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Research Timeline

First language attrition

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> We know a fair amount about how people learn languages; we know remarkably little about how language skills, once learned, are forgotten – whatever that means precisely [. . .]. (Lambert 1982: 6)

This statement opens the first collection of papers that specifically consider the deterioration of linguistic knowledge among bilinguals (Lambert & Freed 1982: see timeline), a field which in one of the papers in the volume is referred to as being in an 'antenatal' state (Berko-Gleason 1982: 22). Thirty years down the line it is still a fact that far less is known about the loss or attrition of language skills than about their acquisition.

Language attrition research has developed in several clearly delimited phases spanning, roughly, each of the three decades between 1982 and 2012 (see Köpke & Schmid 2004 for a more detailed overview and analysis). The first phase was an era of stocktaking, with a number of symposia, collected volumes and special issues of journals. All of these collections cast their net widely, attempting to cover not only what, under the current terminology, would be considered 'attrition proper', namely the non-pathological loss of previously fully acquired first (L1) or second language (L2) skills in adult speakers (Köpke & Schmid 2004: 5), but also such diverse phenomena as incomplete acquisition, language contact and death, dialect change and death, pathological language loss and so forth. These considerations were usually accompanied by reports on small-scale or pilot studies of 'attrition proper' which were intended to lay the background for larger and sometimes very ambitious investigations. Unfortunately, most of these were never actually carried out or completed. A clear theoretical orientation was often lacking in these collections and pilot studies (as is, for example, pointed out in Hill 1989).

In 1991 the first collection that specifically focused on changes to the NATIVE language appeared (Seliger & Vago (eds.) 1991: see timeline), marking the beginning of a decade of a more focused, theoretically and empirically driven approach to language attrition, characterized mainly by a limited number of comparatively large-scale investigations of first language attrition, usually in the form of Ph.D. projects.[1] This resulted in more clearly defined theoretical foundations and predictions for the field from a variety of perspectives, such as the impact of socio-/ethnolinguistic factors, psycholinguistic questions of accessibility and linguistic and grammatical models. What was (largely) lost from the earlier period was the

[1] A comprehensive list of Ph.D. studies on L1 attrition can be found at www.let.rug.nl/languageattrition.org/dissertations.

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intensive interaction and exchange between researchers that had taken place in the numerous meetings and collected publications, as the work that was carried out was mainly confined to the typically solitary existence of the graduate student.

From the early 2000s, numerous efforts were made to again create a community and network of attrition researchers and to arrive at commonly agreed-upon methodological approaches as well as a sound theoretical underpinning for this research. This last decade has seen a number of international conferences and symposia dedicated solely to attrition research as well as panel sessions at larger conferences on bilingualism, the formation of a graduate network and the publication of numerous collected volumes and special issues of journals as well as overview articles in handbooks and encyclopaedias. It is probably fair to say that this has resulted in a better visibility of language attrition research and the recognition that the contribution of research and findings from this area can provide important further insights into highly topical research questions, such as the issue of interfaces in grammar and bilingualism (e.g. Tsimpli et al. 2004: see timeline; Sorace 2005) and the question of maturational constraints in second language acquisition (SLA) (e.g. Bylund 2009: see timeline; Schmid 2014: see timeline). Again, a fair number of Ph.D. projects on a variety of languages and settings were carried out in this period, many of which adopted the test battery developed within the attrition community (made available on www.let.rug.nl/languageattrition.org and described in detail in Schmid 2011: see timeline).

The overview presented below focuses on studies investigating L1 attrition; articles on L2 attrition, incomplete acquisition or child language attrition, heritage or indigenous minority languages, pathological language loss etc. are not included. I also do not list exclusively theoretical or general overview, handbook or encyclopaedia articles. Where not otherwise indicated, participants in the studies are post-puberty long-term migrants. The items represented in the timeline represent the following themes:

A. Theoretical frameworks and general considerations
  A.1 General considerations and overview articles
  A.2 Integrating attrition into theoretical models of language acquisition and processing
  A.3 Psycho- and neurolinguistic approaches
B. Comparisons of attrition and other linguistic developments
  B.1 Acquisition
  B.2 Language change
  B.3 Incomplete L1 acquisition and heritage language development
  B.4 Bilingual development and multilingualism
C. Attrition as a selective process
  C.1 Lexicon and semantics
  C.2 Morphology, morphosyntax, syntax
  C.3 Phonetics and phonology
D. The role of external predictors
  D.1 The impact of L1 use and behaviour
  D.2 Attitudes and identity
  D.3 Attrition and aging
E. Methodological considerations
  E.1 The appropriateness and validity of various tasks

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E.2 Testing the impact of external factors
E.3 Baseline and point of reference

References

See Timeline for additional references.

Berko-Gleason, J. (1982). Insights from child language acquisition for second language loss. In R. D. Lambert & B. Freed (eds.) (1982), *The loss of language skills*. Rowley, MA: Newbury House, 13–23.
Hill, J. H. (1989). Review of B. Weltens, K. de Bot & T. v. Els (eds.) (1986), *Language attrition in progress*. Dordrecht: Foris. *Language in Society* 18.4, 594–598.
Köpke, B. & M. S. Schmid (2004). Language attrition: the next phase. In Schmid, M., B. Köpke, M. Keijzer & L. Weilemar (eds.), *First language attrition: Interdisciplinary perspectives on methodological issues*. Amsterdam/Philadelphia: John Benjamins, 1–43.
Lambert, R. D. 1982. Setting the agenda. In R. D. Lambert & B. F. Freed (eds.), *The loss of language skills*. Rowley, MA: Newbury House, 6–10.
Sorace, A. (2005). Syntactic optionality at interfaces. In L. Cornips & K. Corrigan (eds), *Syntax and variation: Reconciling the biological and the social*. Amsterdam: John Benjamins, 46–111.

MONIKA S. SCHMID obtained her Ph.D. in English Linguistics in 2000 from the Heinrich-Heine Universität Düsseldorf, Germany, for a thesis on L1 attrition among German-Jewish refugees. She has since held positions at the Vrije Universiteit Amsterdam and the Rijksuniversiteit Groningen and is currently Professor of Linguistics at the University of Essex. Her work has focused on various aspects of L1 attrition. She has published two monographs and edited several collected volumes and special issues of journals on this topic, and has received funding from various sources, including the Deutsche Forschungsgemeinschaft and the Dutch National Science Foundation NWO, for her work.

