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Change of Paradigms – New Paradoxes

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Change of Paradigms – New Paradoxes

Recontextualizing Language and Linguistics

Edited by
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To Dirk

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Introduction. Change of paradigms – New paradoxes. Recontextualizing language and linguistics

The title of this volume consists of two main parts, which are both linked to the seminal work produced by Dirk Geeraerts in the course of the last 30 years. The first part, *Change of paradigms: New paradoxes*, is meant as a pun on the title of Dirk's PhD thesis, *Paradigm and paradox: Explorations into a paradigmatic theory of meaning and its epistemological background* (Geeraerts 1985). To fully understand the contribution of this PhD, which already formulated key determinants of what would become the cognitive linguistics framework, three components of its title deserve some further clarification: (i) the basic idea behind phenomenological epistemology; (ii) the (polysemous) context-specific semantic load of the term "paradigm"; (iii) the nature of the construed paradox.

Phenomenological epistemology considers knowledge as "the synthetic interaction between the cognitive activity of the knowing subject and the givenness of the object known" (Geeraerts 1985: 13). In this respect, phenomenological epistemology can be contrasted with philosophical knowledge-theoretical views in which one of these two components – either the thinking subject or the given object – is seen as primarily responsible for knowledge (readers will recognize the basis of the age-old controversy between rationalism and empiricism, respectively, here). An additional and highly important component of Geeraerts's epistemology holds that knowledge is stored in structures. This then of course raises the question how we should conceive of the nature of these structures.

This is where paradigmaticity comes in. Crucially, paradigmaticity should in the present context not be understood in opposition to syntagmaticity. Instead, it is used in reference to the meaning of the Greek word παράδειγμα (*paradeigma* 'exemplar') and is as such meant to emphasize the idea that knowledge is organized in structural categories that are highly flexible and have peripheral nuances, with vague boundaries that are clustered around central,

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prototypical cores.

Additionally, Geeraerts relates paradigmaticity to Kuhn's usage of the term as referring to a set of practices and beliefs that make up a scientific discipline at a given point in time: in his PhD, he aimed to set up a comprehensive theory of science and methodology in general and of the choice between paradigms in particular. Geeraerts's claims on scientific paradigmaticity were construed through the rhetorical outline of the book, which starts from the level of linguistic knowledge, moves up to the level of general cognition and then arrives at the level of methodological meta-theory. It is at this final level that the notion of paradox fully comes to the fore. Specifically, it appears that applying the paradigmatic-phenomenological theory to the theory itself leads to a philosophical-epistemological paradox. When the theory is taken to hold universally, it follows that it is not universal, raising the question whether any scientific paradigm can ever be truly objective if the paradigmatic-phenomenological theory is said to hold.

The proposed way out of this paradox is of a complexity that would lead us too far in this introduction, especially since it is not a prerequisite for appreciating that Kuhn's usage of the term 'paradigm' is relevant for Dirk Geeraerts's thesis in yet another way. Independently of similar developments that were simultaneously taking place in the US through the works of, amongst others, Lakoff (1987) and Langacker (1987), Geeraerts formulated many of the basic tenets that formed the cornerstones of cognitive linguistics in general and of cognitive semantics and cognitive lexicology in particular. As such, his PhD not only developed a comprehensive theory of paradigms, but it also contributed significantly to the specific paradigm shift from generative to usage-based linguistics in Europe.

Not only was his PhD the first in Europe to explore prototype theory as applied to linguistics (see later Geeraerts et al. 1994; Geeraerts 1997 and others), it (as such) also formulated one of the most crucial and basic premises of cognitive linguistics, namely the conviction that **language and cognition** cannot be studied in isolation from each other. Hence, by emphasizing that thinking is in essence "an assimilation and organization of experience", Dirk also underlined the importance of experientialism in the acquisition of (linguistic) knowledge, and on this basis put forward several fundamental principles for scientific research on language and meaning.

First, principles at work in categorization at large (including notions such as prototypicality, exemplars, salience and entrenchment) also apply to the organization and categorization of meaning and meaning change. Second, within semantic concepts no sharp dividing line exists between purely linguistic and

encyclopedic information. Third (and ensuing), language and (linguistic) knowledge are not just located in the mind, they are also socio-cultural phenomena. Finally, when this experientialist, usage-based theory is said to hold, this comes with specific methodological requirements: "the referentialist conception of meaning (...) suggests the use of a non-introspective method in which the observation of the referential use of linguistic expressions yields information with regard to the semantic concepts involved" (Geeraerts 1985: 29).

Thirty years have passed since the publication of this PhD, and Dirk Geeraerts has just turned sixty. In the course of the three decades passed, cognitive linguistics has shaped and reshaped itself as the most recent, bourgeoning and dynamic linguistic theory. As is demonstrated by the contributions over the years in the journal *Cognitive Linguistics* of which Dirk Geeraerts was the first editor-in-chief, as well as by the ones in this volume, a wide diversity of approaches that subscribe to the usage-based hypotheses have emerged (see also Geeraerts & Cuyckens 2007; Evans & Green 2006; Ungerer & Schmid 2006 and many others), alternative (sub)paradigms have arisen, theories have been reformulated, and new challenges have been identified, leading to new paradoxes. Nevertheless, the basic principles defined by (amongst others) Geeraerts in 1985 have not lost their relevance, and specifically the usage-based hypothesis still stands very strong. After a long time span in which language was primarily studied as an isolated phenomenon, contemporary linguistic research has in recent decades eventually been characterized by several attempts to recontextualize language (cf. Geeraerts 2010; Geeraerts and Kristiansen 2014).

This brings us to the second part of the title of this volume: *Recontextualizing language and linguistics*. "Recontextualization" forms the crucial component of all of Geeraerts's work (from 1985 and beyond) and is also what binds the papers in this volume together. Specifically, the twenty-one contributions can be linked to five types of recontextualization that Geeraerts has pursued in the past thirty years. As mentioned above, on the most general level Geeraerts (along with other cognitive linguists) has always emphasized the importance of studying language in relation to general principles of cognition. Second, several of his works have explored the ways in which this usage-based hypothesis can be applied specifically to the study of lexical semantics and lexical change. Third, these semantic analyses were shown to be equally relevant for grammatical research: by eliminating the boundaries between lexicon and syntax, meaning was placed at the heart of grammatical investigation. Fourth, in recent years, the subparadigm of cognitive sociolinguistics (e.g. Kristiansen & Dirven 2008; Geeraerts et al. 2010) has drawn attention to the crucial role of socio-cultural context in the study of meaning and language. Finally, each of these

recontextualization tendencies comes with a set of methodological requirements and challenges: a truly usage-based paradigm cannot do without an empirical approach that studies actual usage.

These five recontextualization tendencies frame the general structure of this book, which consists of five sections: (1) "language in the context of cognition"; (2) "usage-based lexical semantics and change"; (3) "recontextualizing grammar"; (4) "the importance of socio-cultural context"; (5) "methodological challenges of contextual parameters" . Below, we provide a brief summary of the contributions in each of these sections. Needless to say, most papers simultaneously adhere to a number of the aforementioned recontextualization tendencies (e.g. studying lexical semantics in context by linking language change to general cognition, and at the same time aiming to surpass methodological hurdles).

1 Language in the context of cognition

If there is one belief that binds the diverse group of cognitive linguists together, it is the conviction that language and linguistic knowledge are rooted in and linked to general cognition. The usage-based hypothesis thus entails a generalization commitment, as a specific instance of the scientific commitment to general explanations where possible: the patterns we find in language acquisition and language change need to be explained by relying on general principles of cognitive function and development that are known to be relevant in other disciplines (e.g. Barlow & Kemmer 2000). The actual application of this generalization commitment in cognitive linguistics is very diverse, which is also illustrated by the two contributions in this section.

Jacob L. Mey's paper, "Instru-mentality: The embodied dialects of instrument and mind", centers around experientialism and the dialectic relationship between world, body and mind. Specifically, he discusses the nature of instrumentality, of the ways in which we as users shape tools, instruments and artifacts and how, through that process, we also change ourselves. Looking into different levels of instrumentality, from the more concrete to the more abstract, Mey identifies an inversely proportional relationship between feedback and distance, which he amongst others illustrates through a discussion of artificial limbs.

In her contribution, "The dynamics of a usage-based approach", **Marjolijn H. Verspoor** explicitly links language development to other (cognitive) sciences: she indicates how language can be related to Complex Dynamic System Theory (used in a number of exact and human sciences) in general and Edel-

man's Theory of Neuronal Group Selection in particular. Her paper connects a number of key principles inherent to Edelman's theory with child language development. To give just one example, the principle of aggregation (related to critical mass) applies to the finding that children need to acquire a whole number of words before they can actually start structuring those words meaningfully. Verspoor concludes that human infants can be considered as complex adaptive systems that have a tendency to self-organize, and who (therefore) show nonlinear patterns of development.

2 Usage-based lexical semantics and semantic change

In emphasizing the importance of context when studying the lexicon, Geeraerts has always insisted on making a distinction between meaning and naming. As such, he was one of the main figures behind the revival of the terms semasiology and onomasiology (as discussed in Geeraerts 2010, the term "onomasiology" was introduced in 1903 by Zauner). Where semasiology starts from the level of the word and looks at the different meanings that a word may have, onomasiology takes the reverse perspective and studies the different ways in which a given concept can be expressed in language. Crucially, key principles of categorization (such as salience, entrenchment and prototypicality) apply to both of these levels of research.

In his paper on the semantics of *over*, **Dylan Glynn** discusses how the application of prototype theory to meaning and naming actually problematizes the distinction between the concepts. If we assume both a lack of discrete senses and a lack of discrete forms, the difference between form and meaning eventually blurs. Then, it becomes unclear whether we can analytically keep up with a distinction between the level of decoding and the level of encoding. A way out of this conundrum is to loosen our understanding of linguistic form, which Glynn illustrates by means of an analysis of 400 instances of *over* ("the quintessential example of semasiological research").

Another paper relating to Geeraerts's work on semasiology and onomasiology is **Kathryn Allan**'s contribution on diachronic evolution in the semantic field of education. Methodologically, she shows how the *Historical Thesaurus of the Oxford English Dictionary* can be used to study diachronic onomasiology, zooming in on the subfields of teaching and learning. The present analysis reveals several links between culture and naming, amongst others connecting the

frequent occurrence of loanwords in the semantic field to the influence of continental Europe on the English education system in the nineteenth century.

Change and evolution are of course also present on the semasiological level of analysis, as is shown in **Ricardo Maldonado and Patricia Palacios**'s paper, "*Bueno*, a window opener". The paper discusses how previous research has described *bueno* as a marker of anaphora, correction, concession and as a topic shifter. However, the analysis presented here indicates how this anaphoric notion has lost prominence in Mexican Spanish. The discourse marker is also used as bi-directional marker that not only refers back to what is known, but also points forward towards new information that will be announced. *Bueno* is furthermore increasingly used solely to introduce new events.

Whereas Maldonado and Palacios focus on changes in the pragmatic and discursive functions of a discourse marker, the other papers on semantics in this section focus more specifically on the ways in which the generalization commitment of cognitive linguistics can be applied to meaning shifts and meaning change. Specifically, the papers rely on well-known general cognitive mapping abilities to explain the ways in which words are used and extended to new contexts, and as such acquire new meanings (see, e.g., Peirsman and Geeraerts 2006). For instance, **Zoltán Kövecses** presents a contextualist version of conceptual metaphor theory. First, he summarizes the four main types of experience from which conceptualizers derive their metaphors, namely situational context (e.g. culture), discourse context (e.g. previous discourse on the same topic), conceptual-cognitive context (e.g. ideology) and bodily context. Then, Kövecses discusses conceptual metaphors and discusses when which contextual features can prime our use of metaphors.

Antonio Barcelona shifts the attention to two other general mapping abilities, namely metonymy and blending. Specifically, he focuses on their importance for bahuvrihi compounds. In these compounds (which portray a prototype structure, with family resemblance between the different types of bahuvrihi compounds) metonymy in general and CHARACTERISTIC PROPERTY FOR CATEGORY (pars pro toto) in particular play a crucial role. Blending, on the other hand, is often merely a by-product of the interaction between metaphorical and metonymical processes in bahuvrihi compounds (e.g. *fathead*). Sometimes, however, more is at play, which is illustrated by means of the Spanish compounds *cuatro ojos* ('someone wearing glasses', literal gloss 'four eyes') and *manirroto* ('someone excessively generous', literal gloss 'a hand broken person').

Metonymy is not only relevant for compounds, it also applicable to modality, as is shown in **Klaus Panther**'s contribution. Panther discusses the close

associative relations between ACTUALITY, MODALITY, EVALUATION, and EMOTION, that can be considered as linguistic metonymies. For example, in sentences such as *he was occasionally allowed to have a beer*, we go from PERMISSION TO ACT to ACTUAL ACTION. Panther goes on to explain how these metonymies can be important for a proper understanding of illocutionary acts. Specifically, he describes how modals can be used as hedges for performative speech acts (e.g. *I can promise you…*), with two possible outcomes. Either the hedges have no effect on the illocutionary force of the utterance (but e.g. add emotive or evaluative information) or they can block that force. Both outcomes, and the relevant metonymies, are discussed by means of a number of examples. After a final note on the idiosyncratic behavior of hedged declarations (e.g. *I pronounce you husband and wife*), Panther concludes by indicating how CAUSE → EFFECT is the higher-level metonymy at work in these hedged performative speech acts.

3 Recontextualizing grammar

The same principles that govern meaning shifts and meaning change in the lexicon are clearly also at work in morphology and pragmatics. The same holds for grammar: introducing a separate section for lexical semantics and semantic change on the one hand and grammar on the other hand to a certain extent goes against the very basic idea of recontextualization in the cognitive linguistics framework. Cognitive grammar is *eo ipso* concerned with meaning, and neither the lexicon nor grammar can be considered independent of each other (see already Langacker 1976). As Langacker formulates it in his contribution (see below), the recontextualization of grammar in semantics "is reflected in the basic architecture of cognitive grammar (CG), which holds that linguistic units are abstracted from usage events, that their import includes the interlocutors and their interaction, and that lexicon, grammar, and discourse form a continuum of symbolic assemblies".

The way in which cognitive grammar historically emerged as a paradigm forms the focus of **Margaret E. Winters**'s contribution, "On the origins of cognitive grammar". Similar to the way in which Geeraerts has made links between cognitive semantics and pre-structuralist historicist approaches (Geeraerts 2010), Winters aims to uncover both the main similarities and differences between generative semantics (itself a reaction against the 'syntacticocentrism' of generative grammar up till then) on the one hand and cognitive grammar and cognitive linguistics on the other hand. To this end, she conceives of the main question ("what is the relationship between generative semantics and cognitive

grammar?") as a multiple choice question, and discusses each of the possible answers in more detail. As it turns out, no simple yes or no answer can be provided for the question whether cognitive linguistics (as developed in the US) directly descends from generative semantics.

The lexicon-syntax continuum not only plays a crucial role in cognitive grammar, it also forms the basis of other cognitive linguistic approaches to syntax and grammar such as construction grammar (e.g. Goldberg 1995) and radical construction grammar (e.g. Croft 2001). For an overview of the similarities and differences between the three approaches, see Langacker (2005). The contribution of **Fuyin Li, Mengmin Xu and Alan Cienki**, "The linguistic representation of agency in causal chains" is a prime example of the way constructions embed semantics and the lexicon in grammar. Specifically, the paper focuses on claims made in Talmy's work (e.g. Talmy 2000) on the morphosyntactic features of agency in causal context, scrutinizing the order and linguistic form of agentive events in Chinese narratives. The data include 1000 narrative events that were elicited from twenty video clips that were shown to fifty native speakers of Mandarin Chinese, who were asked to describe what they had seen on the video. In 971 of the cases, the agentive event occurs sentence-initially. Six different patterns (five of which with sentence-initial agent) were found and discussed. Overall, the results seem to indicate that Talmy's claims cannot be said to hold universally.

In the next contribution, "*Much in all as*: The anatomy of a strange expression", **John R. Taylor** focuses attention to the highly peculiar expression *much in all as*. This recent and low frequency concessive subordinator has a seemingly opaque, non-compositional internal structure. However, as Taylor discusses by means of Google extracts, several different components make up the expression and bringing these together might not be as strange as it seems at first sight. More specifically, the constructions and expressions discussed are *as*, *so/as… as…* and *(as) much as*; the variants found for the expression *much in all as* (most notably *much and all as*); and *and all* in its concessive reading.

The final paper in this section pushes the recontextualization of grammar one step further, from the lexicon to discourse. In "Descriptive and discursive organization in cognitive grammar", **Ronald W. Langacker** starts off by summarizing the four axes that are relevant for linguistic structures, namely the individual (affect, emotion), the interactive (social routine), the descriptive (lexicon, grammar) and the discursive (the organization of descriptive structures). The focus here lies on the lack of a sharp dividing line between the descriptive and the discursive level, which is visible in a number of parallels between both levels. Specifically, Langacker's paper looks into the way focus and

anchoring work on the descriptive and discursive axes, amongst others linking the notions *subject* and *topic*, and *profile* and *focus of interest*.

4 The importance of socio-cultural context

Cognitive linguistics has from the very start focused on contextualizing language in thought and semantics in grammar. In the past ten years, more and more attention has also been paid to the way language and cognition are rooted in the socio-cultural context. As is stressed by cognitive sociolinguistics (see, e.g., Kristiansen and Dirven 2008, Geeraerts et al. 2010), language is primarily used for communicating with others, and therefore a social component cannot be excluded from linguistic analyses. Additionally, as linguistic communities are "never homogeneous and hardly ever self-contained" (Weinreich 1970: vii), the study of language in use in itself implies the study of socio-linguistic variation.

This interaction between the individual mind and the level of social groups lies at the heart of **Ewa Dąbrowska**'s contribution, which looks for the best way to provide concrete support for the idea that language is inherently social. Specifically, Dąbrowska presents a number of links between grammar, grammatical complexity and type of society. She for instance discusses the correlation between the esoteric or exoteric nature of a society and the level of linguistic complexity of the society's language; as complex morphology is difficult to acquire for adults, a clear link can be found between the amount of adult L2 learning and morphological simplification. Additionally, the relationship between hypotactic syntax and the widespread use of writing is presented, showing how language change can only truly be understood when the interaction between the individual and the social level is brought to the fore.

In "Cognitive sociolinguistics, language systems and the fall of empires", **Peter Harder** advocates a return to the macro-level of analysis when dealing with the relationship between language, the mind and the social world. Where Third Wave sociolinguistics has left the level of overarching structure to look for ways in which language creates meaning *in situ*, Harder considers it time to go back to the "social order". He proposes to study the relationship between the aggregate system and local variational features, based on the insights we have acquired through the Third Wave. When undertaking such an endeavor, the notion of socialization becomes crucial: the question is how the mind adapts to a system and how it learns to follow the cultural laws of the place where one grows up. There is in essence no free variation, as "[s]ocial facts are social only

because of the existence of institutionalized sameness". No matter what choice we make between variants, their significance is (partially) already determined in advance. Harder illustrates these ideas by a discussion of "the nation" as contested macro-level unit and the choice for the term *Commonwealth* (instead of *British*) to refer to the British Empire.

In his discussion of Britishness and nationhood, Harder refers to Geeraerts's work on cultural models (2003). In this work, Geeraerts proposes two models, a rationalist and a romantic one (and their variants), for the way we think and feel about the distribution of language varieties over a given community. The tension between both models forms the core of **Augusto Soares da Silva**'s paper. Specifically, he describes how the rationalist (LANGUAGE IS A TOOL) and romantic models (LANGUAGE IS AN IDENTITY MARKER) underlie attitudes towards European and Brazilian Portuguese, the two national varieties of the language. To this end, an analysis is presented of press, political, didactic and scientific texts on Portuguese language policies. The paper reveals four different attitudinal models at play: a romantic convergent attitude, a romantic divergent attitude, a rationalist convergent attitude and a rationalist divergent attitude. Interestingly, both the rationalist and romantic models of Portuguese appear to exhibit prototypicality effects and paradoxes. Additionally, Soares da Silva finds that the conceptual metaphors and metonymies for language underlying the opposing rationalist and romantic ideologies are in essence surprisingly similar.

