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Review article

Research on first language attrition of morphosyntax in adult bilinguals

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This article presents a selective review of previous research findings on first language (L1) attrition. The review is intentionally limited in scope as it only discusses studies on morphosyntactic attrition in the L1 grammar of adult bilinguals. To this end – and in order to present the most current line of research in this field – I first report on studies that appeared in three recent collections of papers on L1 change or attrition. I then discuss findings reported in these three volumes as well as those reported elsewhere, in order to identify morphosyntactic features that are more vulnerable to change due to L2 interference.

Cook, V., editor, 2003: *Effects of the second language on the first*. Clevedon: Multilingual Matters. In the series *Second language acquisition*, edited by D. Singleton, volume 3. viii + 268 pp. US\$35.95/GBP21.95 (paperback). ISBN 978-1853596322

Schmid, M.S., Köpke, B., Keijzer, M. and Weilemar, L., editors, 2004: *First language attrition: interdisciplinary perspectives on methodological issues*. Amsterdam: John Benjamins. In the series *Studies in bilingualism*, edited by K. de Bot and T. Huebner, volume 28. x + 378 pp. US\$149.00 (hardback). ISBN 978-1588115492

Köpke, B., Schmid, M.S., Keijzer, M and Dostert, S., editors, 2007: *Language attrition: theoretical perspectives*. Amsterdam: John Benjamins. In the series *Studies in bilingualism*, edited by K. de Bot and T. Huebner, volume 33. viii + 258 pp. US\$142.00 (hardback). ISBN 978-9027241443

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I Introduction

First language (L1) attrition is a multi-dimensional phenomenon. The body of attrition research includes studies in child L1 attrition (normally categorized as incomplete L1 acquisition) as well as non-pathological adult L1 attrition. L1 attrition research also includes sociolinguistic studies investigating the loss of ethnic minority languages, which in some language contact situations are replaced by a dominant language for social or political reasons. Most of these studies examine language attrition/death as an intergenerational process (Dorian, 1982).

However revealing child L1 attrition and intergenerational societal level-language change are, I deal with neither of these phenomena in this article. Rather, I define the term 'language attrition' as referring narrowly to second language (L2)-induced L1 change or restructuring in an individual speaker's grammar (Pavlenko, 2000). The three collections under review include work that assumes various wider definitions of attrition; I leave open the question of the propriety of such definitions and focus on research contained in these three volumes that address morphosyntactic attrition in the L1 grammar of adult bilinguals.

One of the earliest examples of scientific interest in L2-interference dependent L1 attrition is Weinreich (1963: 1), who defines the interference phenomenon as 'deviation from the norms of either language which occurs in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact.' The term interference here does not imply mere additions to an L1 grammatical inventory but rather the rearrangement or restructuring of patterns that result from the introduction of foreign elements (the phonemic system, morphology, syntax and vocabulary) into the L1 grammar. This review article aims to identify unstable areas of the L1 morphosyntax that are more likely to undergo attrition in language contact situations, and to discuss the impact of a dominant L2 as a possible cause of this grammatical change in the L1.

In the first book under review, the interference phenomena that appear in the form of L2 transfer into the L1 are discussed in the context of Cook's (1991) multi-competence model, according to which L2 users' knowledge of either the L1 or the L2 is typically not identical to that of monolingual native speakers of L1 and L2 (Cook, 2002: 5–6).

It is commonly observed that most L2 users fail to attain native-like competence in L2 even after years of exposure, generally due to persistent L1 transfer (e.g. Bley-Vroman, 1990). Therefore, the view that L2 users' knowledge of the L2 differs from that of native speakers is less controversial than the suggestion that L2 users' L1 knowledge diverges from that of monolingual L1 speakers in various respects. From the perspective of L1 attrition, this implies that native L1 speakers will develop different L1 representations as they become L2 users. Accordingly, L2-dependent change or loss in L1 grammatical features is expected to be a natural consequence of bilingualism. The extent of this change is, of course, subject to individual variations (Köpke and Schmid in Schmid *et al.*, 2004; Köpke in Köpke *et al.*, 2007).