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YEAR	REFERENCES	ANNOTATIONS	THEME
1982	Lambert R. D. & B. Freed (eds.) (1982). *The loss of language skills*. Rowley, MA: Newbury House.	**Lambert & Freed** put together an extremely useful collection of papers from a conference which aimed to arrive at a common foundation upon which language attrition research could be conducted. While an excellent starting point still for anyone wishing to begin a research project on language attrition, it has not been used as widely and consistently as it might have been. A better uptake of some contributions, in particular the excellent overview chapter by Roger Anderson, would doubtless have benefitted attrition research at large enormously.	**A.1**
1986	Weltens, B., K. de Bot & T. van Els (eds.) (1986). *Language attrition in progress*. Dordrecht: Foris.	Like LAMBERT & FREED[1] (eds.) (1982) this volume is the outcome of a workshop meeting. In addition to general overview articles (VAN ELS 1986), it contains a number of papers on dialect loss and language shift, and research reports. These latter consist mainly of reports on small-scale studies or preliminary reports.	**A.1**
1986	Els, T. van (1986). An overview of European research on language attrition. In WELTENS, DE BOT & VAN ELS (eds.), 3–18.	This is the paper usually credited with first proposing a taxonomy that is very often cited in the introductory sections of attrition studies. It classifies the type of attrition research in a two-by-two design by attriting and environmental language (L1 and L2, respectively). However, only two of these types – L1 attrition in an L2 setting, and vice versa – have developed into actual areas for attrition research, while the other two (dialect loss and L1 'reversion' among older migrants) have never played a consistent role and are considered debatable cases of attrition. The usefulness of the taxonomy has been questioned (see, for example, the introduction to SCHMID ET AL. (2004).	**A.1**

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1986	Jaspaert, K., S. Kroon & R. van Hout (1986). Points of reference in first-language loss research. In WELTENS, DE BOT & VAN ELS (eds.), 37–49.	This paper discusses one of the most important methodological considerations for language attrition studies: how to obtain a solid baseline for comparison. Pre-/posttest designs are usually not feasible due to the long incubation period (see DE BOT & CLYNE 1989, 1994); they can also potentially lead to a retraining effect so that the actual investigation may prevent the very phenomenon it is looking for (SCHMID 2011). This paper contains the first explicit and detailed discussion of longitudinal studies vs. static group comparisons, of their feasibility, and of respective advantages and disadvantages. The argument is further developed in JASPAERT & KROON (1989) where the authors address (and criticize) a strategy commonly used in language loss research at that time: the adoption of an idealized baseline that is 100% in compliance with prescriptive models (dictionaries, grammars) – that is, the assumption that unattrited native speakers make no errors, and that all instances of deviance are thus evidence for attrition. **Jaspaert et al.** point to the inadequacy of this model and the fallacy of assuming that 'native' speech always conforms to such prescriptive norms.	**E.3**
1989	de Bot, K. & M. Clyne (1989). Language reversion revisited. *Studies in Second Language Acquisition* 11, 167–177.	This investigation of Dutch speakers in Australia remains the only truly longitudinal and empirical study of L1 attrition among a larger population (as opposed to, for example, collections of letters from a single individual). Earlier observations had suggested a phenomenon which came to be known as 'reversion' among elderly migrants, through which they would suffer attrition in the environmental language that they had used for decades and come to over-rely on their L1. In extreme cases, even communication within the family allegedly broke down where children were not proficient in their parents' L1. **de Bot & Clyne** discuss self-evaluation data of proficiency in English and Dutch elicited from a group of migrants in 1971 and again in 1987, focusing particularly on the ten speakers who report a decrease in English proficiency. They hypothesize that language reversion is linked to the Critical Threshold proposed by Neisser (1984)[2] in that migrants who have reached a relatively high level of proficiency in the L2 will be protected against reversion. The L1 Dutch language proficiency of this population, on the other hand, appeared extremely stable in the intervening period (see also DE BOT & CLYNE 1994; SCHMID & KEIJZER 2009).	**D.3**

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1989	Jaspaert, K. & S. Kroon (1989). Social determinants of language loss. *Review of Applied Linguistics (I.T.L.)* 83/84, 75–98.	In the late 1980s and early 1990s, **Jaspaert & Kroon** launched a highly ambitious investigation of Italian in the Netherlands and Flanders. The study, which was to comprise 800 first, second and third generation speakers of Italian, was to be concerned largely with the impact of sociological and sociolinguistic factors on language attrition. The 1989 paper outlines a number of problematic areas for such studies, such as the appropriateness of various measures (free speech, language tests), the baseline issue already addressed in JASPAERT ET AL. (1986) and the confound of language proficiency and metalinguistic knowledge. It then introduces a pilot study (n = 30), used to assess the validity of five language loss tests (comprising correction, editing, lexical and comprehension tasks). Results suggest that education is an important factor in language retention, possibly due to the fact that higher education levels may facilitate maintaining input through the written medium and through a higher socioeconomic status, allowing more travel. The amount of contact with the L1 in the migration setting, on the other hand, does not play a role. In general, the authors express their surprise at the minimal amount of loss that their tests appear to have detected (which they explicitly ascribe to a very high level of language maintenance in the community, and not to a failure of the tasks to detect attrition). A follow-up with a larger population (n = 300)[3] presents a careful consideration and statistical evaluation of the way in which sociological and sociolinguistic background factors as well as factors pertaining to language use and language choice interact and pattern together.	**D**

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1989	Sharwood Smith, M. A. (1989). Crosslinguistic influence in language loss. In K. Hyltenstam & L. K. Obler (eds.), *Bilingualism across the lifespan*. Cambridge: Cambridge University Press, 185–201.	This paper discusses theoretical concepts and frameworks that are relevant for language attrition research. 'Loss' is conceptualized here as a type of development where forms that diverge from the standard target (e.g. as produced by more advanced 'language losers') are used as evidence for grammar building by the attriter (this 'vicious cycle' approach is also invoked by GROSJEAN & PY 1991). Therefore, 'developing competence in loss and developing competence in acquisition can be seen as related processes' (p. 188) and the forms developed in this process often lead to an enriched form of the attriting language. **Sharwood Smith** approaches attrition from a psycholinguistic point of view, speculating about whether it will affect underlying knowledge systems (and will thus manifest itself consistently in the speech of a particular attriter) or rather the control of knowledge that is still represented in the brain (manifested incidentally/variably). He draws up a list of potential outcomes of attrition, classified into 'processes' (performance) and 'results' (competence) and lists properties of the two contact languages that he labels as 'loss-inducing', such as typological or structural similarity.	**A.1** **A.2**
1991	Grosjean, F. & B. Py (1991). La restructuration d'une première langue: l'intégration de variantes de contact dans la compétence de migrants bilingues [The restructuring of a first language: the integration of contact variants into the competence of bilingual migrants]. *La Linguistique* 27, 35–60.	**Grosjean & Py**'s investigation of 15 Spanish migrant workers (long-term residents in a Francophone environment in Switzerland) argues that even stable adult linguistic competence is vulnerable to restructuring under L2 influence. They use a very interesting variant of the acceptability judgment task: for five linguistic items which they judge to be vulnerable to change under contact conditions they ask their participants not only whether it is *acceptable* in Spanish but also whether they have heard *attestations* of this form in their linguistic community. The standard Spanish structures score higher than the Francophone variants on both tasks, and there is more variance on the judgments for the migrant varieties. Grosjean & Py conclude that even mature, adult competence is open to a certain degree of restructuring for speakers who become bilingual and use both languages on a regular basis.	**B.2** **D**

