Schmid, Monika S. & Köpke, Barbara (eds.). 2019. *The Oxford handbook of language attrition*. Oxford: Oxford University Press. Pp. xxviii + 625.

Reviewed by Judi Rose

1   Introduction

Adding to the already extensive series of Oxford handbooks, *The Oxford handbook of language attrition*, edited by Monika S. Schmid & Barbara Köpke (2019), is a comprehensive and compelling composition of the psycho-, neuro- and social linguistic issues involved in language attrition. It is the first volume dedicated entirely to this particular field of study. The volume is divided into six parts and comprises 40 chapters. Part I with five chapters addresses theoretical implications of attrition, while Part II comprises nine chapters related to psycholinguistic and neurolinguistic approaches to language attrition. Part III is dedicated to seven chapters covering the various linguistic factors associated with phonology, morphology and lexicality. Part IV addresses extralinguistic factors associated with language attrition, e. g. age, frequency of use, integration and the bilingual mind and language contact. Extralinguistic factors are also discussed in Part V in relation to second language (L2) and foreign language (FL) attrition whereby a language learned later in life is attrited due to, for example, remigration to one's country of origin. The seven chapters in Part VI are devoted to heritage languages (HLs) and their speakers. Due to the wealth of chapters in the volume, this review will proceed part by part.

2   Piecing it all together – part by part

In the introduction to the volume, the editors Monika S. Schmid & Barbara Köpke present the antecedents contributing to the creation of the handbook (Chapter 1). They discuss various projects and events that have provided a basis for language attrition research and how these developments have shaped the field over time. Based on their experiences over the years, they conclude, "[W]hether the object of an investigation is L2 acquisition or L1 attrition, ignoring the other language is to bias the results and limit the potential for understanding what actually happens when two languages interact within the same mind" (p. 4).

2.1   Part I: Theoretical implications of language attrition

Brian MacWhinney (Chapter 2) explains how the Competition Model can be used to address various language attrition phenomena. As language attrition involves a multitude of mechanisms at work in the brain, social and motivational input, the Competition Model proposes that these mechanisms and inputs compete with each other. In competition are the risk mechanisms and support mechanisms. The risk mechanisms include *entrenchment*, *transfer*, *over-analysis* and *isolation*. The support mechanisms are *resonance*, *decoupling*, *chunking* and *participation*. MacWhinney explains each of these mechanisms and how they influence language attrition, even delving into the neurobiological causes of entrenchment, for example.

The Feature Reassembly Hypothesis is applied by Michael T. Putnam, Silvia Perez-Cotes & Liliana Sánchez (Chapter 3) to processes involving syntactic restructuring primarily in HL development, but according to the authors, the hypothesis can also be applied to heritage language speakers (HLSs) acquiring the majority language as a second language (L2). HLSs grow up speaking a language other than the majority language of the society in which they live, in situations of migration, for example (see Montrul & Polinsky's article on pp. 419–433 in the volume). According to Putnam, Perez-Cortes & Sánchez, The Feature Reassembly Hypothesis is "a viable option to capture language attrition and language restructuring generalizations" (p. 23).

Gloria Chamorro & Antonella Sorace (Chapter 4) utilize the Interface Hypothesis to investigate first-language (L1) attrition on the level of syntax and pragmatics. The model was first proposed by Sorace & Filiaci (2006) to investigate production and comprehension of certain structures adult advanced L2 learners used in Italian. Chamorro & Sorace present a number of studies that support the Interface Hypothesis whereby syntactic and pragmatic structures in the L1 are often subject to attrition. However, the authors render a gentle warning that the findings in other studies have not supported this finding and that more research is needed in this particular area.

According to Roumyana Slabakova (Chapter 5), "[t]he Bottleneck Hypothesis was proposed to identify properties and constructions that are harder or easier for learners to acquire in their second language (L2)" (p. 36). The model has been applied to morphology, i.e. functional morphemes and their contribution to meaning in a sentence. Generally speaking, Slabakova found that late attriters (people who have moved to a new country after puberty

and learned their L2 at a later age) attrited functional morphemes to a lesser extent than early attriters (people who are exposed to the majority language long before puberty, for example when they start school). In other words, age seems to be a prominent factor in attrition of functional morphemes.