The multi-competence model assumes that the L1 and L2 of the bilingual speaker form a language super-system at some level rather than exist as completely isolated systems (Cook, 2003: 2). Therefore, an intriguing task for researchers is to determine the linguistic content and organization of this super-system that includes a merged set of features from different languages. The two languages are schematized within an integration continuum that ranges from total separation to total integration (Cook, 2002: 11). The important point here is that the relationship between the L1 and L2 might change from one domain to another. For example, an L2 user might have interconnected vocabulary but entirely separate syntax (Cook, 2002: 12). It is also possible that, even within the same linguistic domain, the integration continuum might apply to linguistic features differentially. For example, some L1 and L2 syntactic features might be kept totally separate in the bilingual mind; other syntactic features might undergo complete integration (for similar findings, see Gürel, 2002). The question of why the bilingual mind cannot always keep linguistic information that comes from different language sources stable and separate deserves to be investigated as a distinct topic. What is of interest here is the pattern of integration of the two languages. How are L1 and L2 features rearranged when the two systems are integrated? It is crucial to identify possible linguistically or psycholinguistically determined arrangements of the two languages (Köpke, 2002; Gürel, 2004; Gürel in Köpke *et al.*, 2007; Köpke in Köpke *et al.*, 2007; Paradis in Köpke *et al.*, 2007; Sharwood Smith in Köpke *et al.*, 2007). Nevertheless, it is not certain how far we can go in formulating

'hypotheses about the fate of certain linguistic features in sufficiently abstract terms as to be applicable to any language' (Andersen, 1982: 84).

II Review of the books

1 Cook, 2003

This book consists of 13 chapters. Each chapter examines L2 effects on L1 grammars in different areas such as collocations (Chapter 2 by Batia Laufer); narratives (Chapter 3 by Aneta Pavlenko); pragmatic formulations of requests (Chapter 4 by Jasone Cenoz); L1 morphology, lexicosemantics and idioms (Chapter 5 by Scott Jarvis); deviant L1 expressions and code-switching (Chapter 6 by Graeme Porte); the extent of L1 productivity and lexical diversity (Chapter 7 by Jean-Marc Dewaele and Aneta Pavlenko); L1 linguistic representations in bilingual children (Chapter 8 by Victoria A. Murphy and Karen J. Pine); L1 middle constructions (Chapter 9 by Patricia Balcom); L1 syntactic processing (Chapter 10 by Vivian Cook, Elisabet Iarossi, Nektarios Stellakis and Yuri Tokumaru); and L1 interpretation of pronominals (Chapter 11 by Teresa Satterfield). Chapter 12 by Ulrike Jessner introduces a 'dynamic model of multilingualism' to account for language acquisition and language loss. In Chapter 13, Istvan Kecskes and Tunde Papp discuss the effects of L2 in the form of foreign language classroom input on the L1 grammar. Given the focus of this review, a closer look at Chapters 3, 5, 6, 9, 10, 11 is necessary to examine in detail the morphosyntactic attrition data presented in these chapters.

In Chapter 3, Pavlenko discusses L2 English influence on L1 Russian, based on oral narratives collected from 30 late Russian-English bilinguals. Russian L2 users of English tend to use imperfective verbs and indeterminate verbs of motion in contexts that require perfective and determinate verbs. Some reflexive verbs that subcategorize for adjectives in the instrumental case are simplified in such a way that the reflexive particle of the verb is omitted and the adjective appears in the nominative case, as in English. Nouns and subject pronouns are case-marked incorrectly in a way that indicates that the six-case system in Russian is reduced to the three-case system of English.

In Chapter 5, Jarvis discusses L2 English influence on L1 Finnish grammar of an adult immigrant in the USA. Jarvis identifies 15

L2-induced deviant patterns. Spontaneous speech data reveals that L2 English influences the participant's selection of incorrect prepositions in L1 Finnish. However, none of these deviant patterns appear in the film-retelling task. In the grammaticality judgement task, the participant accepts some deviant structures, including incorrect use of prepositions. The participant also tends to change various word order patterns in Finnish into the L2's canonical SVO, suggesting that the rigid word order of the L2 influences the L1 word order pattern.

In the subsequent chapter, Porte examines the L2 Spanish influence on L1 English in spoken data collected from three English teachers living in Spain. It is predicted that English language teachers might experience change in their L1 grammar by being exposed to defective English input from non-native students for so many years. Results reveal that instances of code-mixing are fewer than expected and mostly occur in highly-specific terms without true L1 equivalents. Thus, no attrition effects are found even after many years of residence in the L2 country. This finding is in line with Gürel (Köpke *et al.*, 2007; see also below) that also finds no sign of L1 attrition in native English speakers.

