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# Cognitive mechanisms driving (contact-induced) language change: introduction to the special issue

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**Abstract:** This special issue focuses on the interaction of the disciplines of historical linguistics and psycholinguistics to obtain new insights into which cognitive factors are potentially relevant for language change. The contributions address questions related to the cognitive mechanisms at play, their evidence in historical data, who the agents of change may be, which experimental methods can be implemented to investigate language change, and how language change can be theoretically modeled in terms of cognitive mechanisms. In this introductory article, we first outline our aims by describing the call for papers and the workshop which laid the foundation for this special issue. We then provide a state of the art on the integration of research on cognitive mechanisms and language change before introducing the contributions and listing which of the central questions they address.

**Keywords:** language contact; contact-induced change; historical linguistics; psycholinguistics; acquisition

## 1 Aims of the special issue

This special collection of articles derives from the workshop entitled “Cognitive mechanisms driving (contact-induced) language change”, held digitally from 31 August to 1 September 2021 and organized by Carola Trips, Achim Stein, Yela Schauwecker, and Michael Percillier as part of the 54th Annual Meeting of the Societas Linguistica Europaea (SLE 2021). The motivation for the workshop, and hence this special issue, stems from the organizers’ joint work in the research project “Borrowing of argument structure in contact situations” (BASICS; <http://tinyurl.com/dfgbasics>), in which context they have investigated the extent to which Old French had an influence on the grammar of Middle English. The workshop served as an opportunity to extend the focus to the cognitive factors that are potentially relevant for language change and acquisition, such as, for example, frequency, structural priming, level of awareness, salience, analogy, ambiguity, or chunking (see the contributions in Hundt et al. 2017). These factors originate from “such capacities as memory, pattern recognition, abstraction, generalization, and routinization of repeated tasks” (Mithun 2003: 552).

The workshop sought to encourage interaction between the disciplines of historical linguistics and psycholinguistics to gain new insights into the nature of (contact-induced) language change. Since language change is not (yet) a primary question in psycholinguistics, the call for papers also welcomed conceptual papers and think pieces addressing topics such as long-term and historically potentially relevant measurable effects, and in more general terms, the compatibility and complementarity of data in both fields (see, e.g., Bader and Koukouloti 2018; Holler and Weskott 2018). Specifically, the call for papers invited papers addressing one or more of the following research questions:

Q1: Which cognitive mechanisms play a significant role in contact-induced structural change?

Q2: How can cognitive mechanisms be evidenced in historical data?

Q3: At what level can historical and psycholinguistic evidence be mapped, or at least be related to each other?

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Q4: Who is the agent of change (monolinguals, [late] bilinguals, imperfect learners, etc.)?

Q5: Which experimental methods are used to identify cross-linguistic effects and how can they be implemented in studies of contact-induced change?

Q6: How can contact-induced change be theoretically modeled in terms of cognitive mechanisms?

The program of the workshop comprised the contributions listed in Table 1. In the following sections, we first provide a state of the art on the integration of research on cognitive mechanisms and historical language change, before briefly introducing the contributions of this special issue and listing which of the central questions they address.

## 2 Cognitive mechanisms and historical language change: a state of the art

Recent research has only begun to investigate how cognitive mechanisms relate to historical language change. Frequency, and especially the frequency of contextualized variants, might allow inferences about language change in the past (Hilpert 2017: 67). Chunking entails changes in the analyzability and compositionality of a given expression, in that repetition of a given sequence of elements leads to conventionalization. Chunking might therefore be intimately related to language change, especially in terms of grammaticalization (Bybee 2010; Bybee and Moder 2017). Salience might be linked to language change in that a low degree of salience of certain linguistic elements has been observed to favor morphosyntactic change, whereas high salience has been judged implausible as a trigger (Traugott 2017: 102, 108). However, it is not entirely clear whether (and how) the concept can be applied or adapted to historical periods (Traugott 2017: 96). Priming has been demonstrated to provoke ungrammatical utterances even in monolingual adults (Fernández et al. 2017). It seems highly plausible therefore that repeated priming may have long-term effects, especially via alignment of linguistic structures and routinization effects (Pickering and Garrod 2017: 175, 189). Analogy has been discussed as a cognitive mechanism from an emergentist perspective. It has been observed that analogy-induced phenomena such as overgeneralizations resemble the outcome of historical change (Behrens 2017: 235). In the same vein, structural ambiguity resulting from current variation can be taken as synchronic projection of language change, where the old and new interpretations of a given morphosyntactic unit may coexist for some time in “critical contexts” (Diewald 2002).

