REVIEW OF HUNDT, MOLLIN & PFENNINGER (2017), *THE CHANGING ENGLISH LANGUAGE: PSYCHOLINGUISTIC PERSPECTIVES*

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1 INTRODUCTION

The volume *The Changing English Language. Psycholinguistic Perspectives* aims at fostering interaction between the disciplines of psycholinguistics and historical linguistics by providing a systematic discussion of core cognitive mechanisms which play a role in language change. As such it can be seen as a new and timely approach and an important contribution to a hitherto neglected interface.

According to the editors there is a gap in the understanding of language change: psycholinguistic factors have not been treated as thoroughly as language-internal or social factors in the study of how language change proceeds. Historical linguistics can benefit from "expert input from scholars familiar with fundamental cognitive processes that are likely, or commonly taken, to shape pathways of change" (p. 1). Accordingly, the aim pursued in this volume is to provide a systematic treatment of cognitive processes or factors which are involved in language change which is informed by input from experts from both disciplines. The history of English is used throughout the volume to discuss the cognitive mechanisms under investigation.

Scrutinising previous work in historical linguistics, the editors note that a systematic treatment of cognitive processes or factors in language change is missing. Whilst some of the factors, e.g. language acquisition, have received

considerable attention for quite some time, other factors have only recently attracted attention, e.g. priming. Overall, it is mainly sociolinguistic and socio-pragmatic approaches to variation and change which have received attention. Equally, there has been a lack of discussion of language change in psycholinguistics.

The editors take the failure to identify the interface between historical linguistics and psycholinguistics as an avenue for further research and a cue to call for more interaction between the disciplines. And although differences in scope and method between the two disciplines have to be taken into account, they claim that many of them can be bridged. For example, psycholinguistic research focuses on cognitive processes at the individual level, whereas historical linguistics focuses on language use in the larger community. However, the editors highlight that "... it is not true that psycholinguists are not interested in the language system—psychologists study individuals, but with the aim of modeling more general cognitive processes beyond the individual. Likewise, historical linguists cannot be reduced to an interest in the language system—after all, they study individual acts of *parole* produced by individual speakers at particular points in time in order to get at the underlying abstract system." (p. 4f.) Even the fact that conducting psycholinguistic experiments and investigating authentic speech data are methodologically two very different approaches, the assumption that "... cognitive processes were the same for speakers in the past periods as for those today ..." (p. 5) unites the two disciplines and renders collaboration fruitful. The present volume demonstrates how this can happen in a successful way and it can be used as a guideline for further research.

2 SUMMARY

The volume is introduced by a chapter that presents the objectives and the structure of the book. In the concluding remarks the editors note that the chapters, and thus the cognitive factors discussed, are independent, i.e. that each of the factors plays a role in language processing, acquisition and change to a different degree. Put differently, none of the seven factors discussed drives language change by itself. With the volume the editors hope to achieve "... a sense in psychologists that their findings have wider applications and implications, and providing models for historical linguists on how cognitive factors in language change can be included in their analyses" (p. 17).

Since the volume pursues an interdisciplinary approach two experts, one from the discipline of psycholinguistics and one from the discipline of historical linguistics, treat one of seven cognitive factors together in tandem. Accordingly, the book is divided into seven parts: 1) frequency (Baayen,

Tomaschek, Gahl & Ramscar; Hilpert), 2) salience (Ellis; Traugott), 3) chunk-ing (Ellis; Bybee & Moder), 4) priming (Pickering & Garrod; Mair), 5) analogy (Behrens; De Smet & Fischer), 6) ambiguity (Felser; Denison), and 7) acquisi-tion and transmission (Lieven; López-Couso). The psycholinguists review the state of the art in their discipline for the respective factor and discuss possible links to language change, and the historical linguists conduct case studies of an instance of change in the history of English in which that same cognitive factor plays a role. The outcome is presented in two juxtaposed chapters on the respective factor. Chapters also provide more general comments on the potential and limitations of the overall approach and questions and concerns regarding differences in research foci, data and rarely also methodology. Most authors dedicate themselves to and argue in favour of the usage-based framework.

2.1 Part I: Frequency

Chapter 2: The Ecclesiastes Principle in Language Change (Harald Baayen, Fabian Tomaschek, Susanne Gahl & Michael Ramscar)

The chapter by Harald Baayen, Fabian Tomaschek, Susanne Gahl & Michael Ramscar takes the consequences of the accumulation of knowledge over the human lifespan as well as the increasing complexity of knowledge in modern human societies as a point of departure for their research in discrimination learning. The authors note that due to these societal changes, languages move towards more complexity. They mention a number of corpus-based studies which show that there has been, for example, an increase in use of multilexemic words (Meibauer, Guttropf & Scherer 2004, Scherer 2005 for German) or personal names (Ramscar, Dye & McCauley 2013). The aim of their contribution is to provide an overview of their psycholinguistic studies "... on the consequences for grammar and lexical processing of the need for language to accommodate the ever-growing onomasiological needs of modern societies" (p. 23). The authors discuss micro-level changes in the life-time of the speaker and their processing consequences, but also link it to findings about language change and macro-level changes across generations of speakers.

Over the life-time speakers learn more and more words and, as a re-sult, slowly increase their mastery of the vocabulary. This knowledge also includes collocational knowledge and articulatory fluency. Concerning the former phenomenon, the authors examine performance on a paired associate learning task as a function of collocation frequency and age. They observed that older speakers are more sensitive to collocation frequency than younger

speakers. This finding is consistent with the fact that more experience with a language results in becoming more sensitive to lexical-occurrence probabilities. However, they also observed that older speakers perform worse than younger speakers on the pairs with lower collocation frequency (Baayen & Ramscar 2015). The authors refer to this effect as the Ecclesiastes Principle, which says that accumulating knowledge doesn't come for free: "once one learns that two words do not belong together, it follows that one must overcome this prior learning before one can learn to pair them." (p. 46). The authors see this as an evolutionary advantage.

There is an additional dimension mentioned by the authors, namely that today, the accumulated knowledge of our society can never be known by any individual. This has consequences for our work with corpora because they reflect the accumulated knowledge of society rather than revealing something about the language use and experience of the individual speaker. Any conclusions drawn from such corpora, thus have to be looked at with this knowledge in mind: "Especially in the domain of lexis, we are faced with the problem that although the highest-frequency words are common knowledge, as we move out into the low-frequency tail of Zipfian word frequency distributions, knowledge fractionates across individuals" (p. 46) According to the authors, this fractionation problem for large corpora can be addressed "by zooming-in on fictive individual speakers representing (equally fictive) generations" (p. 46)

Finally, the authors address parallels between language change within the life-span and across generations: "It is not the case that by the age of twenty-one, a language has been learned, to remain stationary and unaltered over the remaining lifespan" (p. 46). Thus, accumulation of experience and knowledge continues, but crucially differs across individuals.