Linguistic purism is a direct consequence of the convergence models presented by Soares da Silva. Looking for the actual effect of puristic language policy planning is addressed in the contribution of **Raphael Berthele**. The analysis is based on a selection of anglicisms and suggested French alternatives from two English-prone fields, namely sports terminology and telecommunication. Looking for diachronic shifts in lexicalization preferences, Berthele checked the frequencies of the terms in Google Books for the period 1950-2008. By means of inferential statistical analyses the odds of using the loanword are modeled against two factors: time, and before/after the suggestion of an official terminological alternative. Results reveal a general rise in the use of English, without any notable effect of norming attempts.

5 Methodological challenges of contextual parameters

When aiming to reliably attest the effect of linguistic purism, it is advised to study actual language usage. This observation lies at the core of the final recontextualization tendency we aim to present. The usage-based hypothesis of cognitive linguistics assumes that language structure emerges in the form of generalisations based on language use. Put differently: truly usage-based implies truly empirical. The complex interplay of linguistic variants, language varieties and socio-cultural phenomena make the empirical analysis of language methodologically challenging. Over the past decades, many advanced inferential statistical techniques have been applied in order to deal with this complexity, together making up "the methodological machinery" of cognitive linguistics (Divjak, this volume).

Many methodological steps have been taken in the past decades, but a number of challenges can still be identified. In her contribution, **Dagmar Divjak** presents four such challenges for usage-based analyses. The first challenge centers around the observation that data annotation categories and principles are very diverse within cognitive linguistics. Annotating lies at the heart of empirical usage-based analyses, but the categories we work with are often still based on introspection. Why not stay closer to the raw data? For her second challenge, Divjak describes the way probabilities are used and suggests to look into the benefits of shifting from frequentist probabilities to Bayesian statistics. Third, regression analysis has become more and more popular in cognitive linguistics, but maybe we should spend more attention to testing these models against actual speakers and human behavior. The final challenge is based on the contrast between language in the lab and language in use. Overall, then, Divjak notes that the key task for empiricists is to not forget about the importance of actually thinking about the data that we collect and the analysis that we subject the data to.

The methodological challenge at the heart of **Stefan Th. Gries**'s contribution concerns the selection of the appropriate technique when dealing with multifactorial phenomena where independence-of-data assumptions are violated. Specifically, the paper presents two complementary ways of presenting the same data, focusing on the *as*-predicative. The input consists of 512 sentence completions by native speakers of English. First, the data are analyzed in a two-step approach: a principal component analysis for dimensionality reduction to overcome issues with collinearity is followed by generalized linear multilevel

modeling to account for the repeated measures in the data. Second, a newer method for dealing with collinearity is applied, namely multi-modal inferencing. Overall, the results of both approaches turn out to be conceptually very similar.

Another type of methodological exercise is presented in "Does gender-related variation still have an effect, even when topic and (almost) everything else is controlled?", the contribution by **Hans-Jörg Schmid**. As the title reveals, this paper mainly focuses on confounding variables: many differences in the speech of men and women have been described, but it is so far unclear whether these truly reflect gender-related linguistic preferences or whether the attested linguistic variation is simply indicative of other differences between men and women (such as choice of topic in conversation). In an attempt to resolve the issue, Schmid turns to a corpus where a wide number of possible confounds are kept stable, namely a database of dialogues involving map-reading. Specifically, 128 dialogues for 32 men and 32 women are studied. Due to data sparseness, the analysis focuses on the frequencies of *the, and, of, I, you, okay* and *mmhmm*. Three types of regression models were tested, but only the best fit is reported (negative binomial models for the first five lexemes, mixed-effect models for the final two). Gender-related differences are sparse, but not entirely absent: there is at least some proof for gender variation in lexical choice, even when keeping topic constant.

The penultimate paper of this volume focuses on ways to measure complexity in language when making a shift from complexity on the system level to complexity on the usage level. Specifically, **Benedikt Szmrecsanyi** presents three different corpus-based measures. The first of these, typological profiling, is used to arrive at syntheticity and analyticity indices for languages, contrasting analytic word tokens (function words from synchronically closed word classes), synthetic word tokens (words with bound grammatical markers), and those that are both (e.g. inflected auxiliary verbs). The second approach concerns an unsupervised method: Kolmogorov complexity relies on the basic idea that text samples that can be compressed easily (e.g. when creating zip-files) are also linguistically simple. The final, and probably most innovative measure of complexity at the usage-level concerns variational complexity. Here, the number of factors constraining variation (e.g. dative alternation in English) are measured. The more constraining factors, the more complex the language. Crucially, simply counting the *amount* of constraints is only the tip of the iceberg of ways to measure variational complexity.

The section on methodology in the usage-based framework, and this volume as a whole, is concluded by a paper on techniques for attitude measurement. **Stefan Grondelaers and Dirk Speelman** focus on a direct measure of

attitudes, namely free response tasks. In such tasks, participants are asked to list their associations with e.g. labels for language varieties. These associations can then be categorized and interpreted, a process that inevitably involves some subjectivity on behalf of the researchers. This paper verifies how the automatic classification of adjectives based on distributional semantics can help address this issue, and more generally improve on the elicitation and analysis of free response data. Two experiments on Netherlandic Dutch variation are presented relying on these "distributionally enriched free response data" ("defr"). In the first experiment, participants are asked for their associations with six variety labels (three regional accent varieties, three ethnic). The second experiment focuses on subject use of *hun*, a controversial but unstoppable "counter-standardness marker" occurring in the Netherlands, and on the less controversial emergence of periphrastic *doen*. For both experiments, results are compared to those acquired through the widely used speaker evaluation paradigm, which aims to reveal attitudes more indirectly. Amongst others, the results reveal that defr and speaker evaluation experiments access the same perceptual clusters.

Overall, the contributions brought together in this volume are indicative of the way in which cognitive linguistics has developed and diversified over the past decades. Different ways of contextualizing language in the mind, the body and the social environment have been proposed, and each of these endeavors has led to new insights on language in general and language variation and change in particular. Simultaneously, the different approaches have shed light on new problems, new challenges and new paradoxes. Time for new paradigms?

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Part One: **Language in the context of cognition**

Jacob L. Mey

Instru-mentality

The embodied dialectics of instrument and mind

Abstract: Both tools and instruments are artifacts with a cognitive bend. That means that in using them, we both exercise our cognitive faculties to improve our environment, and in return, improve our faculties by adjusting to the input we register as cognitive feedback. As a result, not only do cognitive artifacts change the tasks we perform; it is equally true that the use of such artifacts changes our minds. The resulting "instru-mentality" is characterized by its increased/diminished distance to the artifacts, with the corresponding cognitive feedback moving in the opposite direction. Some implications relating to psychological issues and the use of prostheses in restorative and recuperative medicine are discussed; here the important notion of "adaptability" is given some prominence.

For Dirk, on his coming of "age": a personal introduction

Having met Dirk several times at conferences (but limiting ourselves to mostly agreed-on commonsensical exchange), our first real *mental* encounter happened, ironically, through the medium of an *instrument*: written, even printed, text.

I had been asked to review Dirk's 2010 book *Theories of Lexical Semantics*; this turned out to be much more than a superficially satisfying task, as it allowed me for the first time to take proper measure of Dirk's profile and size as a researcher and independent linguistic thinker. The review (Mey 2011) became quite lengthy, but I managed to get it accepted without too many cuts; next, having accomplished the technical part of my task, I asked myself what had most impressed me during the process of reviewing. The answer: Dirk's ability to combine insights, clarity, erudition, and communicative skills – a characteristic that proves to be fitting also for his other works.

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Dirk's oeuvre stands out as the perfect instrument for transmitting superb mental content; which is after all what "*instru-mentality*" is all about. Hence the title of my contribution, which is hereby humbly offered to the young sexagenarian with the age-seasoned wish of *Ad multos annos* (to which I add: *atque opera*!).

Austin, TX, 3 March 2015
Jacob L. Mey

1 Introduction: On instru-mentality and "toolness"

In our everyday use of language, we make a distinction between the terms "tool" and "instrument". Instruments are tools, but not all tools are instruments; though closely related, the terms don't seem to be synonymous. Thus, we talk about instruments for making music; we have surgical instruments; we are familiar with the instruments on the dashboard of a car or in the cockpit of a plane, but would never think of calling them "tools". In contrast, we talk of a tool box, a carpenter's tools, bicycle tools, gardening tools, and so on; we would minimally lift an eyebrow, should someone start to refer to these tools as "instruments". Clearly, we are making a distinction, but upon what basis? And: could an examination of the distinction lead to insights into the ways humans construct and orchestrate cognitive interactions and events? Is instrumentality itself a matter of cognitive social adaptation? The present paper explores this possibility.

One clear (but perhaps a bit superficial) way of differentiating between tools and instruments comes to light when we compare their representation and physical presence in a car: the instruments are found on the dashboard, close at hand, while the tools are in the trunk, to be brought out only for special reasons (such as fixing a flat, or recharging the battery). However, the distinction is not simply a matter of location and relative importance of function (for example, is a cigarette lighter, following this distinction, an instrument, a tool, or simply a gadget?) Still, the example is useful in that it makes us realize that the various objects we purposefully use are, in some critical sense, distinguished and constructed *socially*. As a case in point, take the common tool known as a hammer. As such, it is just a piece of ironware; but in a Marxian inspired line of thinking, it becomes a tool by (and only by) entering the social production process, by

being "socialized". This socialization is critical to the determination of its status. In the final resort, the determination is a *cognitive* process, governed by human user need and user skill, not by the object itself as a physical entity. Consider, for instance, that the same hammer tool that you used for fixing a picture to your living room wall, may be cognitively and manually repurposed by a physician in need of an instrument to test your knee reflexes.

2 On artifacts, both cognitive and others

Generalizing, then, it seems safe to say that both tools and instruments are *social artifacts with a cognitive bend*. The notion of "artifact" was originally coined in archaeology and physical anthropology. It is used to indicate the presence of a human agent as embodied in a piece of nature, for example a fetish or a primitive tool. If I find such an "artificial" object in nature, my first thought is that somebody out there made it, or put it there. Moreover, by further extending the critical importance of human agency in shaping the artifact, we may consider the very act of *finding* as transforming the object into an artifact. Thus, the mere fact of having been found by a human agent such as an artist transforms a piece of nature into an *objet trouvé*, the odd item (possibly itself an artifact) that *cognitively embodies* the artist's conception, as expressed in what we now consider to be a "work of art", complete with signature and date, and liable to be collected, exhibited, traded, and occasionally even vandalized or stolen.

Cognitive artifacts, as the name suggests, are of a special kind, being related to the ways humans *cognizingly* deal with, and represent, the world and how they use those representations; in other words, they are *cognitive* tools. The common artifact known as the book provides a good example; compare the following early comment by Donald Norman:

> Cognitive artifacts are tools, cognitive tools. But how they interact with the mind and what results they deliver depends upon how they are used. A book is a cognitive tool only for those who know how to read, but even then, what kind of tool it is depends upon how the reader employs it (Norman 1993: 47).

Considering "toolness" as dependent on cognition (as in the case of the book) implies that we somehow are able to use the artifact in our cognitive operations. At the low end of toolness, we find devices such as the cairn or other simple stone artifacts, some possibly used to mark distances or time periods; an outlay of twigs or arrows may point the way to food; the primitive flintknapper's tool betrays the presence of early humans' ways of dealing with the environment. In

the case of the book, the feedback that various kinds of people get from reading may be quite different, depending on their world orientation and their cognitive and other abilities. Babies use books mostly to tear them apart. Older children look at pictures. Adults (and proficient younger readers) spurn the pictures and go directly to the text itself. Mature readers take in all these "bookish" aspects and synthesize them into a single, smooth, well-adapted cognitive behavior.

3 Representation and embodiment

The importance of cognitive artifacts resides in the fact that they represent the world to us. In his classical tripartition, Charles S. Peirce distinguished between three ways of representing: by indexes (e.g. the arrow pointing to some location), by icons (a cognitive artifact bearing a certain resemblance to the object represented, such as the universal pictogram for "No Smoking", a slashed or crushed cigarette), and by symbols (such as our words, that represent objects and thoughts via (re)cognitive operations that are not premised on any particular physical shapes).

But representation is not just a state: it involves a process, a representing activity. Humans are representing animals; but in addition, they cognitively embody "surplus" meanings in the objects and activities they represent – a meaning that is often far removed from the object or activity itself and its simple representation. For instance, walking, considered as pure locomotion, has no meaning other than that embodied in the move itself from point A to point B. However, when it comes to vote-taking in the Roman Senate, a Senator gathering up his purple-lined toga and walking from the one end of the Senate Chamber to the other side in order to take his place among his like-minded colleagues, performs an official act of voting, aptly called "letting one's walk express support" for what we today would call, equally aptly though somewhat anachronistically, a "motion". (In Roman times, such embodied cognitive action was called *pedibus ire in sententiam*, literally 'having one's feet do the voting'). Here, the simple movement of walking embodies a mental representation: in true "instru-mentality", the cognitive motion is seconded and approved by the Senator's embodying feet.

4 Cognitive artifacts and their representations

How do artifacts represent meaning and action? As Norman has pointed out, "to understand cognitive artifacts, we must begin with an understanding of representation" (1993: 49). But even the best representation only comes alive on the condition that we have a human who actively interprets what is represented. In other words, the artifact must not only offer a complete (or at least passable) representation, but it must also represent in such a way that the people using the artifact will have no trouble identifying what is represented and how the representation works.

Moreover, whenever a cognitive artifact represents, its way of representing must be adapted to, and be adaptable by, both the represented and the interpreter. The adaptation, however, should not be seen as a quality given "once and for all": adaptation is a process of give and take, of *mutual* conditioning; in short, it is a dialectical communicative process.

In order to situate that mutual interaction, I suggest the following three propositions:

(1) All artifacts, when viewed through the lens of instru-mentality, are in some measure cognitive artifacts;
(2) Even the mind itself, as the instru-mental version of the brain, is a cognitive and goal-driven artifact, inasmuch as the brain develops as a mental instrument for interacting with the environmental context through the organization and integration of perceptual data;
(3) All artifacts can be situated on a continuum of adaptation between, on the one hand, the extremes of the world's raw materials and the brain, and on the other, the endpoints formed by the environmental context and the mind (see Figure 1)[1].

The computer is of course the cognitive artifact *par excellence*; but more generally, what do we mean when we talk about an "instrument of mind"? What is implied in the term "instru-mentality"? The next section will provide an answer to this question.

1 Figure 1, along with the following Figure 2, has been adapted from Gorayska, Marsh, and Mey (2001: Figures 1 and 3, respectively).

Artifact Continuum	Human Continuum
BRAIN	MIND
Language	|
Organism	|
Body Parts	|
Prostheses	BODY
Instruments	|
Tools	|
Machines	|
Raw Materials	|
WORLD	CONTEXT

Fig. 1: Relationship between a continuum of artifacts and the continuum between a perceiving human and the environmental context

5 The dialectics of instru-mentality

Donald Norman has remarked that "artifacts change the tasks we do" (1993: 78); however, it is equally true that the use of artifacts changes our minds. Through instru-mentality, the very tasks we perform no longer seem to be the same tasks as before; in addition, instru-mentality has us consider ourselves as changed in relation to the tasks. Thus, a housewife owning a vacuum cleaner is changed by the very fact of her user/ownership: a simple artifact, a household gadget that was supposed to relieve the chores of countless women, turned out to be a mighty household tyrant, raising the bar for housework that had been standard earlier. Similarly, the mechanization of household waste removal, by transforming the simple collection and emptying of old-fashioned garbage bins on to open flatbed trucks, into the single-user operation of high-tech sanitation vehicles that will do everything needed in a single mechanical operation, has not only changed the status of the process and the artifacts involved, but in addition has redefined the task itself and its incumbents. This new instru-mentality comes to light in the new names that were assigned to the artifacts and their "interpreters": when garbage pick-up became "sanitation", the workers were rebranded as "sanitation engineers", who (as a result of this mini-revolution in a complex of menial urban tasks) had to work harder in order to stay profitable.

6 Feedback and distance

There is always some reflexive activity involved in operating even the simplest mechanical tools. For instance, I hear a different sound when my saw is half way through the log I am cutting, compared to the sound it makes when it approaches the bottom. And should I be so unfortunate as to hit the hidden nail that someone has hammered into the tree many years ago, the grating sound will stop me from sawing on. However, there is a considerable difference between the reflexivity that takes place in this simple example (direct feedback, minimal distance between instrument and mental state) and what happens when I am writing and composing an essay on the computer, all the time evaluating and adjusting my mental activity, continuously comparing it to the instrumental process and its outcome along many dimensions. By contrast, the mental distance in the sawing example is uni-dimensional and the accompanying reflexivity short-lived.

To visualize the mechanisms at play here, I suggest to project the various artifacts that join mind and environment in instru-mentality on a gradient of lesser to greater distance, accompanied by a scale going in the opposite direction, along a gradient of increasing/diminishing feedback. Thus, feedback is inversely proportionate to distance, such that the cognitively richer artifacts, being closer to the human mind, have the most extensive "compositional" feedback (i.e. they feed information back into the mind along different dimensions, allowing us to compare the various effects of the process). At the bottom of the mental column, we find the worldly context, at the greatest "instru-mental" distance, as it presents itself to us for development by means of steadily decreasing feedback on our instru-mental activities, especially our reflexive and intentional acts. The relationship is graphically represented in Figure 2.

Figure 2 reflects the relative distance/feedback that an artifact in the column exhibits: thus, body parts have a short distance and immediate feedback, whereas prostheses and artifacts further down the line exhibit increasing distance by orders of magnitude. As their relative distance from the mind grows, these devices suffer a decrease in feedback of the same order.

A good example is provided by the artificial limb, as compared with its natural counterpart. In the case of an artificial hand, for instance, the natural nerve connections between the brain and the prosthesis have been severed, and only certain of them have been artificially reattached by connecting surgery. Consequently, the functionality of the artificial hand is greatly reduced as compared

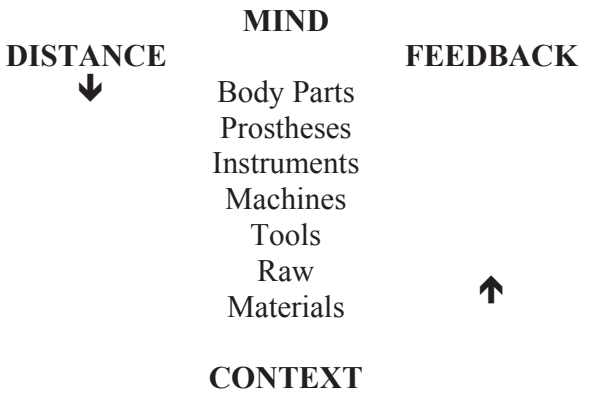

Fig. 2: Distance and feedback as inversely proportional determinants of artifacts

with the original body part. We can still perform basic tasks such as grasping or moving small objects, but we can no longer feel the impact when we strike a blow, or respond naturally to variations in temperature or texture of the objects we touch. Thus, a clear distinction between body parts and prostheses, when both are conceived of as artifacts, naturally emerges from the discrepancy in their functional connectivity along the distance/feedback dimension. Similar considerations apply when we distinguish between prostheses and instruments, between instruments and machines, between machines and tools, or between tools and the raw materials available in our environmental context.

Generally speaking, the degree to which an artifact is connected to our mental functions determines the full measure in which the mind is able to attend to the feedback it receives. The more externalized the artifact, the more detached it will be from the physical body of the user, including the brain, and the lower the degree of mind-artifact connectivity and instru-mental alignment; consequently, the mind's ability to attend to the instru-mental feedback provided is equally diminished. By contrast, the less the mind's ability to attend to this feedback is constrained, the greater the user's ability to adapt to, and beneficially modify, the artifact.