Conny Opitz (Chapter 6) discusses the last theory in Part I, i.e. the Complex Dynamic Systems Theory and how it can be used to consider background variables, such as age, gender, a person's history of migration, attitudes towards language, language development and alternative research methodology in language attrition. According to Opitz, the theory is "compatible with usage-based, emergentist, and constructivist approaches to language acquisition and attrition" (p. 60). The theory proposes investigation of attrition from a different angle, as most theories study the language of attrition itself. According to Opitz's article, investigations into attrition must consider the individual as a complex, holistic system.

2.2 Part II: Psycholinguistic and neurolinguistic approaches to language attrition

The introduction to Part II (Barbara Köpke & Merel Keijzer) comprises a short historical overview and describes language processing, memory and the brain and their involvement in the attrition process. In Chapter 8, Michael Sharwood Smith discusses attrition as a factor in processing change and explains the Modular Online Growth and Use of Language (MOGUL) framework whereby the mind is made up of different modules that are connected and interact. The modules themselves are static but the interactions therein are dynamic. The interactions constitute dynamic processes of change. Jared A. Linck & Judith F. Kroll (Chapter 9) concur with this notion of dynamic processing and state, "L1 attrition can be viewed as reflecting the dynamic nature of the language system operating within the human cognitive architecture" (p. 97). Attrition according to these authors is more a question of processing two languages within one mind.

Paola E. Dussias, Jorge R. Valdés Kroff, Michael Johns & Álvaro Villegas (Chapter 10) provide a completely different approach to investigating attrition than the previous chapters thus far. They used eye-tracking to investigate syntactic processing in bilinguals. They explain how previous research in bilingualism has employed eye-tracking and establish a strong foundation for using eye-tracking to unveil various phenomena associated with processing sentence structure.

Chapters 11–15 concern physiological aspects of language attrition. Chapter 11 reveals that the patterns of language processing are rather similar between HL children with delayed exposure to the majority language and monolinguals who have a developmental language disorder. The authors, Elma Blom, Tessel Boerma & Jan de Jong, make an interesting point about measurement in these situations. When assessing attrition, it is essential to find out which of the two situations is in question. For example, a test used in Turkey to assess developmental language disorder in Turkish is not necessarily feasible to use with L1 Turkish speakers in the Netherlands, because the Turkish spoken in the Netherlands has undergone changes due to the influence of Dutch (see p. 118). Therefore, a new test must be developed that reflects the Turkish spoken in the Netherlands. Chapter 12 addresses issues pertaining to ageing and lexical attrition, while Chapter 13 describes the impact Alzheimer's disease has on language processing and attrition. There is a brief discussion of the disease itself and its manifestations in monolinguals and bilinguals. Chapter 14 moves on to electrophysiological approaches (e.g. EEG, MEG, fMRI, MRI) to studying language attrition, and Chapter 15 introduces Magnetic Resonance Imaging (MRI) as a method to investigate residual knowledge of an L1. This is particularly interesting in cases of foreign adoption at an early age whereby a child has learned the L1 enough to be able to communicate but may not be able to use the L1 at all in the new society.

2.3   Part III: Linguistic factors in language attrition

Part III focuses on the phonological, morphological and lexical factors associated with language attrition. In the first chapter of this part (Chapter 17), Charles B. Chang describes phonetic drift by which he means the bilingual mind merges similar sounds from the two languages in what he calls an "equivalence classification" process. This drift can occur with both consonants, vowels and suprasegmentals. Esther de Leeuw (Chapter 18) writes on an interesting topic related to phonetic attrition. Phonetic attrition is related to changes in the way a speaker pronounces sounds in his/her language. These changes can be due to prolonged contact with a foreign language or dialect of the same language. Chapter 19, by Chiara Celata, is also related to phonology. She explains the various contrasts evident in vowels and obstruents and presents numerous studies related to phonotactic patterns.