Overall, the chapter highlights the importance of discrimination learning which may provide us with quantitative measures that are more informative than token frequencies. Further, the authors stress that changes in culture and society should be taken into account if we want to understand language change over the lifetime of an individual.

Chapter 3: Frequencies in Diachronic Corpora and Knowledge of Language (Martin Hilpert)

The chapter by Martin Hilpert discusses different frequency types and measurements in historical corpus linguistics and probes into the question of what such measures can reveal about the language knowledge of speakers in the historical dimension. To this end, he draws attention to the fact that the complex phenomenon of frequency can not only be measured in multiple

ways but can also have multiple underlying cognitive correlates which tell us more about language change as a "... cognitively grounded phenomenon" (p. 50).

Hilpert distinguishes five different types of frequency: 1) text frequency 2) relative frequency 3) type frequency 4) burstiness (or dispersion) and 5) behavioral profile frequency. Whereas text frequency, relative frequency and type frequency have been constantly discussed in (historical) corpus studies, both burstiness and what Hilpert calls 'behavioural profile frequency' have attracted much less attention. Therefore we will only briefly mention the first three and discuss the latter two in more detail.

Concerning text frequency, Hilpert notes that it can be used to measure whether a given linguistic unit has become more or less frequent over time in a corpus. This may be associated with a number of cognitive correlates, e.g. chunking, entrenchment and conservation. When applied to the cognitive study of language change, high text frequencies may reflect historical speakers' familiarity with a linguistic unit. The second type that Hilpert addresses is relative frequency which is defined as the "frequency of one linguistic unit as compared to the frequency of another" (p. 54). Related to cognitive aspects of language change, a comparison of two forms can be part of one single cognitive category in the mind of a speaker, and if changes are observed, this hints at a reorganization in such mental categories and a shift in the associative ties between different forms in the mind of the speaker. For Hilpert, relative frequency is quite central to the study of diachronic change "as it pertains to the gradual emancipation of new words and constructions from their host structures" (p. 57), which is relevant to the study of lexicalization and grammaticalization. The third type, type frequency, can be defined as the "number of different variants in which [a] unit appears in a given corpus" (p. 57). It is well-known that measuring type frequencies is useful for studying productivity. Hilpert, however, calls attention to the complexity of measuring and interpreting measures of linguistic productivity. According to him, it is difficult to pin down definite cognitive correlates of high type frequencies or hapax legomena.

The concept of burstiness (or dispersion) can be used to measure how evenly a linguistic unit is distributed across the different parts of a corpus. What is interesting about capturing the regularity of intervals at which linguistic units occur in a running text is that words with similar overall frequencies differ significantly in burstiness. High burstiness, here, is defined by unpredictability: linguistic units appear more densely together in bursts, which, according to the author, can be traced back to a more abstract meaning of a word. Low burstiness is characterised by regularity of occurrence over

the stretch of a text and point toward more general meanings, which have more contexts in which they can appear. This, too, is relevant for the study of grammaticalization and its quantification - assuming reduced burstiness and more abstract meanings for linguistic items that are undergoing lexical bleaching in their development to becoming grammaticalized elements. Despite the fact that this concept may us tell us something about language change it is not clear, at least not from the examples Hilpert gives (cf. Figure 3.4), what the baseline frequency of the words under investigation is and thus whether the effects shown are just due to chance. And even though burstiness may signal changes in the grammatical function of words in historical texts, or perhaps the effect of priming in contemporary texts, caution is warranted for two reasons: first, it has been known for a long time in NLP that burstiness correlates with semantic/contextual topicality. Unless we can control what people talk/write about in some text, we cannot parcel out topicality and interpret burstiness in a structurally interesting way. Second, in reference to Pierrehumbert (2012), Hilpert mentions that the burstiness of verbs such as "discuss" and that of its deverbal noun "discussion" are different, since the latter have more specific meanings and therefore show higher burstiness values. While this is true, he fails to cite the finding in the same paper, namely that the burstiness of deverbal nouns is not different from that of nouns in the control group (i.e., non-derived nouns, both concrete such as "book" and "house" and abstract such as "science" and "structure"). So the result seems to be that nouns are nouns, and verbs are verbs. So even though the concept of burstiness and its relation to priming seems to be useful to explore language change, what is needed first is a clear definition of how it can methodologically be used to gain further insights into this domain.

Lastly, the measure of behavioral profile frequency concerns the use of linguistic variants in a linguistic community as a result of the speakers' diverging experience of such variants. The behavioral profile of a linguistic unit is understood as "a comprehensive inventory of elements co-occurring with a word within the confines of a simple clause or sentence in actual speech and writing" (Gries & Divjak 2009: 61), i.e. the inventory of features, along with respective text frequencies, type frequencies and frequencies of mutual co-occurrence. Looking at this type of frequency becomes important if we want to move beyond measuring simple frequencies of the type introduced above. Hilpert assumes the linguistic competence of speakers to include probabilistic knowledge about the contexts in which a linguistic variant can be used, which he links to an argument by Wolk, Bresnan, Rosenbach & Szmrecsanyi (2013: 383): "The likelihood of finding a particular linguistic variant in a particular context in a corpus can be shown to correspond to the

intuitions that speakers have about the acceptability of that particular variant, given the same context". According to Hilpert, this assumption has also been corroborated by the comparability of corpus-based results on the likelihood of different constructional variants and experimentally obtained acceptability judgments. Given that the aim of historical psycholinguistics is to model changes in the linguistic knowledge of language speakers, and given that the competence of such speakers is assumed to include probabilistic knowledge about variation, for Hilpert including behavioural profile frequency measures is indispensable. Hilpert assumes that looking at behavioral profile frequencies in historical data may open a window to the "grammatical knowledge of speakers who lived in the past" (p. 66) and how this knowledge changes over time.

Overall, the chapter provides the reader with a good overview of the different types of frequency that have been discussed in the literature and what they may tell us about cognitive aspects of language change, especially under the assumption "... that language use shapes speakers' knowledge of language and is at the same time an expression of that knowledge" (p. 68). Hilpert sees the triangulation between frequency measures from corpus data and experimental data as a promising way of specifying the exact cognitive correlates.

2.2   Part II: Salience

Chapter 4: Salience in Language Usage, Learning and Change (Nick C. Ellis)

In the first part of the chapter dedicated to salience, Nick Ellis takes a closer look at this ubiquitous cognitive mechanism which he defines as "the property of a stimulus to stand out from the rest" (p. 71). Salience has received a lot of attention in cognitive science where numerous studies have investigated the phenomenon that attention to input is influenced by prior experience, which leads to new things being perceived as more 'shocking' and old things often going by unnoticed.