To conclude this section, a word on user attention and adaptability (see Mey [1998] 2009). User attention is critical in determining the position of an artifact in the column of Figure 2, above. When it comes to adaptation, attention not only triggers, but also accompanies and guarantees, continued successful adaptation of the artifact to the user; it conditions the individual's capacity to perceive the artifact's purpose by mediating the relationship between feedback and distance. The psychologists have devised various ways in which to measure

attention: in terms of the length of time a (set of) perception(s) remains attended to (is "in focus"), or in terms of the intensity with which cognitive capabilities are brought to bear on the perceived object of attention, e.g. by measuring the absence or presence of response in various processing stages. The significance of attending to feedback from an artifact may further be illuminated by watching what happens when a user's attention is amplified or dampened by the contextual variables (both external and internal) that may affect his or her reaction to the feedback. Attention being by nature transitory, the feedback from the saw (in the example above of me sawing wood), cannot be perceived in constant fashion across the entire process, even if the information itself is kept consistent and reliable. It is the user's attention that makes the difference here: when I am doing my fiftieth log, my attention to the feedback information received will be different from when I started the job; consequently, in order to prevent an accident, I will have to adapt myself to this fact, e.g. by taking a break. Feedback-triggered adaptation has occurred, following a change in the required parameters of job attention. By taking a break, acting upon this change, I have temporarily altered my particular instru-mentality.

7 Conclusion

In the preceding, I have focused on some of the mental and practical aspects of shaping an instrument to the specifications of the user, and on how this inevitably will have an effect on the user him-/herself. Conversely, the influence that the user exerts in choosing between, and adapting to, diverse tools and instruments (say, some computer software, or even a particular type of wood-cutting tool) will influence the way the work is carried out.

When we are talking about instruments of mind, as in "instru-mentality", we have to be clear about our terms. Here, I have tried to pay due attention to the various readings of terms such as "tool" or "instrument"; I have suggested to view them as manifestations of a larger concept, that of "artifact", by exploring how these artifacts fit in with our mental representations of our world, including ourselves and our relationship to the work we are doing in that world. By contrast, the question of what is meant by the term "mind", being a much more complex, even tricky affair, has been largely left to hand-waving (my suggestion to consider the mind as a cognitive artifact would certainly fit that description).

But even without going into mentalist detail and psychological speculation, we can assume that "instru-mentality", considered as the relationship between

instrument and the human mind is basically a *dialectic* one, as illustrated by the general case of tool use (compare the "saw" example). Using, and not least adapting to and improving, my tool or instrument will not only enhance the quality of my product; more importantly, my relationship to the work process itself will change; so, too, concomitantly, will my mental attitude to the instrument I am using. Changing the tool thus eventually changes the worker, who then in turn will change the tool's use in the work process, to eventually change the process itself and its product. Instead of me being "killed by the tool" (to use (Marx's pithy expression; [1867] 1972: 455), instru-mentality will provide me with a new understanding of the work I am doing, how I am doing it, and to what purpose.

In the fundamental processes characteristic of instru-mentality, the mind adapts to, and even creates, its tool or instrument (subsumed above under the general label of "artifact"); conversely, using the instrument does not leave the users and their mental operations untouched. This dialectic of mind and instrument reflects itself in instru-mentality, considered as our embodied interactive creation of a mental instrument. Only in this way can the hidden components of instru-mentality be brought out into the open, as representing the social fabric that it encapsulates, along with revealing the latter's hidden dimension of "congealed" social labor, to borrow another expression dear to Karl Marx ([1861–1863] 1990: 21–22). Instru-mentality, as the embodiment of our cognition in the mental and other instruments we use, is "neither natural nor given", as the Swedish sociologist Pelle Ehn once pointed out with respect to the computer (1988: 100); the creation and use of our mental instruments has to be continuously (re)negotiated in a context of social responsibility and human adaptability.

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Marjolijn H. Verspoor

The dynamics of a usage-based approach

Abstract: This contribution seeks to connect usage-based linguistics with dynamic systems theory, in particular as applied by Edelman (1989) and Thelen and Smith (1994). Edelman's dynamic biological system starts off with a few simple sub-systems (perception, action, value), all of which interact with each other over time and give rise to perceptual categorization, higher order thinking, and behavior through interaction with other humans and the environment. As Thelen and Smith argue, humans may be genetically predisposed to certain behavior, but they can develop only through actual experience. If we accept such a dynamic view of development, the idea of predetermined development in step-like stages makes no sense. There are stages in that some sub-systems will have to develop and be coordinated before those of a higher level can be reached (also called a precursor relation), but the pathway is not neatly paved for the child: the child needs to learn through his own experience with lots of ups and downs and development is individually owned. Like other complex adaptive systems, a human infant is made up of numerous interconnected subsystems at different levels, which have a tendency to self-organize and therefore will show nonlinear patterns of development. The benefit of taking a dynamic perspective on human development is that it naturally feeds into a usage-based view of language development: human cognition and experience are intricately related with the way language has emerged and used.

1 Introduction

Usage-based (UB) language theory holds that language and cognition cannot be studied in isolation from each other and that thinking is considered to be "an assimilation and organization of experience" (Geeraerts 1985: 22). In other words, a UB approach sees language as a sub-component of a much larger complex dynamic system. In this contribution, I would like to argue that if it is explicitly recognized that language is a complex dynamic system (CDS) and language development a dynamic process, a UB language theory becomes part and parcel of a family of complementary approaches that have similar principles of

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stability, change and emergence. Not only would UB language theory gain insights from these approaches but it also has great potential to add to theory formation as such principles of stability, change and emergence have been studied extensively in UB approaches.

2 Human development as a complex dynamic process

Complex dynamic system theory (CDST) or dynamic systems theory (DST) are theories of change processes and have been used extensively in a wide variety of disciplines, from physics to biology and from meteorology to demography. CDST has provided powerful accounts for the nonlinear, iterative development of natural phenomena. Examples of applications of dynamic systems that show iterative changes over time are found in reaching dynamics (when we reach for a cup on the table, we iteratively adjust the trajectory of our movement) and weather forecasts in unstable atmospheric areas (tomorrow's weather can be predicted accurately, but long-term predictions are no more than educated guesses due to the large number of dynamic iterations).

Recently, applications of DST have been developed within cognitive science (Thelen and Smith 1994; Holland 1995; Port and van Gelder 1995) developmental psychology (Van Geert 1998), and language development (Elman 1995; Schumann et al. 2014). Since the late 1990s, the theory has also been applied to second language acquisition (SLA) (Larsen-Freeman 1997; Herdina and Jessner 2002; Bot, Lowie, and Verspoor 2007; Verspoor, Bot, and Lowie 2011; Dörnyei 2009). These and many other authors have argued that language can be seen as a complex dynamic system and that language development is a nonlinear, chaotic, and highly individual process that cannot adequately be described otherwise.

Different authors have used different terminologies for complex dynamic systems such as dynamic systems, dynamical systems, complex adaptive systems and so on, each with their own slightly different explanations and terminology. The different terms have come about by parallel developments in different areas of research, but for our purposes they are similar and we will use several terms as near synonyms because they share a number of core characteristics, such as dependence on initial condition, non-linearity, iterativity, self-organization and multiple embeddedness.

The arguments for considering (second) languages as complex dynamic systems revolve around three of these crucial characteristics that can suitably be applied to language and language development: the existence of interconnected subsystems; the tendency to self-organization; and the occurrence of nonlinear, chaotic patterns of development.

The main point of applying DST to human development is the underlying assumption that there is no prescribed, predetermined path of development, but that the developmental path emerges through the interaction of many internal (biological, psychological, and genetic) and external (physical and social) subsystems, and as Thelen and Smith point out, it is not as "predictable" as it looks.

> The grand sweep of development seems neatly rule-driven. In detail, however, development is messy. As we turn up the magnification of our microscope, we see that our visions of linearity, uniformity, inevitable sequencing, and even irreversibility break down. What looks like a cohesive, orchestrated process afar takes on the flavor or a more exploratory, opportunistic, syncretic, and function-driven process in its instantiation (Thelen and Smith 1994: xvi).

To give an example, we know that infants usually have a crawling stage before a walking stage, but the way such a crawling stage emerges is a messy, variable process: *Exploratory* basically means "trying things out" or "make-do" solutions. The child happens to be on his knees and hands and unintentionally sways back and forth a little and falls forward on his chest or face, which may be accompanied with a frustrated cry. He might accidentally try to do this again and after many trials discover that such swaying helps him move forward. *Opportunistic* has to do with the immediate context. It might be that the child sees something he wants and tries to approach it. The *syncretic* is in the incorporation of other movements. Once the child knows how to sway a bit, the child may discover that if he moves his hand or his knee forward while swaying, the move forward becomes more effective. The moves may first be quite separate and uncoordinated (resulting in falls) but after several trials the moves may become coordinated and later on, automatic. The *function-driven process* is basically the child wanting to reach something, and eventually wanting to do it as efficiently as possible or wanting to do it like his caregivers.

In other words, the child may be genetically predisposed to go through a crawling stage before a walking stage, but there is no little switch to help the infant go from stage A to B, but a lot of individual exploring and piecemeal development. Moreover, not all children go through the same stages. From afar it may seem that each stage follows neatly after the other, but when we look up close we see not only that there are no clear boundaries between each stage but that the transition from each stage is far from smooth and involves lots of varia-

bility (the changeability in performance within an individual) and no two children are exactly alike resulting in variation (the changeability in performance among individuals).

Thelen and Smith (1994) thus argue that there is never a single direct cause for new behavior, but that it emerges from the confluence of different subsystems in muscle development, motor control and intentionality. Within this process, variability in some subsystems will occur because it is necessary to drive the developmental process, allowing the learner to explore and select. The real-time perceiving, moving and remembering constitute the driving force of development.

A dynamic systems approach to human development holds that similar principles apply to all levels – from neuronal activity to cultural interaction. First a few subsystems interact and together they will form a new subsystem that is different from the sum of the previous subsystems and usually more complex. Figure 1 illustrates this: A consists of various subsystems that interact with each other over time and from this interaction another subsystem at a higher level emerges and the various subsystems are no longer as independent from each other as before. The same happens with subsystems B and C, which then merge into yet another subsystem at a higher level that is again different from either A, B or C.

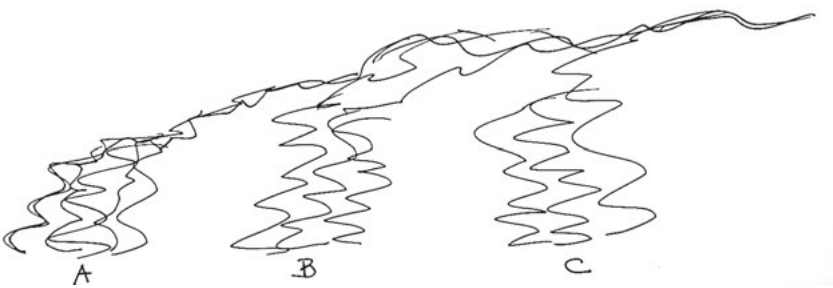

Fig. 1: Subsystems interact to form a new subsystem different from the sum of the previous subsystems and usually more complex

Edelman (1989) also argues that human development is a dynamic process and that his dynamic Theory of Neuronal Group Selection (TGNS) can account for the development of human ability to categorize and generalize – the two main abilities assumed in a usage-based approach (Langacker 2009) – and to develop consciousness and language without any predetermined module. Some aspects of the theory will be explained here in more depth to give a specific example of

the workings of one specific dynamic system and to show how consciousness, categorization, generalization, and conceptualization can actually emerge dynamically from physical neuronal activity. This brief expose is based on his 1989 book.

Edelman bases his theory on physics and biological evolution and assumes that the world is structured as described by quantum field theory, relativity theory and statistical mechanics, which have shown that many portions of the world are far from equilibrium in the thermodynamic sense. In other words, the world is not a static but a dynamic entity. In addition, all aspects of structural and functional brain behavior can be explained by evolution and natural selection, so there is no need for a so-called homunculus directing the developmental process.

Above all, TGNS is a theory of perceptual categorization and has three basic mechanisms at different level: developmental selection (genetically determined), experiential selection (determined through interaction of the systems in the organism among themselves and the organism with the world) and reentrant mapping (which is a recursively interaction process between systems at all levels). The interaction between "genetically determined" and "experiential selection" suggests an interaction between "nature" and "nurture". These three processes are not segregated in time but may overlap and in some cases, particularly in so-called critical periods, synaptic mechanisms (connections and communications between neural cells) can play a key role in determining anatomy and the primary repertoire. Developmental selection occurs as a result of cell division and cell death, the molecular effects of cell adhesion molecule (CAM) regulation. In the secondary repertoire, there is selective strengthening or weakening of particular populations of synapses as a result of behavior (e.g. perception and/or action), which leads to the formation of variant circuits. Reentrant mapping – the crux of the dynamic process – is the linking in time through parallel selection and correlation of the maps obtained from neuronal groups in different areas (e.g. those of perception or action), each receiving separate inputs. Edelman points out that "[r]eentry is not simply feedback: it involves parallel sampling in multiple paths from various mappings and can vary statistically in both time and space" (1989: 48). Because these mappings are basic to human category formation and generalization and are also preassumed in usage-based accounts of language development, they will be dealt with in a bit more detail.

Figure 2 is a diagram of one kind of "classification couple", let's say between a neuronal group in vision and a neuronal group in motor movement. A

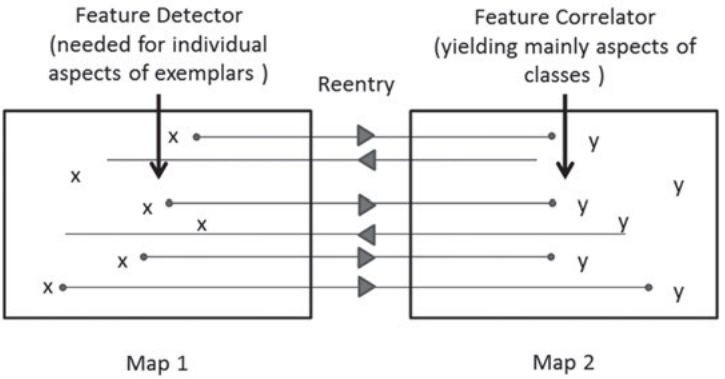

Fig. 2: Reentrant Mapping (adapted from Edelman 1989: 48)

couple is given as an example to keep the explanation simple, but one should keep in mind that in a real nervous system a manifold of maps will interact to form classification n-tuples.

In this diagram, in Map 1 there are neurons in the visual system that act as feature detectors to be mapped onto some higher level in the brain. In Map 2, there are other neurons related to, for example, the light touch of a moving finger and will act as feature correlators tracing an object by motion. The visual and motion neuronal group maps project onto each other by reentrant connections (the lines with arrows going one way or the other). They are locally distributed and make synaptic connections in each map so that groups in one map may excite groups in the other. The x's and y's in the maps represent the synaptic populations that may become stronger or weaker in synaptic strength as a result of the input signals from either the feature detectors or correlators. The filled circles represent the actual strengthening of the synapses on reentry. In other words, the classification couple allows the parallel independent sampling of disjunctive characteristics present in the stimulus. Because of the reentrant connections, these characteristics can be connected in the responses of higher-order networks.

Generalization occurs because reentry in a classification couple can link various patterns to each other across maps and also can link responses to present inputs to previous patterns of responses. Generalization is linked to memory, which is also a dynamic entity in itself and is based on iteration.

> According to the TNGS, memory in global mapping is not a store of fixed or coded attributes to be called up and assembled. Instead memory results from a process of continual

> re-categorization, which by its nature, must be procedural and involve continual motor activity and repeated rehearsal. Because of new associations occurring in different contexts, changing inputs and the degeneracy of the neuronal group selection, a given categorical response in memory can be viewed dynamically in various ways (Edelman 1989: 56).

The Edelman discussion so far exemplifies the working of a dynamic system at one particular neurobiological level in which the continual interaction of various separate sub-systems leads to perceptual categorization and generalization, emergent properties of the nervous system. These levels are argued to be at the primary level of consciousness, and higher order consciousness emerges because of similar dynamic processes at different levels, which will not be discussed here, but they all involve notions of reentrant processes at all levels.

At this point, it is also interesting to see how at higher levels of consciousness, the role of different sub-systems may change dynamically over time and that it is difficult to separate "learning" from "doing":

> One of the most striking properties of systems of attention is how they vary before and after the acquisition of motor or cognitive skills. In the initial learning of tasks, (particularly complex one), conscious attention plays a key role – rehearsal in terms of a goal and the linking of various motor or cognitive routines are critical to achievement of that goal. But successful learning leads to automatization, as is seen for humans in speaking, writing, riding a bicycle, playing a musical instrument, or carrying out calculations. After such learning, conscious attention is often *not* required for performance and is only called up if novelty appears or if a goal is not reached (Edelman 1989: 201).

Edelman argues that (visual or other) perception and action is the basis for initial categorization and generalization, but he stresses that for learning to occur sensorimotor mappings also have to be dynamically linked with "value".

> Learning involves relating perceptual categorization and memory to a definite set of values, linking an animal's past internal state to its present state. Learning must be related to evolved species-specific hedonic, consummatory, appetitive, and pain-avoiding behaviors that reflect ethologically determined values (Edelman 1989: 93).

The set of values to which a human infant is genetically predisposed are related to the appraisal system that Schumann (1997) proposes. The appraisal system determines the emotional relevance and motivational significance of stimuli that are received by the sensory and motor systems. According to Schumann, there are three kinds of value at different levels that emerge over time: homeostatic, sociostatic, and somatic. Homeostatis is the genetically determined property of a system through developmental selection in which variables are regu-

lated so that internal conditions remain stable and relatively constant. In humans, we might think of the heart rate, body temperature, hunger, thirst, sexual drives and so on. Humans (and other animates) will instinctively act to maintain an appropriate balance among such bodily states. Sociostatic value is also genetically determined through developmental selection and motivates the human child to act so that it will attain attachment and social affiliation with fellow humans, first with caregivers and later with others. Schumann argues that this instinct underlies the human "interactional instinct", which gives rise to joint attention, understanding communicative intentions and cultural learning as proposed by Tomasello (2003) as the essentials for language learning. Somatic value is related to what Edelman would call experiential selection. It develops over time as a result of our interaction with the world and gives rise to human preferences and aversions. Such a view is in line with Edelman, who summarizes the dynamic interaction of value with other systems as follows: "values constrain behavior, action modulates and memory alters it and is altered in turn" (1989: 251).

Thelen and Smith agree with Edelman that the role of "value" in development is crucial: "Something has to motivate infants to look, to reach, to mouth, to seek out information about their worlds" (1994: 313). They argue that behavior begins with force, "a tendency to act in a certain direction" (Lewin 1946: 796) and they agree with Lewin that cognitive change (learning) comes about when people learn new pathways to their goal activities, from the simple force fields of infancy to the highly complex goals of the older child and adult. In other words, cognition and motivational forces cannot be separated, a point also made by Lewis, Sullivan, and Michaelson (1984). They argue that only a dynamic model can account for their findings in a longitudinal study on the interaction between cognition and emotion in young infants.

> The particular emotions observed, rather than causing or resulting from a cognitive process, seem to interface with learning, providing the setting for each learning phase as well as resulting from that learning. [...]The data indicated that linear models of the relationship between cognition and emotion are inadequate. The relationship between these domains is complex, continuous, and more finely tuned than depicted by such models. In conceptualizing the relationship between emotion and cognition neither should be described as causing the other; rather, each continually and progressively chases the other, weaving separate threads of behavior into a single composition, a fugue (Lewis, Sullivan, and Michaelson 1984: 285-286).

So far it has been argued that human development at different levels can be explained as a dynamic biological process, where different sub-systems interact

by means of reentrant mapping, also called "coupling", to give rise to subsystems at higher levels which are always more than the sum of their parts.

