CHAPTER I

Introduction: Language History Meets Psychology

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1.1 Introduction

The present volume, *The Changing English Language: Psycholinguistic Perspectives*, focuses on language change, using the history of the English language to illustrate mechanisms of change. However, it is more than just another volume on language change: it brings together two subdisciplines – psycholinguistics and historical linguistics – in discussing those mechanisms of grammatical and lexical change that are cognitive in nature. In each section of the book, a psycholinguistic and a historical linguistic chapter – each on the same cognitive process or factor – are juxtaposed, thereby fostering interaction between two disciplines that have had surprisingly little connection so far.

We were prompted to provide this platform for a dialogue across the two subdisciplines because of what we perceived to be a serious gap in the understanding of processes of linguistic change. Language change as it proceeds from generation to generation through daily interaction of speakers may be shaped by language-internal, social and psycholinguistic factors. While the first two factors have been thoroughly researched in historical linguistics and sociolinguistics, the third has not been as systematically addressed as one might have expected. Even though recourse is made quite frequently to psycholinguistic explanations of change in historical linguistics, systematic, psychologically based discussions are still lacking. More important still, historical linguistics has not previously benefitted from direct expert input from scholars familiar with fundamental cognitive processes that are likely, or commonly taken, to shape pathways of change.

1.2 Previous Work

Obviously, historical studies in the past have considered individual psycholinguistic factors of language change – typically with a focus on the role

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of language acquisition; examples would be Baron (1977), Lightfoot (1991, 1999, 2010), Johnson (2001), Diessel (2012) or Stanford (2014). Early forerunners of this perspective include Schleicher (1861),[1] Paul (1880), Saussure (1916, 1983)[2] and Meillet (1951). Hermann Paul, in his *Principien* (1880: 32), also points out that the process of language acquisition leads to a slightly different version of the 'same' language in every individual, implying that this might be one reason for change. When we turn to the other psycholinguistic processes treated in this volume, we realise that their history of being considered as factors in language change is often much shorter and that some have not previously received the attention that they deserve. For example, the idea that priming may influence language change was introduced by Jäger and Rosenbach as recently as 2008 (discussed by several responses in *Theoretical Linguistics* 34:2). *Salience* is not a widely used or well-defined concept in historical or synchronic linguistics, either. With regard to dialect convergence and divergence, Hinskens, Auer and Kerswill (2005) argue that salience is determined by an extremely complex set of linguistic and non-linguistic factors. They express concern that it may be impossible to determine whether a given level of salience, once established, leads to the adoption or non-adoption of a feature (see also Kerswill and Williams 2002). Discussing physiological, cognitive and sociolinguistic factors that contribute to salience, Auer (2014) cautions that the psychological notion of salience should be kept strictly apart from its causes and effects (on language change or language accommodation). He concludes that salience based on social stereotyping is the best predictor of change and accommodation, but needs to be supported by the right evaluation of the salient feature in order to have an effect.

Thus, while the individual concepts discussed in this volume have been investigated individually as factors in language change for longer or shorter times in the past (for extensive discussions, see the individual historical linguistic chapters in the volume), what is lacking thus far is a more systematic discussion of cognitive factors that drive language change. Even recent handbooks of (English) historical linguistics do not include systematic discussions of psycholinguistic factors, with the exception of the sketch by Aitchison in Joseph and Janda (eds., 2003) and a chapter by Bybee and Beckner that appeared as recently as 2014. Discussions of language change by psycholinguists are also quite rare (but see Baayen 1993; Beckner and Bybee 2009; Clark 1982; Ellis 2002). Smith (2012), who discusses paradigm shifts in the history of English historical linguistics and mentions new trends, only draws attention to the importance of

sociolinguistic and socio-pragmatic approaches to variation and change in recent years. Systematic cross-fertilisation with psycholinguistic research is not mentioned as a future avenue of research. Processing strategies that emerged from experimental psycholinguistic studies into relative clauses are mapped back onto historical (Middle and Old English) data in a recent study by Bergs and Pentrel (2015) in a section that is – rather tellingly – labeled 'Emerging Paradigms: New Methods, New Evidence'.

We argue that the time is ripe for a paradigm shift in (English) historical linguistics, and aim to fill the gap with this volume, providing a systematic treatment of core cognitive factors in language change from two perspectives – the historical linguistic as well as the psycholinguistic. We pair the historical perspective with psycholinguistics proper to discuss psycholinguistic factors, rather than pairing it with a more general cognitive linguistic perspective which may or may not be experimental or even empirical, since psycholinguistic research is better suited to inform scholars of language change on how the processes considered actually proceed cognitively. In this respect, the present volume differs markedly from previous publications that held a more general cognitive perspective inspired by cognitive grammar, e.g. the volume on *Historical Cognitive Linguistics*, edited by Winters et al. (2010).