Balcom's Chapter 9 discusses L2 English influence on L1 French grammar in the formation of middle-verb constructions (e.g. *the bomb exploded*), where English has more constraints than French. French middle constructions have a clitic pronoun (*se*), while English does not. French allows a variety of time, place and manner adverbials, while English middles can occur only with certain adverbials of manner. Unlike English, French allows impersonal subjects with middle constructions. The grammatical subject in French middles does not have to be affected by the action referred to by the verb. Results from a grammaticality judgement task reveal that compared to monolingual French speakers, 12 bilingual Francophone university students judge grammatical sentences to be ungrammatical significantly more frequently. This implies that the L1 grammar tends to become more conservative under the influence of L2. This contrasts with earlier suggestions that when the L2 offers a more restrictive grammar than the L1 (i.e. a subset of the L1), no attrition effects are expected (Gürel, 2002).

In Chapter 10, Cook, Iarossi, Stellakis and Tokumaru examine the L2 English effects on syntactic processing of Japanese, Spanish and Greek.

The prediction is that word order – the main cue in English – will override the weight of case, animacy and agreement cues in other languages. A total of 95 bilinguals and 67 monolinguals are tested. Results reveal that bilinguals in all three L1 groups behave differently from monolinguals. Even more interestingly, the Japanese bilingual group demonstrates more over-reliance on animacy and plurality cues compared with Japanese monolinguals. This result does not indicate L2 influence but suggests a changed L1 grammar in the L2 user, as predicted by the multi-competence model.

In Chapter 11, Satterfield investigates the effects of non-pro-drop characteristics of L2 English on the pro-drop setting of L1 Spanish within the Minimalist framework (Chomsky, 1995). Satterfield discusses Lipski's data (1996) that reveal that transitional Spanish–English bilinguals tend to lose the contrastive function of overt pronouns in Spanish. In a sentence such as *Ella_i hablaba el inglés que *ella_i / pro_i sabía* ('She spoke the English that she knew'), bilinguals permit the overt pronoun to appear in contexts that monolingual Spanish speakers typically reserve for *pro*, so that *ella* takes on the null subject's unmarked and non-contrastive interpretation. Satterfield argues that given the number of checking operations involved, while contrastive overt pronouns generate the highest cost, non-contrastive overt pronouns and null subjects generate lower cost. Thus bilinguals exhibit low incidence of referential *pro* and the more frequent use of overt subjects unspecified for focus. It is important to note that this analysis is based on Lipski's preliminary data that involved so-called transitional bilinguals: a group reported to have learned English before adolescence without schooling in Spanish. Therefore, it is highly questionable whether Satterfield's analysis can be applied to attrition in mature L1 Spanish grammar (see Gürel, 2002; for the influence of a non-pro-drop L2 on a pro-drop L1, see Tsimpli *et al.*, 2004).

Given the focus of this volume, all of the reviewed papers make valuable contributions in locating L2 effects on aspects of the L1 grammar. However, due to a lack of quantification of data, the extent of L2 effects cannot be clearly specified in most of the studies reported. Nevertheless, the overall picture suggests that as has been shown for other linguistic domains, L1 morphosyntax is vulnerable to L2 effects, and L2-dependent changes generally involve simplification or reduction

of morphologically-marked distinctions or categories as well as elimination of costly syntactic operations in the L1 (compare Andersen, 1982).

2 Schmid, Köpke, Keijzer and Weilemar, 2004

This volume presents a collection of studies that deal with theoretical and methodological aspects of L1 attrition. In the introductory chapter, Barbara Köpke and Monika S. Schmid extensively review past and present attrition research while offering solutions to some of the main problems in this field.

Below is a general outline of the rest of the chapters in the book. This is followed by a selective discussion of some of the papers that address L1 morphosyntactic attrition.

Part I starts with Aneta Pavlenko's paper on L2-induced L1 attrition in adult bilinguals. In Chapter 2, Antonio F. Jiménez Jiménez examines language attrition from a socio-cultural perspective. In Chapter 3, Jean-Marc Dewaele analyses L2 users' perceived language attrition and its effects on self-rated proficiency in L1 production of emotions. Evelyn P. Altenberg and Robert M. Vago's Chapter 4 discusses the advantages and disadvantages of using grammaticality judgement tasks in acquisition and attrition research.

