

# Second Language Transfer During Third Language Acquisition

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## ABSTRACT

A recent focus in the study of cross-linguistic influence is the role of transfer during third language acquisition. How do the learner's first and second languages influence the acquisition of a third language? Current research suggests that the multilingual dynamic differs from L1 effects during second language acquisition. This literature review will examine L2 transfer during third language acquisition within the general context of cross-linguistic influence. An overview of the study of language transfer will be presented, followed by a discussion of the variables that operate and interact when two or more languages come into contact. The variables are categorized as learner-based or language-based, and each is discussed in the contexts of L2 and L3 acquisition. A particular area of focus will be hybrid lexical forms and the unintentional intrusion of L2 items during L3 production.

## INTRODUCTION

The issue of cross-linguistic influence during second language acquisition has long been an important topic in SLA research. During the last decade, however, there has been increased interest in a relatively under-explored field: third language acquisition. From the point of view of cross-linguistic influence, the question arises as to how the three languages interact with one another during the language learning process. An interesting finding is that during L3 production, the language learner often unintentionally produces interlanguage forms that consist either partially or completely of L2 forms. For example, native speakers of Dutch with English L2 produce French L3 utterances such as *\*Ils veulent gagner more, euh, plus...* and *\*les gens sont involvés*<sup>2</sup> (Dewaele, 1998), a native speaker of English with German L2 and Swedish L3 produces the word *\*föreslägger*<sup>3</sup> (Herwig, 2001), and a native speaker of English with French L2 and German L3 says: *\*Tu as mein Fax bekommen*,<sup>4</sup> maintaining correct German syntax but unintentionally producing the French personal pronoun and auxiliary (Selinker & Baumgartner-Cohen, 1995).

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<sup>2</sup> English: *involved*; French: *impliqués*

<sup>3</sup> German: *vorschlagen*; Swedish: *föreslår*

<sup>4</sup> German: *Du hast mein Fax bekommen*.

In this paper, I will explore what such L2 effects during third language production reveal about the nature of cross-linguistic influence when more than two languages come into contact. Such instances of transfer can take the form of the substitution of an intended L3 word by an L2 word (Cenoz, 2001; Ecke, 2001), but can also include the formation of hybrid lexical items that consist of morphemes from two languages and do not exist in either the L2 or the L3 (De Angelis & Selinker, 2001; Dewaele, 1998, 2001; Fuller, 1999; Ringbom, 2001). The presence of the L2 in these unintentionally mixed utterances does not appear to fulfill any pragmatic function; in fact, Hammarberg (1998, 2001) categorizes them as Without Identified Pragmatic Purpose (WIPP). As the studies show, these errors do not appear to be a conscious communication strategy, such as the use of content words borrowed from another language in order to bridge a lexical gap (Faerch & Kasper, 1986), but rather, they point to the speaker's failure to inhibit a previously learned second language adequately.

What are the factors that lead the multilingual speaker to produce such mixed utterances and hybrid forms? As the literature on language transfer shows, many variables converge to cause cross-linguistic influence. Some variables play a role in lexical cross-linguistic influence regardless of whether two or more languages are in contact. These variables range from the general, such as typological similarity between languages (Andersen, 1983; Kellerman, 1983, 1995) and the speaker's level of proficiency (Kellerman, 1983; Odlin, 1989), to the more specific, such as the degree of markedness (Gass, 1984; Kellerman, 1983) and the degree of morpheme boundedness of individual lexical items (Selinker & Lakshmanan, 1993). Others are specific to the multilingual learner, such as the "foreign language effect" (Selinker & Baumgartner-Cohen, 1995) and the "last language effect" (Shanon, 1991). Some variables are operative in cross-linguistic influence in general, but during third language acquisition, their presence seems particularly to promote the use of L2 items in an L3 utterance: cognitive mode (Dewaele, 1998, 2001; Grosjean, 1995, 2001), language typology (Cenoz, 2001; Ringbom, 2001), proficiency (De Angelis & Selinker, 2001; Hammarberg, 2001), and frequency of use (Hammarberg, 2001; Mägiste, 1986).

An in-depth exploration of all these issues is certainly beyond the scope of this paper. However, by providing a general overview of the variables affecting L2 to L3 transfer, both learner- and language-based, I hope to show some of the complexities and unique features that characterize the process of third language acquisition. I will first give a brief overview of the literature on cross-linguistic influence in general. I will then focus on the variables that affect individual language learners and increase the likelihood of language transfer in their L2 and L3 production. I will devote the final section to a discussion of language-based variables that appear to facilitate language transfer. These variables have emerged from the literature on cross-linguistic influence, and I will discuss each in light of the third language acquisition process.

## **EVOLUTION OF THE RESEARCH ON CROSS-LINGUISTIC INFLUENCE**

### **The Search For A Name**

Although the study of cross-linguistic influence has long been an important topic in SLA research, linguists have had difficulty reaching a consensus on the processes by which it works.

The difficulty in pinning down the phenomenon of language contact is reflected in the evolution of the term used to designate the process. In an example of the early perspective, Weinreich (1953) used the term *interference* for “instances of language deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language” (p. 1). Weinreich’s definition focuses exclusively on what was later termed *negative transfer* since it considers native language influence an impediment to the acquisition and production of correct target language forms. However, the native language can also have a facilitative effect in language learning, and so the term *transfer* gradually came to supplant *interference*. Odlin’s (1989) definition of *transfer* is often cited because it is broad enough to encompass many different viewpoints: “transfer is the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired” (p. 27). Within this definition, Odlin includes both positive, facilitative transfer and negative transfer phenomena such as underproduction or overproduction of a particular structure, production errors such as substitutions, calques, and alterations of a target language item, misinterpretations during comprehension, and, also, the differences in the amount of time needed to acquire the target language by learners of different native language backgrounds.

Other researchers, however, find that the term *transfer* is not appropriate to encompass the full range of language contact effects. Sharwood Smith and Kellerman (1986) prefer to limit *transfer* to “those processes that lead to incorporation of elements from one language to another” (p. 1), whereas they consider the term *cross-linguistic influence* more appropriate to refer to other language contact phenomena such as L2  $\rightarrow$  L1 transfer, language loss, or avoidance.<sup>5</sup> What is at issue is the separation of L2 production effects, most often non-target-like productions, from other aspects of the acquisition process. While Odlin does include more implicit phenomena in his discussion of language contact, Sharwood Smith and Kellerman are right in their call to restrict the terminology and to be as specific as possible with the definitions.

