CHAPTER 26 First language attrition and contact linguistics

Abstract

Language attrition research investigates the process of change or deterioration of knowledge in a language that has previously been acquired by an individual: When speakers change their linguistic environment, they often undergo attrition partly through interference from the dominant contact language (externally induced), and partly through reduced accessibility due to non-use (internally induced). Similarly, growing contact with the dominant language can eventually result in change of either form or function in the language of a society and, in extreme cases, lead to language shift and loss over time. As such, attrition research describes the incipient stages of potential wider, contact-induced language change and thus can provide valuable insight for questions in the field of contact linguistics such as maintenance and loss of languages at the societal level and across generations and the nature of very early stages of contact-induced language change. The aim of this chapter is to provide a selective overview of previous research on first language (L1) attrition in order to demonstrate its relevance for explanations of contact-induced language change at the societal and intergenerational level.

1. Introduction

When speakers of different languages come into contact, their languages typically begin to interact, leading to phenomena such as code-switching and -mixing, various kinds of lexical, structural and phonological changes (and, in extreme cases, the total loss of a language or creation of an entirely new one) (Muysken, 1995). The addition of another language into the mind leads to the creation of a unified super-system where the native language is affected by the presence of a second language (L2) (Cook, 2003, 2012). As Backus (2014) has stated, once the change in the language has set in, it is easy to spot, but its actual origins and how it has taken hold may remain obscure, particularly given that very often documentations of earlier, pre-contact stages of the language in question are scarce. In addition, the focus of contact-linguistic research is usually at the level of the speech community and macro-societal factors, with a primary interest on either the replacement of the community language by another or on substantial changes in the linguistic systems of these communities (Sankoff, 2001; Thomason & Kaufman, 1988, see Hickey, 2010 and Lim & Ansaldo, 2015 for an overview). Only rarely do investigations attempt to reveal the complex interactions of linguistic, social and attitudinal factors both at the individual and the societal level (e.g. Winford, 2003) or investigate both the social as well as the cognitive aspects of phenomena such as code-switching in bilingual individuals (e.g. Myers-Scotton, 2002).

Consequently, there has been more emphasis on linguistic outcomes at the societal level and less on how individual speakers' linguistic abilities and practices have developed and changed over time, but as such individual and microlinguistic processes of change constitute the seed of wholesale change and adaptation of linguistic systems, they form an important part of the overall process. For instance, when a speaker starts having difficulties with the grammatical principles of gender concord, this will have wider consequences because gender involves the interaction of several components (i.e. morphology, syntax, semantics and phonology) as well as knowledge about the real world (Corbett, 1991). When gender and the related features cannot be inferred from the input, this could lead to incorrect usage (e.g. overgeneralization of masculine forms and indefinite articles as in the heritage Norwegian, reported by Lohndal & Westergaard, 2016) and eventually erosion of the gender system and deterioration of the related features in the language variety. The aim of this chapter is to point to the role the individual speakers play in situations where language change is taking hold, and which may (or may not) eventually lead to large-scale processes of change and/or loss at the societal level and over generations (Croft, 2000; Matras, 2009).

The phenomenon of first language attrition in the individual was first recognized in the classical work of Haugen (1938:1) as the possible outcome of a "tug of war" between the languages of the immigrant who arrives in a new language environment. Similarly, Weinreich (1953), in his seminal contribution on immigrant languages, indicated the significance of including the study of individual bilinguals in order to understand the mechanisms of societal language contact and change. Despite these early and important attempts, it took three more decades until language attrition was constituted as a research field. This is generally assumed to have happened with a conference on *Language Loss*, which took place at UPenn in 1980, and the publication of a collection of papers from this conference (Lambert & Freed, 1982). Since then, various symposia and conferences, graduate workshops, collected volumes and special issues in journals have contributed to the visibility of attrition research as an increasingly important subfield of bilingual development (see Köpke & Schmid, 2004 for a historical review), and investigations into first language attrition have been recognized as an integral part of language acquisition and bilingualism research.