3 General dynamic principles of change

The principles that apply to human development also apply to other dynamic systems and vice versa. Several important principles inherent in a dynamic complex adaptive system, not all necessarily human will be reviewed briefly.

The principle of *aggregation* is related to the notions of *critical mass* and *phase shifts* in DST terms. The principle of aggregation requires a mass of agents (such as mass of water molecules) to interact before collective behavior and patterns emerge (such as a river). In Edelman's theory, this refers to the fact that only large groups of neurons rather than single neurons have to operate together. In the development of human language, Lee et al. (2009) suggest that there had to be a mass of hominids in close proximity for some form of language to emerge, and that there had to be a mass of words for some meaningful structuring among the words to occur. In child language development, Bates and colleagues (Bates, Dale, and Thal 1995; Bates and Goodman 1997) show that children need to know a mass of words (about 600) before meaningful structuring among the words occurs.

Internal model and pattern match is related to the concept of *self-organization* in DST terms. It is the ability of a CAS to perceive and select patterns in the mass of input and dynamically formulate internal models, which keep interacting and changing with subsequent input. In Edelman's example given earlier, it refers to the ability to form categories and generalizations from similar input events. Schumann (1997) notes that humans have an innate tendency to seek interaction, initially with caregivers and later with other humans and do so initially by imitating them. It is because humans are capable of imitative learning, they are instinctive pattern matchers (Elman et al. 1996; Tomasello 1999). The commonly occurring "baba" utterance can serve as example. The child utters some random sounds that are easy to form, the parent interacts with the child by imitating these sounds, and the child imitates these sounds again. Through iteration of the event and the ability of intention reading (Tomasello 1999) the notion that the sound has a meaning emerges in the child. Van Geert (2003) suggests that self-organization explains the emergence of complex grammar despite the poverty of input for the child acquiring language. This position is corroborated by increasing amounts of evidence in favor of an emergentist view of language acquisition. Using computer simulations of con-

nectionist neural networks, several studies of first language acquisition have shown that self-organization can give rise to the emergence of a complex language system (Li, Farkas, and MacWhinney 2004). Similar positions have been taken for SLA (e.g. Hernandez, Li, and MacWhinney 2005), and recently Ellis and Larsen-Freeman (2006) have provided additional evidence for the emergence of a second language (L2) system using a variety of measurements.

Flow is related to the principle of *iteration* in DST terms and leads to *nonlinear* and *chaotic* behavior of complex systems. A CAS is a network consisting of nodes (CAS agents), connectors (interactions) and resources that flow through the network. According to Holland (1995), these networks of flow have two properties: a *multiplier effect* and a *recycling* effect. A multiplier effect occurs when input travels from one node to the next, each time affecting change in the following node, inducing a chain of changes. The *recycling effect* (similar to Edelman's reentrant mapping) occurs at the same time as the input itself is also affected each time as it goes through a new node. In language development, one could imagine that when a baby (a node in a communication system) utters "babababa" and the caretaker (another node) says "baba" while showing the bottle, there is an input effect that may leave some trace of neuronal activation and every time a similar (never exactly the same) event occurs, the activation effect will be slightly different, eventually leading to a higher level of complexity, and the sound is associated with some meaning.

Multistrata of building blocks is related to the notions of *embeddedness* and *fractals* in DST terms. It refers to the idea that CAS agents of a higher level are more complex than those of a lower one. In terms of language, we can see such hierarchical structuring in the following likely sequence of language acquisition: babbling sounds (like *babababababa*) without meaning before babbling sounds with some meaning (*baba* = 'bottle') and before baby talk with word combinations (*want baba*) and so on. In terms of linguistic constructions, the hierarchical structuring goes from sounds to words to phrases to clauses to sentences to longer texts. In terms of speech communities, such hierarchical but partially overlapping structuring occurs at the nuclear family level, the extended family level, the neighborhood level, the town level and so on.

Local and random interactions is related to the notions of interconnectedness and unpredictability in DST terms. It refers to the fact that each interaction takes place only between the agents that are in about the same location and that these agents do not know about the interactions of other agents in different locations. Random means that the interactions occur mainly by chance. In language development, the randomness is evident in that learning occurs at the individual and local level. Through all the interactions, locally determined in a

meaningful context, with locally present parents and others does each child experience communicative acts individually. These are different for each child, so there is always a degree of randomness in the process. Randomness occurs at all levels and "[i]ndeed, randomness lies at the heart of the emergence of diverse and unpredictable patterns in CASs" (Lee et al. 2009: 23.) and leads to *variability* and *variation*.

Bottom up and indirect control is the principle of *emergence*. There is not one master CAS agent who directs other CAS agents, but many CAS agents that each interact at a very local level will produce a pattern. Very much in line with Edelman (1989), Holland (1995) gives the brain as an example. There is no master neuron that dictates the behavior of each individual neuron, but through locally dispersed control, coherent behavior of the whole brain emerges. In language development, this would suggest that all changes will first occur at a very local level before they spread. First through many iterations (repetitions of a form-meaning link of individual words) a neuronal pattern of the specific form-meaning link emerges, one word at the time. It is not until many such specific form-meaning links have been made that a new more complex pattern emerges: sounds are associated with things. Hirsh-Pasek, Golinkoff, and Hollich (1999) argue that it is such an awareness of "sounds have meanings" that gives rise to the well-known vocabulary spurt at around age two.

Feedback and circular causality is also similar to Edelman's *re-entrant mapping* and the result of the interaction among lower and higher level systems. Waldrop (1992) illustrates this principle with the initial competition in the 1980's between the somewhat technically inferior VHS and technically superior Beta video format leading to the dominance of VHS formats because of a slightly bigger market share at the beginning. In other words, there was *feedback* from the system at a higher level to the system at the lower level: a small difference initially between two video formats in market share caused the market to go for the one with the larger market share and down for the other one. Such feedback mechanisms can be seen in language development too. Words that are used frequently by the speech community are likely to be used even more, and those that are used infrequently tend to disappear. In language development, an example of such an effect is pointed out by Clark (1993). Once the child enters the larger speech community, s/he quickly figures out which words are used commonly there, rather than the home language words. The principle of feedback and circular causality would also account for the common frequency effects in language development (Ellis 2002).

The principle of *lock in* is related to the DST notions of *attractor* and *repellor* states. In a CAS, patterns emerge dynamically and keep changing, but once

macro group characteristics appear, the CAS settles and resists further change, a process that Waldrop (1992) refers to as "lock in". In addition to the VHS example discussed above, Waldrop illustrates the principle with the QWERTY keyboard. The QWERTY key board was originally designed in the earliest typewriters to keep typist from typing too fast so that they would not jam the mechanisms. Even though modern keyboards do not jam anymore, we are now so used to QWERTY keyboards that they are not likely to change. Lee et al. (2009) suggest that theories also may develop and become dominant over time, not necessarily because they are superior but because they had an advantage early on, which brings us to the notion of initial conditions. The lock-in principle is very evident in human behavior. After we are used to doing things a certain way, the way we walk, the way we talk, and so on become rather automatic and although there are low levels of variability, we are very much locked in this behavior, a phenomenon reminiscent of "entrenchment" in Langacker's terms.

In DST inspired work, the term *attractor state* is often used and is based on a spatial flow metaphor. To imagine the physical appearance of a *phase state*, a comparison is often made with a ball rolling over a surface that has both bumps (repellors) and holes (attractors). The movement of the ball can be seen as the trajectory of the system over time. Since a complex system contains many dimensions, it can have multiple attractors and multiple repellors. A multitude of attractors and repellors creates "greater potential for any given trajectory to meander quite nonlinearly in its high dimensional state space" (Spivey 2007: 17). Not every attractor or repellor is equally strong; the holes can be deep or shallow, and the deeper a hole is, the more stable the attractor is and the more energy is needed to move the ball out of the hole. Although attractors may cause parts of (sub)systems to be relatively stable, the entire state space can never be stable. Due to activity in some subsystems or changes in their environments, the system can be disturbed (*perturbation*) and consequently many dimensions of the state space can change, which can lead to a *phase shift* of the system (Abraham 2003). From a DST perspective, this is how learning can be defined in terms of self-organization. With learning, "the entire attractor layout changes" (Kelso 1995: 171). This view of learning is corroborated by studies of neural dynamics, showing that learning coincides with a dramatic reorganization of activity in neural populations (Jirsa and Kelso 2000).

4 Conclusion

To conclude, this contribution has given a specific example of a dynamic biological system that starts off with a few simple sub-systems (perception, action, emotion), all of them interacting with each other over time, that give rise to higher order thinking and behavior through interaction with other humans and the environment. There is no denial that humans are genetically predisposed to certain behavior, but it will develop only through a human's actual experience. If we accept such a dynamic view of development, the idea of predetermined development in step-like stages makes no sense. Of course, there are stages in that some sub-systems will have to develop and be coordinated before those of a higher level can be reached (also called a precursor relation), but the pathway is not neatly paved for the child: the child needs to learn through his own experience with lots of ups and downs. Like other complex adaptive systems, a human infant is made up of numerous interconnected subsystems at different levels, which have a tendency to self-organize and therefore will show nonlinear patterns of development. The benefit of taking a dynamic view of human development is that it creates a link between many current, complementary theories such as a dynamic usage-based view and shows that human cognition and experience are intricately related with the way language has emerged and used.

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Part Two: **Usage-based lexical semantics and semantic change**

Dylan Glynn

Semasiology and onomasiology

Empirical questions between meaning, naming and context

Abstract: The semasiological-onomasiological distinction is arguably one of the most fundamental axioms of language science. Both theoretically and empirically the importance of this distinction has been central to much of Geeraerts's work (1988, 1997, 2010). Although the theoretical basis of the distinction is not questioned, this study shows that, analytically, it cannot not be strictly maintained within the framework of cognitive linguistics. The case study examines the semasiological variation of the English preposition *over*. The corpus-driven analysis is based on 471 contextualised occurrences of the lexeme in predetermined parts-of-speech and for a sub-set of lexical senses. Employing multifactorial usage-feature analysis (Geeraerts et al. 1994; Gries 2003), the study seeks to demonstrate that fine-grained morpho-syntactic variation is correlated with semasiological structure. The aim is to show that instead of discrete contextualised items, lexemes actually consist in onomasiological bundles of fine-grained morpho-syntactically variable forms. The results reveal that specific lexical senses are significantly associated with specific morpho-syntactic contexts. Moreover, it is shown that semasiological structure more generally can mapped using these fine-grained formal variations. The correlation between specific formal contexts and meaning as well as the overall interaction between semantic variation and fine-grained formal variation support the argument that we need to treat linguistic forms not as discrete contextualized units but as composite onomasiological bundles. This non-reified understanding of form parallels Greeraerts's claim (1993) that we need to treat meaning as a non-reified and emergent phenomenon. Indeed, such an interpretation of the results entails that both the notions of "sense" and "lexeme" should be replaced with a notion of dynamic formal – semantic clustering, thus doing away with the semasiological – onomasiological distinction analytically, if not *sensu strictissimo*.

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1 Introduction. Signification and appellation

1.1 Importance of the semasiological – onomasiological distinction

Naming as opposed to meaning, or the different possibilities for labelling something as opposed to the different possible interpretations of a label are arguably the two most fundamental questions of semantics. Another way of thinking about this distinction is to ask what is the formal variation associated with a concept-function versus what is the conceptual-functional variation associated with a form. This translates, *mutatis mutandis*, into the study of synonymy and polysemy. If one adheres to the usage-based model of language or any of the linguistic theories that hold language to be conceptually and/or functionally motivated, these two questions are perhaps the most fundamental questions of linguistics: what do you want to say and how do you want to say it? Semasiology and onomasiology are two terms that are earmarked to describe these two questions. Dirk Geeraerts (1988, 1994, 1997, 2002, 2010) is inarguably the linguist who brought these questions to the fore in the research paradigm of cognitive linguistics and is, arguably, the main proponent of their importance in contemporary linguistics more broadly. This study will not challenge the fundamental theoretical nature of this division but will attempt to show how, given usage-based assumptions, the distinction should not be strictly maintained at the analytical level.

Although the two notions have a longstanding tradition, especially in continental semantics, they are less known in the Anglo-Saxon tradition. Although their use has varied over the years as different theoretical paradigms have used them in slightly different ways, the basic distinction remains. Descriptively, one can begin with a meaning and seek to understand how a language (or speakers) expresses that meaning or one may begin with a linguistic form and ask what a language (or speakers) means with that form. Geeraerts has systematically demonstrated the importance of this distinction in his work and we need not expand upon this here. However, it is worth summarising just how crucial the distinction is for language description and, indeed, linguistic theory.

If we take the loose definitions provided above, it should be evident that most, if not all, descriptive linguistic research is either semasiological or onomasiological. In cognitive linguistics, Talmy (2000) begins with conceptual categories and asks how the world's languages express, or encode, those categories, an inherently onomasiological endeavour. Lakoff (1987) and the tradition of conceptual metaphor theory are, in fact, purely onomasiological since

such studies seek to identify the sets of linguistic forms used to express a given concept. Indeed, all of frame semantics and any research on cognitive models are quintessentially onomasiological. In functional linguistics, a similar pattern emerges. Halliday's (1985) systemic functional grammar is a set of functional onomasiological choices that are used to describe natural utterances. Dik's (1978) syntagmatic and pragmatic functions are comparable in this respect. Bondarko (1983, 1991), founder of the St. Petersburg School of functional grammar, argues that functional linguistics, regardless of the specific theory, is inherently onomasiological because it begins with linguistic functions and then asks how language expresses those functions. Indeed, the descriptive study of any grammatical category is an onomasiological venture, thus encompassing most research in descriptive grammar and typology.

Turning to semasiological research, we are concerned with any descriptive study that examines a specific linguistic form. Indeed, Bondarko would have all of generative and formal linguistics in this camp. If we restrict ourselves to cognitive-functional linguistics, we see that all research in polysemy is necessarily semasiological, but this also holds true of the study of grammatical constructions and much of discourse analysis and corpus linguistics. Indeed, the study of any lexeme, morpheme, prosodic pattern or even entire text is technically semasiological. Such approaches begin with form and ask: what does it mean?

In diachronic research, the two notions are systematically employed in their strict sense. Geeraerts (1997) and Blank and Koch (1999, 2003) are representative of this trend in the cognitive paradigm, Grzega (2002) offers an overview of this tradition more generally. In European structuralism, the distinction is fundamental and overtly understood as such. For Trier (1931), Porzig (1950), Apresjan (1974), Coseriu (1980) and Pottier (1992), the distinction is carefully maintained in all descriptive work. More specifically, in lexical field theory (Lutzeier 1981, 1993), the distinction forms the basis of the entire analytical apparatus (q.v. Geckeler 1971). Essentially, the distinction goes straight back to de Saussure and the form-meaning pair understood as two possible objects of study, the *signifié* and the *significant*, resulting in the simple fact that, as empirical scientists, we must begin with one or the other.

From this discussion, it should be clear that the distinction is of unquestionable importance. More detailed description of its history and implications can be found in Baldinger (1964, 1980) or Geeraerts (1997, 2010). Let us now move to the problematic.

1.2 Emergent categories. Theoretical problems with the semasiological – onomasiological distinction

Although the form-meaning distinction is obviously unquestionable (a sound string can never be confused with conceptual or functional intent), what actually constitutes a given form and what constitutes a given meaning is far from clear. It is precisely this lack of clarity that makes it impossible to maintain the semasiological – onomasiological distinction analytically. This rather bold statement necessitates an important caveat. The lack of clarity over the exact demarcation of a form and a meaning is a result of specific beliefs about language structure held by specific linguistic theories. If a model of language does not subscribe to these beliefs, the problem does not arise. Therefore, in order to appreciate the problem being proposed, we need to consider the theoretical premises involved as well as the analytical implications of those premises.

For many linguists, even positing the question of what constitutes a form and what constitutes a meaning would be nonsensical. Reified notions such as lexeme, sememe, word and sense are so axiomatically ingrained in the understanding of language that, for many, they are never questioned. However, at least two important contemporary linguistic paradigms, systemic functional linguistics (Halliday 1985; Hasan 1985; Martin 1985) and cognitive linguistics (Fillmore 1985; Talmy 1985; Lakoff 1987; Langacker 1987), have not only questioned the reified and discrete nature of the linguistic form and its meaning, but have arguably demonstrated it to be a fallacy. Nonetheless, in both cases, despite their theoretical deductions, the mainstream of their analyses continues to treat the object of study as being, *de facto*, reified and discrete. It is precisely because of this divide between linguistic theory and method that understanding the analytical problems of the semasiological – onomasiological distinction is so crucial. We will consider the problem of discrete senses and discrete forms in turn.

The assumption that reified discrete lexical senses is fallacious has gained considerable currency in the last quarter of a century. At a theoretical level, especially with regard to cognitive linguistics, it is Geeraerts (1993) who has probably led this line of argument:

> The tremendous flexibility that we observe in lexical semantics suggests a procedural (or perhaps "processual") rather than a reified conception of meaning; instead of meanings as things, meaning as a process of sense creation would seem to become our primary focus of attention (Geeraerts 1993: 260).

There are two independent arguments that lead one to appreciate Geeraerts's claim. The first argument seeks to refute the assumption that senses need be discrete, the second argument seeks to demonstrate that it is unlikely that senses will be reified.

Is there any reason to assume that lexical senses would exist as discrete categories? Perhaps the simplest argument against this assumption is that of Occam's razor. Since, on the one hand, we know the world is (effectively) infinitely varied as well as rarely discrete and, on the other hand, since we believe that meaning is the human understanding of that experiential world, the addition of the notion that we cognise chunks of that world into discrete categories for communication and conceptualisation would add considerable complexity to any model of semantics. Evoking the principle of parsimony, unless one could demonstrate that adding such complexity improves our descriptive accuracy, the theory of discrete senses should be disregarded. However, given that our lexicographic tradition as well as the tradition of semantics more broadly takes the assumption of lexical senses as an assumption *sine qua non*, we need to propose a deductive argument as well.

There is no need to summarise the research into human categorisation. It has been sufficiently demonstrated that humans are perfectly capable of both exemplar-based categorisation (prototype sets) and non-discrete categorisation (fuzzy sets). It has also been shown that many, if not most, concepts are categorised in such a manner (q.v. Lakoff 1987). Given this, most linguists would be comfortable with the idea that concepts are prototype-based and many of those concepts are not distinguishable discretely. Indeed, the fuzzy nature of human categorisation is often used to explain why language structures form tendencies rather than discrete rules. Why then does so much lexical semantic research continue to assume that lexical senses are any different to other conceptual structures? Even Lakoff (1987), one of the foremost proponents of both fuzzy set theory and prototype set theory, sought to develop analytical apparatuses to identify and distinguish lexical senses discretely, a trend that continues to this day, even within the framework of cognitive linguistics (cf. Tyler and Evans 2001). Contemporary empirical research in lexical semantics (Killgariff 1997; Glynn 2010) has demonstrated that the very idea of lexical senses appears to be untenable. Indeed, any linguist who sits down and attempts to categorically divide a set of naturally occurring uses of a word into discrete sense categories may quickly realise the difficulty of the task.

However, the demonstration that lexical senses are not necessarily discrete categories does not preclude them from being reified categories. If this were the case, traditional lexical senses could be understood as exemplars of what is

otherwise a fuzzy set of context-dependent tendencies. Indeed, this schema-instantiation interpretation is in line with much of the research in Cognitive Linguistics. Yet, there exist considerable arguments and evidence that senses are not reified. In fact, the idea that meaning is not fixed but negotiated between speakers dates back at least to Bühler's ([1934] 1990) semiotic model and Morris's (1938) work on pragmatics. Indeed, in terms of actual language use (*parole*/performance), one probably finds its origins with Humboldt's notion of *energeia*. More specifically, Bühler ([1934] 1990: 28) is explicit about negotiated semiosis in his Organon-Modell der Sprache, arguing that a sign is the interaction of the expression of the speaker (*Ausdruck*) and its appeal to the interlocutor (*Appell*). Indeed, in more recent theoretical research, one could argue that much of the systemic and cognitive literature is an attempt at modelling this negotiated phenomenon in a manner that permits the scientific description of language.