1.3   Aim and Scope of the Volume

In light of the surprisingly weak connection between psycholinguistic research and studies on language change, this volume addresses core issues of language change in English from historical-linguistic and psycholinguistic perspectives, bringing experts from the two disciplines together in order to explore the potential (and limitations) of an interdisciplinary approach to language change. Historical linguistics profits from this exchange in that concepts such as 'salience', which at times have been used uncritically and often without clear definition in previous research, gain a sound psychological basis. Psycholinguistics, in turn, is encouraged not only to take synchronic structures into account, but to develop models which help explain diachronic change as well.

In order to foster interaction between the authors contributing to this volume, we held a workshop at the third triennial conference of the International Society for the Linguistics of English (ISLE) in Zürich in August 2014. Almost all contributions to this volume were first presented there, with subsequent cooperation between the psycho- and historical linguist(s) working in tandem on the set of core psychological

factors relevant to language change. Accordingly, the seven parts of this volume are each made up of two paired chapters. In the first chapter of each part, a psycholinguist provides the state of the art in psycholinguistic research on a core concept and develops a model of how it may be involved in language change. This serves as a backdrop for the subsequent chapter, in which an English historical linguist presents case studies in the history of the English language in which the psycholinguistic concept in question may be argued to have played a decisive role. As a result, the contributions focus on clearly defined cognitive mechanisms of language change and showcase their role in language change.

More generally, the contributions also point out the potential – as well as the limitations – of combining such disparate disciplines. In particular, questions of dissimilar research foci, evidence and methodologies arise at several points. All the same, the following dictum clearly does not apply to the present volume:

> Linguists and psychologists talk about different things . . . Grammarians are more interested in what could be said than in what people actually say, which irritates psychologists, and psychologists insist on supplementing intuition with objective evidence, which irritates linguists. (Miller 1990: 321)

With the use of authentic data, as routinely practiced by historical linguists and exemplarily so by those represented in this volume, working within a usage-based account toward language and linguistic change, both disciplines are soundly empirical, drawing not on intuition but on systematically collected data.

Nevertheless, there appear to remain important differences in scope between the disciplines, foremost among these being the fundamental difference that psycholinguistics focuses on the cognitive processes at the individual level, while historical linguistics considers the language as used by a larger community of speakers. However, this volume argues that this difference may be overcome – or that it is, in fact, only a fundamental difference on a superficial level. After all, the factors and processes investigated here are cognitive in nature, i.e. they arise in the individual and individual acts of *parole*, but since they may result in innovations which a speech community may adopt, they hold the potential to impact the language system as a whole over time. Furthermore, 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. The contributions in the volume illustrate that the individual–collective divide can be bridged, and indeed needs to be bridged in order for us to fully understand the mechanisms of language change.

The difference between psycholinguistics and historical linguistics, then, seems mainly to be methodological. The historical dimension does not allow for experimentation on subjects to probe into online language processing, but necessarily relies on authentic language output as data – which is not generally regarded a primary data source by psycholinguists, who prefer closely controlled experimentation. However, if we take for granted that cognitive processes were the same for speakers in past periods as for those today (see Winters 2010) and accept that authentic output is the only feasible data source to model change over time, then we can combine historical linguistic data and psycholinguistic research findings fruitfully.

1.4   Cognitive Factors and Processes in Psycholinguistics and Language Change: An Overview

The psycholinguistic concepts/processes covered in the seven parts of this volume, each presented by two chapters, are *frequency*, *salience*, *chunking*, *priming*, *analogy*, *ambiguity* (and *vagueness*) and *language acquisition*. Socio-psycholinguistic concepts (such as variation and transmission) are not included, since these are covered in recent sociolinguistic research (Preston 2004, Gries 2013, Loudermilk 2013) or handbooks on language history (e.g. Nevala 2016). Rather, we focus here on core cognitive processes and phenomena, some of which have a long tradition of discussion as mechanisms of language change (especially acquisition), while others (such as chunking) are only now emerging in the discussion of historical linguistic work. The psycholinguists contributing their point of view to the discussion typically do so from the point of view of their specialisation in the field (e.g. second language learning research or the study of first language acquisition).

Frequency

The book opens with two chapters that tackle the complex – occasionally called 'vexed' (Gass and Mackey, 2002) – topic of frequency effects in language learning, language use, language processing and language change.

The main focus of Chapter 2 by Harald Baayen and his co-authors is on the micro-level of changes over the lifetime of speakers and their potential consequences for macro-changes over generations of speakers. Although a broad range of studies on the social and geographical distribution of linguistic variants have documented widespread variation within nations and speech communities, little systematic attention has thus far been directed to the changes in an individual speaker's grammar and increase in collocational knowledge across time as the inevitable consequence of an on-going process of learning.