Ellis' discussion of three important aspects of salience (psychophysical salience, salient associations and context and surprisal) and their impact on learning, acquisition and processing sheds light on the importance of the topic for psychology, learning theory and psycholinguistics. For example, salience plays a role in the associative strength of a conditioned and an unconditioned stimulus during the process of conditioning as proposed by Rescorla & Wagner (1972). In this case, cues with low salience are less likely to be learned with earlier associations 'blocking' later ones. Also, salience may be involved in surprisal-driven language acquisition and processing,

where learning is driven by prediction errors. This constitutes a link to priming (Pickering & Garrod, this volume).

In addition to the synchronic relevance of salience, Ellis offers potential points of contact to the study of language change. In his view, the low salience of grammatical functors makes grammatical morphology more difficult to acquire. He assumes salience to be involved in the grammaticalization process in the form of a replacement of synthetic forms by periphrastic ones with similar meaning but higher salience. In this vein, he postulates that salience may be considered as an explanatory factor in diachrony where the low contingency of homophonous and polysemous constructions (i.e. grammatical functors) leads to a lower likelihood of implicit acquisition of such constructions by naturalistic adult learners as predicted by Zipf's Law. Adult language acquisition is portrayed by Ellis as being defined by simplification, e.g. a loss of redundancy and irregularity. This, Ellis claims, is supported by the fact that "[b]ecause children are better language learners than adults, languages that adults can learn are simpler than languages that only children can learn. Second language acquisition by adults changes the very nature of language itself, in ways that are understandable in terms of the psycholinguistics of salience and general principles of associative learning" (p. 90). He sees a potential for a collaboration between historical linguistics and psycholinguistics on the basis of a shared focus on corpus analysis and by an agreement that 'usage matters'.

Overall, the chapter provides a very detailed overview of the relevance of the phenomenon in psychology and modern psycholinguistics and generates hypotheses for the relevance of the mechanism in diachrony.

Chapter 5: Low Salience as an enabling factor in morphosyntactic change (Elizabeth Traugott)

The chapter by Elizabeth Traugott provides a complementary view of the ideas on the role of salience in morpho-syntactic change presented by Ellis. Her focus lies on diachronic changes in morphosyntax and the processes of grammaticalization and constructionalization. Whereas Ellis argues for the role of high salience and prominence in lexical expressions and sees salience as a driving factor in change, Traugott is sceptical about its role for diachronic change but acknowledges the role of salience played in innovations. This is why she investigates the role of salience as an enabling factor at the onsets of morpho-syntactic change.

Taking existing research on salience from usage-based synchronic approaches in phonology, pragmatics and sociolinguistics as a point of departure, Traugott establishes historical approaches for grammar as a largely still

underresearched area. She also stresses that the notion is not well defined at the current moment even in synchronic research. Traugott suggests that salience is a relevant concept also for morphosyntax, prosody, semantics and information structure, but voices concern about the challenges of studying salience in the historical domain. She argues in favour of bridging this gap by assuming the Uniformitarian Principle.

Previous studies (see e.g. Kecskes 2013, Chiarcos 2011) have suggested that salience is a multidimensional phenomenon which encompasses both speakers and production and hearers and comprehension. As such, salience may differ for speakers and hearers. Traugott notes that assuming this position helps to explain the gradual nature of morpho-syntactic change where multiple factors accumulate and eventually lead to grammaticalization/constructionalization. In order to explore the question whether there is evidence that 'expressiveness' and 'extravagance' (i.e. high salience) plays a role in the onset contexts of grammaticalization, a case study of the periphrastic form *be going to* is carried out. The study reveals that semantic salience is one of the main factors during the development of critical contexts, but that it is low salience for older expressions which become familiar and entrenched, rather than high salience, which is crucial here. Pragmatic inferences and morpho-syntactic modulations can also be viewed as having low salience and are viewed as unnoticed and unconscious background factors. Only after grammaticalization may the new expression become conscious.

Overall, the chapter provides a critical answer to the companion chapter by Ellis and extends the framework to morpho-syntax. A major contribution is the critical stance taken towards the muddy notion of 'salience' as used in psycholinguistics and the cautious steps taken to make sense of such a notion in the historical domain, which leads the author to question the role of salience as a motivation for change but to acknowledge its role in the rise of innovations.

2.3   Part III: Chunking

Chapter 6: Chunking in Language Usage, Learning and Change: I Don't Know *(Nick C. Ellis)*

The chapter by Nick Ellis provides an overview of the learning theory behind 'chunking' and the three major factors determining this cognitive mechanism (i.e. frequency, recency and context). Ellis examines psycholinguistic evidence for chunking on multiple linguistic levels and proposes his ideas on the significance of the mechanism for language change.

The mechanism of 'chunking' which can be seen as the formation of

permanent and larger units of language from formerly smaller and separate units of language then available for being used recursively to form into even larger permanent sets, according to Ellis, 'provides a rational representation of usage' (p. 122). Ellis presents this rationality of chunking and the human 'information need' (based on arguments from Rational Analysis (Anderson 1990) as constituting the motivation for the existence of the cognitive mechanism.

Evidence from cognitive and psycholinguistic studies suggests that frequency, recency and context play a major role in the learning and processing of language chunks. Firstly, frequency affects the learning of chunks in that prior experience of the distribution of (language) units in the input tunes a learner's perceptual system to expect constructions accordingly (p. 118f). This is because repetition of items in working memory may lead to an increased abstraction of regularities and chunks, which, therefore, may be called more accurately into working memory again. In this Ellis sees a link to grammaticalization processes, where the automatization of frequently occurring sequences of linguistic items play a major role. The development of chunks is also affected by recency and this links to psycholinguistic discussions of priming and alignment in dialogue. Lastly, Ellis argues that implicit learning is subject to context effects, where stimulus and response are associated with specific contexts and are more likely to be perceived in the same encoding context again.

After discussing the application and the psycholinguistic relevance of these three factors to various linguistic levels of language organization, Ellis comes to the conclusion that each episode of usage of a linguistic item further strengthens its relevant associations.

The chapter closes with a discussion of the link between chunking and language change. In order to explain why chunking plays a role in language change, Ellis uses the analogy of the artisan and his tools and the Principle of Least Effort initially introduced by Zipf (1949). In a Zipfian analysis of contemporary English, in which he updates Zipf's work using more modern data and tools (e.g. corpus data), he confirms that Zipf's predictions hold, demonstrating that the "rational representation of usage" (p. 136) provided by chunking may be a driving factor behind language change.