The focus shifts in Chapter 20, in which Elena Schmitt introduces morphological attrition. She explains how the study of morphological markers

seems somewhat simple, but analysis and generalizing across languages is quite difficult. She presents research concerning both derivational and inflectional morphology and explains the types of models that have been used to investigate morphological attrition, e.g. the Markedness Theory, Regression Hypothesis, the Activation Threshold Hypothesis, the Interface Hypothesis (also discussed in Chapter 4), and the 4-M Model.

Chapter 21 offers a clear account of lexical attrition. Scott Jarvis first explains what lexical attrition is and the manifestations thereof and proceeds to describe the more prominent studies related to the phenomenon. He continues with an explanation of the factors influencing lexical attrition and suggests methods for investigation. Jarvis comments that the field needs more longitudinal studies that focus on the progression of lexical attrition.

In Chapter 22, the last chapter in this part, Ayse Gürel explains the development of research pertaining to pronominals and how that research can be used to study L1 attrition. Gürel concentrates on generative linguistics and the developments of L1 attrition of null and overt pronouns. Adult, first-generation immigrants are the focus in the studies, and while generative research in L1 pronominal attrition has not produced clear evidence of change in understanding abstract pronominal constructions in the L1, online processing of such constructions may be somewhat problematic.

2.4   Part IV: Extralinguistic factors in language attrition

Part IV comprises Chapters 23–27 and begins with an introduction and brief history of research in this area of attrition. Extralinguistic factors include age when migration took place, length of residence in the country of the majority language, socio-economic status, aptitude, attitude, identity and integration to name a few.

Emanuel Bylund (Chapter 24) explores the impact of age on language attrition. He discusses the behavioral aspects associated with age, e.g. the age at which attrition begins, age of migration, age of reduced contact with the L1, etc. and the empirical findings in this area of study thus far. He also presents the theoretical perspectives taken, e.g. those based on the underlying assumption that attrition is caused by some sort of impediment, those based on psychosocial factors, such as when children from a different country are adopted and whether the trauma they experience accelerates their L1 attrition, and those based on maturation whereby the age of an L1 speaker dictates the rate at which the language is attrited.

Monika S. Schmid provides an extensive account in Chapter 25 of research related to frequency of language use and length of residence in the L1 and L2 societies. To facilitate understanding of the numerous studies related to these areas, she has listed a total of 23 studies, their area(s) of investigation, methodology and primary results in the appendix of her article. This list not only offers valuable information concerning the types of studies that have been conducted on frequency of language use and length of residence, but readers can also see at a quick glance where additional research is still needed.

Chapter 26 delves into the aspect of integration and its impact on L1 attrition and L2 acquisition. Gülsen Yilmaz touches upon an interesting topic: how the L1 is affected by increased knowledge of the L2 in the context of attachment and identification with both the L1 and L2. Yilmaz discusses not only the bilingual mind but also the bicultural mind. Integration in a new culture, without a doubt, changes individuals' understandings of the world around them. Individuals' attitudes towards the new culture and the level of acculturation may impact the attrition process.

The last chapter in this part (Chapter 27) focuses on language contact as a component in language attrition. Claudia Maria Riehl explains that language contact research differs from typical attrition research in that it focuses primarily on language use in multilingual communities. The chapter introduces *borrowing*, *transference* and *convergence* as key concepts in language contact research. Transference and convergence are broken down into seven specific types, and Riehl provides examples for each in languages that have experienced contact for one reason or another, e.g. Croatian and German speakers living in Australia, communities where English, Dutch and German are spoken, to name a few.