## The Evolution Of Perspectives On Cross-Linguistic Influence

Not all researchers have accepted the importance of the native language effect on second language acquisition. In particular, those who hold an innatist view of language acquisition do not believe that the L1 influences the L2 acquisition process in any significant way. Corder (1967) argues that there is no fundamental difference in the acquisition processes for L1 and L2. Adequate exposure and motivation are sufficient for second language acquisition to take place, and any errors are merely the result of the learner’s hypothesis testing, a common strategy of both first and second language learners. Krashen (1983) supports this position, stating that second language learners draw on the L1 simply as a production strategy of a “pseudo-acquisition nature” in order to fill a gap before true L2 acquisition has taken place. Corder (1983) further claims that any native language influence would “actually inhibit, prevent, or make more difficult the acquisition of some feature of the target language” (p. 87), whereas the most the native language can do is to cause the learner to avoid certain target language features. Both Krashen and Corder limit their analysis to negative transfer, the production of non-target-

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<sup>5</sup> Throughout this paper, I will follow Sharwood Smith and Kellerman’s distinction and use the term *transfer* for instances of non-target items incorporated in a target language utterance and *cross-linguistic influence* to refer to other, less overt language contact effects.

like forms, and address neither the potentially facilitative role of the native language nor other L1 effects that are not production-related such as the development of comprehension ability or differences in length of time needed for target language acquisition. Schachter (1983) does not hold as strong an innatist position as Corder and Krashen, but she does limit native language influence to a constraining role during second language acquisition. She claims that second language acquisition is driven by inferencing and hypothesis testing which can be either facilitated or limited by native language parameters, and that L1 → L2 transfer is not a process in and of itself.

Although they hold different views on the role of the native language during L2 acquisition, Corder, Krashen, and Schachter share the belief that native language influence is not a process that drives second language acquisition. However, most of the principal researchers of cross-linguistic influence view it as a fundamental SLA process despite their different perspectives on how it occurs. Selinker (1972) considers language transfer to be one of the five processes central to language learning<sup>6</sup> and one of the principal causes of fossilization. Gass (1983, 1984) also considers language transfer, which she defines as the superposition of NL patterns (both form and function) onto L2 patterns, to be a necessary second language learning process. Selinker and Gass also offer empirical suggestions for identifying and measuring NL effects. In his (1983) operationalization of transfer, Selinker cautions that the existence of transfer cannot be established unless frequency analysis reveals that a “statistically significant trend in the speaker’s native language appears...and is then paralleled by a significant trend toward the same alternative in the speaker’s interlanguage behavior” (p. 50). Gass adds another criterion to Selinker’s criterion of statistical significance: before attributing a given interlanguage feature to native language influence, the researcher must conduct a comparison study between native speakers of a language that exhibits that particular feature and native speakers of other languages that do not. So, evidence of significance and control of the L1 background variable are needed in order to strengthen the validity of any claim of cross-linguistic influence. These empirical safeguards indicate a methodologically sound approach that has helped confirm the presence of transfer as an essential SLA process.

If transfer is an essential process, then it must serve a central purpose in second language acquisition. It is not enough to talk about transfer; the question remains transfer from what to what? Why do second language learners incorporate L1 features in their L2 production? In partial answer to these questions, Anderson (1983) developed the influential Transfer to Somewhere Principle:

a grammatical form or structure will occur consistently and to a significant extent in interlanguage as a result of transfer *if and only if* there already exists within the L2 input the potential for (mis-)generalization from the input to produce the same form or structure (p. 178).

Anderson revises this definition to include the following constraints: the L1 structure must be consistent with natural acquisitional principles, and the preferred structures should be free, invariant, functionally simple, and frequently occurring morphemes. So typological similarity between languages with regard to a particular feature is a necessary condition for transfer to occur. Anderson’s perspective developed partly in reaction to the Contrastive Analysis

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<sup>6</sup> The other four processes being transfer-of-training, strategies of second-language learning, strategies of second-language communication, and overgeneralization (Selinker, 1972).

Hypothesis (CAH) (Lado, 1957), according to which L1 syntax can be used to predict potential L2 errors, since transfer will more likely occur between typologically distant languages. Transfer to Somewhere responds to counter-evidence to the CAH that shows how typological similarity and structural congruence actually increase the likelihood of transfer between the native and target languages. Although intuitively appealing, however, Transfer to Somewhere is unable to account for the full range of language contact phenomena during second language acquisition. Among the shortcomings of this perspective are its emphasis on syntax (as opposed to other linguistic domains such as semantics, discourse, and phonology) and its disregard for the obvious fact that learners of divergent L1 backgrounds do produce some of the same L2 errors, so native language cannot be the only operating factor. But Transfer to Somewhere did pave the way for the consideration of language transfer as a conscious process based on the learner's perception of language typology and her linguistic awareness of particular features.

Kellerman (1983) makes *psychotypology*, the learner's perception of language typology, central to his perspective on transfer, whereby the learner's recognition of congruent forms between the native and target languages either facilitates or interferes with L2 acquisition. If the two languages are perceived as similar with regard to a particular structure, transfer will more likely occur, whereas a perceived dissimilarity will tend to lead to avoidance of that particular target structure. He adds the further distinction that "not everything that *looks* transferable *is* transferable" (p. 113), so there must be constraints that inhibit L1 → L2 transfer between certain congruent structures. This leads him to develop the concept of *transferability*: "the probability with which a structure will be transferred relative to other structures in the L1" (p. 117). A particular L1 item is less transferable if it is perceived by the learner to be irregular, infrequent, semantically or structurally opaque, or in other way perceived as a marked form. This includes not only grammatically marked forms but also dimensions of lexical items that are perceived by the learner as non-prototypical or infrequent uses of the word (Kellerman, 1986). The main point of divergence between Anderson's and Kellerman's perspectives is that *transferability* as defined by Kellerman is not based on L1 and L2 congruence but refers to a judgment that the learner makes about his L1 before knowing anything about the corresponding L2 structure, a judgment that remains constant regardless of the particular target language.