More specifically, Ellis sees a link between chunking and the diachronic process of grammaticalization in the work of Bybee (e.g. this volume) and Bybee & Hopper (2001), where the authors look at how repetition leads to loss of identity of components and reduction in form in automatization processes. Ellis sees further interesting domains for a diachronic application of chunking, especially the relevance of the mechanism for frequency effects

and their effect on language change. Here, he stresses the effects of high token frequency for the entrenchment of irregular forms and idioms.

Overall, the chapter offers a very detailed account of chunking in cognitive sciences and its application to psycholinguistics. Another strength of the contribution is the tight link that Ellis establishes to the juxtaposed chapter on chunking in historical linguistics.

2.3.1 Chapter 7: Chunking and Changes in Compositionality in Contexts (Joan L. Bybee & Carol Lynn Moder)

Joan Bybee and Carol Lynn Moder focus on the diachronic processes of grammaticalization and constructionalization. Bybee & Moder aim to uncover the underlying mechanisms leading to changes in the compositionality of linguistic items, for which varying cognitive processes, including chunking, the effect of repetition of common word combinations and "the process by which chunks acquire meaning from the context" (p. 148), have been proposed. The main part of the chapter is dedicated to a case study on the expression *beg the question*, which presents evidence for a strong connection between the (loss of) compositionality of a chunk and the context of its use.

Bybee & Moder see chunking as a covert change with typical overt indicators being distributional tendencies, morphosyntactic restrictions and changes in meaning and contexts of use. The authors seek to understand and apply the three factors (frequency, recency and context) identified by Ellis to the study of language change. Their focus is on the loss of compositionality, i.e. "change[s] from a transparent meaning derived from the sum of the parts" (p. 148), in a usage-based account of language change, i.e. in construction grammar, where the internal components of conventionalised chunks maintain connections of varying strengths with related items in a larger network. Thus, they find conventionalization, entrenchment and loss of analysability (in the sense of Langacker 1987) as a result of the frequent repetition of sequences and elements. In order to understand the link between chunking and compositionality, they build on work by Hay (2001), which proposes that "loss of compositionality is due to the derived form gaining frequency of use and exceeding the frequency of the base form[and t]he more often the combined derived form is used, the easier it is to access as a whole and the less that access activates the representations of the component parts" (p. 150). Based on the case study on the common expression *beg the question*, they conclude that although chunking may commonly lead to the loss of compositionality, this is not the full picture. Lower-frequency items may also retain their analyzability and compositionality may be renewed when the discourse context changes. Thus, Bybee & Moder maintain context

as the major factor determining the impact of chunking and the pathway of development of linguistic forms.

The authors assume that historical linguists would generally agree that chunking itself does not equal linguistic change and they maintain that the structural impact of the individual speaker on the language system is minimal. However, the spread of the innovation in the speaker community, through the reorganization of distributional tendencies dependent on contexts of usage, can lead to grammatical change.

A major contribution of the chapter is the critical assessment of the proposals made by Ellis in the companion chapter on chunking in psycholinguistics. Despite acknowledging a shared interest between the disciplines of historical linguistics and psycholinguistics in the loss of compositionality over time, e.g. in grammaticalization processes or for derivational morphology, where derived forms move away in meaning from the base, Bybee & Moder raise doubts regarding the teleological nature of the explanations for chunking (see Rational Analysis and Zipf's Law) proposed by Ellis. They point out that language itself does not have goals. Likewise, they also take issue with the agency of the speaker, which is implied in Ellis' use of Zipf's artisan's tools analogy, where the craftsman intentionally arranges and modifies their tools. They emphasize that the majority of changes in a language happen without the users consciously and intentionally intending to change their language. The authors propose to view mechanisms such as chunking simply as "mechanisms that occur during language use for the purpose of communication" (p. 152) (see also Croft 2000). To the end of establishing common ground between the use and interpretation of the cognitive mechanism chunking in historical linguistics and psycholinguistics, they stipulate the notion of chunking as a domain-general mechanism that has evolved gradually and has selectional advantage. In their view, humans automatically "chunk [all of their experience] because they have evolved to do this and it facilitates interaction with the environment" (p. 152) rather than acting because of an 'information need' or a desire for efficiency, as contended by Ellis. Thus, Bybee & Moder encourage the two disciplines to move forward by focusing on thoroughly understanding the mechanisms that create the correlations which occur during language use for the purpose of communication.

Overall, the strongly critical stance taken towards Ellis' article is commendable.

2.4 Part IV: Priming

Chapter 8: Priming and Language Change (Martin J. Pickering & Simon Garrod)

The chapter by Martin Pickering & Simon Garrod presents a speculative discussion about the role of three phenomena—alignment, priming and routinization— which they assume to be "likely to reflect similar psychological mechanisms" (p. 175) - in long-term language change. The authors' overall suggestion is that priming processes, which are defined as the tendency to repeat structure (mainly syntax, but also thematic roles etc.; see Pickering & Ferreira 2008) encountered before in either production or comprehension (Bock 1986, Bock, Dell, Chang & Onishi 2007), may serve as a basis for speaker alignment in dialogue and be a contributor to the development of routines, thus resulting in historical language change. Their argument is based on a discussion of psycholinguistic studies. Throughout their contribution, their focus is on the difference between short-term and long-term priming, priming on the level of the individual vs. spread to the speech community and on the groups of speakers especially relevant to change (i.e. adults within the language community, adults entering the community and children acquiring language in a community). Their review of the literature on structural priming focuses on aspects that are relevant to the topic of language change: longevity of priming effects, priming of ungrammatical and innovative structures, conditions for boosts to priming and priming in every-day languages (i.e. corpus-based approaches to priming). They also look at studies on cross-linguistic priming and the short-lived translation equivalent boost. Lastly, priming in acquisition is discussed as well.

Pickering & Garrod introduce priming as an important component in the alignment of linguistic representations, where it can help to establish alignment in the sense of the same understanding of the situational context by the interlocutors. The alignment of speakers in dialogue alone does not immediately lead to language change. However, if linguistic alignment persists beyond single conversations (p. 176), this may lead to long-term changes in the language of individuals and to more widespread effects on the speech community (p. 173). Pickering & Garrod suggest that these long-term changes take the form of linguistic routines, relatively fixed expressions and conversational patterns often behaving like single words, that form in the case that the activation of the links between linguistic levels (semantics, phonology, syntax; see Jackendoff 2002) during interactive alignment is sufficiently strong. This view of language change constitutes an alternative to the traditional acquisition-based account in that the evolutionary process

arises from usage rather than constraints on learning, because the linkage is through "interactive alignment and routinization" (p. 188), which in their view, helps to resolve the 'problem of linkage'.