The term 'attrition', first used by Haugen for the "slow and incessant" process by which "each foreigner has been turned into an American, idea by idea, and word by word" (Haugen, 1983:1), describes "any of the phenomena that arise in the native language of a sequential bilingual as the consequence of the co-activation of languages, cross-linguistic transfer or disuse, at any stage of L2 development and use"

(Schmid & Köpke, 2017). Unfortunately, its strong and largely negative connotations appear to have led to the widespread perception that attrition is a comparatively rare process, confined to extreme and prolonged situations of very limited L1 use (e.g. Costa & Sebastián-Gallés, 2014; Dussias & Sagarra, 2007) coupled with very high levels of L2 proficiency (e.g. Kroll & Bialystok, 2013; Tsimpli, Sorace, Heycock & Filiaci, 2005). In other words, it is often assumed that 'actual' attrition should somehow go beyond the "normal influence between languages in a bilingual or polyglot" (Ahlsén, 2013:1). We hold that such a division of bilinguals into 'non-attriters' and 'attriters' is both impractical and unhelpful: all bilingual speakers experience bi-directional language transfer to some extent. Such phenomena can be seen across all linguistic levels and are the inevitable outcome of the fact that the management of a bilingual system requires more cognitive resources than is the case for monolinguals because both languages are active (to various degrees) at the same time regardless of the speaker's intention to use one and inhibit the other. Therefore, bilinguals need more time and effort to resolve cross-linguistic influences (Green & Abutalebi, 2013; Kroll, Bobb & Misra, 2008), and this sometimes leads to language transfer phenomena, all of which can be considered instances of attrition.

That notwithstanding, the context in which language attrition has most frequently been studied, and which is most relevant to the topic of language contact, is that of immigrants who have migrated to another country and learnt the language of the majority society as adults. While they often continue to use both languages in their daily life, the contexts and the frequency of L1 use are considerably reduced in comparison to their previous language environments. Most of these speakers have been observed to preserve their general proficiency in the L1 at high levels; yet, they indicated some degree of vulnerability in their linguistic system due to reduction in exposure and use (Köpke & Schmid, 2004; for an overview see Schmid, 2016). The following sections will provide an overview of the extent to which a speaker's native language can be compromised and what factors play a role in the process of attrition.

2. Effects of attrition on the native language

There is a considerable body of research demonstrating that attrition phenomena can occur across all linguistic levels (lexicon: Köpke, 2002; Pavlenko, 2009; Schmid & Jarvis, 2014; Yılmaz & Schmid, 2012; morphosyntax: Gross, 2004; Gürel, 2007; Yılmaz, 2011; phonetics: Bergmann, Nota, Sprenger & Schmid, 2016; Chang, 2013; de Leeuw, Tusha & Schmid, 2017; de Leeuw, Mennen & Scobbie, 2012; Major, 1993; Mayr, Price & Mennen, 2012; pragmatics: Chamorro, Sorace & Sturt, 2016; Dewaele, 2004; Pavlenko, 2002). It can manifest itself as a simplification or reduction of the L1 system (Gürel, 2013; Seliger & Vago, 1991), or disfluent speech with a high proportion of pauses and self-repairs (Köpke, 1999; Schmid & Beers Fägersten, 2010; Bergmann, Sprenger & Schmid, 2015). Among mature speakers,

however, attrition outcomes do not usually lead to a wholesale deterioration or loss of a particular linguistic feature or skill[1]. Rather, the speakers seem to have retrieval and processing difficulties due to the cognitive load of bilingualism.

The lexicon is the place where the change is the most immediately visible to researchers and bilingual speakers themselves. Bilinguals often have the tendency to borrow words/expressions from the L2, integrate them phonologically and/or morphologically, use L2-like collocations and idioms, extend the meaning of an L1 word to capture the meaning of its L2 translation equivalent and converge the L1 term with its L2 meaning (Jarvis, 2003; Pavlenko, 2004, 2011). Such online mergers, however, do not necessarily indicate that the speaker no longer has these words and phrases in the L1 system. Instead, they can be ascribed to effects of cross-linguistic competition during online speech, with both languages contributing to some extent to the process of lexical retrieval or production. Analyses of free speech data further reveal that this competition can lead to lexical retrieval difficulties, manifesting themselves in reduced levels of lexical diversity (Schmid & Jarvis, 2014; Yılmaz & Schmid, 2012) and decreased creativity and fluency in speech (Bergmann, Sprenger & Schmid, 2015; Schmid & Beers Fägersten, 2010) compared to monolingual speakers. However, bilinguals also tend to develop compensatory strategies which prevent these processes of transfer and interference from disrupting communication. In controlled experiments such as picture naming and verbal fluency, where speakers can focus entirely on lexical retrieval, they typically have fewer problems of accessibility (Yılmaz & Schmid, 2012). All this implies that there is no dramatic loss of vocabulary (Hulsen, 2000; Köpke & Nespoulous, 2001; Opitz 2011; Schmid & Jarvis, 2014): the underlying knowledge of the lexical items is intact, but retrieval can sometimes fail in real-time language processing and production due to the cognitive demands of managing both linguistic systems in the face of reduced automaticity.