Kellerman (1995) also develops the Transfer to Nowhere Principle as a complement to Anderson's Transfer to Somewhere. Here he addresses not the syntactic features of the L1 but rather, its conceptual organization. If language determines how speakers conceptualize experience, then a shift to a new language implies a change in the conceptual framework through which the speaker views the world, which may well prove a more challenging undertaking than syntactic restructuring. While learners are able consciously to identify congruent and non-congruent structures between their L1 and L2 and to judge the degree of markedness of their native language's syntactic and lexical features, Kellerman suggests that they will be less likely to perceive, or even to admit, cross-linguistic conceptual differences and will continue to hold "an unconscious assumption that the way we talk or write about experience is not something that is subject to between-language variation" (p. 141). The result is that instead of adopting the target language's conceptual perspective and its concomitant linguistic features, L2 learners unconsciously look for L2 linguistic structures that allow them to maintain their L1 perspective, which leads to L2 productions that may be grammatically acceptable but are nevertheless non-target-like.

Transfer to Nowhere marks a shift in the general focus in the literature on cross-linguistic influence, and the most recent perspective emphasizes the role of the L1 conceptual system in the

L2 learner's interlanguage. An example is Pavlenko and Jarvis' (2001) study of conceptual transfer, which they define as "all instances where conceptual representations are involved in linguistic manifestations of cross-linguistic influence" (p. 288). The manifestations can be lexical, semantic, morphosyntactic, or instances of framing transfer (in which both the meaning and the structure of an utterance exhibit cross-linguistic influence). In this study, Jarvis and Pavlenko look at the narrative productions in English and Russian from 22 Russian L2 users of English, comparing them to the productions of English and Russian monolinguals, and identify instances of possible conceptual transfer. The results show evidence of L1 → L2 conceptual transfer as well as instances of L2 → L1 influence in the form of internalization of L2 concepts, restructuring, convergence into distinct bilingual conceptual domains or items, conceptual shifts, and conceptual attrition. Although the study does not provide a systematic, quantitative analysis of the data and also does not control for the level of conscious awareness among the participants despite the researchers' claim that conceptual transfer occurs unconsciously, it nevertheless supports Kellerman's (1995) claim that linguistic transfer is largely driven by the conceptual need to find adequate linguistic means of expression in the L2.

Another recent development is the study of multilingual language contact. Cross-linguistic influence occurs not only during second language acquisition but also during the acquisition of a third language. While the study of third language acquisition, and particularly its relationship to language transfer, is still in the process of defining its scope and specificity as well as an appropriate methodology (Cenoz, 2001; De Angelis & Selinker, 2001; Dewaele, 1998, 2001; Hammarberg, 1998, 2001; Williams & Ringbom, 2001), some differences between L2 and L3 acquisition are starting to emerge. Rather than viewing the study of third language acquisition simply as an extension of SLA research, the current trend is to consider the L3 learner not as a monolingual acquiring a second L2 but as a learner with a unique and specific linguistic configuration (De Angelis & Selinker, 2001). Cook (1995) uses the term *multi-competence* to refer to the linguistic competence of a multilingual learner, which he insists is different from that of a monolingual learner.<sup>7</sup> It seems intuitively obvious that a multilingual learner acquiring an additional language will approach the learning process in a different way and that cross-linguistic influence will be more complex when three or more languages are in contact rather than two. How is this difference, if it exists, manifested? One approach to the question of multilingual transfer is to identify the variables operative in cross-linguistic influence in general and to look specifically at their effect on third language acquisition.

## VARIABLES THAT AFFECT CROSS-LINGUISTIC INFLUENCE

The complexity of cross-linguistic influence, as seen in the above review of the literature, indicates that many factors are involved and interact when languages come into contact. It is pertinent here to mention Selinker and Lakshmanan's (1993) Multiple Effects Principle (MEP): "when two or more SLA factors work in tandem, there is a greater chance of stabilization of interlanguage forms leading to possible fossilization" (p. 198). In the weak form of the MEP, language transfer is a "privileged co-factor," but in its strong form, language transfer is "a necessary co-factor" in setting multiple effects. The MEP applies not only to the interaction of language transfer and other variables affecting the acquisition process but also to the interaction

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<sup>7</sup> For more regarding *multi-competence*, see "Linguistic Awareness" section below.

of the variables that cause the transfer to occur. An example is Kellerman's (1983) concept of *transferability*, since a linguistic item must be perceived as both unmarked and typologically congruent with the target language before it will be transferred. Anderson (1983) also states that the convergence of two or more forces will cause the emergence of interlanguage forms that are more difficult to eradicate than those caused by a single factor. With this in mind, the following two sections will include a discussion of the variables that can interact to facilitate language transfer in both L2 and L3 acquisition. These factors can be loosely divided into learner-specific variables and language-based variables independent of the individual learner.<sup>8</sup> Each is operative during contact between two languages and between three or more languages, often modified by the multilingual dynamic. I will present each variable first as it applies to cross-linguistic influence in general, and then as it applies to language transfer, particularly L2 → L3 transfer, during third language acquisition.

## Learner-Based Variables

### *Proficiency*

Proficiency is one of the most important factors determining the likelihood of language transfer. There is general consensus among researchers that language transfer is more likely to occur at lower levels of proficiency (Odlin, 1989; Poulisse & Bongaerts, 1994; among others). This confirms the transfer-as-strategy perspective, since learners often draw on their L1 to fill a lexical or syntactic gap when they lack the linguistic means of expression in the L2 (Fuller, 1999; Ringbom, 1986). From a language processing perspective, the correlation between low L2 proficiency and transfer can be explained by the assumption that L1 morphemes remain highly active in beginning L2 learners due to their higher frequency and are therefore easily selected for production<sup>9</sup> (Poulisse & Bongaerts, 1994). However, Odlin (1989) points out that the correlation between low L2 proficiency and transfer applies primarily to negative transfer, whereas certain types of transfer, such as cognate vocabulary use, occur even at high levels of proficiency. The relationship between L2 proficiency and transfer is certainly complex; Jarvis (2000) presents six ways in which proficiency can affect L1 influence.<sup>10</sup> With regard to conceptual transfer, in particular the Transfer to Nowhere perspective, it seems likely that L1 influence will increase with L2 proficiency as the learner acquires more L2 tools that can express her L1 perspective (Jarvis, 2000). Regardless of the direction of the correlation, it is clear that proficiency has a strong effect on the likelihood of language transfer.

Proficiency figures prominently in discussions of L3 acquisition, and the general consensus is that much L2 → L3 transfer is the result of low L3 proficiency (Dewaele, 2001; Fuller, 1999; Hammarberg, 2001; Williams & Hammarberg, 1998). However, given the

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<sup>8</sup> These categories do not represent clear-cut distinctions. For example, while I include *typology* as a language-based variable, *psychotypology* is also learner-based. Furthermore, according to the Multiple Effects Principle and as seen in the evidence of many studies, the variables converge and interact to either increase or decrease the likelihood of transfer. However, I found it helpful to distinguish between those that apply to individual learners and are therefore subject to change and modification, and those that are based on the structure of the languages in contact.