**Table 1:** List of papers held during the workshop “Cognitive mechanisms driving (contact-induced) language change” at the 54th Annual Meeting of the Societas Linguistica Europaea (SLE 2021).

Contributor(s)	Title
Nicole Hober	The implications of linguistic awareness for contact-induced change
Timothy Coleman	On the role of contact in the emergence of two new argument structure constructions in present-day Afrikaans
Savithry Nambodiripad	Shared processing strategies as a mechanism for contact-induced change in flexible constituent order
Ailís Courname	Experimental acquisition evidence that children may drive modal verb incrementation
Guglielmo Inglese and Anne Wolfsgruber	The rise of non-oppositional middle verbs: The case of Old French
Seçkin Arslan	Restructuring in grammatical evidentiality in Turkish as a heritage language and implications for cognitive modulators of contact-induced change
John Hawkins and Luna Filipović	Bilingualism-induced language change: What can change, when and why?
Jan Gerrit Kootstra	Cross-linguistic structural priming as a potential mechanism of contact-induced language change
Sophia Voigtmann	Information Density as a measurement of processing difficulties in historical data
Michelle Troberg	The role of analytic vagueness in the loss of Old French directional particles
Alexander Bergs	Language contact and language change from a constructional perspective
Marlieke Shaw and Hendrik De Smet	Loan word accommodation biases in Dutch and Middle English: A question of processing cost?

Although historical linguists have taken language acquisition to be the locus of change for some time, starting as early as 1880 with Hermann Paul, and have proposed models that make use of psycholinguistic explanations (Lightfoot 1979, 1999), a clear picture of the agent(s) of change and the cognitive mechanisms that may trigger or accelerate change is still missing. Concerning the first issue, a number of scholars have assumed that the child is the innovator of change (Lightfoot 1979; Roberts and Roussou 2003; van Gelderen 2011). Innovative analyses (Cournane 2017) and overgeneralization (Cournane 2019) of the input on the part of the child may result in changes as reflected in historical records, if they are retained and spread in the speech community. Others observe that children's innovations do not survive into childhood and thus cannot possibly influence the language of adult speakers. If historical language change resembles child language, this is due to the fact that language processing in both children and adults is subject to the same cognitive mechanisms, namely analogy, entrenchment, and categorization (Diessel 2012). They argue instead that adult speakers are the locus of change (Bybee and Slobin 1982; Kroch 2001; Traugott and Dasher 2002). Thomason (1999: 19) attributes some aspects of language change to deliberate choices made by adult speakers. Others have seen the locus of change in (successive) bilinguals (Fernández et al. 2017; Meisel 2011; Meisel et al. 2013), thus shifting the focus to the consequences that change may have for acquisition. Specifically, Meisel (2011: 121) assumes that children who receive sustained input from second language learners, or whose onset of acquisition is delayed, may not achieve full mastery of the grammar of their second language. He therefore concludes that successive bilingualism plays a crucial role as a source of historical language change. Needless to say, these explanations are not mutually exclusive as they may occur in combination; for example, innovative analyses by children may be followed by further changes once these children become adult speakers. Still, the extent to which each of the potential agents of change are responsible for long-term change deserves continued scrutiny.

The role that cognitive mechanisms may play in language change also merits further investigation. In linguistics, quite a number of factors have been explored in the literature for some time, such as frequency, salience, analogy, and ambiguity, but only in very few cases has the role they play in psycholinguistic processes been recognized (see, e.g., the contributions in Hundt et al. 2017). Analyzing these mechanisms seems all the more promising since language processing in both children and adults seems to underlie the same general psychological mechanisms, such as analogy, entrenchment, and categorization (Diessel 2012).