With respect to grammatical change, similarly, the driving force appears to be a simplification of costly syntactic operations (Gürel, 2013; Seliger & Vago, 1991; Sorace & Serratrice, 2009). Among the phenomena which have most often been studied in this respect are case morphology (Larmouth, 1974; Pavlenko, 2003; Polinsky, 1997), gender-marking and adjective/noun convergence (Bergmann, Meulman, Stowe, Sprenger & Schmid, 2015), determiners (Ben-Rafael, 2004), use of relative clauses and complex embeddings (Yağmur, 2004; Yılmaz, 2011), relative clause attachments (Dussias, 2004; Dussias & Sagarra, 2007; Kasparian & Steinhauer, 2017), simplification of word order (Backus & Onar Valk, 2013;

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[1] Attrition effects (in the form of structural changes and restructuring) have been reported to be most dramatic for early bilinguals who were exposed to an L2 in childhood or before puberty (Bylund, 2009; Montrul, 2016).

Jarvis, 2003; Schmid, 2002), reduction of restrictions in the binding properties of null versus overt pronouns (Gürel, 2007), and elimination of the perfective/imperfective aspectual distinction (Pavlenko, 2003; Polinsky, 1997). Similarly to the findings on the lexicon reported above, most of these studies agree that attrition phenomena are more likely to be the outcome of difficulties with the integration and coordination of information at various levels than to an erosion of rules (within the generative framework, this is often put in terms of interface vs. core syntax phenomena, e.g. Sorace, 2011; Tsimpli, 2007). In other words, morphosyntactic phenomena are most often ascribed to a reorganization of the linguistic system as a result of integrating the newly acquired L2 structures, allowing bilinguals to efficiently cope with cross-language competition which is a natural consequence of bilingualism (Chamorro, Sorace & Sturt, 2016).

Similar processes of adaptation can be observed in the area of phonology and, particularly, phonetics. A number of investigations on bi-directional cross-linguistic influence in speech production, beginning with Flege's investigation of late French-English and English-French bilinguals (1987), have found evidence for such bi-directional adaptation. Flege's original findings that Voice-Onset Time (VOT) in both of a bilingual's languages will shift towards the setting of the other contact language over time and with an increase in proficiency have since been replicated in studies of Brazilian Portuguese and English (Major, 1992); English and Dutch (Mayr, Price & Mennen, 2012; Schmid, Gilbers & Nota, 2014) and English and Korean (Chang, 2012). Bi-directional changes have also been found for the production of some vowels (Bergmann, Nota, Sprenger & Schmid, 2016), the production of lateral /l/ in German-English bilinguals (de Leeuw, Mennen & Scobbie, 2013), rhoticity (Himmel & Kabak, 2016; Ulbrich & Ordin, 2014;) and suprasegmentals (Mennen, 2004). At the same time, a range of studies on perceived global foreign accent find that attriters are not reliably identified as native speakers by native raters (Bergmann, Nota, Sprenger & Schmid, 2016; de Leeuw, Schmid & Mennen, 2010, Hopp & Schmid, 2013; among others). Attrition in this domain seems to be more prevalent than other types of attrition, as attriters themselves often report that they are recognized by the way they speak when they return to their country of origin (Boeschoten, 2010; Yılmaz & Schmid, 2012). On the other hand, bilinguals seem to retain the ability to perceive foreign accent in their native language, suggesting that they in fact maintain their underlying phonetic abilities (Major, 2010). These findings yet again do not indicate a restructuring of the underlying phonemic space but suggest that the native speech spectrum has been widened, due to the daily exposure to a larger range of different variants of the L1 in an L2 environment (e.g. other attriters, heritage speakers, speakers of other dialects of the L1 and L2 speakers). We do not know of any studies of phonological recovery/improvement with re-exposure to target-like forms (as has been found for grammatical phenomena, e.g. Chamorro, Sorace & Sturt, 2016 on subject pronouns), however, it has been

proposed that once re-immersed in the L1 environment, speakers would gradually become re-tuned to the non-migrant variant of the L1 (Herdina & Jessner, 2013). Whether this is indeed true, and how long this process of re-adaptation would take, is a matter for future research.

In summary, it can thus be said that the process of attrition represents the adaptation of a fully developed, monolingual language system to the demands of competition and limited cognitive resources when a second language is introduced. Such adaptations can be seen across all linguistic levels, and they can affect production, perception and comprehension, and represent surface level phenomena. Gradually, these adaptations may lead to shifts in distributional patterns across the speech community, which are then transmitted to subsequent generations and eventually result in an established contact variety. For instance, young speakers of German and Croatian minority dialects in Italy were observed to have irregular patterns of language acquisition and use which was divergent from the traditional one (e.g. overgeneralization of case marker). Yet, they appeared to have a fully functioning language system. As these speakers extend their domains of use and as this variety gains respect among the community, it is possible that the (semi)speakers of this language will become fluent speakers of this language variety (Dal Negro, 2004). Investigations of early language attrition may thus allow the reconstruction of these early situations of contact-induced language change, or even the pre-contact state of a linguistic system, in cases where documentations of previous stages of a moribund language are lacking.