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YEAR	REFERENCES	ANNOTATIONS	THEME
1991	Seliger, H. W. & R. M. Vago (eds.) (1991). *First language attrition*. Cambridge University Press.	This collection is the first to focus on changes to the native language and exclude issues involved in foreign language attrition, and marks the starting point of the divergence of the two research strands. The theoretical and methodological focus of the contributions is more clearly defined than in earlier collections, which were largely unfocused and pre-theoretical in nature. All contributions are framed within a particular theoretical perspective and address a specific research question. The introductory chapter by **Seliger & Vago** briefly discusses L1 attrition from a variety of perspectives (psycho- and sociolinguistic, linguistic and theoretical). As a fundamental question, they return to the issue of which aspects of attrition are *core* or *competence* phenomena, and which can be considered as belonging to the *periphery* or *performance* (see SHARWOOD SMITH & VAN BUREN 1991). The volume also includes some of the first quantitative and qualitative investigations of L1 attrition 'proper' in the studies by ALTENBERG; DE BOT, GOMMANS & ROSSING; OLSHTAIN & BARZILAY; and SILVA-CORVALÁN.	**A.1**
1991	Altenberg, E. P. (1991). Assessing first language vulnerability to attrition. In SELIGER & VAGO (eds.), 189–206.	This case study of a married couple with L1 German living in the United States compares the attrition of lexical, syntactic and morphological features based on their acceptability/unacceptability in English and German. No baseline data from unattrited speakers are invoked. **Altenberg** very properly and painstakingly points out the limitations of her study in terms of the small numbers of speakers and the lack of a control group, and argues that these shortcomings will need to be addressed by future research. She concludes that attrition is most likely to occur where L1 and L2 are similar. Despite the disclaimer, Altenberg's conclusion has been widely and largely uncritically cited in support of the claim that attrition is conditioned by typological similarity (see SCHMID 2011).	**C**

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Year	References	Annotations	Theme
1991	de Bot, K. & B. Weltens (1991). Recapitulation, regression, and language loss. In Seliger & Vago (eds.), 31–51.	This contribution introduces the Regression Hypothesis (first proposed by Jakobson 1941),[4] and discusses its applicability to L1 as well as L2 attrition. The predictions that language loss will be the mirror image of acquisition (also known as the LIFO – last in first out – model) are tempered by factors such as crosslinguistic influence, and some restrictions to the applicability of the hypothesis, for example its limitation to linguistic phenomena that can be demonstrated to be acquired gradually and in a fixed sequence, are pointed out. **de Bot & Weltens** conclude that this hypothesis, widely cited in speculations on attrition, has received surprisingly little attention in actual empirical investigations. This statement holds to this date: there is only one larger study of first language attrition framed explicitly within the regression paradigm, namely Keijzer (2007).	**B.1**
1991	de Bot, K., P. Gommans & C. Rossing (1991). L1 loss in an L2 environment: Dutch immigrants in France. In Seliger & Vago (eds.) 87–98.	**de Bot et al.** present an investigation of 30 long-term Dutch migrants in France. They assess a number of skills and investigate the interaction of proficiency, length of residence and amount of contact. They conclude that there is indeed an impact of contact and time, but that length of residence (LOR) becomes significant only for those speakers who have few contacts.	**D.1**
1991	Olshtain, E. & M. Barzilay (1991). Lexical retrieval difficulties in adult language attrition. In Seliger & Vago (eds.), 139–150.	**Olshtain & Barzilay** investigate 15 native speakers of American English who are long-term residents in Israel. No information on age of migration (AoM) is given, but it is asserted that all speakers had 'full competence in their first language before immigrating to Israel' (p. 141). A control group of six speakers of American English is also tested, making this one of the first investigations of L1 attrition to invoke an unattrited baseline. Free speech data is elicited by means of a picture book, and individual instances of deviant use of lexical items (in particular over- and underspecifications) are discussed, but the overall results are not quantified or analysed statistically. The authors conclude that attrition leads to problems in vocabulary retrieval.	**C.1**

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1991	Sharwood Smith, M. & P. van Buren (1991). First language attrition and the parameter setting model. In SELIGER & VAGO (eds.), 17–30.	**Sharwood Smith & van Buren** further develop the questions on attrition of knowledge vs. control posed in SHARWOOD SMITH (1989) and ask to what extent an attriter may come to restructure the grammar based on the L2. In particular, they consider the practicalities of establishing whether attrition phenomena in an individual language user are indications of competence or performance change and the role that explicit/metalinguistic knowledge (as opposed to tacit/implicit knowledge) can play in this respect.	**A.2**
1991	Silva-Corvalán, C. (1991). Spanish language attrition in a contact situation with English. In SELIGER & VAGO (eds.), 189–206.	**Silva-Corvalán** presents an investigation of Mexican-American Spanish-English bilinguals from three generations (n = 14, of whom six belong to the first generation; there is no control group). She approaches her analysis of Spanish verb forms from a simplification/markedness perspective and finds a 'clear-cut qualitative difference between first generation immigrants' who retain a full-fledged variety of spoken Spanish, and speakers from subsequent generations. The latter group has a reduced system of verbal morphology lacking, for example, future morphology and exhibiting simplifications in tenses such as the preterite, the pluperfect indicative and the subjunctive. She concludes that the markedness hierarchy proposed by Muysken (1981)[5] is a valid predictor for her results, but stresses that this is a descriptive and not an explanatory account of the changes she observed.	**B.2** **C.2**
1992	Major, R. C. (1992). Losing English as a first language. *The Modern Language Journal* 76, 190–208.	In what is the first, and for almost two decades remained the only, investigation of phonetic L1 attrition (see DE LEEUW, MENNEN & SCOBBIE 2013), **Major** investigates changes to Voice Onset Time (VOT) in the L1 and the L2 of five L1 English speakers of Brazilian Portuguese who are long-term residents in the US. This study is reminiscent of Flege's 1987 investigation of VOTs in French and English,[6] which, although it was not cast within an attrition framework, already established bidirectional influence in bilingual speech which increased with experience. In Major, VOTs for voiceless plosives are measured in formal and casual speech, and Major concludes that the mutual interaction of L1 and L2 can affect L1 phonetics.	**C.3**