Given this negotiated-intersubjective understanding of meaning as well as the fuzzy semantics *Leitmotiv* of cognitive semantics, it is surprising that it took until Geeraerts's research in the early 1990s for the cognitive community to realise that these two assumptions have direct analytical implications for semasiology. However, perhaps the most surprising is that, arguably, the real implications of this non-reified non-discrete understanding of meaning are yet to be properly integrated into much of the research. For example, the three metafunctions of systemic functional grammar are necessarily discrete with each linguistic utterance belonging exclusively to one of the three. Similar criticisms can be levelled at cognitive semantic research and its network metaphor for semantic structure. Although exceptions abound, even in the early research in the field (Dirven et al. 1982; Lehrer 1982; Rudzka-Ostyn 1989; Geeraerts 1990 *inter alios*), the main of the research to this day seems blissfully unaware of the analytical implications of these two assumptions[1].

Let us turn now to the question of form. Surely, since a linguistic form is observable and is, by its very nature, discrete and reified, the above discussion is not applicable. Until this point, for sake of simplicity, we have focused on lexical senses. However, the point being made should not be understood as restricted to the meanings of words. Two other assumptions shared by both cognitive

1 It must be stressed that the rejection of necessary and sufficient conditions (Fillmore 1975; Haiman 1980; Verschueren 1981; Geeraerts 1986) was the essential step towards this understanding of meaning structure. Although the idea of semantic nodes of a network that replaced it permitted central and less central categories, it did not permit fuzzy/continuous categories, which we can assume are actually typical of semasiological structure.

linguistics and systemic functional linguistics are that the formal structures of language are non-modular and all formal structures are motivated (conceptually-functionally).

These two assumptions result in wide and profound implications for linguistic analysis. For our current purposes, we will focus on one such issue that we can term compositionality. From this cognitive-systemic position, all formal structures, be they prosodic, syntactic, morphological or lexical, contribute to the meaning of an utterance. On this point, most cognitive and functional theories would be in agreement, but systemic and cognitive linguistics depart from the main here by holding that these different types of formal structures cannot be modularised. It is argued that in order to understand their motivated structuring, their composited structure must be treated holistically.

The implications for the notion of reified and discrete form should be clear. Let us begin with a lexeme. The humblest concrete count noun is susceptible to formal variation. Even in morphologically simple languages, various inflexions are possible. This, however, ignores any prosodic variation that the lexeme may carry, just as it ignores the syntactic context, both of which are part of the composite form. Verbs tend to enjoy more formal variation, not merely at the inflectional level, but also at the level of syntax. For example, in languages where grammatical voice is expressed syntactically, word order can dramatically change the meaning of a verb. Given a non-modular theory of language, this formal variation is valid even if we restrict our form to the strictest interpretation of a lexeme. If we include the lemma and derivational possibilities, the degree of formal variation increases dramatically. All of these formal variants are potentially used in different ways and ways that directly affect the semantics of the form-meaning pairing.

Taken to the nth degree, no two formal contexts are ever identical. At some degree of granularity, no two texts are the same and therefore, no two composite forms are repeated. Similarly, at this degree of detail, no two intensions, be they simple referential propositions or complex novels, are identical. This means that, depending on the degree of granularity, what constitutes the form and the meaning will shift. What would have once been understood as "vagueness" is now different "meanings" and the impact of context is now part of the form-meaning pairing. At an analytical level, this has very real implications that reveal themselves in usage-based research.

If one includes the different parts-of-speech of a given lexeme (lemma) in a semasiological study, is it still a semasiological study or has it become onomasiological? What of the particle variation associated with a verb like *run*? Surely *run off* and *run out* are different lexemes and their semantic description

has turned from semasiological to onomasiological? The same question can be posed *mutatis mutandis* for countless studies of lexemes, morphemes and even constructions. Since it is not possible to isolate the meaning of a form from its contextualised composition and each component in that composition is semantically motivated, and yet still, that meaning is non-discrete and non-reified, making a strict division between describing the use of a single form in context or the use of a collection of closely related forms becomes futile.

2 The semantics of *over*. Empirical problems with the semasiological – onomasiological distinction

2.1 Data

The aim of the current study is to demonstrate that subtle variation in formal context produces significant and systematic effects on semasiological structure. If it can be shown that such variations in form varies the meaning of that form, then, this serves as evidence that formal variation must be integrated into semantic modelling. In other words, the semasiological – onomasiological division of analysis is not strictly applicable given usage-based data and a cognitive or systemic functional linguistic theory of language. The semantic structure of the English spatial preposition *over* is surely the quintessential example of semasiological research. First examined by Claudia Brugman (1984) and reworked by Lakoff (1987), the polysemy of this lexeme has enjoyed unparalleled attention in lexical semantics. After Brugman and Lakoff, examples of its descriptive analysis within the parading include, but are not restricted to, Taylor (1988), Vandeloise (1990), Deane (1993, 2006), Dewell (1994), Kreitzer (1997), and Tyler and Evans (2001)[2].

The sample in this study is taken from the LiveJournal Corpus of British and American English (Speelman 2005). In total, 800 occurrences for the lexeme were extracted, 400 from 2006 and 400 from 2012, equally distributed for British and American varieties (200 each per year). Variation in part-of-speech was left

2 The cognates in other West Germanic languages are also popular objects of semasiological analysis. For example, in Dutch, Cuyckens (1991) and Geeraerts (1992) examined *over* and in German, Bellavia (1996), Dewell (1996), Meex (2001), Liamkina (2007), have examined *über*.

random at the extraction stage. The actual data set in the analysis is a subset of this extracted sample, certain parts-of-speech and lexical senses being excluded. This section explains these choices.

Although the sample has a random cross-section of the different parts-of-speech, the analysis attempts to control for this factor in order to limit the variation under investigation. Many of the previous studies on the semasiology of the lexeme have dealt poorly with this factor. Lakoff (1987) indirectly accounts for it by examining metaphor uses distinctly from spatial uses. The result of this is that the occurrences of the lexeme in verb particle constructions, where most metaphoric uses occur, are indirectly accounted for. Tyler and Evans's (2001) study does include part-of-speech in the principled polysemy method they propose. However, it is never made explicit how grammatical categories structure the polysemy networks they propose and their brief aside on the categories in question could be argued to be *ad hoc* (q.v. Tyler and Evans 2001: 745). None of the studies include the nominal profiling common in cricket.

Perhaps one of the reasons why previous studies have inadequately dealt with the question is that the category of part-of-speech is particularly difficult with many English prepositions. Although distinguishing nominal and verbal profilings of *over* is straightforward, adjectival, prepositional, adverbial particle uses of the word are much harder to distinguish. Neither Quirk et al. (1985) nor Biber et al. (1999) give sufficient criteria to even begin to systematically categorise the observations for part-of-speech. Although the majority of cases are clear, a sizeable minority cannot be readily categorised as one part of speech over another.

Nouns and prefixes are immediately obvious and were excluded from the data set. Although, in principle, they would be part of the onomasiological variation that this study argues should be included in semasiological research, their semantic distinctiveness is quite discrete and it is relatively self-evident that such variation in form entails variation in meaning. What this study has considered as adjectival profilings are slightly more problematic, but still sufficiently distinct to allow their exclusion from the data set[3]. Example (1) is typical of the use categorised as adjectival and excluded:

(1) The worst part is over I'm outta juvie.

3 Such examples are arguably best described as adverbs, as many dictionaries do describe them. Tyler & Evans (2001) also refer to them as adverbs. However, several dictionaries identified them as adjectives. For the purposes of the current study, the nomenclature is of no importance.

That leaves the hazy world of prepositions and adverbial particles. Using the aforementioned grammars as a guide, distinguishing even the following artificial and simplified examples is not obvious:

(2) She came over (visited my home)
She came over here (visited my home)
She came over here (to sit next to me)
She came over here to the other side of the room to sit next to me
She came over to the other side of the river to sit next to me

Several specialists in traditional English grammar were asked to categorise these occurrences and not two of them categorised the examples in the same manner, even though each grammarian was confident that their categorisation was reasonably straightforward. The problem was determining whether the lexeme *over* headed a noun phrase or not. This was influenced especially by whether the grammarian believed in elided forms or not or whether the grammarian believed in complex prepositions or not. Put simply, although it is possible to apply tests to distinguish the two parts-of-speech, usually by testing to see if the *over* "belongs" to the verb or not, when dealing with the case of natural informal language production, it becomes effectively impossible to implement systematically. For this reason, both particles and prepositions were included without any regard to *partes orationis*.

Turning to the lexical semantics, certain senses were predictable with near certainty based on formal indices. Although including these senses would have facilitated the demonstration of the interaction of formal and semantic variation, it would have defeated the purpose, which is to show that even extremely subtle formal variants affect semantic structure. The first of these removed examples is the "get over" sense. This collocation is a fixed expression with a clearly delineated meaning. Consider example (3), all occurrences of this form-meaning pair were omitted from the data set:

(3) Yes my jacket is upside down... GET OVER IT!

The lexical sense of "again", as in example (4), was almost entirely associated with a duplication of the lexeme. These occurrences were also omitted.

(4) Play it over and over again

Similarly, the lexical senses of "more than" and "because of" were excluded from the analyses. Consider examples (5) and (6):

(5) It has cleared over 600 views in 3 days.
(6) I'm still feeling sick over this.

Lastly, it should be noted that semantic *hapax legomena*, although annotated, were removed from the results. Although many *hapax* appear to be extremely rare uses, others are likely to be relatively common. The fact that they only occur once in the sample is a reminder of the fact that, for its complexity, the sample is relatively small. Consider examples (7) and (8), which represent what one would imagine being relatively common uses but for which only a single occurrence was observed:

(7) Very nice flat, staggered over two floors
(8) I need you to switch the mouses over please

In defence of the decision to omit the occurrences of these lexical senses and forms, it must be stressed that the point of the present study is not to test the findings of previous research nor is to improve upon the methods employed, but to demonstrate that semasiological description (polysemy) must systematically account for formal variation in its analysis. By including different parts-of-speech, it would have made the results self-evident. If we take the form [əʊvə] as the definition of the form, with disregard to part-of-speech, the semantic variation involved would be so substantial that the results would be trivial. Clearly, changing part-of-speech has a profound effect upon the semantic structure and testing this would demonstrate nothing of import. This same argument holds true for the other forms and meanings omitted. In order to make the test for formal effects upon semasiological structure as difficult as possible, the data set is designed to avoid any such obvious form-meaning variation. The data set, with these occurrences removed, is reduced to 471 examples.

2.2 Analysis

The analysis employs multifactorial usage-feature analysis (Dirven et. al 1982; Geeraerts et al. 1994, 1999; Gries 2003). This method, an analytical technique belonging to the behavioural profile approach, is widely used in cognitive linguistics for the description of both semasiological and onomasiological structure (Gries and Stefanowitsch 2006; Glynn and Fischer 2010; Glynn and Robin-

son 2014). It is essentially a feature analysis, typical of text-based functional linguistics and discourse analysis, but the features of the sample are treated as annotations, which can then be examined as metadata, or the "behavioural profile", of whatever linguistic phenomenon is under scrutiny. This last step usually involves multivariate statistical analysis in order to identify usage patterns, which are interpreted as behavioural tendencies. These tendencies can, of course, be interpreted as semasiological or onomasiological structure and, in cognitive linguistics, as an index of conceptual structure.

The aim of this study is to show that variation in both the formal and semantic dimension must be integrated to properly account for the behaviour of a linguistic object of study, be that semasiological or onomasiological. Indeed, several studies that employ multifactorial usage-feature analysis have already made this step, albeit in an unprincipled manner. Gries (2006) and Glynn (2014) examine the semasiological variation of the lexeme *run*. Despite the fact that these are descriptive studies of lexical polysemy, they include different formal contexts in their analyses. Both studies reveal that these formal features are the most important factors delimiting the semantic structure. Moreover, in similar studies, Glynn (2008, 2009) reveals comparable formal effects on the semasiological structure of the lexemes *hassle* and *bother*. In fact, any usage-feature analysis that mixes formal and semantic features is, in effect, already blurring the semasiological-onomasiological division and performing the kind of analysis for which this study is arguing. The next step is to demonstrate the need for this practice explicitly so that it is integrated, in a principled way, into semantic research.

An important simplification, crucial to understanding the limitations of this study, is the semasiological analysis – the occurrences are simply categorised into discrete lexical senses. Although this study uses multifactorial usage-feature analysis, a method explicitly designed to identify patterns of semantico-pragmatic features of use instead of lexical senses, for practical limitations, this semasiological complexity needs to be put to one side. In order to render as clear as possible the effects of subtle formal variation on meaning structure, the semasiological structure is maximally simplified in this manner, artificially reduced to discrete lexical senses. Instead of subtle semantic variation, the emphasis is placed on the variation in the formal context of the lexeme. Since the aim is to show that this context is necessarily part of a semasiological analysis, the study is designed to identify interactions between these variations and the simplified lexical polysemy. We will first briefly cover the categorisation of examples into lexical senses and then move to the analysis of the formal variation.

2.2.1 Lexical senses

The choice and identification of lexical senses are non-trivial questions. Examining naturally produced data first-hand, it becomes immediately obvious why this lexeme has enjoyed so much attention in the semantic community. Not only are many of its uses only very subtly different, they cover a wide range of possible meanings. As mentioned above, in order to keep the sample manageable, many uses were not included. However, even within the restricted range of uses considered, the semasiological variation was considerable. After consulting a range of dictionaries, all of which differed appreciably in how they charted the various meanings of the lexeme, it was decided to simply propose a set of semantic categories that appear non-problematic and would account for the large majority of uses. The senses, or lexical semantic categories, as well as their frequencies are listed in Table 1.

Tab. 1: Frequency of lexical senses

Lexical sense	Frequency	Lexical sense	Frequency
Distance Sense	22	Hook Sense	2
Bring With Sense	3	Barrier Sense	20
Move To Side of Sense	5	Cliff Sense	4
Go To Sense	61	On Sense	13
Visit Sense	47	Above Sense	19
Across Sense Non-Tactile	36	Flip Sense	19
Across Sense Tactile	35	Fold Sense	11
Cover Sense Points	22	Collapse Sense	6
Cover Sense Spatial	37	Crush Sense	8
Cover Sense Temporal	44	Control Sense	21
Submerge Sense	6	Consider Sense	6
Sexual Contact Sense	4	Care Sense	2
In Front of Sense	9	Protect Sense	5
Instead of Sense	4		
		Total	**471**

For practical reasons, we cannot examine the criteria used for identifying the lexical senses. It is not the purpose of the present study to perform a detailed semasiological analysis and the role of the lexical senses is simply that of

tertium compartionis in the ensuing analyses. It is hoped that the labels are sufficiently transparent.

For the most part, the lexical sense analysis was straightforward. A second coder was employed and a sample of 110 examples re-coded to determine reliability of the categorisation. Cohen Kappa and Weighted Kappa correlation coefficients and confidence boundaries were obtained. The second coder was trained on a subset of 10 examples. The results are summarised in Table 2. Any score over 80 is a clear indicator of high inter-coder agreement and, therefore, the reliability of the analysis.

Tab. 2: Cohen's Kappa for categorisation of lexical senses

	Lower	Estimate	Upper
Unweighted Kappa	0.76	0.83	0.91
Weighted Kappa	0.75	0.86	0.98
Number of subjects =	110		

Despite the subjective nature of the categorisation, it appears to be largely unproblematic. The senses that were difficult to distinguish included: "cover spatial", "cover points" and "submerge"; "on" and "above"; "go to" and "visit"; "in front of" and "cover spatial".

2.2.2 Formal annotation

The formal variables are quite straightforward. Three factors are considered: the morpho-syntax of the Trajector (TR); the morpho-syntax of the Landmark (LM), where applicable; and the verbal collocations, again where applicable. The LM and TR are both typically, but not exclusively, Noun Phrases (NP) and are annotated for both class and number. A break-down of the classes is presented in Table 3. All observations involved a Trajector, although this was, at times, a full clause. In these instances, the TR was annotated as a Verb Phrase (VP). The abbreviations for each of the classes are given in brackets after each class. These abbreviations are used throughout the study.

Tab. 3: Trajector and landmark class variation

Class	Trajector (TR)	Landmark (LM)
Common Noun (NP COM)	65	26
Personal Pronoun (NP PRO)	162	34
Possessive Pronoun (NP POSS)	51	64
Proper Noun (NP PROP)	85	18
Genitive Noun (NP GEN)	7	10
Indefinite Determiner NP (a NP COM)	14	13
Definite Determiner NP (the NP COM)	32	104
Definite Determiner Genitive NP (the NP GEN)	1	0
Definite Determiner Proper NP (the NP PROP)	1	3
to Prepositional Common Noun (to the NP COM)	0	15
to Prepositional Possessive Pronoun (to NP POSS)	0	3
to Prepositional Personal Pronoun (to NP PRO)	0	4
to Prepositional Proper Noun (to NP PROP)	0	15
to the Prepositional Proper Noun (to the NP PROP)	0	3
at Prepositional Possessive Pronoun (at NP POSS)	0	3
at Prepositional Personal Pronoun (at NP PRO)	0	2
at Prepositional Proper Noun (at NP PROP)	0	3
at the Prepositional Common Noun (at the NP COM)	0	2
Verb Phrase (VP)	53	7
Adverb Phrase (adverb)	0	23
Non Applicable (NA)	0	119
Total	**471**	**471**

The category of number is much simpler with three possibilities, count singular, count plural and mass. For the Trajector, there were 287 singular uses, 93 plural uses, and 14 non-countable mass nouns. For the Landmark, 247 occurrences were singular count nouns, 61 were plural and 14 were mass. For both the Landmark and the Trajector, the class and number were combined to produce two formal factors with a fine-grained set of morpho-syntactic distinctions.

The verbal collocation is also straightforward. In the majority of cases, the Trajector was a subject and the Landmark an object. In those cases, the verb was noted. A list of verbs identified is not possible due to practical constraints, but several clear semantic classes of verbs, directly related to the lexical senses of *over*, emerged. Finally, the use of the quantifier *all* was also annotated since

Lakoff (1987) discusses the importance of this collocation. A total of 38 occurrences of *all* were found in the sample of 471.

3 Results

The idea that different forms can predict different meanings is self-evident. Lakoff (1987) speaks of the role of quantifiers such as *all* in the semantics of *over*, Tyler and Evans (2001: 745) of parts-of-speech in their principled approach, and indeed, every dictionary divides up senses into their different parts-of-speech. When faced with natural data, however, both the semantic differences associated with grammatical category and the actual differences in sense are difficult to apply systematically. For example, Lakoff (1987: 428) predicts that mass quantifiers such as *all* indicate the senses of "cover spatial" and "cover points". Although this is true, the correlation between the quantifier and these senses is not exclusive. These senses do occur without the quantifier and the quantifier is used, albeit infrequently, with other senses.

Such issues are not the focus of this study, but they do impinge on the systematicity of the results. The first result in this regard was that none of the formal factors under consideration were able to discretely predict any of the senses. Four formal features were, nevertheless, extremely important in dividing up the senses. These features include the collocation of *all*, the presence of a deictic adverbial (typically *here* or *there*), the absence of a Landmark and finally the presence of a verb phrase as the Trajector. It is extremely important to stress that although these formal features were highly indicative of specific senses, in no case were they able to predict a lexical sense categorically. Rather, these features are highly *typical* of specific senses.