Overall, Pickering & Garrod provide an insightful overview of the link between the three phenomena alignment, priming and routinization and their roles in permanent cross-generational changes in linguistic representations. In doing that, they propose an interesting alternative to the traditional acquisition-based account of language change, which serves as a solid basis to start from for the companion-chapter by Christian Mair. The authors also make a strong case for drawing on evidence from both laboratory and corpus environments and draw a parallel when they state that "[i]n the same way that experimental communities of speakers establish their own routines over the course of repeated interactions, so real communities of speakers can establish and maintain routines as well" (p. 188). This not only strengthens their own argument but underlines the overall aims of the volume.

Chapter 9: From Priming and Processing to Frequency Effects and Grammaticalization? Contracted Semi-Modals in Present-Day English (Christian Mair)

The chapter by Christian Mair presents a direct response to Pickering & Garrod's proposals for a link between priming and historical language change from the perspective of a corpus linguist. The main argument is that historical psycholinguistics (more carefully termed 'cognitive historical linguistics' by the author) is a worthwhile field of study. In his view, it can help augment the field of historical psycholinguistics alongside the established disciplines of historical pragmatics and historical sociolinguistics and help to "sharpen[...] analytical awareness" (p. 209) in the endeavour to bridge the study of short-term effects and long-term effects of language change.

Mair begins by providing a summary of why a discipline like historical psycholinguistics can help shed light on what is going on in the mind of the bilingual during contact situations. Despite differences in methods, data and scope, the indirect link between priming and language change as proposed by Pickering & Garrod offers "way[s] of linking the micro-time of speech production to the build-up and transformation of the language faculty over the lifespan", (p. 195) which are "compatible with the pathway from priming via alignment to routinization as proposed by Pickering & Garrod" (p. 195). Building on Pickering & Garrod's definition of the phenomenon, he views instances of priming to be reflected in temporary and local 'bursts' in token frequency in historical corpus data (p. 208), thereby linking it to Szmrecsanyi's (2006) concept of 'persistence' of forms in corpora. Mair also proposes that the concepts of priming, alignment and routinization

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as proposed by Pickering & Garrod can be extended to the explanation of changes on the level of phonetics.

Commenting on how the problem of linkage can be resolved, Mair perceives approaches and viewpoints to be still very far apart from each other. However, they can generally be reconciled by taking Pickering & Garrod's viewpoint: via conversational alignment from the individual speaker to a larger community. Here, routinization is to be conceptualised as a cognitive process in the individual whereas the concept of grammaticalization as used in historical linguistics refers to a collective property of speech communities.

Mair's argument is augmented by a list of case studies for "a promising rapprochement between historical linguistic and psycholinguistics" (p. 200), e.g. Mair's (2012, 2014) own corpus studies on the origin and spread of do-support (i.e. main verb syntax in questions and negations) with (have) and got (to).

Overall, Mair's view is that the approach proposed by Pickering & Garrod is - although desirable - not without problems. One major problem concerns the fact that priming effects are very short-term in nature. A proposed solution is to picture a chain from very short-term (automatic) priming to medium-term (attentional) priming to long-term effects of implicit learning. The other major problem pointed out by Mair concerns the nature of the data available to historical linguists. Some promising topics for further research identified by the author include cross-language priming in language contact situations as well as using priming experiments as a means for determining whether ongoing changes are still active. A further major contribution of the chapter is its comprehensive overview of the overlaps and contrasts between research topics in corpus linguistics and psycholinguistics.

2.5   Part V: Analogy

Chapter 10: The Role of Analogy in Language Processing and Acquisition (Heike Behrens)

Heike Behrens discusses possible effects of analogical reasoning in (first) language acquisition from an emergentist and usage-based perspective and focusses on analogical processes in morphology and syntax. Following Gentner (1983) she first provides a definition of analogy from cognitive science: "Analogy is a domain-general form of structure mapping between a source and a target" (p. 216). This kind of mapping is based on both perceptual similarity and perceiving relations between entities. The ability to notice correspondences between elements is called structural alignment and has the cognitive effect of perceiving some entities as more salient than others,

promoting the perception of alignable differences, and inviting inferences from source domain to target domain. Despite the fact that analogical reasoning is basically unbounded and happens spontaneously, questions that need to be addressed in language processing are, according to Behrens, first, how can all possible comparisons speakers make be accounted for? And second, what constrains the comparisons speakers actually make?

Behrens notes that in cognitive frameworks analogy leads to learning with regard to categorization, abstraction, and extension, following Langacker (2000). The types of analogy mainly examined by historical linguists are proportional analogy and analogy levelling which can be subsumed under frequency-induced processes of categorization. Behrens draws attention to the fact that although both historical linguistics and language acquisition investigate change in language use, there are a number of differences: in diachronic change changing preferences in the speech community cause changes in linguistic conventions or structures, whereas in language acquisition the language use of the individual child changes as she/he gradually approximates the mapping of form-function correspondences existing in her/his language. The similarities between the two disciplines can be found on the level of theory, namely whether acquisition and change is rule-based or whether it is a matter of local and gradual abstraction. Behrens discusses two cases of acquisition, German plural marking and verb-argument structure. Her studies are interpreted in terms of Construction Grammar and she discusses whether linguistic rules are acquired via a bottom-up process based on analogy or via top-down declarative processing. Further, Behrens shows that the acquisition of verb-argument structure implies the refinement of form-function correspondences in syntax by means of different analogical mappings.

Concerning the first study of the acquisition of German plural marking by one monolingual child, Behrens presents findings which support claims that it is not only type-frequency that plays a role but also analogy. According to Behrens this speaks against approaches that claim that the *-s* plural represents the elsewhere condition, which means that it is applied whenever the child cannot resort to stored forms and thus, not being constrained by analogy, overgeneralises this form to a wide range of noun stems. Instead Behrens claims that the German plural system is not determined by a single generalisation but that the child draws on different sources of information to reach generalisations. Thus, the system is inherently variable and exhibits some "more-or-less reliable subregularities" (p. 229).

In regard to the acquisition of verb-argument structure, Behrens discusses string-based processing (item-based learning, frame learning), syntax-based

processing (from exemplar-based processing to more abstract generalisations), and semantics-based processing. Focussing on the latter she notes that in studies where *variation sets* were used the importance of syntactic variation for specifying verb meaning(s) became evident. In studies with Artificial Language Learning paradigms it is investigated what constrains speakers' generalisations when they come across novel verbs in a familiar construction or a novel construction. Some studies show that familiar phrases are preferred over novel ones but that novel uses are accepted more readily when there is no alternative.

Coming back to similarities between language acquisition and change Behrens concludes that in both analogical reasoning plays a major part in terms of extending categories and making generalisations. She also points out that the interaction between analogy, salience and frequency should be considered if we want to gain a better understanding of both acquisition and change.