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1994	de Bot, K. & M. Clyne (1994). A 16 year longitudinal study of language attrition in Dutch immigrants in Australia. *Journal of Multilingual and Multicultural Development* 15.1, 17–28.	The population whose self-evaluations in their L1 (Dutch) and their L2 (English) had been assessed and tested for indications of language reversion in DE BOT & CLYNE (1989) are investigated linguistically for lexical and morphosyntactic attrition phenomena in free speech. These results are compared to data from the same speakers dating from 1971. This comparison reveals that very little change has occurred in the intervening 15 years, and **de Bot & Clyne** conclude that, after the first decade of emigration, L1 skills appear to be extremely robust.	**D.3**
1995	Håkansson, G. (1995). Syntax and morphology in language attrition: A study of five bilingual expatriate Swedes. *International Journal of Applied Linguistics* 5.2, 153–171.	**Håkansson** presents the first quantitative investigation of L1 attrition from a parameter-setting perspective. She investigates the verb second (V2) rule as well as noun phrase (NP) agreement in the written Swedish of five heritage speakers (returnees) and five L2 learners of Swedish from various language backgrounds, and also briefly considers reports on monolingual aphasics. Her findings suggest that, while L2 learners struggle with both V2 and NP agreement, the heritage attriters have no problem with the former, but are comparable on the latter features. She points out that, rather surprisingly, violations of the V2 rule are also common among monolingual aphasics, who do not have a competing grammar that offers alternatives to this rule. Håkansson interprets her findings from the point of view of markedness.	**A.2** **C.2**
1995	Polinsky, M. (1995). American Russian: Language loss meets language acquisition. In W. Browne, E. Dornisch, N. Kondrashova & D. Zed (eds.), *Annual workshop on formal approaches to Slavic linguistics: The Cornell meeting 1995*. Ann Arbor: Michigan Slavic, 370–406.	**Polinsky**'s work represents the emerging interest in heritage languages and how they differ from the language as spoken in the country of origin. Polinsky investigates the grammatical knowledge of 'semi-speakers' (attriters and heritage speakers) of Russian who arrived in the US before they had reached adulthood. She introduces a distinction that takes into account not only the order in which the languages have been acquired (L1 vs. L2) but also their role for the speaker (primary/dominant or secondary). She distinguishes Émigré Russian and American Russian, concluding that the latter, but not the former, is characterized by structural change, while both varieties use lexical borrowing. Her analysis of the Russian data is based on speech from 19 American Russians with AoMs between 5 and 18 and one speaker born in the US. She describes a reduced system of case and verbal inflection, and points out that there is a correlation between grammatical variables as well as between grammatical and lexical change. The paper ends with an analysis of the incidence of structural change and AoM, LOR and period of disuse.	B.3

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1996	Ammerlaan, T. (1996). You get a bit wobbly: Exploring bilingual lexical retrieval processes in the context of first language attrition. Ph.D. dissertation, Katholieke Universiteit Nijmegen.	**Ammerlaan**'s Ph.D. study investigates lexical accessibility among Dutch speakers in Australia. He conducts a series of lexical tasks (verbal fluency, picture naming and picture-word-matching) with 88 Dutch L1 speakers in order to test attrition processes as they relate to lexical access and retrieval. He finds that these processes are influenced by factors such as AoM and LOR, but also by similarities between L1 and L2 items. His conclusion is that, while access and retrieval of the L1 may become compromised to some extent after extended periods of residence in an L2 environment, these difficulties are temporary, not structural, and can be overcome.	**A.3** **C.1**
1996	Waas, M. (1996). *Language attrition downunder*. Frankfurt: Peter Lang.	**Waas** supplies the first monograph treatment of language attrition, presenting a socio- and ethnolinguistic investigation of the attrition of German among adult long-term migrants in Australia and the impact of affective variables on this process. In addition to a largely qualitative investigation of free speech, she elicits data on language proficiency by means of a controlled task (verbal fluency) as well as by self-assessments, and investigates to what extent ethnic affiliation impacts on the attritional process. To this end, she divides her sample into two groups, Permanent Residents vs. Naturalized Citizens, subdivided into speakers with or without 'Ethnic affiliation' (i.e. membership of a German club, church etc.). The attriters are outperformed by a monolingual German control group on both the controlled task and the self-assessments. No difference is found for the ethnic affiliation parameter on the controlled task, but people without such affiliations rate their own L1 skills lower. Waas concludes that 'L1 attrition in an L2 environment is inevitable, even after a stay of only 10 to 20 years' and that 'socio-demographic factors such as citizenship and (non-)affiliation have an impact on the extent of L1 attrition' (p. 171).	**D.1** **D.2**