The use of *all* was found to co-occur 18 out of 19 times with the sense "cover spatial" and 15 out of 22 times with Cover Points, as predicted by Lakoff. However, it also occurred with the "above" sense and the "sexual contact" sense. Not surprisingly, 17 of the 23 adverbial Landmarks *here* and *there* were associated with the "distance" sense, but 7 with the "go to" sense and 1 with the "across non-tactile" sense. Again, although this is a clear correlation, it is not discrete. Turning to the absence of an overtly expressed Landmark, this feature was significantly correlated with four senses, the "flip", "fold", "go to" and "visit" senses. Despite significant correlations, the 119 occurrences without an overtly expressed Landmark are spread across the rest of the senses. Finally, a verbal phrase functioning as the Trajector is highly correlated with the "cover temporal" sense. Out of 53 occurrences of the VP Trajector, 42 were associated with

this sense (out of a total of 44), making this formal feature and lexical sense both highly and distinctly correlated.

3.1 Correlations and collocations. Form-meaning tendencies

Summarising the formal variation relative to given lexical senses produces large contingency tables. These tables include a great number of low counts and empty cells (rare or non-observed form-meaning pairings). These small numbers make quantified interpretation difficult. However, by examining only the frequent forms and frequent senses, one can perform statistical tests for independence. To these ends, Fisher exact tests reveal that the observed variation is not chance ($p<0.001$). However, this is not surprising given the complexity of the data. Examining individual tables and significance scores will tell us little in this situation. Instead, examining the residuals will help us better identify important correlations.

Pearson residuals are the square root of the chi-square contributions and an elegant means for identifying correlations. Given that observed variation is significant, residuals represent relative degrees of correlation or anti-correlation by comparing the number of observed correlations with the number of correlations one would expect if there were no variation. In simpler terms, a contingency table of observations is compared to a contingency table that contains the hypothetical number of observations that would be observed if none of the forms where significantly associated or dissociated with the lexical senses. The extent to which the number of occurrences is higher or lower than the hypothetical table shows the degree of association or disassociation. These residuals can be examined in a raw numerical format or represented visually in mosaic, association or sieve plots. We will here examine them in two association plots, one for the Trajector and one for the Landmark.

Figure 1 visualises the association and disassociation, based on expected and observed frequencies of 7 Trajector variants. In contrast to the raw frequencies presented in Table 1, *a* NP COM and *the* NP COM have been conflated to a single category of determiner common noun (DET-NP). The figure is also restricted to the 12 most frequent senses. In the plot, blocks raised above the line indicate correlation higher than one would expect and blocks below indicate less correlation than one would expect if there was no interaction between the lexical sense and TR form.

The first three forms, DET-NP, COM-NP and POSS-NP appear to behave in a similar manner with regard to the lexical senses. Indeed their tendencies run

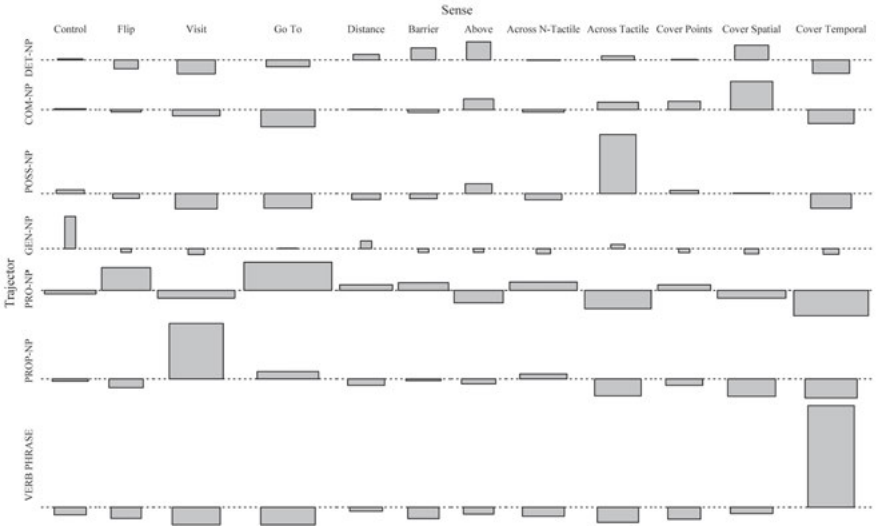

Fig. 1: Association plot of Pearson residuals of Trajector form and lexical sense

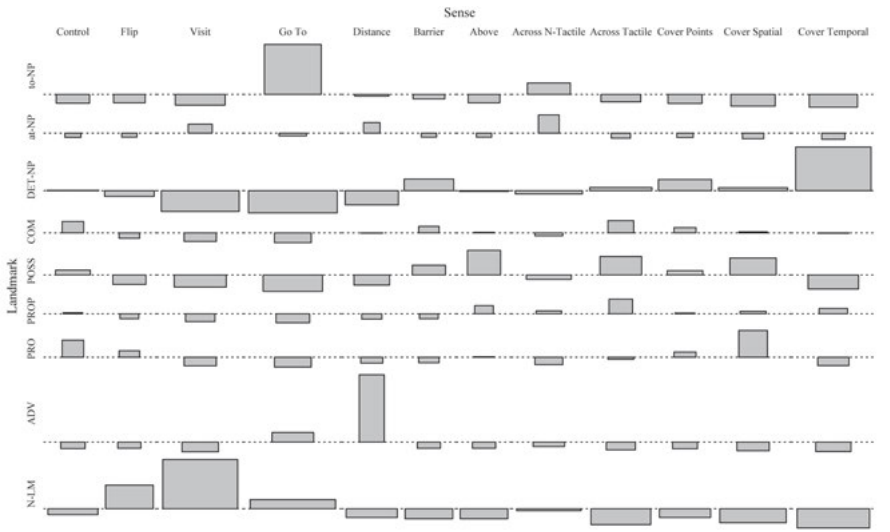

Fig. 2: Association plot of Pearson residuals of Landmark form and lexical sense

parallel, differing only in degree of correlation. The fact that DET-NP and COM-NP, the two most morpho-syntactically common forms, do not appear to show any great correlations with specific senses is an intuitively sound result since the unmarked nature of these forms would tend to be less distinctive with regard to usage. Although the POSS-NP follows the same trend as the unmarked forms, the strong correlation with the sense "across tactile" is a result of the fact that people talk of body parts when using *over* in this sense. Although on its own, this is not informative, it is the kind of correlation that, when combined with number and the LM forms, may indicate a structural pattern. The same logic can be applied to the correlation between PROP-NP and the "visit" sense – people who you name are people who visit. The correlation between VP and "cover temporal" has already been noted and is so pronounced that it almost forms a discrete form-meaning pairing.

Figure 2 is a second association plot, again based on Pearson residuals, that visualises discrepancies between observed and expected associations with Landmark forms. Immediately, two correlations are apparent: *to*-NP with the "go to" sense and the DET-NP form with the "cover temporal" sense. The first makes perfect sense since one goes to places, but the second is less self-evident. The semantic motivation for using determiner noun phrases significantly more often with the "temporal sense" is not readily obvious. Returning to the data reveals why this correlation is so important – the Landmark expressions in this sense refer to periods of time, which are typically preceded by *the*. Expressions such as *over the years*, *over the Christmas break*, *over the weekend etc*. are the lexical instantiations of this syntactic form. Combined with the significant correlation between this sense and the TR VP, it would seem that [VP *over* DET-NP] is quite a stable form-meaning pair, a kind of grammatical construction or lexico-syntactic chunk.

Moving to LM ADV, we see another strong correlation, this time with "distance". This results from expressions such as *over here* and *over there*. Despite the clear motivation for that correlation, only 15 out of 23 occurrences of the sense took an adverb in the LM and, coincidently, 15 out of 23 occurrences of the adverb occurred with that particular sense. Just because the motivation for these correlations is clear, does not entail that the results are self-evident or entirely clear-cut. Along these lines, the motivation for the correlation between the lack of an LM (N-LM) and the senses "flip" and "visit" is also unambiguous, yet the form-meaning pairing is far from exclusive with 14 and 42 co-occurrences respectively out of 119.

Despite evidence that certain morpho-syntactic contexts are significantly associated with certain lexical senses, other than for a few associations that are

clearly motivated, it is not obvious from these sets of correlations that the associations are systematic more generally. In other words, it does not demonstrate that semasiological structure should simultaneously account for onomasiological structure, which is the aim of this study. However, these specific correlations allow us to appreciate a fundamental point: given formal variants may be indicative of specific uses, while not being exclusively associated with those uses. If the association between the form and the meaning were exclusive, then this could be treated as an independent form-meaning pair. However, what we have observed is that subtle formal variation interacts in a complex way with subtle semantic variation. Whether this is epiphenomenal, i.e. merely the effect of using a particular sense, or whether that lexical sense is actually a result of the context in which the lexeme is used, is open to debate. What is important is that we have demonstrated that there are significant correlations between morpho-syntactic contexts and lexical senses. Moreover, and perhaps more important still, is the fact that the interaction between formal context and lexical semantics is not the result of collocations with content words. Instead, the associations and patterns that we observe are the result of fine-grained distinctions in the class of the Trajector and Landmark. We will consider this point in greater depth below.

3.2 Behavioural profile. Semasiological-onomasiological patterning

In order to properly appreciate the complex interplay between formal context and lexical semantics, we need to examine the interaction between several of these factors simultaneously. In this section, we consider a set of correspondence analyses that seek to reveal the underlying multidimensional structuring of the use of the lexeme *over*. The biplots produced in correspondence analysis are notoriously difficult to interpret, but contain a wealth of information about the structuring of complex data. In the plots, features are represented on a two dimensional map. Relative proximity of the features represents association. It is important to remember that this is entirely relative. In other words, it is not that feature *x* co-occurs frequently with feature *y*, but that given all the other possible correlations, this correlation is noteworthy. Correspondence analysis uses the chi-square distance measure and is not sensitive to variation in the raw frequency of the different phenomena under investigation. This means that although something is highly frequent or infrequent, this will not impact upon correlations represented in the plot. Lastly, in mathematical terms, the different

possible combinations of several factors, each containing many features, means that the actual structure of the data can be many dozens of dimensions. The biplot visualises only the two dimensions that account for the highest amount of structure. With very complex data, great care must be taken in interpreting the correlations since much of the higher dimensional structuring is not visualised.
Figures 3 and 4 present the results of a multiple correspondence analysis of the entire data set for all the factors simultaneously, that is, the class and number of the Landmark and Trajector as well as the verb collocation and the lexical sense[4]. An inertia score is used to determine the accuracy of the two-dimensional visualisation and. The analysis presented in Figures 3 and 4 obtains an extreme inertia score at 13.5%. However, given the high dimensionality of the analysis, this is of no surprise. Figure 1 shows the clustering of the actual examples that determines the structuring of the plot. It permits the reader to see the dispersion of the data as well as the degree of dimensionality involved in the analysis. Figure 2 is the same analysis but without the visualisation of the examples or the morpho-syntactic factors of class and number of the Landmark and the Trajector. These factors are still contributing to the structuring of the data, but have been hidden in order for us to examine specifically the clustering of the verbs. Moreover, of the verbs, only those verbs with a high contribution to the result are visualised, the others also hidden[5]. Effectively, this means that only frequent verbs are plotted. The relative contribution of the features is also visualised by the relative size of the data points in the plot. This simplified visualisation, restricted to the lexical senses and the verbs with a relatively high contribution, permits a clearer interpretation.

Evidently, the cluster in the bottom right can be seen to dominate the structuring of the data. As mentioned above, the "cover temporal" sense is highly distinctive formally. The almost complete correlation between the lack of a verb (Verb NA) and use of this sense is represented by the two large data points. It appears as if it is this association that dominates the structuring of the visualised results. Although in itself, this is unproblematic, in order to represent the

4 The correspondence plots were produced in *R* with the package FactoMineR (Lê et al. 2008) using a Burt matrix. The actual analyses were computed with the package ca (Nenadić and Greenacre 2007) using an adjusted matrix. There were no noticeable differences in the structure of the visualizations using the different matrices.

5 Contribution to the inertia, or explained variance, is a way of determining the relative importance of the interaction of the features being examined. For further explanation, see Greenacre (2007).

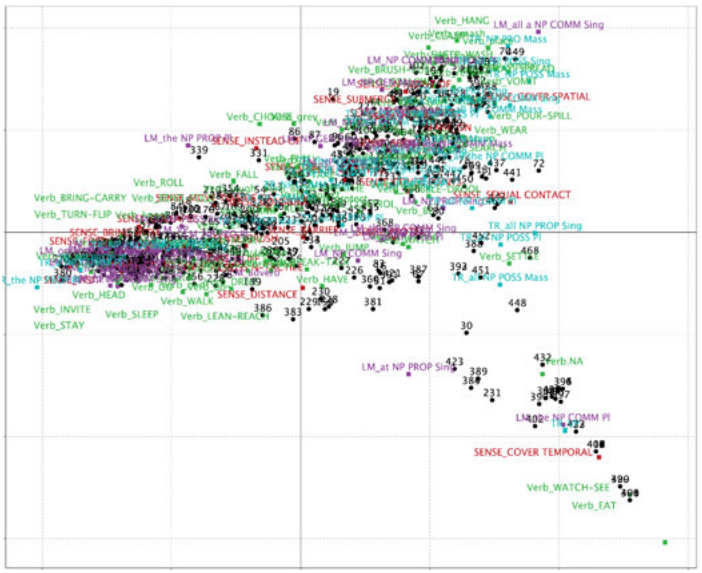

Fig. 3: Multiple correspondence analysis, visualisation – all factors
Verb, LM class & number, TR class & number and lexical sense

Fig. 4: Multiple correspondence analysis, visualisation – verb, sense
Verb, LM class & number, TR class & number and lexical sense

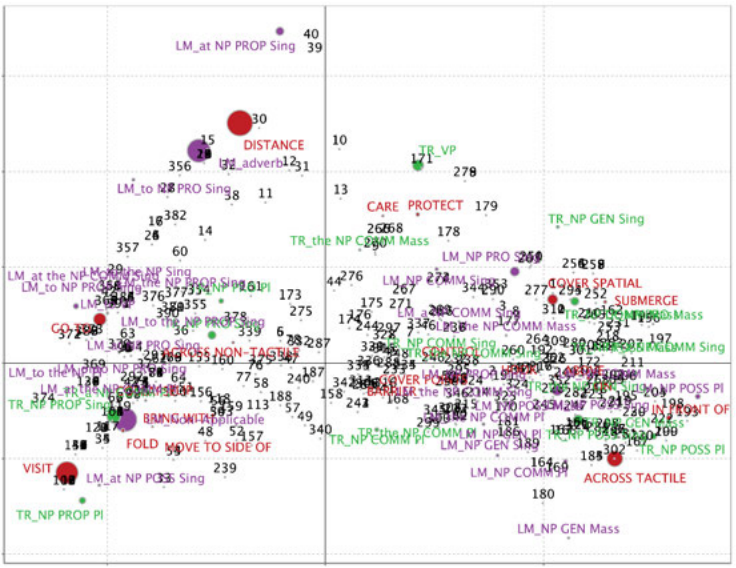

Fig. 5: Multiple correspondence analysis, visualisation – all factors
LM class & number, TR class & number and lexical sense

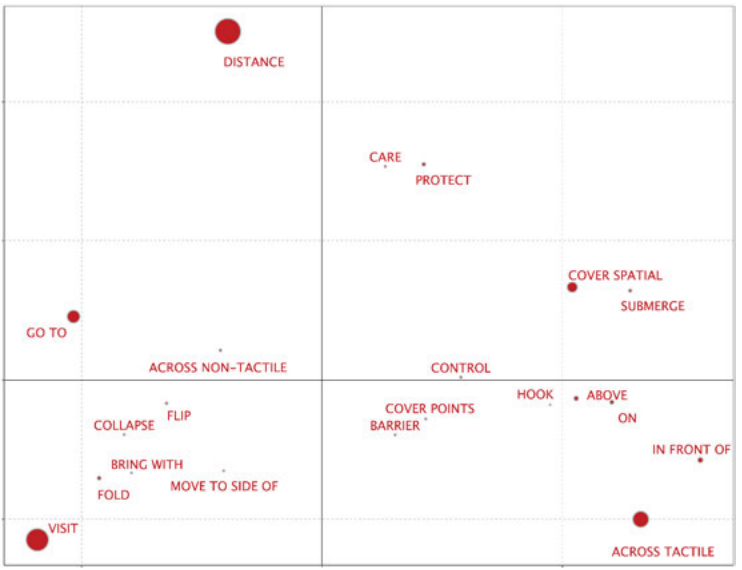

Fig. 6: Multiple correspondence analysis, visualisation – sense
LM class & number, TR class & number and lexical sense

stability of this correlation, the analysis backgrounds other more subtle structuring which may be of more interest to us. For this reason, the following analyses omit the sense "cover temporal". Before moving to the second set of the results, it is worth considering the two clear clusters that emerge in the top right quadrant and the left half of the plot.

The cluster on the right clearly links the verbal semantics and the sense categories proposed for *over*. The verbs *invite*, *stay*, *sleep*, and come are associated with the sense "invite", *go* and *walk* with the sense "go to", *look* and *reach* with "across non tactile", and *bend*, *fold*, *roll*, *turn*, *tip* with the "fold" and "flip" senses. Indeed the correlations are so strong that it would support the argument that such senses are "in" the verb and that the preposition is "empty" of meaning. The same situation holds for the second cluster in the top right. Verbs like *wash*, *sweep*, *spray*, *spread*, *pour*, *spill etc*. are found to be correlating with senses such as "cover spatial" and "across tactile". Three points must be made in response to this observation. Only the verbs with a high contribution to the structuring are visualised. The majority of the verbs occur much less frequently and are not so obviously related. These verbs, which are not included in the visualisation, still designate the senses in question. Secondly, comparable clusterings appear when we remove the verbs and rely entirely upon the class and number of the TR and LM, which means it is not only the verbs contributing to the structure. Thirdly, the verbs are at least partially responsible for the sense designation in many of the occurrences. It is precisely this point that the study wishes to make – we should study the meaning of *over*, but the meaning of *over* in its morpho-syntactic context accounting for formal variation at the same time as semasiological variation. The next analysis omits the verbs in order to identify structuring that results solely from TR-LM variation.

In Figure 5, we see a biplot that includes the examples, the lexical sense and the combined class – number features for both Landmark and Trajector. Verb is excluded from the analysis as well as the occurrences of the "cover temporal" sense. As mentioned above, these occurrences are removed since their correlation with one of the formal features dominates the structuring of the data at the expense of the structuration and visualisation of other relations. The relative contributions of the features are also represented by the different sizes of the data points. This plot should be examined in combination with the plot presented in Figure 4. The two plots are different visualisations of the same analysis. The second includes only the distribution of the lexical senses. The point of this analysis is to show how the lexical senses are structured by the formal dimensions in a coherent manner.

Looking at Figure 5, we see that the examples are distributed across the two-dimensional space in two, or perhaps three, clusters. The large red data points show which specific lexical senses are structuring this distribution, acting as anchors for the clustering effects visualised. Comparing this distribution with the simplified visualisation in Figure 6, we see how these key lexical senses cluster with other senses in an intuitively sound manner. The semantically similar senses "flip", "fold" and "collapse" cluster together. "Bring with", "move to one side" and "visit" are also semantically similar and clustered together. In interpreting this, it is important to remember that this clustering is a result of their association with only different classes and numbers of Landmarks and Trajectors. Why these two groups of senses should be grouped together is not clear. We must suppose that while the formal variation results in the clustering of these two semantic sub-sets, it does not disambiguate them. Moving towards the top of the plot, we can see that the senses "go to" and "across non-tactile" are extremely similar semantically and lie together. However, importantly they lie between the sense "distance" and the "visit" cluster in the bottom left. This matches a semantic interpretation of the relation between these different lexical senses, even though their distribution is uniquely a result of subtle formal variations in the TR and LM.

Turning to the right-hand side of the plots, we see a similar semantically coherent picture. Due to their highly figurative nature, "care" and "protect" are quite distinct in their use, but also obviously semantically similar. The "across tactile" and "on" senses correspond to Lakoff's TR-LM "contact senses", a group which also includes most of the occurrences of the "in front of" sense. One again, it must be remembered that this relationship captured solely by the correlation with TR-LM forms. All these senses are also semantically related to the "above", "hook", "barrier" and "cover spatial" senses with which they are clustered. Only the figurative "control" sense does not appear to be related to the rest of the cluster, which, due to its distinct semantics, is intuitively sound.