In the first chapter of Part II, Kutlay Yağmur addresses L1 attrition of Turkish in Australia. In Chapter 2, Miriam Ben-Rafael discusses L1 attrition of French in Israel. In the third paper, Matthias Hutz examines L1 data from a German immigrant in the USA. In the last chapter, Valérie A.G. Ventureyra and Christopher Pallier present neurolinguistic data from young Korean adoptees who were immersed in L2 French.

The first three chapters of Part III include studies that are conducted within a generative grammar perspective. The first paper by Ayşe Gürel looks at L2-English-induced L1 attrition of Turkish in the context of pronominal binding. Bede McCormack's study also looks at attrition of binding properties, but examines attrition of L2 English reflexives in a L1 Japanese context. Silvina Montrul's chapter compares the characteristics of eroded L1 Spanish grammars of early Spanish-English bilinguals and the incomplete L2 grammars of L2 Spanish learners with respect to the semantic interpretations of the preterit/imperfect aspectual opposition. The last two chapters include studies carried out within Myers-Scotton

and Jake's (2001) Abstract Level and 4-M models: Steven Gross examines L1 German attrition in late German–English bilinguals, and Elena Schmitt presents data from Russian–English bilingual children to argue that language loss is a process of gradual replacement of L1 structures with L2 structures (compare Andersen, 1982; Pavlenko in Schmid *et al.*, 2004). In the concluding chapters, Schmid provides an annotated bibliography of language attrition research, and then presents suggestions and points to the future direction in this field.

Papers included in this volume all provide an in-depth analysis of some aspect of the language attrition phenomenon. In the rest of this section, I discuss in more detail those papers that offer direct implications for the attrition of L1 morphosyntax.

Pavlenko's paper provides a taxonomy of cross-linguistic influence, according to which L1–L2 contact might lead to processes such as:

- borrowing: addition of L2 elements to the L1;
- restructuring: deletion of certain L1 rules and/or incorporation of L2 elements into L1 resulting in substitutions or simplifications;
- convergence: creation of a unitary system, distinct from both L1 and L2;
- shift: a move from L1 structures to approximate L2 structures;
- attrition: loss of some L1 elements due to L2.

Each process is observed in various linguistic domains, including morphosyntax. Pavlenko notes that statements of L1 attrition of morphosyntax require convincing evidence of attrition in L2 users' comprehension, production and metalinguistic judgements of L1 rules (for similar suggestions, see Altenberg and Vago in Schmid *et al.*, 2004).

In another paper, Yağmur reflects on his earlier research on L1 attrition of Turkish among first generation immigrants in Australia (Yağmur, 1997). He reports that Turkish attriters demonstrate morphological errors such as double pluralization after a quantifier, as in **çok kitaplar* ('many books'). Yağmur also tests relative clauses keeping with a regression assumption, according to which complex constructions such as relativization are acquired late, and, therefore, are lost early in language contact situations. Results reveal that when compared to the monolinguals in Turkey, the attriters (even those with low L2 proficiency) are found to be slower in producing these constructions,

possibly due to L1 processing difficulties experienced after an extended stay in the L2 environment.

In the subsequent chapter, Ben-Rafael discusses the effects of L2 Hebrew on the L1 French grammar of adults living in Israel. An analysis of speech data reveals that due to the influence of Hebrew, the conditional form is expressed by the future tense, the distinction between *passé composé* and *imparfait* is not always maintained, the subjunctive mode is often disregarded, and indefinite articles are omitted. Ben-Rafael notes that grammatical changes observed in the data are often similar to certain registers of spoken French. Therefore, reduction and simplification processes may reflect tendencies inherent in the French language, triggered by contact with Hebrew. As for syntactic features that remain unchanged, French grammatical features without equivalents in Hebrew (e.g. word order, the number of negators) resist L2 influence.

Hutz discusses a case study based on a corpus consisting of letters written between 1939 and 1994 by a German immigrant who settled in the USA in adulthood with no prior L2 English knowledge. Hutz reports no strong morphological attrition and very few deviations in L1 word order. The morphosyntactic stability found 57 years after immigration is remarkable. Nevertheless, it is important to note that Hutz's study involves one participant, and that the written data on which the whole analysis is based might involve a high degree of monitoring and self-correction.