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1997	Yağmur, K. (1997). *First language attrition among Turkish speakers in Sydney*. Tilburg: Tilburg University Press.	In his Ph.D. study, **Yağmur** builds on WAAS's (1996) work on the impact of affective variables, setting his investigation within the framework of Ethnolinguistic Vitality Theory (EVT). This framework allows a more sophisticated quantification of the affective and ethnolinguistic variables invoked in earlier investigations such as WAAS (1996) or JASPAERT & KROON (1989, 1991) in that it measures not only individual attitudes but also community-level factors such as language prestige and institutional support. Yağmur elicits data by means of several controlled tasks from Turkish speakers in Australia as well as from a control group. He also presents a largely qualitative investigation of spontaneous data elicited from the attriters by means of picture book retellings. Yağmur finds that the attriters exhibit some reduction of L1 lexical accessibility and syntactic proficiency, and that attrition effects do not appear to be trade-offs with L2 proficiency (speakers with low levels of skills in L2 show more loss in L1 than more proficient L2ers). More highly educated attriters generally outperform migrants with lower education levels. EVT, however, does not provide a sufficiently explanatory framework for attrition.	**D.2**
1999	Köpke, B. (1999). L'attrition de la première langue chez le bilingue tardif: Implications pour l'étude psycholinguistique du bilinguisme. Ph.D. dissertation, Université de Toulouse-Le Mirail.	**Köpke** presents a psycholinguistic investigation of L1 German attriters in two different linguistic settings, an L2 English environment (Canada) and in France. She investigates attrition at various linguistic levels (lexical and morphosyntactic), asking to what extent the attritional process can be deemed to have affected underlying knowledge as opposed to being a performance phenomenon, and what the impact of typological (dis)similarity in the contact languages is. She concludes that in late bilinguals, attrition is confined to the level of access in production and does not affect underlying knowledge. She finds the lexicon to be more affected by attrition than morphosyntax, and the crosslinguistic similarity of languages to be a determining factor. There is considerable variation between her two bilingual populations, which she accounts for by sociolinguistic factors.	**A.3**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2000	Gross, S. (2000). The role of abstract lexical structure in first language attrition: Germans in America. Ph.D. dissertation, University of South Carolina.	**Gross** applies the 4-M model on language contact and change (Myers-Scotton & Jake 2000)[7] to the L1 attrition of German. The 4-M model predicts a hierarchy in vulnerability to processes of change, loss and attrition such that content morphemes (lemmas) will be affected first, followed by early system morpheme lemmas (such as determiners), which are indirectly elected by the content morpheme. Late system morphemes are structurally assigned and least vulnerable to processes of change and attrition.	**A.2**
2000	Hulsen, M. (2000). Language loss and language processing. three generations of Dutch migrants in New Zealand. Ph.D. dissertation, Katholike Universiteit Nijmegen.	**Hulsen** continues the research strand started in AMMERLAAN (1996), investigating lexical access among New Zealand Dutch. Examining speakers of three generations, she assesses the impact of L1 use within a Social Networks framework. Her findings show that while productive skills decrease within generations, receptive skills remain largely unchanged. She argues that the difficulties encountered by attriters are retrieval problems, and do not constitute 'loss' in the sense of being 'erased from memory' (p. 188). The use of Dutch within a speaker's primary social network is a powerful predictor for the retention of the L1.	**A.3** **C.1** **D.1**
2002	Gürel, A. (2002). Linguistic characteristics of second language acquisition and first language attrition: Turkish overt versus null pronouns. Ph.D. dissertation, McGill University, Montreal, Canada.	**Gürel** assesses bilingual development from the perspective of the Government and Binding framework. Her Ph.D. thesis investigates Turkish pronouns in L2 acquisition by native speakers of English and L1 attrition in Turks immersed in an L2 English environment. Through a series of tasks, she assesses to what extent the binding properties of the Turkish overt and null pronouns have been acquired/retained in her populations. She finds evidence that for both her attriters and her L2ers the binding properties of Turkish overt pronouns are being replaced by those of English, which she interprets as evidence for selective transfer effects in ultimate L2 and L1 grammars.	**A.2**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2002	Montrul, S. (2002). Incomplete acquisition and attrition of Spanish tense/aspect distinctions in adult bilinguals. *Bilingualism: Language and Cognition* 5.1, 39–68.	In the first of a series of pioneering contributions on incomplete acquisition and attrition of Spanish in the US, **Montrul** approaches the phenomenon of the impact of the L2/dominant language on the L1/heritage language from the point of view of generative linguistic theory. She argues for a substantial difference in ultimate attainment based on age of onset: while sequential and, in particular, late bilinguals have an L1 mental grammar that shows little evidence of erosion in comparison with an unattrited reference population, simultaneous and early bilinguals are more similar to L2ers, in particular where functional categories are concerned. The earlier the age of onset of bilingualism and the more intense the exposure to the sociolinguistically dominant language, the more incomplete the adult grammar may turn out to be. She concludes that an early age of onset may be a necessary, but not a sufficient, condition for convergent language acquisition.	**B.3**
2002	Schmid, M. S. (2002). *First language attrition, use and maintenance: The case of German Jews in Anglophone countries.* Amsterdam/Philadelphia: John Benjamins.	**Schmid** approaches the question of attitudes and motivation in L1 attrition previously investigated by, among others, WAAS (1996) and YAĞMUR (1997). Her data are drawn from a corpus of oral history interviews conducted with German-Jewish refugees who escaped Nazi persecution in the 1930s and settled in English-speaking countries. She situates her analysis within the historical framework of progressive radicalization of persecution measures and assesses to what extent the L1 attrition of speakers who emigrated during three clearly delineated periods differs. Her analysis of free speech data comprises both an assessment of errors and of target-like language use. She concludes that, in her sample, persecution appears to be the most important predictor for attrition effects.	**D.2**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2003	Cook, V. (ed.) (2003). *Effects of the second language on the first*. Clevedon: Multilingual Matters.	In the introduction to this volume, **Cook** introduces a perspective on language attrition from his framework of multicompetence, pioneering the view that attrition is not an exotic and rare phenomenon exhibited by speakers under extreme circumstances (long-term separation from the language environment with little intervening use), but rather a natural linguistic development common to all bilingual language users. His approach thus differs from earlier investigations of L1 attrition in that he does not assume long-term residence in an L2 environment as a necessary condition under which L2 effects on the L1 can occur. He posits that 'the first language of people who know other languages differs from that of their monolingual peers in diverse ways' (p. 1) in that all languages residing within the same mind 'must form a language super-system at some level rather than be completely isolated systems' (p. 2).	**B.4**
2004	Dussias, P. E. (2004). Parsing a first language like a second: The erosion of L1 parsing strategies in Spanish-English bilinguals. *International Journal of Bilingualism* 8.3, 355–371.	The investigations that **Dussias** presents here and elsewhere constitute the first neurocognitive analyses of L1 attrition. By means of an eye-tracking investigation of participants reading Spanish sentences containing embedded relative clauses, it is demonstrated that language-specific preferences for relative clause attachment are vulnerable to crosslinguistic interference: while Spanish monolinguals favour high attachment, Spanish-English bilinguals are similar to English monolinguals in that they come to prefer low attachment even after a relatively short immersion period.	**A.3**
2004	Mennen, I. (2004). Bi-directional interference in the intonation of Dutch speakers of Greek. *Journal of Phonetics* 32, 543–563.	In what to date remains the only investigation of the attrition of suprasegmentals, **Mennen** studies the production of peak alignment among five Dutch-Greek bilinguals and finds that four of them show evidence of crosslinguistic interference in both their L1 and their L2, while a fifth speaker (who was younger than the others at migration) appears to be exempt. It thus appears that susceptibility to phonetic attrition may vary considerably among individuals.	**C.5**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2004	Pavlenko, A. (2004). L2 influence and L1 attrition in adult bilingualism. In SCHMID ET AL. (eds.) (2004) pp. 47–59.	This is one of a series of papers in which **Pavlenko** investigates the question of transfer from L2 English to L1 Russian. She focuses on particular semantic fields – such as emotion terms and verbs of motion – and the way in which an entire field may show a certain extent of restructuring in an intensive language contact situation. This restructuring may be semantic in nature – for example, the English term *privacy*, which has no clear Russian translation equivalent, is discussed – but it may also concern the way in which an event is framed and conceptualized. A typology of language contact and attrition phenomena is introduced, which SCHMID (2011) develops and recommends as a highly suitable taxonomy for attrition studies at large.	**C.1**
2004	Scherag, A., L. Demuth, F. Rösler, H. J. Neville & B. Röder (2004). The effects of late acquisition of L2 and the consequences of immigration on L1 for semantic and morpho-syntactic language aspects. *Cognition* 93, B97–B108.	**Scherag et al**. present a psycholinguistic investigation of German L1 attrition and L2 acquisition using a priming paradigm to assess grammatical gender and semantic congruency effects. They study L1 speakers who are either short term or long-term residents in the US, L1 speakers of English who are long-term residents in Germany, and a German control group. Their findings show that while all groups benefit from semantic priming, morphosyntactic priming is absent for the late learners of German, but does not seem to be affected by L1 attrition, as all three German native groups show processing gains from both semantic and morphosyntactic congruency.	**A.2**
2004	Schmid, M., B. Köpke, M. Keijzer & L. Weilemar (eds.) (2004). *First language attrition: Interdisciplinary perspectives on methodological issues*. Amsterdam/Philadelphia: John Benjamins.	The overall focus of this volume is on establishing a common methodological framework for future studies in attrition. The introduction by Köpke & Schmid, giving a historical overview of the field to date, and the annotated bibliography by Schmid, can to some extent be considered precursors for the present timeline. The volume is further structured into three parts: the first section focusses on theoretical models and methodological aspects, with considerations of how to define and measure attrition. The second part introduces a number of largely descriptive studies, while the third part assesses how such studies may be used in the building and validation of linguistic theories. The volume concludes with a tentative outline of the Language Attrition Test Battery (further developed in SCHMID 2011).	**A.1**