<sup>9</sup> See "Frequency" section below for further discussion.

<sup>10</sup> Current research has shown that proficiency can cause L1 influence to decrease, increase, remain constant, decrease nonlinearly, increase nonlinearly, or remain continually fluctuating (Jarvis, 2000).

complex linguistic configuration of the multilingual, the effects of proficiency in all languages known to the speaker must be taken into account. In order for the second language to provide material for transfer, the speaker must have a certain degree of L2 competence (Hammarberg, 2001), but Shanon (1991) points out that often the most recently acquired, and therefore the weakest, language is the source of language transfer. Shanon's observation applies particularly to lexical borrowings that are not morpho-syntactically adapted to the target language, which can come from previously learned languages in which the speaker has low proficiency (Ringbom, 1986). It also appears that while lexical transfer and language switches generally decrease as L3 proficiency increases (Dewaele, 1998), L2 influence diminishes twice as quickly as L1 influence (Hammarberg, 2001). This indicates that L2 transfer is essentially a superficial process, as Ringbom (2001) implies in his distinction between transfer of form and transfer of meaning.<sup>11</sup> He claims that while the L2 provides more material for transfer of form, instances of transfer of meaning as well as semantically-based lexical transfer, which require considerable fluency and automatization in the source language, show more evidence of L1  $\square$  L3 influence, even when L1 and L3 are typologically distant (De Angelis & Selinker, 2001; Ringbom, 1986, 2001). A further complicating factor in the L1 and L2 distinction with regard to transfer is that for many multilinguals, the L1 is not necessarily the dominant language and therefore, there is no clear relationship between level of proficiency and order of acquisition. This must be taken into account during any examination of proficiency with regard to multilingual transfer (De Angelis & Selinker, 2001; Dewaele, 1998, 2001; Fuller, 1999).

### ***Amount Of Target Language Exposure and Use***

This variable interacts significantly with age and with proficiency. It tends to be operationalized either as length of residence in the target language community or, in the case of foreign-language learners, the amount of L2 instruction. Amount of exposure has a strong effect on the likelihood of both positive and negative language transfer and is one of the reasons why the "younger is better" principle is not always a reliable guideline<sup>12</sup> (Odlin, 1989). Jarvis (2000) addresses the importance of teasing out the variables of age and L2 exposure, although the results of his study of Finnish and Swedish L2 English learners indicate that the effects of age versus L2 exposure vary according to the task and that both have less effect on language transfer than L1 background.

The role of linguistic exposure functions similarly in L2 and L3 acquisition. Increased L3 exposure and use leads to less language transfer, although a comparison of L2 and L3 speakers shows that while increased target language exposure and use leads to less language switching in both cases, the decline is more pronounced for L2 speakers than for L3 speakers (Dewaele, 2001). This is probably due to the more extensive linguistic system of multilinguals which requires more cognitive resources to manage. A further interesting point regarding the multilingual situation is that the amount of L2 exposure has a direct effect on its likelihood of being the source of transfer to L3. Ringbom (1986) cites Stedje's (1977) study of L1 Finnish speakers with L2 Swedish learning L3 German while living in Sweden. The study shows that while L2 Swedish initially has very little influence on the learner's L3 German syntax, the L2

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<sup>11</sup> Ringbom (2001) defines *transfer of meaning* as "calques (loan translations of a multi-word units) and semantic extension on the basis of the pattern of another language" and *transfer of form* as "complete language switches, blends, and use of deceptive cognates" (p. 60).

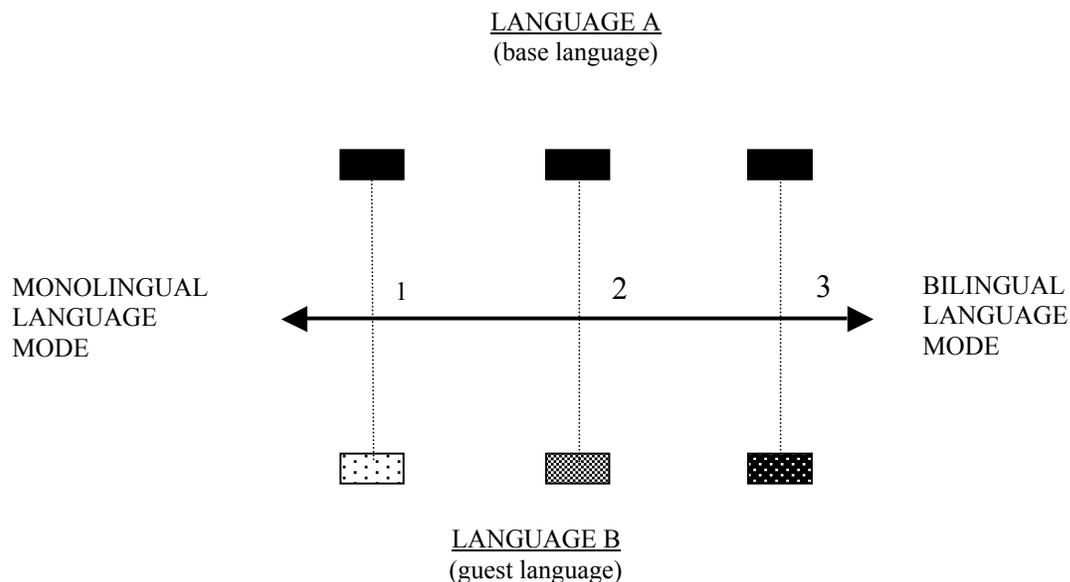
<sup>12</sup> See "Age" section below.

syntactic influence increases the longer they live in Sweden, which provides counterevidence to Ringbom’s claim that the L2 influence is usually restricted to unadapted lexical borrowing. This is a case of the MEP, in which three variables, length of exposure, increased proficiency, and typological closeness, converge to increase the L2 → L3 influence.

**Language Mode**

The concept of *language mode* (Grosjean, 1995, 2001) has guided many recent studies of cross-linguistic influence (Dewaele, 1998, 2001; Fuller, 1999; and others). Grosjean (2001) claims that the amount of language transfer, in particular lexical transfer, depends directly on the speaker’s language mode, defined as “the state of activation of the bilingual’s languages and language processing mechanisms at a given point in time” (p. 2). Language mode is a continuous variable ranging from the monolingual to the bilingual poles, whereby the base language that frames the utterance is always in a state of total activation because it governs language processing, and the guest language can range from either low activation (no language known by the speaker can ever be completely deactivated) to nearly total activation (see Figure 1 below). When the speaker is in monolingual mode, the guest language is at low activation and there is no code-switching or lexical borrowing, but in bilingual mode, the guest language is nearly as activated as the base language and causes frequent code-switches and lexical borrowings.