Overall, the chapter provides a good introduction to analogy in cognitive science and discusses prominent studies of acquisition modelled in constructivist theories. She also fulfils the aim of the volume to tightly link psycholinguistic work to historical language change as well as making some interesting observations and comments along these lines. What remains unclear, however, is what constrains analogy. The quote by Ibbotson (2013: 10) that Behrens puts forward clearly states the need "... to specify in greater detail the mechanisms of generalization, specifically a mechanistic account of the dimensions over which children and adults make (and do not make) analogies." Thus, also her finding of "more-or-less reliable subregularities" in her study of German plural markers remains rather vague and unsatisfying (p. 229 and above).

Chapter 11: The Role of Analogy in Language Change: Supporting Constructions (Hendrik de Smet & Olga Fischer)

Following the broad view of analogy proposed by Heike Behrens in chapter 10, Hendrik de Smet & Olga Fischer subscribe to a definition where analogy is seen both as perceiving similarity and relations between entities. Although the rise of usage-based approaches like Construction Grammar (CxG) has led to a revival of the phenomenon it remains elusive. This is why Traugott (2011) makes a distinction between analogy as a mechanism and analogization as the result of analogical reasoning. According to Traugott this is necessary because "much analogical thinking never results in change" (p. 240), as the authors stress. De Smet & Fischer further point out that analogy also "... always involves a *combination* of form and function" (p. 241). One example

which nicely illustrates this is the extension of reflexive constructions in verbs denoting psychological states in Dutch. Verbs like *irriteren* 'to irritate' have come to be used reflexively. According to the authors this is not only due to the lexical semantics of these verbs but also to the causative structure that some of them share. So, for example, analogous to the verb *herinneren* 'to remember' which can be used both reflexively (*ik herinner me* 'I remember that') and causatively (*dit herinnert me eraan dat* 'this reminds me that ...'), the verb *irriteren* that exhibits causative constructions has recently also developed a reflexive use (*ik irriteer me* 'I am irritated'). Overall, the authors highlight that if we want to understand the nature of analogy we need to take into account the "... complex constructional networks capturing the myriad relations between individual constructions" (p. 242).

To investigate analogy in terms of language change de Smet & Fischer relate to the notion of 'supporting constructions' and the 'construction conspiracy hypothesis' (Abbot-Smith & Behrens 2006) in language acquisition where it has been shown that target constructions are acquired earlier and faster if they were supported by similar ambient constructions. But if the source and target construction share some semantic-pragmatic function, acquisition of the target construction can also be hindered. De Smet & Fischer extend this notion to language change and hypothesise that the probability of a novel form arising is dependent on the set of supporting constructions facilitating this form. Before the authors present two diachronic case studies of English they address the problem of direct applicability of concepts from language acquisition to language change and list some differences. For example, whereas studies of acquisition sometimes rely on the homogeneous data of one child, historical data most often are heterogeneous coming from different speakers and reflecting sociolinguistic variation. Furthermore, the aspect of time is very different in acquisition and change. Whereas a child may acquire a pattern with a certain kind of 'speed', diachronic change happens over the course of periods of time and across generations of speakers. Thus, if the 'construction conspiracy hypothesis' is applied to diachronic change, so the authors note, the primary focus should be on the frequency and chronological order of new patterns that arise.

The first case study examines the grammaticalization of *have to* as a semi-auxiliary. De Smet & Fischer show that this development is not the result of grammaticalization itself but rather of the interplay between complex factors at some point in time, in this case, in Middle English. Among these factors are the chunking of *have* and *to*, the rise of the *to* infinitive, especially with verbs denoting modality, and complex interactions between *have to* and the ME impersonal verb and adverb *nede(n)* denoting necessity. Some

constructions supported, others hindered this change (e.g. patterns with *nede* and the impersonal verb *neden*) which overall speaks in favour of the 'construction conspiracy hypothesis'. This also applies to the second case study of the grammaticalization of *as good as* where instances of analogical extension could be identified, with each extension feeding the next. Further, a number of 'supporting constructions' existing synchronically helped promote the change. De Smet & Fischer conclude that the notion of 'supporting constructions' from language acquisition can well be applied to language change thus allowing for a more explicit operationalization of analogical processes.

Overall, the authors propose an interesting and new approach to investigate analogy in diachrony. The two case studies nicely illustrate that including supporting constructions to diachronic studies may add to our understanding of the workings of analogical processes. What remains rather unclear, however, is on which basis (all structural and substantive constructions synchronically available?) these constructions are seen as relevant to the change under scrutiny.

2.6   Part VI: Ambiguity

Chapter 12: Syntactic Ambiguity in Real-Time Language Processing and Diachronic Change (Claudia Felser)

Claudia Felser provides an overview of psycholinguistic approaches to ambiguity resolution and their respective empirical findings and discusses how the misanalysis of ambiguous or underspecified input may be linked to grammatical reanalysis, i.e. language change.

Felser, first of all, stresses the ubiquity of ambiguity on all levels of language and gives a number of examples for structural ambiguity, which is where the focus of her contribution lies. In order to examine how ambiguous input is processed she notes that psycholinguists conduct offline and online experiments during listening or reading, i.e. they mainly focus on ambiguity resolution in comprehension. They make use of the well-known 'garden-path' sentences (e.g. Tom Bever's famous example of *The horse raced past the barn fell*) which are deliberately designed to trigger processing difficulties. Different types of structural ambiguity have been used (object vs. subject ambiguity, PP attachement ambiguity, thematic ambiguity) in reading or listening online experiments where processing difficulties are reflected in longer reading or listening times. Initial misanalysis will normally be corrected by the processing system if it is clearly proven wrong by subsequent input. If recovery fails it might happen that a sentence may be regarded as being

ungrammatical or incomprehensible.

Depending on assumptions about the mental mechanisms behind processing, Felser states that there are mainly two types of psycholinguistic models that are distinguished: serial and interactionist models. Proponents of serial or *syntax-first* models assume that there is a bottom-up process from syntactic category information to syntactic analysis which is restricted by a small set of structure-based minimal effort principles. Many garden-path phenomena can be explained by this model, which hypothesises that the simplest syntactic analysis is preferred. Proponents of the interactionist model assume that a range of simultaneously interacting linguistic and non-linguistic constraints play a role in processing and ambiguity resolution and that all posssible analyses are computed in a parallel fashion. Regardless of the model chosen, there is evidence that depending on the type of structural ambiguity misanalyses are more or less easily resolved.