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2004	Tsimpli, I., A. Sorace, C. Heyckock & F. Filiaci (2004). First language attrition and syntactic subjects: A study of Greek and Italian near-native speakers of English. *International Journal of Bilingualism* 8.3, 257–277.	**Tsimpli et al.**'s investigation of the production and interpretation of null and overt pronouns in the L1 (Greek and Italian) of very advanced L2 speakers of English introduces the study of attrition from the perspective of linguistic interfaces, testing the hypothesis that 'the changes in L1 syntax will be restricted to the interface with the conceptual/intentional cognitive system' (p. 257). They conclude that their data support the hypothesis that attrition does not affect purely formal, uninterpretable features, but shows up on syntactic/pragmatic, interpretable features.	**A.2**
2007	Keijzer, M. (2007). Last in first out? An investigation of the regression hypothesis in Dutch migrants in Anglophone Canada. Ph.D. dissertation, Vrije Universiteit Amsterdam.	**Keijzer** approaches attrition from the perspective of Jakobson's Regression Hypothesis (1941), which is a reformulation of the idea, gleaned from psychoanalysis, that forgetting will be the mirror image of acquiring. To this end she compares a population of long-term adult Dutch residents in Anglophone Canada not only with an unattrited Dutch control population but also with a population of relatively advanced Dutch L1 learners aged 13–16. Using a Wug-test and a grammaticality judgment task, she tests a number of morphological and morphosyntactic features, concluding that attriters and acquirers do indeed show some interesting parallels in particular in the overgeneralization of regular or default features.	**B.1**
2007	Levy, B. J., N. D. McVeigh, A. Marful & M. C. Anderson (2007). Inhibiting your native language. The role of retrieval-induced forgetting during second-language acquisition. *Psychological Science* 18.1, 29–34.	This study investigates problems of L1 lexical access under conditions of L2 learning (retrieval-induced forgetting) through a picture naming task, with items to be named in either English or Spanish, depending on a color cue, administered to English native speakers engaged in learning Spanish at the University of Oregon. Findings show that participants who are less fluent in Spanish have problems accessing the English form of items that they had previously named several times in Spanish, but that there is no such inhibition effect among more fluent speakers. They conclude that 'native-language words are most vulnerable to forgetting when people struggle to produce foreign vocabulary, as might occur to novices during immersion', but that this inhibition effect is limited to phonology and does not affect the semantic level (p. 33).	**A.3**

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2008	Kim, S. H. O. & D. Starks (2008). The role of emotions in L1 attrition: The case of Korean-English late bilinguals in New Zealand. *International Journal of Bilingualism* 12.4, 303–319.	**Kim & Starks** attempt to assess the developing patterns of L1 and L2 proficiency among late Korean-English bilinguals in New Zealand in the context of emotion-related language choice. To this end, they relate self-reported data on language choice in a variety of situations to accuracy, fluency, complexity and lexical diversity in an L1 story-retelling task. They find a difference between their experimental and control population on accuracy and lexical diversity, but not on fluency or complexity. The participants exhibit a continued preference for their L1 in most situations related to emotions, with the exception of language use 'when angry' (confirming the findings reported e.g. by Dewaele 2004).[8] There appears to be a substantial correlation between accuracy in L1 and preference for this language in a variety of emotionally-laden contexts, suggesting that 'as late bilinguals gain confidence in fluency in the L2, they lose confidence in using the L1 due to their decreasing L1 accuracy' (p. 315).	**D.2**
2009	Bylund Spångberg, E. (2009). Age differences in first language attrition. Ph.D. dissertation, Stockholm University.	**Bylund** reports on a series of tests on Spanish-Swedish bilinguals, focusing on the impact of AoM on L1 attrition. Results show a great deal more variability in the retention or attrition of the L1 Spanish among speakers for whom migration took place before the onset of puberty. This variability is related to a general aptitude for language learning for pre- but not for post-puberty migrants. The overall findings are interpreted within a Critical Period account of SLA and L1 attrition, and argued to be consistent with the existence of maturational constraints in bilingual development.	**B.1**

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2009	Linck, J. A., J. F. Kroll & G. Sunderman (2009). Losing access to the native language while immersed in a second language: Evidence for the role of inhibition in second-language learning. *Psychological Science* 20.12, 1507–1515.	This study builds on the investigation of the impact of inhibition on L1 access by LEVY ET AL. (2007) by comparing two populations of L2 learners of Spanish at similar levels of proficiency: one which was immersed in a Spanish-speaking environment (in a study abroad setting), the other classroom learners in the native English environment. The tasks consists of a verbal fluency task and an experiment where the participant has to determine whether a given English word is the correct translation of a Spanish item. The latter task contained English distractor items that were similar to the Spanish item in either form or meaning. Findings suggest 'that access to the L1 is attenuated during language immersion. In both comprehension and production, the L1 was less accessible for the immersed learners than for the classroom learners.' (p. 1512).	**A.3**
2009	Schmid, M. S. & M. Keijzer (2009). First language attrition and reversion among older migrants. *International Journal of the Sociology of Language* 200, 83–101.	**Schmid & Keijzer** set out to test the reversion hypothesis proposed by DE BOT & CLYNE (1989), which proposes that elderly migrants show a tendency to regress in terms of their L2 proficiency, even if they have used this language predominantly for decades, and to return to their L1. In order to assess the L1 skills of long-term elderly migrants, they test lexical diversity, fluency and performance on a verbal fluency task among five different age groups. They find that the performance of the oldest groups of migrants is less different from their monolingual age-matched peers than that of the younger groups, but ascribe this to a more marked decline with age among the monolinguals. In essence, these controls appear to be 'catching up' with the attriters in terms of lexical access and disfluency problems. Schmid & Keijzer ascribe this to the effect of cognitive decline with aging against which long-term bilinguals might to some extent be protected.	**D.3**