Baayen et al.'s psycholinguistic perspective on frequency effects deals with discrimination learning (see Rescorla and Wagner 1972; Rescorla 1988; Ramscar et al. 2010; Baayen et al. 2011) on the one hand and information theory (see Shannon 1949) on the other. One of the main lessons for historical linguists and corpus linguists to be learned in this chapter is that simple frequency counts are not precise enough, as they do not take into account the effects of co-learning and the costs that accrue with the accumulation of knowledge. In order to be able to fully understand the dynamics of lifelong learning, Baayen et al. suggest the use of measures that reflect the consequences of the accumulation of knowledge under the constraints of discrimination learning. In other words, discrimination learning might provide us with quantitative measures that are more informative than straightforward counts of frequency of occurrence.

Understanding language change over an individual's lifetime also requires that we take changes in culture and society into account. The complexity of our societies has grown exponentially in modern times, with a concomitant exponential growth in the numbers of names for novel technical and cultural objects and processes (see Meibauer et al. 2004; Scherer 2005). As a consequence, we know more words than ever before. The downside of the story is that this accumulation of knowledge comes at a cost: Baayen et al. discuss how the changing onomasiological demands of increasingly complex modern societies give rise to continuously increasing name- and word-finding difficulties – and consequently an increase in the use of pronouns. Not only does the use of pronouns increase over a person's lifespan – which is in line with the 'Ecclesiastes Principle' that they introduce – but the use of pronouns also increases in the whole speech community.

The main goal of Martin Hilpert's companion chapter is to explore how what we know about frequency effects from psycholinguistic work can be fruitfully transferred to the study of historical language change on the basis of diachronic corpora. In particular, he focuses on different frequency measurements in a historical corpus and what they may reveal about the

knowledge of language that speakers in earlier historical periods would have had. In an overview of different aspects of frequency and the ways these can be measured in corpora, he discusses what is known about their cognitive correlates, what corpus linguistic methods are used to measure them, and finally, how such measurements can be usefully applied to the cognitive study of language change. In particular, he reviews findings from current diachronic corpus studies that analyse not only text frequencies but, crucially, also the frequencies of contextualised constructional variants. In doing so, Hilpert accounts for the fact that individual speakers typically diverge with respect to their experience with linguistic variants, just as Baayen et al. point out. Hilpert suggests that if diachronic corpus studies aim to model changes in speakers' linguistic knowledge, as much as possible of this variation has to be taken into account. Specifically, using the example of the alternation between *mine / thine* and their successors *my / thy*, he argues that frequencies of contextualised constructional variants can be used to make inferences about the linguistic knowledge of speakers who lived in the past.

To summarise the main points of Chapters 2 and 3, the common theme that unites current psycholinguistic research on frequency and historical, corpus linguistic approaches to frequency is the assumption that language use shapes the individual speaker's knowledge of language and is at the same time an expression of that knowledge. To the extent that diachronic corpus linguists aim at investigating cognitive aspects of use in earlier generations of speakers, they have to build on psycholinguists' assessments of how frequency of use and the mental representation of linguistic units are related. What Baayen et al. have to say about the role of frequency for the individual speaker in synchrony thus has direct repercussions for the study of diachronic corpora, that is, aggregate data of many speakers over time.

Salience

The goal of Part II is to put forward particular ways of operationalizing salience in psycholinguistics and historical linguistics. Salience is a psycho-perceptual effect which correlates with a number of psycho-perceptual properties. The central roles of salience and attention in learning have been emphasised repeatedly, and psycholinguists have long studied how humans and animals learn to allocate attention across potentially informative cues. Recent years have also seen an upsurge of interest in the notion of salience in historical linguistics. What is the role of perceptual salience in

different types of language change? How does the salience of linguistic items influence their trajectory in situations of language contact?

The three different aspects of salience considered by Nick C. Ellis in the psycholinguistic discussion of the phenomenon – psychophysical salience, salience of associations and predictability/surprisal – are essential factors in any instance of associative learning. Ellis first reviews the psychology of these factors as a foundation for consideration of their role in language change. He then shows how the low physical salience of grammatical functors, its effects amplified in second language learners with no learned expectations of how the L2 operates, affects language learning and language change. The chapter outlines an emergentist perspective on the limited end-state typical of adult second language learners, involving dynamic cycles of language use, language change, language perception and language learning in the ways members of language communities interact. Specifically, it focuses upon the psycholinguistic processes by which frequent usage affects the salience of linguistic forms:

- *Usage leads to change* High-frequency use of grammatical functors causes their phonological erosion and homonymy.
- *Change affects perception* Phonologically reduced cues are hard to perceive.
- *Perception affects learning* Low-salience cues are difficult to learn, as are homonymous/polysemous constructions because of the low contingency of their form-function association.
- *Learning affects usage* Where language is predominantly learned naturalistically by adults without any form-focus, a typical result is a 'Basic Variety' of interlanguage, low in grammatical complexity but communicatively effective.
- *Usage leads to change* Because of this, maximum-contact languages simplify and lose grammatical intricacies.