**FIGURE 1**  
**The Language Mode Continuum**



(The degree of shading represents activation level, and solid black indicates total activation.)  
(From Grosjean, 2001, p. 3)

Grosjean's model is easily adapted to trilingual speech. For an L3 speaker, the base language is always fully activated, and the two guest languages are at varying degrees of activation (Grosjean, 2001). Both bilingual and trilingual modes allow mixed utterances and frequent language switches without evidence of hesitation or editing (Grosjean, 2001). However, the interest in the application of this model to L3 acquisition is that while a bilingual in monolingual mode does not mix languages or show other overt evidence of cross-linguistic influence, a trilingual with low L3 proficiency in monolingual mode will not show signs of L1 influence in L3 production but might still show signs of L2 interference, often without conscious awareness (De Angelis & Selinker, 2001; Ringbom, 2001). It appears that the L1 is easier to deactivate than the L2. An example is Fuller's (1999) case study of a Spanish-dominant speaker who also speaks German and is learning L3 English. The subject intends to speak only English but unwittingly produces more German items than English items. Her dominant language, Spanish, appears much less frequently as a source of lexical transfer. The same phenomenon applies to language switches without any identified pragmatic purpose (WIPP), in which short L2 function words appear unintentionally in an L3 utterance (Hammarberg, 2001; Williams & Hammarberg, 1998).

This particularity of third language acquisition has led researchers to identify a central variable: the L2 effect. L3 production is characterized by a specific cognitive mode, the *talk foreign* mode (Selinker & Baumgartner-Cohen, 1995), in which another non-native language known by the speaker is the source of negative transfer for no conscious strategic purpose such as filling a lexical gap. This L2 effect does not apply to all linguistic domains, but primarily to lexical items, particularly short function words. Not only do L3 learners tend to produce more lexical inventions in the form of mixed utterances than L2 learners, but the source of the interference is more often the L2 than the L1 (Dewaele, 1998). In terms of language mode, it appears that the L2 remains at a high level of activation. Hammarberg (2001) offers the following explanations for this phenomenon: the reactivation of the L2 acquisition mechanism during L3 acquisition and the conscious strategy to suppress the L1 as *non-foreign*. However, these suggestions explain neither the inability of the speakers to suppress the L2 adequately nor their frequent lack of awareness that they are mixing languages. At present, there has been no satisfactory explanation for the unintentional negative transfer of the L2, but current research in multilingual processing regards it as a performance error rather than a strategy and is exploring the process of language selection during speech production in an attempt to locate the source of the faulty selection<sup>13</sup> (De Bot, 1992; Green, 1998; Poullisse & Bongaerts, 1994; Roelof, 1998).

Studies of the interaction of the *foreign talk* phenomenon with other variables have yielded conflicting results. Some indicate that language typology overrides L2 status such that there will be more cross-linguistic influence between typologically similar languages regardless of L1 or L2 status (Jarvis & Odlin, 2000) but others show evidence of a typologically distant L2 language influencing the L3 more than a typologically close L1 (Stedje, 1977). From a psycholinguistic perspective, Williams and Hammarberg (1998) point out that L2 transfer provides counterevidence to Poullisse and Bongaert's (1994) claim that frequency leads to high activation and increases the likelihood of transfer,<sup>14</sup> since the L1 is usually more frequent in the L3 learner's linguistic system but is nevertheless deactivated more successfully than the L2. On the other hand, a factor that converges with L2 status to increase the likelihood of transfer is the

<sup>13</sup> This line of research seems particularly promising and is frequently cited in studies of L3 cross-linguistic influence, but a discussion is beyond the scope of this paper.

<sup>14</sup> See "Frequency" section below.

*last language effect*, according to which the most recently acquired language is more available for transfer (Cenoz, 2001; Hammarberg, 2001; Shanon, 1991; Williams & Hammarberg, 1998). This must be approached with caution, however, since the recency variable may well be a case of transfer-of-training if techniques used when learning the L2 are still active and available during third language acquisition.

### ***Linguistic Awareness***

The learner's linguistic awareness is a key variable in his language performance and acquisition processes and is often related to educational background.<sup>15</sup> Awareness is not limited to linguistic structures and semantics but also affects phonological, pragmatic, and sociolinguistic knowledge, and cross-linguistic influence can occur in any of these domains. Concepts such as *psychotypology*, congruence, and structural variables (discussed below) that facilitate language transfer depend on the learner's ability to notice native- and target-language linguistic features. While a discussion of the different roles of conscious and unconscious awareness is beyond the scope of this paper, it is clear that multiple levels of awareness are operative during transfer (Kellerman, 1983, 1984, 1995; Odlin, 1989).

Cook (1992, 1995), Grosjean (1995, 2001), and De Angelis and Selinker (2001) claim that the linguistic awareness of an L3 learner is substantially different from that of a monolingual learning her first L2. Cook's notion of *multi-competence* refers to multilingual linguistic competence characterized by increased metalinguistic awareness, greater creativity and cognitive flexibility, and more diversified mental abilities. He insists that characteristics of L3 learners such as unintentional code-switching and lexical access errors should not be viewed as failures in monolingual L3 production but rather, as evidence of the multilingual's unique and flexible linguistic configuration. Mägiste (1984) holds a more constrained view, pointing out that evidence shows that while L3 learners do show instances of negative transfer such as lexical interference and slower rate of acquisition particularly when they are active bilinguals,<sup>16</sup> passive bilingualism facilitates L3 acquisition because the learners are able to maximize the positive transfer effects while reducing the potential for negative transfer. Mägiste's active/passive distinction supports the claim that frequency of use leads to higher activation and therefore, to a greater likelihood of transfer, but the positive effects of passive knowledge of another language support Cook's claims of multi-competence.

### ***Age***

The general guideline regarding age and language transfer seems to be that child learners are less likely to draw on their L1, particularly in a pervasive way that leads to fossilization, than are adult learners. Selinker and Lakshmanan (1993) argue that second language acquisition by young children is driven by UG and target language input, following a similar process to first language acquisition, and that native language influence cannot be considered a significant factor. However, Odlin (1989) advocates a more nuanced approach, stating that although children exhibit less L1 influence in phonology, the ages 4-10 are marked by "syntactic conservatism" during which children tend to stick to one syntactic pattern, whereas adults are

<sup>15</sup> See "Educational Background" section below.