In search of syntactic attrition, Gürel discusses L1 data from Turkish speakers who were exposed to English in adulthood and who have been living in North America for a prolonged period of time. The study investigates possible attrition effects in binding properties of overt and null pronouns in pro-drop L1 Turkish under the influence of non-pro-drop L2 English. Attrition and monolingual groups are compared in three different tasks: written interpretation, truth-value judgement and picture identification. The attrition group allows more bound variable readings for the overt pronoun *o* than do monolinguals. This is a clear effect of L2 English because in constructions such as *Murat_i onun*_i sinemaya gideceğini söyledi* ('Murat_i said that he_i would go to the movies'), the Turkish overt pronoun *o*, unlike the English pronoun *he*, cannot be coreferential with the sentential subject. This suggests that

the disjointness requirement of the overt pronoun *o* is not strictly followed by L1 attriters due to L2 English. However, the attrition group maintains the binding features of the other overt pronoun *kendisi* and the null pronoun, for which English has no corresponding forms.

Gross adopts the language production model of Myers-Scotton and Jake (2001) to analyse production data from six adult German immigrants who were exposed to English in the USA. Data support the model in the sense that content morphemes (e.g. nouns, verbs, idioms) are found to be more vulnerable to attrition than early system morphemes (e.g. determiners, plural -s, reflective markers). Yet, early system morphemes are more vulnerable than late system morphemes such as subject–verb agreement and case markers.

Overall, the morphosyntactic studies reviewed in this volume indicate considerable L2 influence on the mature L1 grammars of adult bilinguals. To summarize:

- Restructuring of the L1 grammar is possible due to extensive L2 exposure combined with less accessible L1 input.
- When L1 and L2 have corresponding forms, the L2 form with all its morphosyntactic features can override the L1 form that is not used as frequently.
- When L1 and L2 have no corresponding forms, L2-interference dependent change is not relevant.
- Complex L1 forms might be processed with difficulty as a result of long-term disuse.

3 Köpke, Schmid, Keijzer and Dostert, 2007

The most recent volume includes articles that provide theoretical foundations and perspectives for language attrition research. The 2004 volume came out of the First International Conference on First Language Attrition and focused on the methodological issues. In contrast, the 2007 volume reflects the theme of the Second International Conference on First Language Attrition and focuses on the role of theoretical models for the study of language attrition. This 13-chapter book starts with an introduction by Monika S. Schmid and Barbara Köpke, who emphasize the necessity of evaluating L1 attrition within a broader perspective of bilingualism. They suggest that, provided that attrition studies are conducted

within a more theoretically-oriented frame (as in the case of L2 acquisition research), examination of L2-induced changes in the L1 grammar can provide valuable insights into linguistic research in general.

In the first chapter, Köpke examines biological, cognitive and external factors that might – individually or as a cluster – impact L1 attrition. In Chapter 2, Mike Sharwood Smith presents Modular Online Growth and Use of Language, a model that tries to integrate both linguistic and psycholinguistic accounts of language transition in the context of language acquisition and attrition. In Chapter 3, Kees de Bot suggests that some of the main characteristics of a dynamic systems model can explain language attrition.

Chapters by Carol Myers-Scotton (Chapter 4), Ianthi Maria Tsimpli (Chapter 5) and Ayşe Gürel (Chapter 6) comprise individual studies investigating morphosyntactic attrition within a certain linguistic framework. I discuss these studies in more detail after giving an overview of the rest of the book.

In Chapter 7, Michel Paradis discusses various constructs from a neurolinguistic theory of bilingualism and their implications for language attrition. In Chapter 8, on the basis of data from German–English and German–Dutch bilinguals, Schmid argues that not all types of L1 use help maintain the L1.

Chapters 9 and 10 investigate L1 attrition in early bilinguals. Christophe Pallier presents data from Korean adoptees in France to argue that a critical period in language acquisition is a result of the stabilization of neural connections through the language learning experience itself, not the result of a loss of neural plasticity. In Chapter 10, Rosalie Footnick presents a case study of a bilingual to argue that an apparently forgotten language can be recovered through hypnosis.