2.5   Part V: Second language attrition

Oftentimes, when we think of language attrition, we think of loss/restructuring of the L1. However, attrition in the L2 and FL is also possible, as Chapter 28 introduces. Teodora H. Mehotcheva & Barbara Köpke discuss the terminology, brief history and fundamental problems related to the field. An easy-to-read table of the studies performed after the year 2000, the languages involved, methodology and the main findings helps the reader grasp the scope of research in this area. The authors state that most studies in L2/FL attrition lack theoretical support. This is certainly an area in need of more exploration.

Teodora H. Mehotcheva & Kleopatra Mytara discuss the extralinguistic

factors associated with L2/FL attrition in Chapter 29. To recap, Part IV in the volume explored the extralinguistic factors associated with L1 attrition. Whereas the chapters in Part IV discuss the impact of age, frequency of L1 use and length of residence, as well as degree of integration in the host society, this chapter adds to the array of factors, such as literacy, aptitude, context and incubation. *Context* refers to cultural and social contexts, and life experiences in general, and *incubation* refers to the period within which an L2/FL is not used. The chapter offers a multitude of ideas for further research into L2/FL attrition.

Chapters 30 and 31 delve into the more linguistic aspects of L2/FL attrition, e.g. syntax and phonology (Chapter 30) and lexicology (Chapter 31). Kathleen Bardovi-Harlig & David Stringer take the reader on a journey through the critical periods in language acquisition and attrition. They also discuss retention patterns in childhood attrition and consider various studies pertaining to the resiliency of syntax and phonology in L2/FL attrition. In Chapter 31, Jenifer Larson-Hall explores L2 lexical attrition, the related hypotheses, memory loss, age and incubation period. She introduces Paul Meara's (2004) notion of lexical connectivity and uses that notion as a basis for what she calls the *constant decay hypothesis* whereby lexical loss begins sometime after the incubation process begins. Larson-Hall offers food for thought concerning future research, e.g. investigation of longer incubation periods, larger varieties of L1s and L2s, levels of lexical loss, receptive abilities and the constant decay hypothesis itself.

Chapter 32 offers a look into approximately 40 years of research related to L2 attrition among Japanese natives returning to Japan after years of working abroad in international companies. Hideyuki Taura describes how, during the 1970s, many Japanese companies sent their employees abroad to work in or set up branches, and, naturally, their families traveled with them. After returning to Japan, the children of these families were educated to forget their experiences abroad and re-assimilate into the Japanese society and culture. In the early 1980s, these re-assimilation measures were luckily abandoned leading to the onset of research pertaining to attrition; in particular, research related to how these children were able to preserve the language(s) and cultural knowledge they had acquired while abroad. The chapter is an interesting starting point for investigations into this type of L2 attrition, especially in our globalized world of today.

Chapter 33 takes the reader back to the physiological investigations of language attrition. Lee Osterhout, Ilona Pitkänen, Judith McLaughlin &

Margarita Zeitlin present research related to Event-Related Potentials (ERPs) in L1 comprehension, FL acquisition and forgetting. They describe the procedures used to investigate FL acquisition and attrition of 18 native English speakers in an introductory Finnish course in the United States and 16 native Finnish speakers. The purpose of the study was to probe acquisition and subsequent attrition in classroom FL learning. Their study indicated that the brain engages in systematic changes in both L2 acquisition and attrition, and Finnish vowel harmony, in particular, was attrited fairly quickly. As the authors' investigations involved few respondents, they warn against making firm interpretations of the results. However, like many case studies, it offers a starting point upon which to continue investigations with more robust data.

2.6   Part VI: Heritage languages

Part VI opens up the world of the HLS. Silvina Montrul & Maria Polinsky begin with an introduction to how HL skills develop. In Chapter 35, Sharon Unsworth reveals methods for quantifying language experience. By *language experience*, she means the type of exposure children have been given to their HL, i.e. the variation of input. Unsworth explains the use of questionnaires administered to parents and the issues that should be considered when examining parent reports.