<sup>16</sup> Mägiste distinguishes between *active bilinguals* who use their L1 regularly at home and *passive bilinguals* who know their L1 but use their L2 at home and in their daily lives.

more flexible. So the “younger is better” principle, while generally true, must be approached carefully, taking into account other possible variables.

Current studies of third language acquisition largely ignore the age variable. One study by Cenoz (2001) explores age-related differences among 90 school children (grades 2, 6, and 9) of different L1 backgrounds (Basque and Spanish) who have had four years of L3 English instruction (all subjects having studied either Basque or Spanish as L2). The results indicate that the older children show more instances of language transfer, both in the number of transferred items and in the number of subjects, despite a pretest indicating higher proficiency among the older subjects.<sup>17</sup> Cenoz attributes this difference to the higher metalinguistic awareness among the older subjects that makes transfer possible. This metalinguistic awareness also extends to typology judgments with regard to transferability. Cenoz points out that although all the subjects show more cases of Spanish → English transfer regardless of their L1 background, the younger learners produce more cases of Basque → English lexical transfer than the older learners. Since Basque and English are typologically distant languages, these findings suggest that the younger learners are less able to make judgments about typology and congruence of structures, regarding both Spanish and Basque as transferable to English, whereas the older learners avoid the typologically distant language as a source for lexical transfer. While these results do shed some light on age-related effects in cross-linguistic influence, the scope of the study is still limited to subjects who began learning the L3 as children (the oldest group began English instruction at age 11). Further study comparing child learners to adult learners might give a clearer indication of age-related differences in L3 acquisition.

### ***Educational Background***

Odlin (1989) includes educational background and literacy as a factor in positive language transfer. Learners who have highly developed language skills (such as reading, writing and richness of vocabulary) in their native language will most likely find that these skills facilitate second language acquisition. However, Odlin cautions that the facilitative effects of high L1 literacy may be the result of transfer-of-training as much as, if not more than, language transfer. It is interesting to note that educational background is less often explored in language transfer studies than other variables such as L1 background and proficiency, perhaps because it is so difficult to dissociate from transfer-of-training.

Educational background is rarely considered a variable in the L3 acquisition literature, since most studies use secondary school or university students as subjects. Much of the research on multilingualism comparing speakers of different social and educational backgrounds is done from a sociolinguistic rather than a psycholinguistic perspective, but future L3 acquisition research needs to take educational background into account since it relates directly to metalinguistic awareness. While one can assume intuitively that less educated learners in a naturalistic learning environment will show fewer constraints regarding language transfer, this assumption obviously needs to be substantiated with empirical evidence. Fuller’s (1999) case study is an example of this.<sup>18</sup> Although the subject’s educational background is not mentioned (a flaw in the study), her level of linguistic awareness is so low that she believes she is speaking

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<sup>17</sup> Cenoz adds that while the older subjects have a higher proficiency than the younger, the overall proficiency of all subjects is quite low. She is currently gathering longitudinal data to test the effects when the subjects’ proficiency is significantly higher.

<sup>18</sup> See previous “Cognitive Mode” section for a description of the subject.

English when her utterances are almost completely in German, even though her interlocutor knows no German. Her English-German composite productions show evidence of transfer at all syntactic levels, including bound morpheme transfer (*\*die Katze sleep-t auf den Sofa*,<sup>19</sup> p. 547), which Fuller attributes to her low L3 proficiency but which surely must also be the result of a lack of linguistic awareness due to limited formal education and subsequent low literacy.

### **Context**

Context is a general variable that is neither learner-based nor language-based, but does play a role in language transfer.<sup>20</sup> It can be considered from a sociolinguistic perspective as determined by a mono- vs. bilingual community, from a pragmatic perspective as level of formality, or from an empirical perspective as task-related production. Research indicates that language transfer, particularly lexical transfer, is more accepted in a bilingual context (Grosjean, 2001; Odlin, 1989). Conscious code-switching is a well-known feature of bilingual speech among proficient bilinguals, but even in the context of L2 or L3 acquisition, the learner is more likely to produce instances of lexical transfer if the interlocutor is also familiar with the target and source languages (Dewaele, 1998, 2001; Grosjean, 2001). Odlin (1989) points out in particular that the weaker constraints in bilingual speech allow for more transfer of metaphors and figurative expressions, although Kellerman (1984) maintains that figurative meanings, unless associated with high-frequency references, are unlikely to be considered transferable by language learners.<sup>21</sup>

In second language acquisition research, the role of context is usually operationalized through level of formality and task.<sup>22</sup> The level of formality can also act as a constraint on the amount of language transfer, since the speaker will tend to apply a higher level of control and attention during language production in a formal setting (Dewaele, 1998, 2001; Grosjean, 2001). As far as task-related production is concerned, Kellerman (1995) cites a study by Poullisse (1990) that shows a higher amount of language transfer in an interview task than in a story-telling task, which Kellerman attributes to the higher attentional requirements of a free-form interview format that leave fewer attentional resources available for monitoring linguistic production. The structural and lexical constraints of the story-telling task, on the other hand, allow the speakers to focus more on their actual linguistic production, particularly at higher levels of proficiency.

As during L2 production, the likelihood of language transfer during L3 production is inversely proportional to the degree of control and monitoring. Dewaele (1998, 2001) has explored the formality factor in two studies of high-intermediate and advanced learners of French who either studied English as L2 and French as L3 or French as L2 and English as L3. He finds that language switches are much more common in an informal situation for both L2 and L3 speakers of French but that the L3 speakers have lower morpholexical accuracy and produce more mixed utterances than L2 speakers in both the formal and informal situations.

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<sup>19</sup> “The cat sleep-s on the sofa.”

<sup>20</sup> I have included “Context” in the learner-based category because unlike the language-based variables, it is subject to change and modification. However, in a more detailed analysis, “Context” should be a separate category incorporating several variables.

<sup>21</sup> This discrepancy between Odlin and Kellerman is an example of the differences between bilingualism and second language acquisition since proficient bilinguals speaking among themselves do not follow the same patterns as second language learners attempting to produce target-like structures.

<sup>22</sup> This applies to research from a psycholinguistic perspective; sociolinguistic studies have surely addressed other factors.