The last three chapters examine the role of identity, ideology, emotions and attitudes in L1 attrition. In Chapter 11, Petra Presher explores adult immigrants' own perception of their bilingual and bicultural identity in relation to L1 attrition. In Chapter 12, Miriam Ben-Rafael and Monika S. Schmid compare the changes in the L1s of French and Russian immigrants in Israel. In Chapter 13, Antonio F. Jiménez Jiménez discusses the use of the stimulated recall protocol in the study of L1 attrition.

In the rest of this section, I return to the three studies on L1 attrition of morphosyntax. Carol Myers-Scotton's Chapter 4 reports on a study

of Xhosa–English bilinguals in South Africa to investigate the linguistic steps that lead to language shift. Speech samples analysed within the 4-M model did not reveal any considerable signs of L1 attrition of grammatical morphemes. Code-switching found in the speech samples may be a step on the way to language shift, but Myers-Scotton's data does not conclusively show that shift is inevitable.

In Chapter 5, Tsimpli presents a Minimalist approach to selectivity in morphosyntactic attrition. She argues that the attrition process can affect interface features but not syntax proper. First, the author discusses the results of the production and interpretation tasks reported in Tsimpli *et al.*, (2004) that looks at L2 English-induced changes in L1 Greek grammars of late L2 learners living in Britain for a minimum of six years. The Greek data involving an interface phenomenon – namely (in)definite preverbal and postverbal Determiner Phrase (DP) subjects – is analysed. Results of the production task reveal that the attrition group, under the influence of English, produces more preverbal subjects in contexts where the non-attributed group strongly prefers postverbal subjects. However, the same effect is not clearly observed in the interpretation task. Second, Tsimpli discusses results of an online grammaticality judgement task reported in Kaltsa's (2006) pilot study that investigates L1 case-marking on definite and indefinite DPs of Greek–Swedish and Greek–German early bilinguals. Attrition effects found in these early bilinguals are possibly due to incomplete acquisition of Greek.

Gürel's chapter compares the results of a L2 Turkish-induced L1 English attrition study with the results of a L2 English-induced L1 Turkish attrition study reported in Gürel (2002), which accounts for selective L1 attrition through the subset–superset relations of the L1 and L2. In the present study, the attrition group consists of 15 English native speakers who have learned Turkish in adulthood and whose length of stay in Turkey ranged from 10 to 35 years. Attrition effects in binding interpretations of pronouns and reflexives are tested through two tasks: written interpretation and truth-value judgement. Results reveal no evidence for the L2 Turkish influence in the L1 English grammar, disconfirming predictions drawn from the Subset Model of language attrition. Although Gürel's (2002) study demonstrates L2 English effects in the L1 grammar of Turkish native speakers living in North America, the same L2 effects are not found in the L1 grammar of

native English speakers living in Turkey. This difference is attributed to the frequency of L1 use: an important psycholinguistic factor in language attrition (compare Schmid in Köpke *et al.*, 2007).

III General discussion

1 The integration of two languages in the bilingual mind: Is the outcome predictable?

Data from both L2 acquisition and L1 attrition seem to suggest that language representation of bilinguals is subject to change. Various changes occur in the content of both grammars over time due to changing input conditions and due to continuous interaction of the two linguistic systems (Sharwood Smith and Van Buren, 1991; Paradis in Köpke *et al.*, 2007). This observation had led many researchers to propose a multi-competence view of bilingualism that considers the bilingual mind as an entity in its own right, not as a composite of two monolingual minds (Cook, 1991). Accordingly, integration of two languages is assumed to be an inevitable consequence of bilingualism, creating a single conjoined system different from monolingual versions of either language (Cook, 2003: 8).

The application of these relatively new concepts into the domain of L1 attrition brings more questions than answers: What determines the extent of integration or the linguistic content of the merged system? Does this integration lead to the creation of a unitary system, distinct from both L1 and L2 (Cook, 2003) or to the incorporation of L2 rules into the L1 (Pavlenko, 2000; Pavlenko in Schmid *et al.*, 2004)? Which L1 features are more affected by this integration (Gürel, 2002; Tsimpli *et al.*, 2004; Gürel in Köpke *et al.*, 2007; Tsimpli in Köpke *et al.*, 2007)? Are changes in L1 features internally-induced (i.e. L2-independent)? In other words, is attrition of some L1 features the result of inherent unsteadiness (weakness) that makes them more susceptible to erosion (Seliger, 1989; 1996; Ben-Rafael in Schmid *et al.*, 2004; Sorace, 2005)? Alternatively, can we consider attrition the consequence of a particular manner in which two languages interact? In other words, is L1 attrition an L2-induced phenomenon that emerges when the L2 grammar becomes the source of indirect positive evidence due to the lack of L1 input (Seliger, 1991; Sharwood Smith and Van Buren, 1991; Gürel,

2002; Schmid, 2002)? We can consider a third possibility in which both internally- and externally-induced changes occur at the same time. In other words, certain L2 features trigger attrition only in inherently unstable L1 features.