3. External predictors of attrition

Fishman (1991) pointed out that the complexity of the process of language change in situations of contact makes it hard to avoid broad overgeneralizations, obscuring the causes and detailed patterns of shift and maintenance. This substantiates the importance of investigating the mechanisms of language change and their interactions in more detail. Investigations of language attrition not only find statistically significant differences between attrited and non-attrited populations at group level but also almost always a larger range of variability among the individual participants in the bilingual than in the monolingual populations (Schmid, 2013). Arguably, such variability constitutes the seed of language change and is the necessary precursor for any processes of shift and adaptation to set in (Croft, 2000). Many attrition studies have attempted to account for the degree of individual adaptation to the contact language on the basis of factors related to personal background (e.g. age of acquisition, education), to the immigration experience (length of residence, context of migration), to language habits (use and exposure to L1 and L2 in different settings) and to attitudes towards the language and culture of both speech communities.

One factor which is of particular relevance to understanding how individual attrition may lead to contact-induced change in the wider community is language use and exposure. While early studies of attrition more or less axiomatically assumed that higher levels of L1 use would be strongly related with lower degrees of attrition, the impact of amount and frequency of language use in daily life and in domains outside home has more recently been shown not to play a major role. A set of recent studies, based on a detailed test battery for the measurement of different types of exposure (interactive: spoken and written communication with family, friends, colleagues and others; noninteractive: reading, media; inner language: thought, dreams, diary writing, arithmetics, see https://languageattrition.org/resources-for-researchers/experiment-materials/sociolinguistic-questionnaires) yielded few indications of a link between such patterns of exposure and actual language attrition phenomena (Schmid, 2007; Schmid & Dusseldorp, 2010, see Opitz, in press; Schmid, in press for more extensive discussions). Based on these findings, Schmid (2011) suggests that variability in attrition phenomena is related to language use at different degrees of linguistic co-activation and, consequently, more a function of efficient inhibition of the L2 than of failure to activate the L1. In this model, frequent, informal use of the L1 with other bilingual speakers ('bilingual mode', according to Grosjean's (2001) model of language modes) not only does not protect the language against attrition but is actually conducive to the development of a contact-influenced variety of the language. When both languages are highly active and code-switching is frequent, those online switches strengthen the associative chains across languages which eventually leads to more intensive interference. Frequent use of the L1 in groups or communities where code-switching is widely practised may thus lead to an acceleration of contact-induced change (and thus higher levels of individual attrition) (Grosjean & Py, 1991; Schmid & Köpke, 2017). On the other hand, speakers who use their L1 in situations where code-switching is discouraged or inappropriate, e.g. in professional settings or language clubs, tend to stick more closely to the target language variety and expend more effort on inhibiting the L2, resulting in lower degrees of co-activation. These types of exposure and use may thus help retention and also foster the development of inhibitory skills (Green, 2011; see also Schmid & Köpke, 2017), delaying such changes.

A second set of factors which also play a very prominent role in language contact settings is socio-psychological in nature and relates to cultural and linguistic identity. It has often been shown that, together with its perceived prestige, the emotional attachment which immigrant groups hold towards their native language and culture and their willingness to pass it on to future generations is instrumental in the preservation of a language (e.g. Clyne, 2003), but it has been extremely difficult to establish similar patterns at the individual level. One of the first studies that did find a clear link between attitudes and attrition was carried out among German Holocaust survivors who migrated to Anglophone countries