Two other "mini" groupings are revealed. Firstly, "cover spatial" and "submerge" are two senses that are so similar semantically that they were difficult to discern in the lexical semantic analysis. Secondly, we find the clustering of "care" and "protect". These senses were clearly distinguishable in the lexical semantic analysis, the "care" sense combining with verbs such as *fuss* and the "protect" sense with verbs such as *watch*. Despite this distinct usage, their semantic similarity is intuitively evident and it is informative that this similarity is revealed by the class and the number of the TR and LM with which they combine.

In both these correspondence analyses, we have seen how a coherent picture of the semasiological structure has been produced through its correlations with subtle formal variants of the class and number of the Landmark and Trajector. It would appear that semantic variation is sensitive to and, in fact, its structures are entwined with formal variation. Having demonstrated that these interactions are systematic, let us now attempt to isolate what some of these multidimensional associations entail.

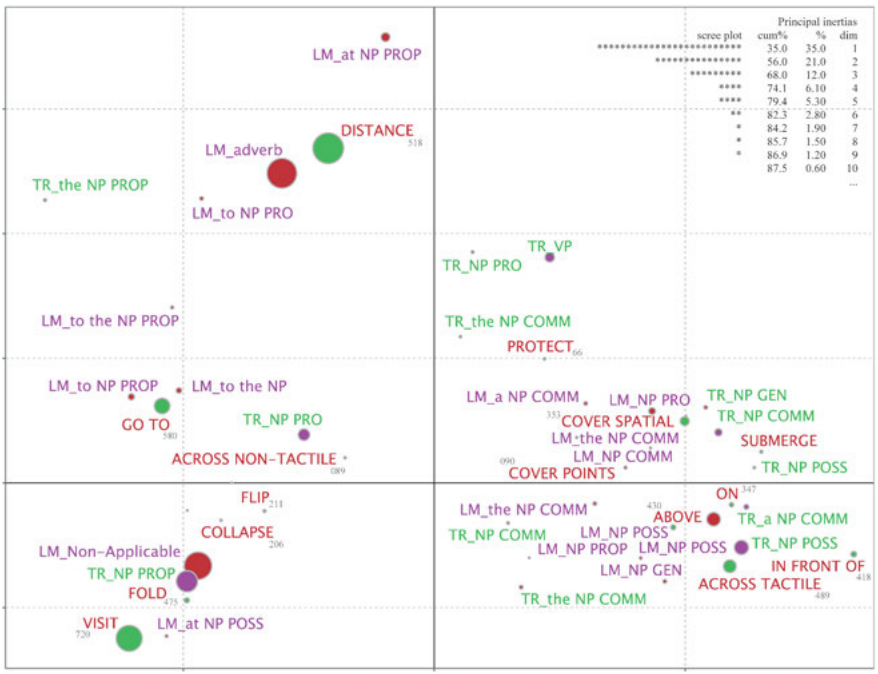

Fig. 7: Multiple correspondence analysis, visualisation – sense, LM class and TR class, high contributions only
LM class, TR class and lexical sense, low quality dimensions and lexical sense "cover temporal" removed

Figure 7 presents a third multiple correspondence analysis. The factors of class and number are combined, but the verbs are excluded from the analysis and, once again the "cover temporal" occurrences are omitted. Moreover, in order to render the analysis more stable, the features that the analysis is unable to accurately represent are removed. In order to determine which of the features are problematic, a quality score for each is calculated. Normally, any score over 500

is considered adequately represented[6]. However, given the complexity of the data and the relatively small size of the sample, only features that scored less than 50 were removed. The effect is that the overall Inertia is still quite low, but sufficiently high for us to be confident interpreting specific associations. To help in determining the reliability of the representation, the specific quality score for each lexical sense is indicated on the plot just next to the label. Also, the contribution of each feature is indicated by the relative size of the data point. Finally, in the top right, a scree plot of the analysis is added. This shows the break-down of inertia for the first 10 dimensions. Although no "elbow" is present after the second dimension (the first two dimensions are the dimensions visualised), the overall inertia at 56% is respectable given the complexity.

The previous analyses aimed to show that the formal variants interact systematically with the semantic variation. The final correspondence analysis is performed to identify *how* the formal variants structure the lexical senses. In these terms, the most important finding is that the senses cluster in a coherent manner. In the bottom left quadrant, "flip", "fold" and "collapse" group together and this grouping lies between "visit", "across non-tactile" and "go to". We saw in the previous section that LM-Non-Applicable correlates strongly with the folding senses. In this analysis we see that this correlation in turn is associated with the TR NP-PROP. It seems likely that the folding senses group with the "visit" sense because they share the LM-Non-Applicable, but that NP-PROP is, in fact, more associated with the "visit" and not the folding senses. A set of *to*-LM forms stretch between the various movement senses and the "distance" sense. Therefore, it seems that these LMs are associated with both the "distance" sense and the movement senses, but that "visit" and "distance" are pushed apart because of LM-Non Applicable, which is unique to the former. It is also interesting to note that all the various proper noun TRs and LMs are found on this right-hand movement/distance side of the plot. It seems that generally these kinds of senses are highly associated with specific and personally named people. The motivation for this is open to speculation, but it appears reasonably systematic.

The right-hand side of the plot reveals a dense cluster of senses and formal features. In contrast to the movement and distance senses, these senses are associated with all the common noun and possessive TRs and LMs. It seems that if the movement-distance senses are associated with named people, these senses are associated with inanimate things and body parts. If we look at the senses

6 For an explanation of the quality score, see Greenacre (2007: 43f).

concerned, the reason for this becomes evident. These senses all share tactility, figuratively or otherwise, and it seems likely that people touch things with their body parts or things touch people's body parts. More specifically, two subgroups of senses (or possibly a continuum between them) are identified. Beginning with "across tactile" and "in front of", two senses which were occasionally difficult to discern in the lexical semantic analysis, we move up to "on" and "above", again two extremely similar senses, and then on to "cover points", "cover spatial" and "submerge". These last three senses were the most difficult to disambiguate in the data set. That these senses all group together based only on the class and number of the TRs and LMs is informative, especially when, unlike for the other cluster, there are no specific and strong correlations, such as those identified in section 3.1, which determine the structuring. In this cluster, it is only very subtle formal variations in the TR and LM that determine the structure. Moreover, that within this broad clustering, semantically coherent sub-clusters form is quite remarkable. Examining the plot, we see that the senses near the bottom correlate with possessive LMs and that the senses towards the top of the plot with common noun LMs. In order to appreciate exactly the structuring involved would require further investigation and examination of the data. That we observe semantic coherence, or semasiological structure, determined by subtle formal variants, is sufficient interpretation for our purposes.

Due to the complexity and sparseness of the data, confirmatory modelling is not possible. Correspondence analysis, although a versatile tool for the investigation of complex data, does not offer any means for calculating the significance or accuracy of its results. The data were submitted to both multinomial logistic regression and loglinear analysis, but fitting models proved impossible due to the number of levels in both the dependent and independent variables. Nevertheless, given the correlations presented in section 3.1 as well as the simple coherence of the results presented in 3.2, it is hoped that the structured interplay between onomasiological (formal-contextual) variation and semasiological (polysemic) variation has been demonstrated.

4 Discussion. Context versus onomasiological clusters

The case study has shown how subtle formal variations in the context of use correlate with semasiological structure. Since we know that no form is used in isolation, or in other words, in its actual use, every form is always composite,

the analytical notion of a single form is empirically impossible. This entails that we need to analyse onomasiological clusters of closely related forms rather than attempt to determine the semantic structures of isolated forms used in context. Perhaps, by generalising over these clusters and identifying semantic features that are common to all the forms (where that actually is feasible), it may be possible to posit a conceptual prototype sense or perhaps a *Gesamtbedeutung* "aggregate sense". The possibility of such structures can only be determined empirically. What can be said from these results is that the study of semasiological variation needs to coincide with onomasiological variation. In other words, by treating semantic structure as a non-discrete phenomenon, we need to match that assumption on the formal side and understand that form is also effectively non-discrete, or at least should be understood as clusters of subtly varied composite forms. Stability, and therefore structure, in this complex interwoven set of associations is necessarily emergent. However, frequency-based analysis permits the identification of clear tendencies, or patterns, within the dynamic system.

Does this mean that much of the meaning variation ascribed to a lexeme lies not in the lexeme but in the context? For example, does the difference in meaning between *fuss over* and *watch over* lie in the verb and not in the preposition? It certainly does not. It is a combination of the verb and the preposition that creates the meaning, and that is the very point. It is for this reason that we should consider such meanings as part of the semasiological structure but also that this semasiological structure must include the onomasiological structuring (such as the verbal collocates) associated with it. Put simply, it is essential that we loosen our understanding of a linguistic form. We do not learn forms in isolation nor do we use them in such a fashion. Form is always composite and must be understood as such, both theoretically and descriptively. Instead of attempting to describe the semasiological structure of a single discrete lexeme in its usage context, we should aim to describe the use of a cluster of closely onomasiologically related forms. In other words, semasiological analysis should integrate the subtle onomasiological variation inherent in composite forms into its description. In essence, this is completely in line with standard cognitive-functional theory, that our descriptive object of study is the contextualised use, not the decontextualised form. When Lakoff identified 21 senses of *over*, he was criticised because many of the senses identified were not a result of the lexeme, but of its context. This is exactly the point and that should be our aim, the semantic description of contextualised uses. This, however, entails analysing both semasiological and onomasiological variation simultaneously.

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Kathryn Allan

Education in the *Historical Thesaurus of the Oxford English Dictionary*

Exploring diachronic change in a semantic field

Abstract: The lexis of education has undergone major changes across the history of English, and these changes raise complex questions about the nature of the concept itself and its relationship to hyponymous concepts such as teaching and learning. The term *education* is itself highly polysemous, and the range of senses which it shows both structure and reflect the underlying conceptual domain. The late first date of attestation for any synonyms, in contrast to much earlier-attested lexemes meaning 'teaching' and 'learning', suggests that it expresses a relatively modern concept which is particularly culturally sensitive; it also seems significant that there are very few well-established synonyms in any period, while related concepts are more fully lexicalized. This paper uses data from the *Historical Thesaurus of the Oxford English Dictionary* to explore this evolving semantic field in its historical context, and demonstrates the inseparability of semasiological and onomasiological approaches to lexical change.

1 Introduction

In much of Dirk Geeraerts's work, he has explored the interaction between cognitive and cultural factors in semantic change, and emphasized the importance of situating semantic change in its historical and sociolinguistic context. He has also championed and pioneered the onomasiological study of English and Dutch. As Geeraerts and others have observed (e.g. Grondelaers and Geeraerts 2003: 89), relatively little onomasiological research has been undertaken in recent years; more specifically, the kind of work that considers speaker choices at the usage level, "pragmatically oriented diachronic onomasiology", is even rarer (Geeraerts, Gevaert, and Speelman 2012: 111).

However, the publication of the *Historical Thesaurus of the Oxford English Dictionary* (*HTOED*) in 2009 has opened up new possibilities for onomasiologi-

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cal study, and Geeraerts, Gevaert, and Speelman describe this work as a "major impetus" (2012: 112) to diachronic onomasiology. *HTOED* presents material from the *Oxford English Dictionary (OED)* and two Old English dictionaries organized by semantic field and chronologically, and can therefore be used to track the way that concepts are expressed through time and as a starting point for the detailed study of changing semantic fields. As Christian Kay, one of the editors, notes:

> In addition to providing answers to linguistic questions, the *Thesaurus* is a rich source of cultural information. The words we use reflect not only how we live, but how we think about the world... Social and cultural factors may also help to explain why new words enter a language and others drop out of use (Kay 2010).

This article explores the potential of *HTOED*[1] as the starting point for the study of changing semantic fields, and a source of clues about the relationship between the lexicon and extra-linguistic change across the history of English. Specifically, it examines an area of the lexicon of English that is obviously particularly relevant to Geeraerts, the lexis of education, considering the influence of continental models on the way the field has developed. The paper is not intended to be an exhaustive study, but rather a preliminary survey which considers the kind of questions raised by *HTOED* data and discusses some of the most striking characteristics of this particular section. A more detailed exploration of the data, which harnesses the sophisticated approaches and tools developed by Geeraerts and colleagues at Leuven, would be the obvious next step in interrogating a fascinating and complex area of the lexis.

2 Education in *HTOED*

As Figure 1 shows, the section 03.06 *Education* is classified within the supercategory 03 *The Social World*. 03.06 contains a number of subsections, each of which include further subsections showing finer-grained classifications. It is followed by several other categories at lower levels in a sense hierarchy, indicated by three-level headings like 03.06.01 *Upbringing*. At each level, the data are separated into parts of speech. Items represent individual senses of lexemes, so that a particular lexeme might occur several times in the classification; occa-

1 I use the print version of *HTOED* in this paper, rather than the version integrated in *OED Online*.

sionally one sense is also classified in more than one section or subsection. This paper begins by exploring the first half of the section 03.06 *Education*. Of necessity, I focus on nouns, though in many cases it is crucial to consider other word classes for a more complete picture.

01 The External World
02 The Mental World
03 The Social World
- 03.01 Society/the community
- 03.02 Inhabiting/dwelling
- 03.03 Armed hostility
- 03.04 Authority
- 03.05 Morality
- **03.06 Education**
  - 03.06.01 Upbringing
  - 03.06.02 Teaching
  - 03.06.03 Learning
  - 03.06.04 Member of university
  - 03.06.05 Educational administration
  - 03.06.06 Place of education
- 03.07 Faith
- 03.08 Communication
- 03.09 Travel/travelling
- 03.10 Occupation/work
- 03.11 Leisure

Fig. 1: Education in the structure of *HTOED*

A preliminary look at the data reveals some interesting differences in the profiles of different sections and subsections. The sections are reproduced with labelling information in Appendix 1; 03.06 *Education* and 03.06.02 *Teaching* are also presented in timeline form in Figures 2 and 3. As these show, there are fifteen nouns at the level 03.06 *Education*[2], 24 in the first subsection, 03.06.01 *Upbringing*, 42 in 03.06.02 *Teaching*, and only three in 03.06.03 *Learning*. The first dates of attestation for items in these sections also look radically different. There is nothing attested earlier than the late fourteenth century in 03.06 *Edu-*

2 Excluding subsections in each case. 03.06 *Education* includes the subsection 10 *systematic education*, which is discussed below in section 4.

cation, and a single OE item in 03.06.01 *Upbringing*. The historical coverage for 03.06.02 *Teaching* is much more even diachronically, with twelve Old English (OE) items, two of which survive beyond the OE period. The very small number of entries in 3.06.03 *Learning* consist of one OE entry, *learning* itself, which is attested from Old English onwards, and one other rare entry with only two citations. A similar imbalance between the subsections can be seen in the data for other parts of speech: for example, there are twelve transitive verbs in the section 03.06 *Educate*, and 45 in the section 03.06.02 *Teach* (again excluding subsections which include more specialized hyponyms of each).

The classification presented in *HTOED* is not (and is not intended to be) definitive, and it would be possible to organize the data differently (Kay et al. 2009: xix); these categories shade into one another, and it is difficult to make a clear distinction between them. As well as this, the dates of attestation given in *HTOED* need to be treated with some caution, particularly for earlier periods (see Allan 2012 for a longer discussion). As noted below, recent revisions to *OED* show earlier first citations for some items, including *education* itself with the relevant sense. However, the imbalance between the size and historical range of the sections, classified bottom-up, is striking. The relatively small amount of data in the superordinate category, compared to some of the subsections, may indicate something about the nature and stableness of these concepts across time and their susceptibility to change. In the front matter to *HTOED,* Kay et al. talk about the "degree of lexicalization [of a subcategory] reflect[ing] its considerable degree of importance to speakers of the language" (2009: xix). This seems an intuitively convincing view, but it is not one that has been researched in any fine-grained way, perhaps partly because until recently it has been very difficult and time-consuming to collect together relevant data and make any comparisons between semantic fields. The publication of *HTOED* allows this kind of comparison, and the long time-span that it covers allows an examination of onomasiological change in its historical context. However, the necessarily complicated structure of *HTOED*, with its large number of subsections, presents a complex picture which raises challenging questions about the nature of lexicalization at different levels of generality.

The small number of nouns in 03.06 *Education*, in comparison with the much larger number in 03.06.02 *Teaching*, appears to indicate the changing nature and salience of a particularly culturally sensitive concept, and one which is relatively modern. A helpful place to start interrogating this concept is the term for the section itself. *Education* is a highly polysemous term, with shifting and multiple meanings across its history. It is borrowed into English from Middle French and Classical Latin in the early sixteenth century, and its first re-

corded sense reflects the meaning in these languages and is close to modern English *upbringing*; *OED* (in a revised 3rd edition entry) defines it as:

> 1. The process of bringing up a child, with reference to forming character, shaping manners and behaviour, etc.; the manner in which a person has been brought up; an instance of this.

This sense appears in *HTOED* 03.06.01 *Upbringing*, and is still current. In Present-day English (PDE), however, it has given ground to two other senses, 3 and 4a in *OED3*, that are more clearly distinguished by forms of the related verb *educate*. The first of these is the sense categorized in the more general *HTOED* section 03.06, and it loosely corresponds to the passive *being* or *becoming educated*, though not in a formal academic way:

> 3. The culture or development of personal knowledge or understanding, growth of character, moral and social qualities, etc., as contrasted with the imparting of knowledge or skill.

This is the sense that is often intended in the collocation *real education*, in expressions like "real education is what you get from life" (BNC CFY165), or when *education* is contrasted with *teaching* or *schooling*. In this revised *OED3* entry, the first citation is significantly earlier than that given in *HTOED* (from *OED2*), ?1533–1534 rather than 1860. Attested from around the same time is sense 4a, which appears to be the most frequent sense in current English, and is listed first in synchronic corpus-based dictionaries[3]. It refers to organized teaching, often in some kind of institution:

> 4a. The systematic instruction, teaching, or training in various academic and non-academic subjects given to or received by a child, typically at a school; the course of scholastic instruction a person receives in his or her lifetime...

Where sense 3a denotes 'being educated', this sense covers the other side of the process, 'educating', though it can also mean 'being educated' in a more formal, academic sense, with the involvement of one or more *educators*.

These three senses therefore cover shades of meaning ranging from strictly academic instruction in a formal (and usually institutional) setting, to something that encompasses what might broadly be called 'life skills'. *Education* refers to both the process of teaching or training (someone) and the outcome of that instruction: *the education of a child* can mean the process of teaching a

3 E.g. the English Dictionary that is part of oxforddictionaries.com, which is linked to *OED Online*.

child, but equally *the child's education* can mean the sum total of the learning that he/she has experienced. The relationship between *education* and *educate* is helpful here; *educate* is always what the teacher does to the pupil, but *education* means both *educating* and *being educated*. The first three subsections in *HTOED*, *Upbringing*, *Teaching* and *Learning*, loosely map onto these senses of *education* (though the term does not appear in the subsections *Teaching* or *Learning*, presumably because *OED* does not split the senses in this way)[4]. In fact, the modern concept of education as a domain, expressed in *HTOED* as a semantic field, seems to be built around the word *education*, the dominant superordinate term in this semantic field. It is the only possible heading for the section overall, since in modern times, the term *education* does not have any close synonyms with comparable polysemy.