Psycholinguists have only begun to address the potential of cognitive mechanisms such as, for example, priming as relevant factors in (contact-induced) change. The article by Jäger and Rosenbach (2008) seems to be the first work that explicitly discusses priming experiments and what their outcome may tell us about the unidirectionality of grammaticalization. More recently, a number of psycholinguists have started to address the importance of priming and syntactic alignment for studies of (contact-induced) language change (Kaan and Chun 2018; Kootstra and Muysken 2019; Pickering and Garrod 2017). The fact that priming strongly influences the way language is processed and ultimately leads to alignment of linguistic representations has been experimentally confirmed. Pickering and Garrod (2017: 190) point out that priming effects may also be at play in historical language change and explore the processes by which primed expressions may become routinized. Gries and Kootstra (2017) have tackled the issue in tandem from their combined corpus linguistic and psycholinguistic perspectives. The authors emphasize the validity and importance of corpus-based cross-linguistic priming research (2017: 13), thereby paving the way for investigations of historical priming and of how priming might promote historical language change. Furthermore, other psycholinguists place an explicit focus on the nexus of acquisition and language change within their research agenda. Cournane (2014, 2017) suggests that input-divergent properties which arise from the child's developing grammar persist and are ultimately diffused through normal peer-to-peer acquisition or sociolinguistic mechanisms of change (2017: 24).

When it comes to theoretical approaches, it is not yet clear which are best suited for establishing parallels with experimental findings. For instance, the view that speakers' grammars are set after a critical period during childhood is common from a Universal Grammar perspective (Lieven 2017: 321) and stands in contrast to the usage-based view that "grammar is learned through a continuous process of abstraction" (Lieven 2017: 322), meaning that "even adult grammars are not fixed and static but have the potential to change as experience changes" (Beckner et al. 2009: 7). The extent to which adult grammars have the potential to change has consequences for models of (historical) language change, as it may broaden the scope of who can be considered as an

agent of change; that is, this may include adult speakers, who undergo language change within their lifetime, in addition to children, with change from one generation of speakers to the next. Regardless of the exact locus of change, cognitive processes need to have effects on a population of speakers rather than on single individuals for language change to happen (Pickering and Garrod 2017: 173). Probing the prospect of cognitive processes affecting language use and language development via experimental means can pave the way to better explain the triggers for change in models that consider language change on a broader time scale, such as computational models or those that view language as a “punctuated equilibrium” (Dixon 1997: 76–85). In such models, cognitive processes commonly occurring in newly bilingual populations could therefore be one cause of such “punctuations”, that is, bouts of comparatively rapid change.

### 3 Contributions to research on cognitive mechanisms driving language change: the present special issue

The contributions in this special issue, listed and briefly introduced below, tackle the central questions from the original call for papers in various ways. Whereas the first question – which cognitive mechanisms are at play in language change – is touched upon in all contributions, the remaining questions are addressed by individual papers. In the introductions below, the questions addressed in each paper are marked via the abbreviations Q1–Q6; see Section 1 for the details of each question.

The first contribution, “Bilingualism-induced language change: What can change, when, and why?” by John A. Hawkins and Luna Filipović, advocates the efficiency principle of “maximize common ground” (Q1, Q6) as one of the crucial factors in understanding language change: the way in which bilinguals (Q4) exploit common ground between their languages ultimately determines which properties are transferred.

In their contribution “One suitcase, two grammars: What can we conclude about Australian Turkish heritage speakers’ diverging processing of evidentiality?”, Suzan D. Tokaç-Scheffer, Lyndsey Nickels, and Seçkin Arslan use an auditory sentence verification task (Q5) to investigate the potential reasons leading to the restructuring of the evidentiality system in heritage speakers (Q4) of Turkish, concluding that these speakers show insensitivity (Q1) to evidentiality.

The paper “Missing link: Code-switches, borrowings, and accommodation biases” by Hendrik De Smet and Marlieke Shaw presents data from Middle English (Q2) showing that speakers tend to use loan words in uninflected contexts. The authors observe that speakers reduce processing costs by relying on light-verb strategies (Q1). This effect weakens as borrowing becomes more frequent.

In her contribution “A diachronic consequence of intransitivity: Structural underspecification and processing biases in Old French”, Michelle Troberg argues that the analytic vagueness (Q1) of Old French *ens* in transitive or intransitive readings is a driver for the loss Old French directional particles.

In a think piece entitled “Metalinguistic awareness as a factor in contact-induced language change”, Nicole Hober addresses the correlation between higher levels of bilingualism (Q4) and higher levels of metalinguistic awareness (Q1) and investigates the influence of awareness on different types of contact-induced changes in passive constructions in scenarios with English as a contact language (Singaporean English, Pennsylvania German).

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