Indeed, in externally-induced attrition (i.e. L2-induced attrition) there is some selectivity. Attrition does not apply across the board. Only certain L2 forms can trigger change in some L1 properties. For example, only relatively less complex L2 forms encroach on the L1 and accelerate change or attrition in the corresponding L1 properties (Andersen, 1982; Seliger, 1989; Schmid, 2002). The belief that less complex L2 features replace more complex L1 features is generally linked to a reduction or simplification rule in attrition (Andersen, 1982; Seliger, 1989; 1996). For example, in Seliger's (1989; 1996) 'redundancy reduction principle', reduction is associated with some form of 'markedness' in the sense that less marked L2 forms are more likely to replace more marked forms in the L1, whereas less marked L1 forms appear more resistant to attrition. In this account, grammatical forms that are more complex and have a narrow linguistic distribution are considered marked. This follows that integration of two languages brings about a competition between L1 and L2 rules that are linguistically comparable. Thus, L2-induced change or attrition is only relevant when the L1 and L2 have equivalent forms that are in competition (Köpke, 2002; Ben-Rafael in Schmid *et al.*, 2004; Gürel, 2004; Gürel in Köpke *et al.*, 2007; Köpke in Köpke *et al.*, 2007; Paradis in Köpke *et al.*, 2007; see also Andersen, 1982). This is in line with Altenberg's (1991: 204) suggestion that L1 and L2 similarity is a necessary condition for L2-induced L1 attrition.

The idea that some linguistic features are inherently more problematic (i.e. hard to acquire and easy to lose) is also proposed in recent Minimalist approaches to attrition. For example, Tsimpli *et al.* (2004), Sorace (2005) and Tsimpli (in Köpke *et al.*, 2007) suggest that extensive L2 use accompanied by infrequent L1 contact will only influence 'soft' interface constraints, which are associated with the mapping of syntax, lexical semantics, pragmatics, and information structure. In contrast, 'hard' constraints that are purely syntactic in nature will be retained in L1 attrition (Sorace, 2005: 55). Accordingly, null subjects – which result from the specification of [–interpretable] features (e.g. case and agreement

on verbs) – will not be affected by attrition, whereas the distribution of null and overt subjects, which is determined by [+interpretable] (or syntactic/pragmatic) features (e.g. [+Topic Shift]), will be subject to attrition. It is true that purely syntactic features are more resistant to attrition. However, this does not mean that syntactic attrition is never possible. As documented in all three volumes reviewed here and in previous studies, attrition is not limited to the interface between syntactic and discourse/pragmatic knowledge. Restructuring is possible in various domains of morphosyntax such as word order (Schaufeli, 1996; Jarvis in Cook, 2003), relative clause formation (Seliger, 1989; Yağmur in Schmid *et al.*, 2004), the formation of middle constructions (Balcom in Cook, 2003), the aspectual system (Polinsky, 1997; Pavlenko in Cook, 2003), the binding domain (Gürel, 2002), the pronominal system (Gürel, 2002; Tsimplici *et al.*, 2004; Tsimplici in Köpke *et al.*, 2007), case and plural morphology (Larmouth, 1974; Polinsky, 1997; Pavlenko in Cook, 2003; Yağmur in Schmid *et al.*, 2004), indefinite articles (Ben-Rafael in Schmid *et al.*, 2004) and verbal agreement (Ben-Rafael in Schmid *et al.*, 2004).