In the companion Chapter 5, Elizabeth C. Traugott considers these various aspects of salience in play in more typical situations of primarily native-speaker language use. Drawing on Degand and Simon (2005) and Wagner et al. (2010), among others, Traugott takes salience to be a factor separate from prominence, with which it is often identified. This is in contrast to Ellis's association of novelty with surprise and high salience. However, not all highly salient expressions are prominent, e.g. topics that are highly salient in the discourse are often marked by pronouns or zero (Ariel 1990). Likewise, not all prominent expressions are salient, e.g. contrastive stress is prominent and may be used to introduce new, non-salient referents.

Therefore, low salience may be an important enabling factor in morpho-syntactic change.

Traugott also regards salience as a multidimensional property of language use that may differ in strength for speaker and hearer. While salience is relevant to situations and all domains of language use, her focus is on ways to refine hitherto rather vague notions of pragmatic salience in a usage-based cognitive view of language change (e.g. the association of generalised invited inferencing with salience proposed in Traugott 2012: 554).

In historical work, salience can only be inferred, given that we cannot run experiments on centuries-old language users or find empirical evidence for the activation of supposedly salient factors. Traugott's main question is: To what extent can various aspects of pragmatic salience be considered to be enabling factors in morphosyntactic change? She moves on to discuss ramifications of this perspective on change for Boye and Harder's (2012) hypothesis that lexical expressions have a potential for being discourse prominent, and that they grammaticalise through loss of this potential. This connects back to Ellis (2013: 371), who argues that grammatical elements are low in salience and therefore hard to learn.

Chunking

The two chapters on chunking in Part III highlight important differences between the search for explanation by psychologists versus that by historical linguists. Nick C. Ellis starts out in Chapter 6 by describing the learning theory and psycholinguistic evidence of chunking. To this end, he focuses on the three major experiential factors that affect cognition and determine chunking: frequency, recency and context. Ellis explains how learning symbolic chunks and their arrangement in language involves learning associations across and within modalities, and how frequency of experience affects both. Also, the more any word or formula is repeated in phonological working memory, the more its regularities and chunks are abstracted, and the more accurately and readily these can be called to working memory, either for accurate pronunciation as articulatory output or as labels for association with other representations (see also Chapter 3). It is from these potential associations with other representations that further interesting properties of language emerge, such as grammaticalisation as the process of automatisation of frequently occurring sequences of linguistic elements, or the productivity of phonological, morphological and syntactic patterns as a function of type rather than token frequency. All of these are

described in the corresponding historical linguistic Chapter 7 by Bybee
and Moder.

In his discussion of how language processing also reflects recency effects,
Ellis agrees with Hilpert (Chapter 3) and Pickering and Garrod (Chapter 8)
that priming is an essential part of conversation partners aligning and co-
constructing meanings: we pick up the way our conversation partners say
things and we associate these symbols, these speakers and their contexts.
Priming sums to life-span practice effects and the frequency effects dis-
cussed above. Finally, implicit learning underlies contextual learning
effects whereby a stimulus and its interpretation becomes associated with
a context, and we become more likely to perceive it in that context. The
context can involve particular speakers, cultures, dialects, or places, and all
can have influence in relation to language usage – and, because of usage-
based learning, language understanding.

Through a detailed analysis of the pathway of development of the phrase
beg the question, Joan L. Bybee and Carol Moder investigate the factors
frequency, recency and context – and thus chunking – as they affect
language change. The model of language change that they adopt assumes
that change occurs during language use, as experience with linguistic
elements and situations activates and updates the network of connected
exemplars (Bybee 2010). Repetition of sequences of elements leads to
conventionalisation and then to entrenchment with a growing loss of
analysability. In an approach that builds on notions developed in con-
struction grammar (Goldberg 2006; Croft 2001), they consider these
processes to apply at multiple levels of form-meaning mapping, ranging
from phonological units to multiword constructions. The internal com-
ponents of conventionalised chunks maintain connections of varying
strengths with related items in the larger network. A key determinant of
the associations within the network is the discourse context in which the
unit is used. A common trajectory of change is the weakening of the
connections that determine the compositionality and analysability of
the chunk. The factors related to this weakening include relative frequency
and changes in the context of use. Although research on language change
has highlighted loss of analysability and compositionality, we also find
multiple instances, such as *beg the question*, in which items can maintain
their analysability.

The psycholinguist and the historical linguists thus come to the follow-
ing agreement: chunking is a basic, domain-general associative learning
process which can occur in and between all representational systems. It not
only builds the representations, but also organises their relative availability