One case of misanalysis which Felser discusses in more detail and which she calls 'good enough' processing is particularly interesting as it may be the trigger of historical reanalysis. This type is a case of semantic persistence where comprehenders keep an incorrect semantic interpretation of a syntactic construction for some time. This is possible because their analysis suffices to recover basic sentence meaning and thus sometimes it is enough to compute an underspecified grammatical representation. For example, comprehenders of the sentence *The sister of the schoolgirl who burned herself was usually very careful* do not necessarily need to recover the intended structural analysis (the correct attachment of the relative clause) to understand the gist of the sentence. For Felser these cases of processing misanalysis also fall under the standard definition of historical reanalysis (which Felser calls *neoanalysis*). The main difference between the two phenomena are their relative time scales. She states that "From a psycholinguistic perspective, neoanalysis can be viewed as an innovative misanalysis which then persists and gradually spreads in a given speaker community, rather than being corrected or rejected, and which eventually becomes part of that speaker community's grammar" (p. 284).

Before Felser concludes she discusses a number of examples from the history of English (cases of conversion and constituent boundary shift) in the light of incremental, left-to-right syntactic processing to show that least-effort principles (Minimal Attachment, Late Closure) may also hold in neoanalysis. In her concluding remarks, Felser highlights some important questions for future research that have remained unanswered. One of them is that the role monolingual or multilingual acquisition and language contact might play in facilitating neoanalysis should be more closely investigated.

Overall, the chapter provides a good introduction to psycholinguistic approaches to ambiguity and makes interesting observations and predictions concerning reanalysis (language change). By discussing some well-known examples of diachronic change from her perspective, she fully captures the intention of the volume and opens up new avenues for interdisciplinary research.

Chapter 13: Ambiguity and Vagueness in Historical Change (David Denison)

David Denison adds the perspective of historical linguistics to the topic and focuses on "... two types of incomplete knowledge" (p. 293), i.e. ambiguity and vagueness. He defines ambiguity as the case where the addressee/reader "... cannot be sure which of two or more linguistic possibilities was intended by SP/W [speaker/writer], and something hangs on the choice" (p. 293). Clear examples are lexical polysemy and homonymy. For Denison vagueness is a trickier concept, it is "... where a linguistic analysis is in some relevant respect underdetermined ... but no further information is needed for interpretation" (p. 293). Whereas with ambiguity there is the possibility of a 'wrong' choice, with vagueness there isn't. In the literature vagueness is often defined as "pragmatic indeterminacy" where certain semantic features are not defined in the underlying semantic structure but rather contextually specified (cf. Geeraerts 1993).

Denison first discusses a wide range of phenomena from different linguistic domains in terms of semantic change, including cases of semantic vagueness and ambiguity, hidden ambiguity, and pragmatic vagueness. He surveys both the Oxford English Dictionary (OED) and corpora like the British National Corpus to corroborate his assumptions. For the first type, Denison examines the etymology of *holiday* in the OED and finds that in late Middle English times both features "religious festival" and "time off work" were pragmatically equivalent and hence it's hard to tease apart ambiguity from vagueness in this case. Concerning hidden ambiguity, Denison discusses terms like *parameter* and assumes that they at least start out as contact phenomena because often these terms derive from a technical jargon and are adopted for more general use which then blurs this distinction. As an example of pragmatic vagueness Denison examines the OED entries of the Latin borrowings "discriminate" and "discrimination" in the OED. He finds that in the course of time a negative subjective evaluation was added via an inference "unjust/unjustified" which can be interpreted as vagueness promoting change. Overall, Denison states that this is the role vagueness basically plays whereas ambiguity is involved at some later point and is more centrally involved in language contact.

Another phenomenon that Denison examines is word class change. Investigating the change from *expert* being used as a noun to being used as an adjective in several corpora, Denison identifies instances of use ('You could do it yourself or get expert help') which can be interpreted as being vague, since the choice between noun or adjective would neither make a difference in interpretation nor constituent structure. He draws parallels to the psycholinguistic concept of 'good enough' processing discussed by Felser in the previous chapter. The other two phenomena Denison scrutinises are prefabs and chunking, and structural change. Concerning the former, he defines prefabs as a "pretheoretical cover-term for a ready-made multiword unit" (p. 308) and draws parallels to the term "chunking" which has been adopted from psychology. For his analysis, Denison assumes the position of Bybee & Beckner (2014: 28–29) who state that multiword structures have gradient strengths rather than discrete boundaries and will therefore change gradually in the course of time. According to Denison, this implies structural ambiguity and vagueness. Investigating the phrase *piece of work* which is part of the group of *sort/kind/type + of* in the BNC, he concludes that it must be a prefab, which is vague, as it can be used in a number of different ways (e.g. *piece of work*, *a piece of work*, *a nasty piece of work*).

The last phenomenon that Denison investigates is structural change which he discusses in terms of reanalysis. His two case studies (prepositional passive, phrasal verb from prepositional verb) illustrate that the prerequisite for structural reanalysis is that similar structures with other exponents in other contexts must have existed prior to the change. Semantic and pragmatic issues are part of this structural extension. Concluding, Denison notes that whereas ambiguity is often the result of change, "... vagueness is typically an enabler of change 'from below' ..." (p. 318).

Overall, the chapter offers a discussion of ambiguity and vagueness and provides findings from a range of case studies for English identifying both phenomena in historical data. Reading the chapter, the notion of vagueness remains rather vague, and some seminal papers on the topic are ironically not mentioned at all (e.g. Pinkal 1995, Lakoff 1970). Although Denison establishes a link between historical linguistics and psycholinguistics in the introduction by addressing the role of incomplete knowledge in both disciplines, the remainder of the chapter is very much focussed on his perspective alone. Rarely does the author seek to tightly link his findings and assumptions to psycholinguistic work, especially Felser's article. Thus, the two chapters have more the quality of juxtaposing than of interaction between the two disciplines.

2.7 Part VII: Acquisition and Transmission

Chapter 14: Developing Language from Usage: Explaining Errors (Elena V. M. Lieven)

The chapter by Elena V. M. Lieven aims to demonstrate how the general cognitive processes which drive early language learning in usage-based approaches interact with each other to generate the systematic errors we see in children's language development. In her contribution to the volume, the author asks how such errors can be explained and whether they play a relevant role in language change, thus tackling the fundamental question whether errors in acquisition are a source of diachronic change.

Lieven outlines the crucial differences between the conceptions of 'errors' in usage-based and generative research traditions. In general, the notion of 'errors' is more important from a generative perspective, because change in this approach needs to occur before parameters are set. This also implies a critical period for language acquisition. In a usage-based framework, errors arise either from the use of a rote-learned string or a low-scope schema in an appropriate context or from the use of an item in a schema with which it is less than optimally compatible. As a result, competition arises during language development in a network of form-meaning mappings, where some of the mappings are target-like and others are not. Eventually, the non-target-like errors are out-competed. Here, Lieven points to the use of experimental designs and priming paradigms to investigate the effects of input frequencies on the likelihood of in child language.