In another approach to attrition, it has been suggested that the outcome of the linguistic integration of two languages can be predicted in a principled way by taking account of L1/L2 subset relationships (Gürel, 2002; Gürel in Köpke *et al.*, 2007). In cases where the L2 has broader grammatical options with respect to a particular linguistic property (i.e. L2 forms a superset of L1), the options of the L1 are broadened on the model of L2 as restrictions tend to neutralize in language attrition. In a sense, in language contact situations, the language with fewer restrictions will replace the language with more restrictions. This prediction has been confirmed by studies in which restrictions on binding interpretations of pronouns are found to be loosened (Gürel, 2002). Nevertheless, Gürel (in Köpke *et al.*, 2007) reports that so long as psycholinguistic conditions for language attrition are not present, patterns of syntactic attrition predicted by this subset–superset model are not observed.

2 *Characteristics of morphosyntactic attrition*

Within the current state of L1 attrition research it is not yet possible to specify the exact linguistic nature of morphosyntactic attrition, mostly

due to the incomparability of cross-linguistic data (see below). Nevertheless, attrition studies reviewed in the three volumes as well as those published elsewhere seem to suggest that morphosyntactic attrition in mature L1 grammars of bilinguals follows a pattern. The pattern reflects both internally- and externally-induced linguistic change that is triggered and/or accelerated by the interaction of two languages (Schmid, 2002). In both types of change, the predicted tendency is towards reduction of morphosyntactic complexity as well as loosening of morphosyntactic restrictions, which will eventually give the speaker a smaller number of linguistic constructions and devices (Andersen, 1982; Satterfield in Cook, 2003). Among the common examples of morphosyntactic reduction or simplification are loss of case morphology, loss of gender-marking and adjective/noun convergence, omission of indefinite articles, elimination of relative pronouns, reduction of allomorphic variation, simplification of verbal agreement, use of lexemes instead of bound morphemes to encode grammatical relations, simplification of word order, reduction of restrictions in the binding domain, and elimination of the perfective/imperfective aspectual distinction (Schmid, 2002).

3 Methodological issues

It is important to note that although there is considerable evidence of morphosyntactic change, some research findings do not reveal significant L1 attrition in adult grammars (Porte in Cook, 2003; Hutz in Schmid *et al.*, 2004; Gürel in Köpke *et al.*, 2007; Myers-Scotton in Köpke *et al.*, 2007; see also Balcom in Cook, 2003; Pavlenko in Cook, 2003). It is commonly acknowledged that attrition is dependent on a variety of internal and external factors. Therefore, it is natural to find a high degree of variability in the extent of language attrition that occurs in mature grammars (Schmid, 2002; Köpke and Schmid in Schmid *et al.*, 2004; Köpke in Köpke *et al.*, 2007). Nevertheless, contradictory results can be attributed to methodological problems (Schmid, 2002; Köpke and Schmid in Schmid *et al.*, 2004; Schmid and Köpke in Köpke *et al.*, 2007). As Schmid (2002: 29) notes, there are three major methodological considerations in attrition research: linguistic features to be examined; data collection procedure; and determination of what counts as evidence for attrition.

Frequently, contradictory results are due to researchers' different conceptualizations of these three issues. Furthermore, as Schmid and Köpke (Köpke *et al.*, 2007: 4) note, 'the field of attrition is still far less extensive, less theoretically sophisticated' and most attrition research is of a rather descriptive nature. Small data size and lack of proper quantification are the major problems of attrition studies. This makes it difficult (if not impossible) to compare the findings of existing research studies. In the absence of such comparability, major questions in attrition research will remain unanswered.

IV Conclusions

In this article, I reviewed three volumes on L1 change/attrition and discussed recent studies with a focus on morphosyntactic attrition in order to identify L1 features that are more vulnerable to attrition. Research findings suggest that however slow and limited, L1 attrition of morphosyntax is possible. Nevertheless, it is highly selective and can be both internally and externally induced. Therefore, predicting the most vulnerable features is not always easy. This requires a full understanding of the pattern of interaction between bilinguals' two languages. To identify the integration of the two languages, a holistic view of bilingualism has to be adopted. It is not possible to characterize L2-induced L1 attrition in isolation; we also need to identify the course of L2 acquisition of the bilingual (Schmid and Köpke in Köpke *et al.*, 2007). What is lost and what is maintained in the L1 might be directly related to what is acquired and what is not acquired in the in L2 (Gürel, 2002; Sorace, 2005). As suggested by dynamic systems theory, we may discover individual factors in language attrition, but the course of change cannot be predicted unless we measure the exact impact of each individual variable upon the complete interconnectedness of systems (de Bot in Köpke *et al.*, 2007).

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