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2010	Celata, C. & J. Cancila (2010). Phonological attrition and the perception of geminate consonants in the Lucchese community of San Francisco (CA). *International Journal of Bilingualism* 14.2, 185–209.	This study, arguably the only investigation to date that considers attrition on the phonological (as opposed to the phonetic) level, investigates the perception of a phonemic contrast present in the L1 but not in the L2, namely that of singleton and geminate consonants in the Lucchese dialect of Italian among long-term migrants and second-generation speakers in the San Francisco area. **Celata & Cancila** perform two phoneme identification tasks, which show that the bilingual speakers are clearly outperformed by the unattrited native speakers. Furthermore, there is a marked distinction between first and second generation speakers, with the former achieving higher scores on the identification task than the latter. Celata & Cancila conclude that the perception of this phonological feature is becoming progressively impaired in the bilingual populations.	**C.5**
2010	de Leeuw, E., M. S. Schmid & I. Mennen (2010). Perception of foreign accent in native speech. *Bilingualism: Language and Cognition* 13.1, 33–40.	**de Leeuw et al**. present the outcomes of a Foreign Accent Rating experiment in which 19 native speakers of German listen to short excerpts of free speech collected from long-term German migrants in an L2 English and Dutch setting as well as from an unattrited control group. The raters assess whether or not each speaker is a native German, and also indicate how confident they are in their judgment. The results indicate that the attriters are more likely not to be perceived as native speakers than the controls. It is further shown that the amount of informal use of the L1 (with friends and family) does not impact on the degree of perceived foreign accent, but that speakers who use this language for professional purposes (ie. in formal contexts) are less likely to be perceived as foreigners.	**C.5**
2010	Kim, S. H. O. & D. Starks (2010). The role of fathers in language maintenance and language attrition: The case of Korean-English late bilinguals in New Zealand. *International Journal of Bilingual Education and Bilingualism* 13.3, 285–301.	Based on the same corpus as the one analysed in KIM & STARKS (2008), the authors present an intriguing analysis of the role of the home language for the attrition or maintenance of the L1. They demonstrate that their participants, who emigrated from Korea to New Zealand around age 12, are significantly less accurate in their L1 than a population of 12-year-old monolingual Koreans. While the L1 used with the participants' mother is not related to their current L1 proficiency, language use with their father and siblings does have an impact. These results are ascribed to the types of interaction within the family setting.	**D.1**

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YEAR	REFERENCES	ANNOTATIONS	THEME
2010	Schmid, M. S & K. Beers Fägersten (2010). Fluency and language attrition. *Language Learning* 60.4, 753–791.	This study tests the assumption that the attenuation of lexical access that has often been witnessed in the attritional process will lead to an increase in disfluency markers. **Schmid & Beers Fägersten** analyse free spoken data from German and Dutch L1 attriters and conclude that disfluency markers indicating cognitive hesitation processes do indeed increase, in particular preceding lexical words (as opposed to grammatical or function words). Disfluency markers with a semantic function show an adaptation to the distribution in the L2.	**C.1**
2010	Schmid, M. S. & E. Dusseldorp (2010). Quantitative analyses in a multivariate study of language attrition: The impact of extralinguistic factors. *Second Language Research* 26.1, 125–160.	**Schmid & Dusseldorp** approach the problem of investigating the impact of external sociolinguistic and attitudinal variables on the attritional process. They acknowledge that the number and variety of factors that can be assumed to play a role in language retention or attrition makes their assessment difficult in applied investigations using real (free or elicited) linguistic data, as opposed to surveys based on self-evaluations, due to the necessarily limited sample size. Based on an investigation of German L1 attrition in a Dutch- and English-speaking environment, they demonstrate how to reduce predictors by presenting a model of combining factors and assessing their impact in a linear regression model. They conclude that in the present data, the impact of such factors is largely negligible, as the only factor they find consistently influencing the outcome is the use of the L1 in the workplace. Furthermore, LOR has some impact on lexical diversity. L1 use in informal situations (with friends and family) plays a very small and largely inconsistent role for the different measures, and attitudinal factors have no impact at all. Errors and disfluency measures (the measures most often studied in attrition research) show no relationship to any of the external variables.	**D.**

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Year	References	Annotations	Theme
2011	Pavlenko, A. & B. C. Malt (2011). Kitchen Russian: Cross-linguistic differences and first-language object naming by Russian–English bilinguals. *Bilingualism: Language and Cognition* 14.1, 19–45.	This study probes into the intriguing question of crosslinguistic differences in categorization and their vulnerability to crosslinguistic influence. Based on the premise that English and Russian base categorization of household objects, such as containers from which to drink on different features (shape, material, purpose etc.), **Pavlenko & Malt** conduct a classification task of 60 pictures of more or less typical household objects. Participants are grouped according to the age of onset of bilingualism (simultaneous, early and late) and the findings are compared to responses from two monolingual (English and Russian) reference groups. The authors conclude that 'naming patterns for [. . .] common objects in one language can be swayed by exposure to patterns in another' (p. 39) and that this process is influenced by age of onset.	**C.1**
2011	Schmid, M. S. (2011). *Language attrition*. Cambridge University Press.	This is the first textbook devoted to language attrition, providing an introduction to the way in which attrition can affect the L1, as well as to the extra- and sociolinguistic features involved. It also familiarizes the reader with experimental approaches to attrition and data analysis techniques, and provides hands-on guidelines on how to apply them.	**A.1**
2012	Chang, C. B. (2012). Rapid and multifaceted effects of second-language learning on first-language speech production. *Journal of Phonetics* 40, 249–268.	This study provides evidence for the assumption that language attrition is not a phenomenon confined to speakers in long-term immersion contexts: **Chang** investigates novice L2 learners of Korean with English L1, and finds that even after only six weeks of intensive instruction in that language at a South Korean university, their L1 speech has become acoustically assimilated to the L2 on segmental, subsegmental, and global levels. He concludes that 'cross-language linkages are established from the onset of second-language learning at multiple levels of phonological structure, allowing for pervasive influence of second-language experience on first-language representations' (p. 249).	**C.5**

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Year	References	Annotations	Theme
2012	Mayr, R., S. Price & I. Mennen (2012). First language attrition in the speech of Dutch–English bilinguals: The case of monozygotic twin sisters. *Bilingualism: Language and Cognition* 15.4, 687–700.	This study presents an extensive investigation of changes in the phonetic space of a long-term L1 Dutch migrant in the UK. In order to assess changes to her vowel-system and to her production of initial plosives, controlled production (word list reading) is compared to the production of her identical twin sister (who has always lived in the Netherlands) on the same task. In this way, individual features pertaining to the articulatory apparatus, as well as social and neurological factors, are kept maximally similar between the experimental and the control subject. **Mayr et al.** conclude that both for VOT and for the structure of the vowel space, the experimental subject shows evidence of an assimilation to the L2 system.	**C.5**
2013	Cherciov, M. (2013). Investigating the impact of *attitude* on first language attrition and second language acquisition from a Dynamic Systems Theory perspective. *International Journal of Bilingualism* 17.6, 716–733.	This paper is one of a series of studies applying the relatively recent framework of Dynamic Systems Theory (DST) to language attrition. **Cherciov** investigates the role of attitude on the L2 development and L1 attrition among Romanian migrants in the Toronto area. She points out that, from a DST point of view, such analyses are not straightforward as the interaction of factors in a DS are characterized by properties such as non-linearity, interdependence and complexity, and can thus not easily be predicted or measured. This is underlined by her analysis: while the group analyses reveal little predictive power of the measures of language use and attitude on the outcome variables, a discussion of the more complex features of these measures, as revealed in a qualitative analysis of individual interviews, shows how various feelings (a desire to integrate, the wish to impart the L1 to the next generation, changing identities and identification, and so on) can conflict and interact. Individual migrants may respond in different ways to the complex situations they find themselves in, and this may account for the different patterns found in attrition studies, and the failure of linear, group-based statistical measures to yield explanatory power.	**D.1** **D.2**