Lieven claims that young, monolingual language-learning children recover from these errors and that, therefore, they are highly unlikely to be the source of diachronic changes. To the end of illustrating this argument, Lieven cites examples of research illustrating developmental processes, e.g. evidence in the form of variability in early syntactic development in terms of the errors or departures from the adult system that children make. She also examines a number of systematic errors made by children, whereby deciding whether an error is systematic or not depends on the "level of granularity at which the error is counted" (p. 323), i.e. level of form as opposed to level of abstract linguistic category. Examples from (not exclusively English) language acquisition research she cites include 1) 'optional infinitive' errors, 2) pronoun case errors, 3) competition between constructions, 4) non-inversion errors, 5) recovery from over-generalisation errors and 6) errors co-existing with correct forms for some time, before they are out-competed. Her conclusion is that the links between systematic errors in child language acquisition and language change are limited to the general, underlying processes and factors

at work.

Overall, Lieven discusses the role errors play in language acquisition. Due to the fact that errors do not reach adulthood, they are not propagated further and therefore, first language acquisition is not very likely to be a driving factor in language change. Despite rebutting the child innovator argument, Lieven concedes that "[l]anguage-learning children will, of course, have to be the ultimate propagators of change if they learn innovations made by others in adolescence or adulthood and then maintain them and pass them on to the next generation" (p. 331). Her suggestion is to look beyond first language acquisition errors and rather towards second language acquisition, which she perceives to be more likely to give rise to novel constructions. A link to other contributions in the volume, notably those by Baayen et al, Hilpert, Ellis and Traugott, consists in the observation that the same mechanisms or factors - frequency and salience - seem to be involved in both acquisition and change.

Chapter 15 : Transferring Insights from Child Language Acquisition to Diachronic Change (and Vice Versa) (María José López-Couso)

The contribution by López-Couso provides a critical review of the recapitulationist view of language change, i.e. the idea that there are striking parallels between ontogenetic and diachronic language development and that evolutionary steps in phylogeny are repeated in ontogeny. The idea originally stems from biology and has been adapted as an important concept in developmental psychology. The author takes a usage-based stance in the ongoing debate about the agency of children in language change and questions the innateness and critical age hypothesis of generativist approaches, which attribute a causal role in change to first language aqcuisition (e.g. Kiparsky 1968, Lightfoot 2006). Arguing against the idea that children are the locus of diachronic change, the author first of all provides a critical literature review and discussion of research into language acquisition and research into historical change (not only English), citing relevant examples to support her argument. She then presents a case study in the form of a comparison of the diachronic development and first language acquisition of the grammaticalization of the going-to future time expression.

She presents evidence in favor of some striking parallels in some domains, notably 1) resistance of high-frequency irregular formations in morphology to become regular, which constitutes a link to the chapter by Martin Hilpert in this volume, 2) the emergence of epistemic modal meanings out of deontic ones, 3) the development of different meanings of the present perfect and of existential *there* from locative *there*, and 4) directional change in the *be going to* construction from motion to future encoding. She also points out that

evidence in other domains points towards the conclusion that there are no developmental parallels between ontogeny and diachrony for other changes, e.g. sound change. Overall, her evidence (especially from the case study) points towards the fact that there are different processes and factors behind the two types of developments. Her case study shows that for the *be going to* construction, pragmatic inferencing plays a central role in diachronic but not in ontogenetic grammaticalization. Here, cognitive complexity seems to be a more relevant factor.

Based on the evidence cited, López-Couso infers that a recapitulationist view between first language acquisition and diachronic changes cannot be confirmed in a definite manner. Crucially, the observed parallels between the two have to be attributed to different underlying processes in the early stages of acquisition. What is more, however, is that similar processes - notably frequency - seem to play a role in later stages of acquisition and change, a finding supported by the companion chapter by Lieven. It is hypothesised that the differential nature of the input in grammaticalization processes of the *be going to* construction in both dimensions could act as an explanation, thereby further strengthening López-Couso's conviction of the usage-based argument.

Overall, the chapter provides an elaborate account of both generativist child-centered and usage-based approaches to language change. The chapter also shows that looking at diachronic change from a viewpoint encompassing processes and preferences attested in first language acquisition is valuable. While dismissing definite connections between processes in first language acquisition and diachrony, however, López-Couso does not take second language acquisition and bilingualism as a factor in language change into account.

3 EVALUATION

Finally, we will evaluate whether the aims defined by the editors in the introduction have been reached by discussing the predefined set of cognitive mechanisms in the respective contributions. Concerning the main aim of bringing together scholars from both fields to foster interaction, this is certainly true. Bringing together mainly seems to mean that the seven core mechanisms are discussed from both perspectives in tandem but in juxtaposed chapters. All of the contributions of the psycholinguists (Baayen, Tomaschek, Gahl & Ramscar, Ellis, Pickering & Garrod, Behrens, Felser Lieven) discuss possible links to language change by means of concrete phenomena that have the potential to trigger or facilitate (diachronic) change. Thus, we learn that discrimination learning, perceptual salience, chunking,

structural priming, supporting constructions, syntactic ambiguities like garden path effects, and errors in child language acquisition can be transferred to or found in instances of (diachronic) change. The task of the historical linguists was to conduct case studies of an instance of change in the history of English in which that same cognitive factor plays a role. What is missing in some of these chapters, however, is a direct response to the psycholinguists, or this is what at least some readers might have expected. For example, Felser very explicitly makes suggestions as to how misanalysis during real-time processing is paralleled in diachronic reanalysis. It would have been interesting to learn what the shape of this phenomenon might be in historical data and what a historical linguist has to say about this analysis. This adds to the general impression that the chapters in tandem are in fact studies that are juxtaposed and are not (always) as tightly linked as one might have wished.

One aspect that would have been worth examining in more detail but that is only mentioned in the introduction of the volume, is methodological differences between psycholinguistics and historical linguistics. It is evident, and it becomes more evident reading the articles, that there are, due to the nature of the two disciplines, big differences in the investigation of processing, acquisition, and change, but some concrete suggestions as to how these differences could be overcome could have been made in the individual contributions. In the introduction the editors state that the contributions show "... that differences in scope and methodology can be bridged" but what methodological shape this bridging could assume has not really been tackled. Some authors at least note that cognitively, there's no difference concerning the object of research: "However, as we have no reason to assume that the cognitive mechanisms underlying priming, routinisation and alignment have changed during the period covered by the extant 5,000 years of documented linguistic history and the 2,000 or 3,000 additional years made accessible through the methods of historical-comparative reconstruction, we can safely assume the uniformitarian principle" (Mair, p. 210).

Overall, the discussion of the seven cognitive mechanisms examined from the perspective of psycholinguistics and historical linguistics is an important first step towards a long-needed interaction between the two disciplines, one that will hopefully spark interest on both sides and lead to intensive collaboration in the future.

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