before the outbreak of World War II (Schmid, 2002). This investigation demonstrated that the subset of participants who had experienced the worst levels of oppression and persecution experienced the highest degrees of L1 attrition. The desire to distance themselves from the L1 community, in this group, outweighed all other variables, including the age of arrival in the host country and the frequency of use of German. A later study by Ben-Rafael and Schmid (2007) among two groups of immigrants in Israel also yielded a connection between attitudes and language outcomes. The Francophone group was ideologically motivated, with an intention to become a part of the host society whereas the Russian group had largely economic and pragmatic interests. The French sample had substantially more L2 interference at both lexical and discourse level in their L1, while in the Russian sample, influence of Hebrew was mostly limited to the borrowing of isolated lexical elements. Other studies have found the role of attitudes more difficult to establish (Hulsen, 2000; Opitz, 2011; Waas, 1996; Yağmur, 1997 among others). This divergence in findings may be due to two factors: The first of these is a potential lack of variability within the speech communities under investigation: while Ben-Rafael and Schmid (2007) investigate two different migrant communities, and Schmid (2002) looks at qualitatively different contexts of migration, the other studies cited here look at one single, largely homogenous speech community. This implies that factors such as prestige and institutional language support (which are among the factors analyzed in particular for those studies that are situated within the Ethnolinguistic Vitality framework) do not vary within the population, and that it is only the subjective perception of these factors by an individual which can be assessed. The methodological difficulties of such an assessment constitute the second potential problem: studies often rely on questionnaires and this type of snap-shot measurements may not reliably reflect attitudes which tend to fluctuate across the life span depending on circumstances. Qualitative analyses of personal histories would provide better insight as demonstrated by Cherciov (2013). Therefore, it appears that in order to fully explore the link between the attitudes and the language profiles of the speakers, wider studies which not only compare different populations and migratory contexts, but also combine quantitative and qualitative approaches, are necessary.

While investigating the role of individual factors, attrition studies also acknowledge that these variables belong to a complex web where they are interrelated with each other and contribute to the overall development of language attrition or retention (Cherciov, 2013; Köpke, 2007; Opitz, in press). Some researchers have recently considered a Dynamic Systems Theory (DST) perspective which takes L2 and L1 as interdependent systems in a continuous process of adaptation and competition in relation to changing circumstances and aspires to describe the developmental path of a given set of initial linguistic conditions. However, the case of external variables is inherently vague and imprecise. They do not determine the attritional trajectory in isolation but continuously fluctuate and interact with each other.

Language development is the outcome of interactions between individual factors where a factor may not necessarily influence language maintenance and shift directly, but only indirectly via intervening variable(s). To the best of our knowledge, no concrete models have been developed within this framework except Meara's (2004) work on an artificial lexical network. Such theoretical models, while less complex than real language, are suggestive of what may happen to an attriter's lexicon. Therefore, sophisticated simulations that capture more linguistic levels are necessary. These might then be standardized and made cross-linguistically adaptable so that statistical models of language change and even reversal (re-learning) could be designed. Such statistical models would help us better understand the mechanisms and the nature of language change.

4. Conclusion

Widespread consensus among researchers in the field of contact linguistics that language outcomes are determined largely by the socio-historical relations among populations who are in contact has somewhat overlooked the role of the individual. The latter phenomenon is the starting point for the former one: when a community gradually loses its native language and shifts to another language over time, it is in fact the individual speaker whose language ability and language dominance begins to shift first (Dorian, 1982; Seliger, 1996). This is illustrated in Gonzo and Salterelli's (1983) 'cascade' model where each subsequent generation ends up with a reduced variety of their parents' linguistic repertoire, leading to disappearance of the immigrant language across three or four generations. In order to fully understand both the language-internal and language-external processes which determine the patterns of shift and maintenance, we propose that more attention should be given to the early phases of the process – the point where the original, fully developed monolingual system first becomes modified and affected by language transfer, and begins to exhibit increased amounts of variability.

In this respect, attrition research can play an important role, in particular since it draws on various theoretical and methodological perspectives (e.g. simplification, interlanguage, psycholinguistics and recently, neurolinguistics) to interpret the data (for overviews see Köpke & Schmid, 2004; Schmid, 2016). Attrition thus has the potential to provide corroborative evidence for an in-depth and integrated perspective into the process of change: attrition studies rely on a multitude of datasets ranging from formal tasks that target both production and processing to free speech analyses that reveal the actual state of the attriting individual as well as extensive linguistic and personal background interviews (see Schmid, 2011 for an overview); and they investigate specific lexical, grammatical and phonological features as well as general proficiency in a variety of attrition settings. Such systematic investigations are often impossible for the documentation of longer-term historical change, and they help understand how some

(subtle) changes in the native language pave the way for permanent changes/restructuring and establish themselves, while others recede. In this way, attrition research may lead to more principled predictions about language change.

Discovering the underlying principles of L1 change is crucial to make sense of the phenomenon witnessed in contact-induced change because they are similar to L1 attrition (Riehl, in press) and they may be the result of the same grammatical principles and processes (Myers-Scotton, 2002). Since language change diffuses from individuals to smaller groups and then to the speech community, arriving at a full account of contact phenomena without (re)integrating the individual into the overall matrix of speech community is impossible (Sankoff, 2001). Considering them all as part and parcel of the same developmental cycle may better inform our understanding of how language lives, grows, changes and dies, both in the human mind and in society.

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