Chapter 36 offers insight into the phenomenon of gradual L1 attrition from one generation to the next. Fatih Bayram, Diego Pascual y Cabo & Jason Rothman introduce the concept of Heritage Bilingual Paradox whereby the grammatical competence of HLSs differs from that of monolingual speakers of the same language even though the HL input is naturalistic. Their study reveals factors, such as type of exposure and quality of input, which have an immense impact on the grammatical competence of HLSs.

In Chapter 37, Tanja Kupisch provides a review of research related to 2L1 which refers to situations where a child grows up learning two L1s simultaneously. She describes differences in language development between 2L1 and eL2 speakers, i.e. the first being children who acquire 2 first languages simultaneously and the latter being children who acquire an L2 at an early age. She discusses factors such as crosslinguistic influence, role of age of onset, quality and quantity of input, language dominance and distance to the homeland as well as the impact these factors have on language development.

The topics of Chapters 38 and 39 are related to language loss and the possibilities of relearning an L1 later in life. In Chapter 38, Lara J. Pierce, Fred

Genesee & Denise Klein present an overview of research on internationally adopted children and the processes involved in losing their L1 and learning the language of their new home country. They refer to behavioral attrition whereby internationally adopted children begin to quickly acquire the new language because the input of their birth language no longer exists. The authors also explain neural attrition, which encompasses the notion that the brain preserves the remnants of the L1 even though L1 input ceased upon adoption, and the person is no longer able to produce the language. This leads to the question of whether the L1 could be reactivated later in life.

Janet S. Oh, Terry Kit-Fong Au, Sun-Ah Jun & Richard M. Lee examine similar issues in Chapter 39. They discuss memory as a factor in retaining remnants of the L1/HL. One interesting group of subjects are what the authors refer to as childhood overhearers. They are people who merely overheard their parents or other family members speak the HL, but they never actually learned the language themselves. After investigating these subjects, the authors found that even this type of exposure can be beneficial to learning the HL later in life. Another group studied by the authors was that of childhood speakers. This group comprised adults who learned to speak their HL in early childhood, but upon the onset of school no longer spoke the HL and became monolinguals of the majority language. Like the overhearers, these subjects were found to possess the ability to pronounce the HL in a native-like manner despite complete language loss before relearning the HL. According to the authors, these results support the notion of childhood language memory, i.e. early childhood language experiences are preserved in the brain and can later be reactivated during relearning of the HL.

In the volume's final chapter (Chapter 40), Cristina Flores examines bilingual returnees, i.e. people who migrate to a new country, establish a family there and, at some point, move back to the country from which they left. Flores also describes the challenges second-generation returnees face when moving to their parents' country of origin, e.g. questions of identity, feelings of belonging, understanding of the norms in the society, etc. Flores states that research conducted with returnees is two-dimensional; on the one hand, the process of losing the learned majority language of the country from which the family emigrated back to the country of origin and, on the other hand, the developments in the HL due to increased exposure of it as a majority language.

On pages 502–508, Kees de Bot sums up the main points discussed in the volume. This is followed by an extremely helpful annotated biography by Monika S. Schmid (pp. 509–541), an extensive list of references and an index.

3   The best thing since sliced bread

As a person who has lived abroad for many years, and who has experienced language attrition, *The Oxford handbook of language attrition* is the best thing since sliced bread. It is precisely what it is intended to be – a handbook that leads you on a journey into the many meandering routes along which both novice and experienced researchers will find adventure. As the volume covers a wide range of perspectives associated with language attrition, I am certain researchers across disciplines will find it useful.

If there was one aspect of the volume I would criticize, it is the decision to list the various abbreviations used in the articles at the beginning of the volume (pp. x–xiv). Many of the authors in the volume did not unlock the meanings of the abbreviations they used and the reader is forced to look for them in the list before resuming their reading, which, in my opinion, really interrupts the reading process. Including the meanings of the abbreviations in the running text would have accelerated the reading process, especially in this massive volume of 40 chapters. Despite this minor inconvenience, though, *The Oxford handbook of language attrition* rendered hours of interesting insight and new ideas for my own future research.

References

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