Furthermore, the formal situation causes the L3 speakers to produce shorter utterances and more lexical errors, whereas the informal situation leads to more mixed utterances. While the speech rates of both groups increase in the informal situation, indicating the high cost of monitoring for accuracy and monolingualism in the formal situation, the speech rates of L3 speakers are significantly lower in both contexts than those of L2 speakers. This indicates that L3 speakers need to devote more cognitive resources in order to prevent language transfer, which hinders the fluency of their L3 speech, substantiating a similar finding by Mägiste (1984) who finds that “tasks which obviously are easy to perform in one or two languages turn into demanding tasks in a third language” (p. 418).

## Language-Based Variables

### *Language Typology*

Typology (and psychotypology) appears to be the most important variable in determining the likelihood of language transfer. The evolution of the study of cross-linguistic influence can be seen as an evolution in the perspectives on the role of language typology. Early studies of language contact emphasize the importance of typological closeness and congruent structures between L1 and L2 (Weinreich, 1953), and later approaches identify a facilitative role for both typological closeness (Anderson, 1983; Gass, 1983; Jarvis & Odlin, 2000; Odlin, 1989; Selinker & Lakshmanan, 1993) and in the case of conceptual transfer, typological distance (Kellerman, 1995). Empirical studies on language transfer among learners of different L1 backgrounds have shown that language typology overrides other important variables such as proficiency (DeBot, 1992; Poullisse, 1990) and amount of L2 exposure (Jarvis, 2000).

The correlation between language typology and transfer during third language acquisition is essentially the same as described above: typological closeness between L2 and L3 facilitates language transfer (Cenoz, 2001; De Angelis & Selinker, 2001; Ecke, 2001; Fuller, 1999; Hammarberg, 2001; Ringbom, 2001; Williams & Hammarberg, 1998). The most revealing studies of the role of typology in L3 acquisition involve the comparison of L3 learners who have a related L1 and an unrelated L2, to L3 learners who have an unrelated L1 and a related L2. Cenoz (2001) finds an important typology effect in her comparison of Basque L1 and Spanish L1 children learning L3 English: the native speakers of Basque, a language typologically distant from English, show more evidence of lexical transfer from their L2 Spanish than the native Spanish speakers do. She attributes this difference to the combined effect of typological closeness and L2 status, but it is also indicative of psychotypology, since the older learners who have more metalinguistic awareness show less evidence of Basque → English transfer, regardless of their L1 background.<sup>23</sup> The subjects’ awareness of typology therefore has a direct effect on the extent of their language transfer.

Ringbom (1986) finds that typology overrides other factors such as frequency of use and amount of exposure, since his comparison of L1 Finnish speakers and L1 Swedish speakers living in Finland shows no evidence that the native Swedish speakers incorporate L2 Finnish in their L3 English utterances, despite the fact that they live in a Finnish-speaking environment. The native Finnish speakers, on the other hand, draw extensively on their L2 Swedish when

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<sup>23</sup> See previous “Age” section.

speaking L3 English, even though they are not frequently exposed to Swedish. Cenoz and Ringbom's studies are revealing not only in their comparison of L3 learners with different language backgrounds but because they show the interaction of typology with other variables.

### ***Frequency***

The frequency with which a particular linguistic item or feature appears in the L1 increases its likelihood of being transferred to the L2 (Larsen-Freeman, 1976). From the perspective of learner perception, an infrequent item will be considered "psychologically marked" and therefore less transferable (Kellerman, 1983). From a language processing perspective, highly frequent L1 lexical items are likely candidates for unintentional lexical transfer due to their high activation levels during the early stages of L2 learning (Faerch & Kasper, 1986; Poulisse & Bongaerts, 1994). In fact, Poulisse and Bongaerts claim, based on their empirical evidence from native Dutch speakers' L2 English productions, that the frequency effect of L1 items can override language activation and is inversely proportional to proficiency and amount of L2 exposure. This means that at low L2 proficiency and particularly with limited L2 exposure, highly frequent L1 items can be unintentionally incorporated in an L2 utterance even when the speaker is in monolingual mode. This is inherently different from strategic forms of lexical transfer such as intentional code-switching to fill a lexical gap, transfer of cognates, or the borrowing of words from another language for pragmatic purposes.

However, the frequency factor is not as clear-cut in third language transfer. The above-mentioned claim by Poulisse and Bongaerts that the frequency of L1 function words determines their transferability is less valid in multilingual transfer. When function words are transferred in an L3 utterance, they are overwhelmingly supplied by the L2 even though the L1 function words must still have higher activation if the L1 is the language of highest proficiency. It appears that during L3 production, particularly in the early stages of acquisition, L2 status overrides the frequency effect associated with high proficiency.<sup>24</sup> As Williams and Hammarberg (1998) state: "Provided the factors of proficiency, typology, and recency are at a sufficient level, L2s appear more likely to be activated than the L1 as supplier language during the early stages of L3 acquisition" (p. 323). This characteristic of third language acquisition is discussed further in the following section.

### ***Word Class***

The process of lexical transfer distinguishes between content and function words. This variable appears to be closely related to the factors of control and attention. Faerch and Kasper (1986) distinguish between the transfer of content words as a conscious strategy to fill a gap, often preceded by a pause, and the unintentional transfer of a highly-frequent L1 lexical item, usually a function word. While code-switching among bilinguals is intentional, augmentative rather than compensatory, focused, and showing complex syntactic structures for the language switches (Odlin, 1989), lexical transfer during L2 acquisition, on the other hand, tends to involve short, complete, non-adapted L1 words and is often unintentional and involves function words (Ringbom, 1986, 2001).

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<sup>24</sup> See "Word Class" section below.

Poulisse and Bongaerts (1994) focus particularly on content versus function words in unintentional language switches.<sup>25</sup> Their results show that content word transfer is much more monitored, as shown by the amount of repair both during and after the utterance, but that the unintended switches are usually function words. Furthermore, the L1 function words are hardly ever morphologically or phonologically adapted to the L2. They attribute this phenomenon to the frequency effect and also to the relationship between proficiency and attention: when a learner has low L2 proficiency, he allocates most of his conscious attention to meaning and focuses more on content words, which leads to more errors with function words, whose short length requires less effort to encode and articulate.