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Year	References	Annotations	Theme
2013	de Leeuw, E., I. Mennen & J. M. Scobbie. (2013). Dynamic systems, maturational constraints and L1 phonetic attrition. *International Journal of Bilingualism* 17.6, 683–700.	In this paper, **de Leeuw et al.** present a DST analysis of phonetic attrition. This study investigates the lateral phoneme /l/ in the L1 and L2 of long-term German migrants in the Vancouver area, revealing L1 attrition at the group level as well as a great deal of variation between and within speakers. The authors address the long-standing problem in attrition research of how to define 'loss' and whether or not it can be assumed to be permanent. They argue that language development should not be viewed as 'semi-static', that is, as being determined by maturational constraints and having discrete states such as a 'final state' and 'fossilization', but as 'a complex process that continues throughout life' (p. 698). This view entails the expectation for 'language development to progress continuously, variably, and at different rates for different speakers', indicating that a DS account is better able to explain findings than theories drawing on maturational constraints.	**C.5**
2013	Hopp, H. & M. S. Schmid (2013). Perceived foreign accent in first language attrition and second language acquisition: The impact of age of acquisition and bilingualism. *Applied Psycholinguistics* 34.2, 361–394.	**Hopp & Schmid** investigate to what extent a perceived foreign accent can be ascribed to age of onset vs. the bilingual experience. They compare late German-English/German-Dutch and highly advanced late English-German/Dutch-German bilinguals on how native-like they are perceived to be by native speakers of German. They find that, while at group level, the attriters are more similar to the controls than the L2ers, the two bilingual populations overlap considerably. In particular, a substantial proportion of the L2ers are rated within the range delimited by the attriters. Extralinguistic factors, such as the frequency of use of German in daily life, have no predictive power for the attriters but do impact on perceived accentedness for the L2ers, and the amount of time spent in a German environment correlates with the degree of perceived accent for both populations.	**B.1** **C.5**
2013	Opitz, C. (2013). A dynamic perspective on late bilinguals' linguistic development in an L2 environment. *International Journal of Bilingualism* 17.6, 701–715.	**Opitz** presents an investigation of German L1 and English L2 in long-term German migrants in Ireland. She finds that many of her participants are highly successful L2 learners, performing within the reference group on a range of variables. For individual variables (C-Test, verbal fluency, free speech measures) there is no difference between the attriting group and the German control population; however, when a compound measure of all these variables is calculated, attrition effects do become visible. These are impacted on by a number of the external variables, such as LOR, nationality, use of German and attitudes. Opitz further discusses two case studies in detail, illustrating the complex, dynamic interaction of factors across a long period of residence.	**D.**

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Year	References	Annotations	Theme
2013	Yılmaz, G. & M. S. Schmid (2013). L1 accessibility among Turkish-Dutch bilinguals. *The Mental Lexicon* 7.3, 249–274.	This study of lexical access among long-term Turkish residents in the Netherlands compares controlled production in a picture naming task and lexical diversity and fluency in free speech within the framework of the Activation Threshold Hypothesis. **Yılmaz & Schmid**'s findings show that the attriters use a smaller vocabulary of more frequent items and hesitate more in free speech than the monolingual controls, but that their performance (speed and accuracy) on the naming task is unimpaired. An analysis of extralinguistic variables (frequency of use of L1, attitudes towards both L1 and L2) finds no significant correlations between these factors and the lexical and fluency features on which the participants appear to have attrited. The authors thus ascribe the reduction in lexical diversity and increase in hesitation markers not so much to a lack of practice but to the larger cognitive load associated with bilingual processing.	**C.1**
2014	Schmid, M. S. & S. Jarvis (2014). Lexical access and lexical diversity in first language attrition. *Bilingualism: Language and Cognition* 17.4, 729–748.	**Schmid & Jarvis** investigate the decrease in lexical accessibility among 106 long-term migrants and try to establish which measures of lexical diversity and lexical sophistication are most appropriate to capture this change. They conclude that measuring attrition in free speech provides a more accurate impression of lexical attrition than formal tasks or elicited narratives.	**C.1**
2014	Schmid, M. S. (2014). The debate on maturational constraints in bilingual development: A perspective from first language attrition. *Language Acquisition* 21, 386–410.	**Schmid**'s study compares a group of 40 L1 attriters and 40 advanced L2 learners of German matched for general proficiency, LOR and frequency of use of German. Her findings demonstrate that there are areas of grammar where the L2 learners outperform long-term attriters, but that in other areas, in particular NP agreement, they persistently lag behind, and that no single L2 learner performs within the attriter range on these features. She interprets these findings in the context of maturational constraints on L2 learning.	**B.1**

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Year	References	Annotations	Theme
2014	Ulbrich, C. & M. Ordin (2014). Can L2-English influence L1-German? The case of post-vocalic /r/. *Journal of Phonetics* 45, 26–42.	**Ulbrich & Ordin** investigate the pronunciation of post-vocalic /r/ in speakers of a non-rhotic variety of German immersed in both a rhotic and a non-rhotic variety of English. They conclude that exposure to the former affects the pronunciation of /r/ in the L1 in some (but not all) phonetic environments.	**C.3**
2015	Bergmann, C., N. Meulman, L. A. Stowe, S. A. Sprenger & M. S. Schmid. Prolonged L2 immersion engenders little change in morphosyntactic processing of bilingual natives. *Neuroreport* 26: 1065–1070.	This is the first investigation of first language attrition making use of the EEG technique. It is investigated to what extent online brain processing of morphosyntactic violations are subject to change after an extended stay in a second language environment. **Bergmann et al.** examine 26 native speakers of German living in an English-language environment and compare their EEG responses to correct sentences, and sentences which contain violations of grammatical gender concord and verb fitness to those of a control group of monolingual native speakers of German. They conclude that the detection of violations of these grammatical categories has not been eroded in the attritional process and that grammatical processing of a deeply entrenched L1 is stable even under long-term immersion in an L2 context.	**A.3** **C.2**

[1]Authors' names are shown in small capitals when the study referred to appears in this timeline.

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