*, 30(1), 3–36.
- Antonova-Ünlü, E., & Sağın-Şimşek, Ç. (2015). The use of verbal morphology in Turkish as a third language: The case of Russian–English–Turkish trilinguals. *International Journal of Bilingualism*, 19(3), 347–362.
- Bardel, C., & Falk, Y. (2007). The role of the second language in third language acquisition: The case of Germanic syntax. *Second Language Research*, 23, 459–484.
- Bardel, C., & Falk, Y. (2012). Behind the L2 status factor: A neurolinguistic framework for L3 research. In J. Cabrelli Amaro & J. Rothman (Eds.), *Third language acquisition in adulthood* (pp. 61–78). Amsterdam: John Benjamins.
- Berkes, É., & Flynn, S. (2012). Enhanced L3... L_n acquisition and its implications for language teaching. In D. Gabryś-Barker (Ed.), *Cross-linguistic influences in multilingual language acquisition* (pp. 1–22). Berlin: Springer.
- Birner, B. J., & Ward, G. (1998). *Information status and noncanonical word order in English*. Amsterdam: John Benjamins.
- Bruhn de Garavito, J., & Perpiñán, S. (2014). Subject pronouns and clitics in the Spanish interlanguage of French L1 speakers. *Proceedings of the 2014 annual conference of the Canadian Linguistic Association*.
- Cook, V. J. (1991). The poverty-of-the-stimulus argument and multicompetence. *Second Language Research*, 7(2), 103–117.
- Cook, V. J. (1992). Evidence for multi-competence. *Language Learning*, 42(4), 557–591.
- Falk, Y., & Bardel, C. (2011). Object pronouns in German L3 syntax: Evidence for the L2 status factor. *Second Language Research*, 27, 59–82.
- Fallah, N., Jabbari, A., & Fazilatfar, A. M. (2016). Source(s) of syntactic CLI: The case of L3 acquisition of English possessives by Mazandarani–Persian bilinguals. *Second Language Research*, 32(2), 225–245.
- Flynn, S., Foley, C., & Vinnitskaya, I. (2004). The cumulative enhancement model for language acquisition: Comparing adults’ and children’s patterns of development in first, second and third language acquisition. *International Journal of Multilingualism*, 1, 3–17.
- Footo, R. (2009). Transfer and L3 acquisition: The role of typology. In Y. I. Leung (Ed.), *Third language acquisition and universal grammar* (pp. 89–114). Clevedon, UK: Multilingual Matters.
- García Mayo, M. del P., & Slabakova, R. (2015). Object drop in L3 English. *International Journal of Bilingualism*, 19(5), 483–498.

- González Alonso, J. (2012). Assessing multilingual lexical incorporation hypotheses through a primed picture-naming task. *Linguistic Approaches to Bilingualism*, 2(1), 91–107.
- Grosjean, F. (1989) Neurolinguists, beware! The bilingual is not two monolinguals in one person. *Brain and Language*, 36(1), 3–15.
- Hall, C., & Ecke, P. (2003). Parasitism as a default mechanism in L3 vocabulary acquisition. In J. Cenoz, B. Hufeisen, & U. Jessner (Eds.), *The multilingual lexicon* (pp. 71–85). Norwell, MA: Kluwer.
- Hermas, A. (2010). Language acquisition as computational resetting: Verb movement in L3 initial state. *International Journal of Multilingualism*, 7, 343–362.
- Hermas, A. (2015). The categorization of the relative complementizer phrase in third-language English: A feature re-assembly account. *International Journal of Bilingualism*, 19(5), 587–607.
- Jin, F. (2009). Third language acquisition of Norwegian objects: Interlanguage transfer or L1 influence? In Y.-k. I. Leung (Ed.), *Third language acquisition and Universal Grammar* (pp. 144–161). Clevedon: Multilingual Matters.
- Kellerman, E. (1983). Now you see it, now you don't. In S. Gass & L. Selinker (Eds.), *Language transfer in language learning* (pp. 112–134). Rowley, MA: Newbury House.
- Klein, E. (1995). Second versus third language acquisition: Is there a difference? *Language Learning*, 45(3), 419–466.
- Kong, S. (2005). The partial access of universal grammar in second language acquisition: An investigation of English subjects by L1 Chinese speakers. *Journal of East Asian Linguistics*, 14, 227–265.
- Kong, S. (2015). L3 initial state: Typological primacy driven, L2 factor determined, or L1 feature oriented? *Taiwan Journal of Linguistics*, 13(2), 79–116.
- Lardiere, D. (2009). Some thoughts on a contrastive analysis of features in second language acquisition. *Second Language Research*, 25(2), 173–227.
- Leung, Y.-k. I. (2005). L2 vs. L3 initial state: A comparative study of the acquisition of French DPs by Vietnamese monolinguals and Cantonese–English bilinguals. *Bilingualism: Language and Cognition*, 8, 39–61.
- Na Ranong, S., & Leung, Y.-k. I. (2009). Null objects in L1 Thai–L2 English–L3 Chinese: An empiricist take on a theoretical problem. In Y.-k. I. Leung (Ed.), *Third language acquisition and Universal Grammar* (pp. 162–191). Clevedon: Multilingual Matters.
- Paradis, M. (2004). *A neurolinguistic theory of bilingualism*. Amsterdam: John Benjamins.
- Rothman, J. (2011). L3 syntactic transfer selectivity and typological determinacy: The typological primacy model. *Second Language Research*, 27, 107–127.
- Rothman, J. (2015). Linguistic and cognitive motivation for the typological primacy model of third language (L3) transfer: Considering the role of timing of acquisition and proficiency in the previous languages. *Bilingualism: Language and Cognition*, 18(2), 179–190.
- Rothman, J., Alemán Bañón, J., & González Alonso, J. (2015). Neurolinguistic measures of typological effects in multilingual transfer: Introducing an ERP methodology. *Frontiers in Psychology*, 6, 1087. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4528098/pdf/fpsyg-06-01087.pdf>
- Rothman, J., & Cabrelli Amaro, J. (2010). What variables condition syntactic transfer: A look at the L3 initial state. *Second Language Research*, 26, 189–218.
- Schwartz, B. D., & Sprouse, R. (1996). L2 cognitive states and the full transfer/full access hypothesis. *Second Language Research*, 12(1), 40–72.
- Slabakova, R. (2008). *Meaning in the second language*. Berlin: Walter de Gruyter.
- Slabakova, R. (2009). Features or parameters: Which one makes second language acquisition easier, and more interesting to study? *Second Language Research*, 25(2), 313–324.
- Slabakova, R. (2015). The effect of construction frequency and native transfer on L2 knowledge of the syntax–discourse interface. *Applied Psycholinguistics*, 36(3), 671–699.
- Slabakova, R., & García Mayo, M. del P. (2015). The L3 syntax–discourse interface. *Bilingualism: Language and Cognition*, 18(2), 208–226.
- Sorace, A. (2011). Pinning down the concept of “interface” in bilingualism. *Linguistic Approaches to Bilingualism*, 1, 1–34.

- Ullman, M. (2001). The neural basis of lexicon and grammar in first and second language: The declarative/procedural model. *Bilingualism: Language and Cognition*, 4(1), 105–122.
- Westergaard, M., Mitrofanova, N., Mykhaylyk, R., & Rodina, Y. (2016). Crosslinguistic influence in the acquisition of a third language: The linguistic proximity model. *International Journal of Bilingualism* (this issue).
- White, L. (1989). *Universal grammar and second language acquisition*. Amsterdam: John Benjamins.

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