Lexical transfer during L3 production also tends to involve function rather than content words. Ringbom (1986) suggests that semantic transfer, which would involve content words, tends to be more L1-based, whereas L2 lexical transfer, particularly in unmodified form, is limited to function words. De Angelis and Selinker (2001) agree that although L2 transfer of form appears frequently in their data, there is no clear evidence of L2 transfer of meaning. Hammarberg (2001) also finds that while his subject draws on her L1 English consciously for metalinguistic comments, elicitations (i.e., “how do you say...?”), and intentional incorporation of L1 lexical items to fill a knowledge gap during her L3 Swedish production, she uses L2 German in her unintended language switches, which usually involve short function words such as *mit* (with). This L2 function word transfer is facilitated by typological closeness, as shown by Cenoz (2001), who finds that her subjects transfer nearly seven times as many function words from Spanish as from Basque when speaking English.

### ***Morphological Transfer***

The general consensus among researchers is that L1 morphemes are more likely to be transferred if they are free rather than bound (Andersen, 1983; Gass, 1984; Kellerman, 1983; Weinreich, 1953). In her extensive work on the constraints governing bilingual code-switching, Myers-Scotten (1993) states explicitly that in a mixed utterance, system morphemes, and particularly bound morphemes, must come from the matrix language.<sup>26</sup> In the context of second or third language acquisition, the target language functions as the matrix language in which L1 or L2 items are embedded. Some studies (Fuller, 1999; Poulisse & Bongaerts, 1994; among others) apply Myers-Scotten’s model to lexical transfer during L2 and L3 acquisition and find violations of the constraints. Poulisse and Bongaerts (1994) claim that while their data supports Myers-Scotten’s constraints regarding bound morphemes, they do have instances of system morpheme transfer, such as the incorporation of L1 definite articles in an L2 sentence.

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<sup>25</sup> They define *unintended* as not motivated by contextual factors or linguistic need and operationalize it as not preceded by a pause or a marked intonation.

<sup>26</sup> Morpheme-switching constraints based on Myers-Scotten’s (1993) Matrix Language Frame Model (my paraphrase):

1. The matrix language is dominant and sets the morpho-syntactic frame of the utterance
  - a. The matrix language establishes the morpheme order.
  - b. The matrix language supplies all syntactically relevant system morphemes.
2. The matrix language blocks the appearance of any noncongruent morphemes from the embedded language.
3. If a morpheme from the embedded language appears in violation of 1) and 2), then the utterance must be completed in the embedded language.
4. The embedded language utterances are peripheral to the main arguments of the sentence.

Jarvis and Odlin (2000) suggest that there is counterevidence to the claim of the non-transferability of bound morphemes and add that such transfer is not just negative transfer but can have a facilitative effect on L2 acquisition, particularly between typologically close languages such as Finnish and Estonian. Although their data, based on the L2 and L3 English productions of Finnish and Finland-Swedish adolescents, does not provide any direct examples of bound morpheme transfer, they do cite previous studies of bound morpheme transfer such as Dawkins' (1916) study of Turkish verbal inflections incorporated into Greek.

While it appears that the transfer of bound morphemes, although possible, is rare during L2 acquisition, it is a significant characteristic of lexical transfer during L3 production. Many L3 utterances contain what Dewaele (1998) calls *lexical inventions*: "very complex IL forms that could share lexical, morphological and phonological characteristics from all the languages known to the speaker" (p. 476). For example, he cites the word *\*imprinter* (target form: *imprimer*) produced by a native speaker of Dutch with L2 English and L3 French. De Angelis & Selinker (2001) also see evidence for both *lexical interlanguage transfer* ("the use of an entire non-target word in the production of the target language") and *morphological interlanguage transfer* ("a free or bound non-target morpheme mixed with a different free or bound target morpheme to form an approximated target word") (p. 43). As an example of bound morpheme transfer, they cite the interlanguage productions of a native speaker of French with L2 English and L3 Spanish. When speaking L4 Italian, she produces words such as *minas*, when the target form is *mine*. They also discuss the word *\*isolada* produced by a native speaker of English with L2 Spanish and L3 Italian (English: *isolated*, Spanish: *aisalada*, and Italian: *isolata*). Hammarberg (2001) shows that when his subject produces mixed items with non-target inflectional morphology, such as *\*tälten* (Swedish verb stem and German infinitive ending) instead of *tälta*, the source language is her L2 German. The mixed utterances of Fuller's (1999) subject also contain instances of bound morpheme transfer.<sup>27</sup>

There are various explanations for this phenomenon. Fuller (1999) claims that the composite forms are an unconscious learning strategy during low L3 proficiency, for, as the learner has not yet acquired all levels of the lexical structure, she fills in the gaps with material from a language that she knows better, even in violation of morpheme-switching constraints. De Angelis and Selinker (2001) attribute composite forms to the spread of activation from stems and bound morphemes in one language to those of other languages in the speaker's linguistic system. Faerch and Kaspar (1986) maintain that in order for bound morphological transfer to occur, the learner must have established a functional equivalence between L1 and interlanguage morphemes. Most likely, the definitive answers will come from language processing research and from studies of multilingual lexical storage,<sup>28</sup> which indicate that function words and bound morphemes are less subject to language constraints than content words.

## CONCLUSION

A review of the literature on language transfer during third language acquisition supports the Multiple Effects Principle, since it is clear from the studies that the different variables

<sup>27</sup> See previous "Educational Background" section for an example.

<sup>28</sup> Paradis' (1985) Subset Hypothesis, which proposes that multilinguals have language-specific storage domains within an overall language-independent and conceptually organized lexical system, is frequently cited as a starting point for this issue.

interact in complex ways, sometimes overriding each other, sometimes converging to cause the incorporation of a non-target item during L3 production. While language transfer during third language acquisition in many aspects does not appear to differ fundamentally from that during second language acquisition, the discussion of the variables has shown that their effect can change depending on the status of the languages involved. Among the most important variables for any type of language transfer are proficiency, typology, and language mode, but third language acquisition is characterized in particular by the unintentional incorporation of L2 items during speech production, involving primarily function words and bound morphology.

This paper is a preliminary attempt to explore the different variables affecting language transfer in light of current studies of third language acquisition. Some of the variables have not been explored sufficiently in the current research, for example age and educational background, and merit further study. However, an important direction for future research lies in the area of language processing. Many of the unintentional switches involving function words and bound morphemes seem to be the result of a different processing mechanism than that involving content words, and the answer to these questions lies in multilingual lexical organization and multilingual speech production. Current research on third language acquisition is focusing increasingly on this approach. An equally important area that has not been adequately explored is the intersection of control/automaticity and unintentional language switches. Many studies address it to a certain extent, but more systematic research is needed. Further study in these areas will show the complexities of cross-linguistic influence in general, and particularly, the specificity of the multilingual's linguistic system.

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