There are four entries attested earlier than *education* (with its revised *OED3* first date) in the section. All of these are loanwords, and this suggests strongly that the concept in English originates from continental models; it has been borrowed along with the means to express it. It is significant that the earliest attestations for *information* and *culture* in this sense, and for *instruction* in a related sense, are found in translations, and the earliest attestation for *erudition* is from an adaptation of a French original. This contrasts with the narrower concept *Teaching*, which is lexicalized by native words in Old English and a mixture of native and borrowed words from Middle English onwards. *Information* is the earliest entry in 03.06 *Education*, and the sense recorded here, borrowed from classical Latin, is defined in *OED3* as 'The shaping of the mind or character; communication of instructive knowledge; education, training; †advice (*obs.*)'. Citations evidence use in a wide range of contexts, and like *education* the form refers to both the process and the outcome of teaching and learning, as the examples below show; *information* could plausibly have remained the dominant term for the concept:

(1) Fyve bookes com doun from heven for informacioun of mankynde (Trevisa, *Polychronicon*, tr. Higden, *a*1387).
(2) For their better information in the way of God, and more effectuall reclaiming of themselves (Hinde, *A Faithfull Remonstrance*, a1629).

4 *OED3* sense 4a, which encompasses both 'teaching' and 'learning', is included in a subsection of 03.06, 10 *systematic education*; in line with the *HTOED* policy of classifying meanings from general to specific, this can be considered the broader category, with 03.06.02 *Teaching* and 03.06.03 *Learning* narrower concepts.

However, this sense becomes rare in later use, presumably as another sense 'Facts provided or learned'[5] takes over; this is attested from around the same time, and is the most frequent current sense. The final attestation in *OED3* is from 1901, but it is not easy to see from the context exactly what sense is intended, and it seems relevant that this is a use by a non-native speaker:

(3) The community ought to see to it that both free election and the pedagogical information of the teachers were furthered (Münsterberg, *American Traits from the point of view of A German*, 1901).

Erudition has a shorter lifespan than *information*, and *OED* citations suggest that in this sense it is rarer, and used mainly in translations. In the sixteenth century, it begins to be used with the sense 'acquired knowledge', and this seems to push out its earlier meaning. *Instruction* still has the sense included here, defined more recently as 'Teaching, education', although this seems never to have been its core sense. From its first attestation in this sense it is mainly used to refer to the process, rather than the outcome, of teaching, and an 1861 citation specifically addresses this difference:

(4) The old antithesis between "instruction" and "education" still continues to perplex scrupulous minds (*Times*, 29 August 1861).

Finally, *the/a culture* and the later form *culture* (redated to a1677 in *OED3*) seem to be used in a self-consciously metaphorical way (and again, in translations early on), although have relatively long periods of currency so do become fairly well established. Both appear to be more specialized and perhaps less neutral than *education*, often referring to the development or refinement of manners or taste, and this shading of its meaning suggests that *culture* is unlikely to become established as the key term for this particular concept.

If we look more closely at the other entries in the highest level category 03.06 *Education*, which have later first citations, it seems that the term *education* in this sense has very little competition synchronically or diachronically after it is borrowed into English. A number of the items in the section have limited currency, or are very restricted in their usage. *Train*[6], *manurement* and *manuring* are all attested only once, so are clearly very rare with this sense. *Train-*

5 English Dictionary on oxfordddictionaries.com.

6 There is one additional 1811 citation for *train* in *OED3*, but this does not change the historical picture significantly.

ment and *manurance* both have very limited periods of use: *trainment* is used almost exclusively in translations by one writer, although *OED3* gives three additional citations in the nineteenth century, and *manurance* is only attested within a twenty year period in uses that, as with *culture*, appear very self-consciously metaphorical. The dates of attestation of *nurturing* in *HTOED* suggest that it is in continuous use from 1629 onwards, but in fact *OED* only includes one other relevant citation from 1843, indicating that, again, this sense is very rare. Citations show that *training* is used much more often with the sense 'teaching, educating' than 'being educated', and in later use the sense 'educating with a specific purpose' becomes the core use (e.g. *vocational training*, *training to be a vet*). *Schoolcraft* is transparently more specialized than *education*, and the *OED* citations appear to show that it is usually used with negative connotations. *Paedeia* is even more specific, and usually refers to the system of teaching in Ancient Greece.

Without a more detailed examination of corpus evidence for all of these terms, it is difficult to ascertain when *education* becomes the keyword in the field, but the evidence of citations in *OED* suggests that has certainly happened by the nineteenth century; by this point, *information* has fallen out of use in this sense, along with many of the other terms in the section. In the UK, *education* is the term used in official contexts by this time, for example, in the name of the Committee of the Privy Council on Education, established in 1839, and the 1870 Elementary Education Act; in the US, the Morrill Land-Grant Acts of 1862 and 1890 were intended to set up colleges "to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life"[7].

3 Teaching and learning

As noted above, the *HTOED* section 03.06.02 *Teaching* has many more entries than 03.06 *Education*, 42 compared to fifteen. Figure 3 shows the periods of attestation for these entries, which are found from OE onwards. Several have long periods of use, and in PDE there are a number of fairly central synonymous terms such as *teaching* itself, *tuition*, and *instruction*. Although the subsection includes a high proportion of loanwords from the ME period onwards, the en-

7 Transcript of Morrill Act (1862), http://www.ourdocuments.gov/print_friendly.php?flash=true&page=transcript&doc=33&title=Transcript+of+Morrill+Act+%281862%29 (10 March, 2015).

tries are fairly mixed etymologically, and include words like *schooling* which is derived from a native base and first attested in the mid-fifteenth century. This is a narrower concept than education, and seems less subject to change historically. The transitive verbs recorded later in the subsection show the same kind of variety and diachronic spread. In the subsection as a whole, there are also far more headings, including categories at one level lower in the classification, starting with 03.06.02.01 *Systematic/formal teaching*, and at two levels lower, starting with 03.06.02.05.01 *School teacher/schoolmaster*. The latter is part of 03.06.02.05 *Teacher*, which stands out as a particularly large group of entries; again, although *teacher* is an important term for the concept in PDE, there are a number of frequently-used synonyms such as *tutor* and *instructor*, and there appears to have been competition between terms in earlier periods as well.

The subsection that follows 03.06.02 *Teaching* is headed by its converse concept, 03.06.03 *Learning*. The nouns in the first category in this section (before any subheadings) are strikingly few, and correspondingly, there are very few verbs meaning 'learn' later in the subsection. It is difficult to account for this paucity of data. Unlike 03.06 *Education*, the earliest noun in the group is attested in OE, and *learning* itself in this sense has a long period of use, so the data does not seem to indicate a concept that is particularly susceptible to change. However, one part of the subsection is much more populated lexically, and this is the group 03.06.3.02 *Learner*; there are only six entries at the top level of the classification, but 173 referring to more specific hyponyms in lower-level subsections, notably 05 *novice/beginner*, which contains 57 entries, and 08 *one who studies*, which contains 17 entries. This part of the subsection therefore shows much more symmetry with 03.06.02, and again the comparison shows how difficult and complex it is to assess the significance of the different sizes of sections in *HTOED*. It may be that the concepts themselves are of slightly different natures: the concept learning perhaps does not encompasses different shades of meaning in the way that teaching does, in that terms for "teaching" tend to refer to specialized practices or processes. A proper empirical investigation would be needed to assess this possibility and to consider others; it would also be helpful to examine data from a number of languages for comparison, as Blank does in his discussion of diachronic cognitive onomasiology (2003).

4 The nineteenth century

The nineteenth century is generally acknowledged to be a key period in the history of the educational system in Europe, which sees advances towards uni-

versal education at the elementary level, and the birth of the modern University (see, for example, Williams 1961: 156–165; Scott 2006). There are important and influential changes across the educational system in the UK, and it is in this period that the sectors we would recognize today are clearly established and the modern system emerges. The dominance of the term *education* by this period seems significant, but other parts of the classification in *HTOED* are also revealing in the clues they give to these developments, and the changes in the lexicon which it catalogues reflect important cultural influences.

One of the subsections of 03.06 *Education* is 10 *systematic education*, and this is the category that contains the lexis of formally organized teaching and learning. The dates of attestation of entries in this category give a very clear indication of the changes that are underway. Out of 80 entries in the subsection as a whole, 68 have first citations in the 1800s or 1900s[8], and there are only three entries with OE or ME first dates. Many of the entries are phrases formed from a modifier preceding *education*, or in a few cases *schooling* or *instruction*, such as *primary instruction* (first attested 1861 according to *HTOED*, but 1811 in *OED3*) and *primary education* (1868; 1818 in *OED3*), *secondary education* (1882; 1809 in *OED3*), *higher education* (1866; 1834) and the later *nursery schooling* (1974). Some of these phrases can be found earlier in English, but are not immediately lexicalized with these meanings. For example, the expression *higher education* can be found in newspapers earlier in the eighteenth century (often with the indefinite article), but the pair of examples below show the difference between these uses and later uses as a fixed phrase referring to a particular sector:

(5) In no particular will the University of London be more careful than as supplying the means of a higher education to those destined for the different departments of the law (Money-Market – City, Tuesday, *The Morning Chronicle*, 19 November, 1828).

(6) After expressing his views on the compulsory system of elementary tuition, he spoke of the necessity of a complete reform of the higher education, of breaking down the ascendancy of Greek and Latin, and giving a fair stage for the neglected branches of study… (Literary, Scientific and Art, *Birmingham Daily Post*, 4 November, 1867)[9].

8 Some of these entries have been redated in *OED3*, but in most cases the first attestation is still not earlier than 1800.

9 Examples taken from the 19th Century British Library Newspapers Database.

As Blank notes, "the existence of a simple lexeme or a lexicalized word-formation is good evidence for the existence or the prominence of a concept in a given speech community" (2003: 40).

As in the case of *higher education* and the other entries quoted above, most of the entries in 10 *systematic education* are not newly-borrowed loanwords, but combinations of existing words that become conventional with new meanings. The entries in the subsection that are attested before 1800 clearly refer to concepts that are already established; for example, in the category 10.03 *education at school*, six out of seven entries have early citations, with the earliest found in OE.

The influence of continental Europe on the education system in the nineteenth century can also be traced in many of the subsections of 03.06 *Education*, and specifically in the loanwords that are borrowed in this period. *Seminar* is one of the many terms in 03.06.03.02 *Learner*, in the lower level category 13 *group of student/pupils*; by metonymy, it is also used to mean 'class' (in the sense 'teaching session'). Another loanword with a first citation in the same century is *semester*, classified in 03.06.05 *Educational administration*, in the lower level category 02 *session/term*. Both are borrowed from German, and in early examples sometimes refer to German universities, though in modern times they are used widely in British and US universities. What is interesting about these particular examples is that they are borrowed to express concepts that are already lexicalized by other established alternatives: *class* is frequent in the sense 'group of students' from the end of the seventeenth century, and *term* is used from the mid-fifteenth century to refer to a period of teaching time (alongside alternatives listed in *HTOED*). For many PDE speakers, these pairs are not exact synonyms, since *seminar* can denote a particular type of *class* (usually in a university), and a *semester* can last longer than a *term*. However, unlike the loanwords in the top level category 03.06 *Education*, these are borrowings which were not needed to express new concepts in English, since existing words already accommodated their meanings (they are "core borrowings" in the terminology adopted by Myers-Scotton 2002: 41; see also Haspelmath 2009: 48–49). Rather, they show the impact of other educational cultures on the development of the British system and its associated lexis.

5 Conclusion

This paper traces the diachronic development of part of a semantic field as it is represented in *HTOED*, and considers the close connections between lexical

change and the external world. The differences between subsections of 03.06 *Education*, specifically the number of entries and the origins of these entries, raise questions about the nature of the concepts they refer to across the history of English; the question of whether the degree of lexicalization of different concepts is significant, and is one which deserves further study. Comparisons of the kind made here suggest a number of directions for further research, and demonstrate the value of *HTOED* as a starting point for onomasiological study, which gives quick access to clues about lexical change. This study also shows the truth of the observation that "...the study of onomasiological changes is more comprehensive than the study of semasiological changes, since the former encompasses the latter" (Grondelaers, Speelman, and Geeraerts 2007: 996). An exploration of a semantic field necessitates examination of individual lexical items in that field, and there is a necessary and illuminating dialogue between the two perspectives.

HTOED poses challenging questions rather than presenting simple answers, and the nature and complexity of the classification makes it crucial to examine the data in detail. As a research tool, however, it has enormous potential to assist the wave of interest in onomasiology that Dirk Geeraerts has done so much to foster, and the insights it offers could significantly change the landscape of diachronic lexicology.

Appendix

03.06 (n.) Education

information 1387–1813 • erudition c1400–1749 • instruction 1412/20– • the/a culture c1510– • training 1548– • trainment 1571–1592 • train 1581 • manurance 1594–1615 (fig.) • schoolcraft 1629–1865 • nurturing 1629– • manurement a1639 • manuring 1726 • culture 1805– • education 1860– • paedeia/paideia 1939– (also transf.)

03.06.01 (n.) Upbringing

fostor OE • nourishing a1297–1526 • afaitement c1300 • nurture c1330– • nortelry c1386 • nursery a1400–a1671 • nouriture c1400 –1647 • rule 1469 • upbringing 1520– • bringing up 1526– • education 1531–1647 • nourituring 1555 • nutriture 1577–1684 • breeding 1577– • nurturing 1578– • nuzzling 1586 • rearing 1611– • alterage 1612 • frame 1632 (nonce word) • seasoning 1649 • raising 1842– (now chiefly US) • nurtureship a1845 • paedotrophy 1857– • raising up 1929–

03.06.02 (n.) Teaching

lardom OE • lareowdom OE • latteowdom OE • ontimbernes OE • getah OE • getimbernes OE • (ge)timbrung OE • þeodscipe OE • wise OE • gewisnes OE • wissing<(ge)wissung OE–1670 • lore<lar OE– (now arch. & dial.) • teaching<tæcing c1175– • lering a1300–c1460 • kenning c1320–1377 (now Scots & northern dial.) • learning c1380–1727; 1802 (dial.) • discipline 1382–1615 • doctrine 1382–1710 • ensignment 1398–1600 • school 1449 • schooling c1449– • document c1450–1793 • entechment 1513 • instruct 1529; 1642 • institution 1531–1790 • instruction 1548– • instructing 1557– • teachment 1562–a1578 (Scots) • tuition 1582– • tutoring 1589– • loring 1596 • lessoning a1619– • tutorage 1638– • repasting 1644 • indoctrination 1646– • tutory 1692–1764 • tutorhood 1752 • documenting 1801 • tutorizing 1837– • tutorisation 1842 • tutelage 1857– • coachmanship 1873

03.06.03 (n.) Learning

lar OE • learning<leornung OE– • apprehension 1398; 1641

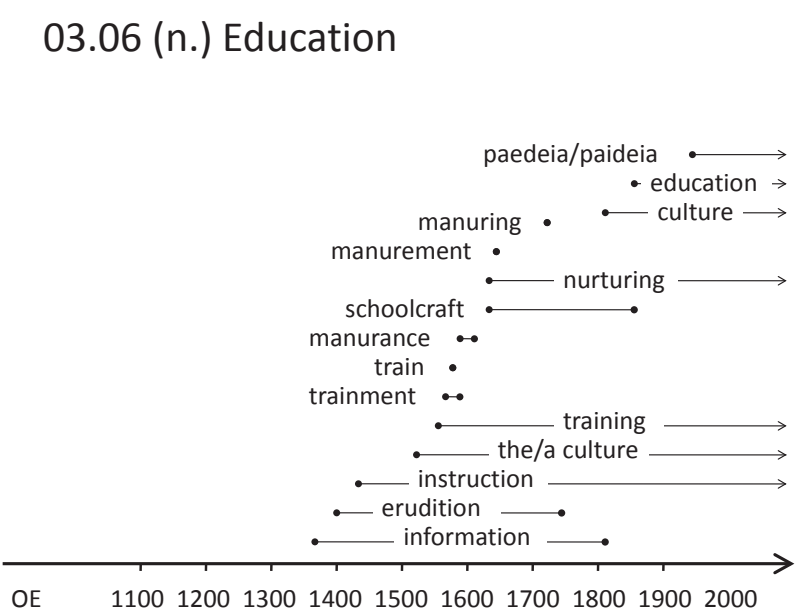

Fig. 2: Nouns in *HTOED* 03.06 *Education*

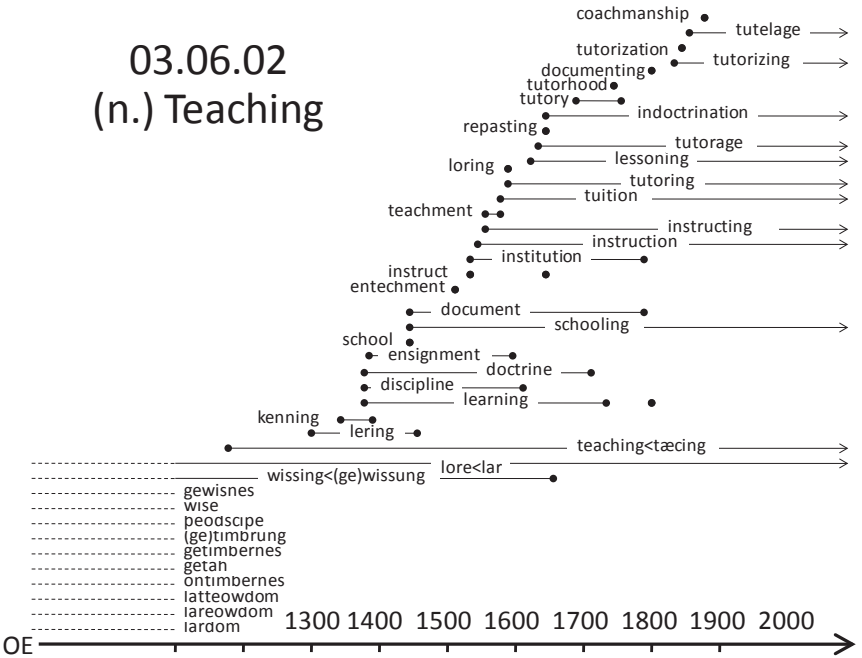

Fig. 3: Nouns in *HTOED* 03.06.02 *Teaching*

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Ricardo Maldonado and Patricia Palacios

Bueno, a window opener

Abstract: Considerable amount of work on Spanish has been developed to analyze *bueno* beyond traditional dictionary's description – for which it is an interjection of approval or surprise DRAE – and to see it as a dialogic marker (Bauhr 1994; Cortés Rodríguez 1991; Fuentes Rodríguez 1993; Gregori Signes1996; Martín Zorraquino 1991; Travis 2005; Hummel 2012). Against analyses that reduce *bueno* to an anaphoric marker of approval, this paper shows that the marker dominantly accomplishes corrective functions with a bidirectional configuration as an anaphoric and a cataphoric marker (Hummel 2012). Moreover the paper accounts for a set of further extensions where both approval and anaphoric uses are drastically reduced leaving the space for cataphoric functions to take over. It is proposed that *bueno* functions as a "window opener", a marker that instead of making reference to previous discourse opens new mental spaces in discourse (Fauconnier 1994) in order to introduce new topics, new turns, new argument lines or new spheres in discourse. These readings are obtained as extreme cases of attenuation and subjectivization (Langacker 1991, 1999) where the speaker validates a new discourse phase without depending on the content of previous discourse. Based on a data from oral Mexican Spanish it is shown that the three dominant uses are not of approval of previous discourse but of meanings correcting a previous assertion to increase assertiveness, expansions and elaborations of speaker's current discourse and "window openers" into new situations. The data suggests that *bueno* is undergoing a reanalysis where a semantic bleaching process not only loses the root meaning of "goodness" but also stops referring to the content of some anaphoric antecedent to instead move ahead in discourse.

1 Introduction

Since Schiffrin's (1987) analysis of *well*, a considerable amount of literature on Spanish *bueno* has been put forward to treat it as a dialogue and discourse marker either in oral or in written texts (Bauhr 1994; Fuentes Rodríguez 1993;

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Cortés Rodríguez 1991; Martín Zorraquino 1991; Gregori Signes 1996; Travis 2005; Hummel 2012). The discourse marker *bueno* derives from the adjective *bueno* 'good' and it has been analyzed as a marker of acceptance in its least grammaticized sense (Fuentes Rodríguez 1993; Ocampo 2004). In its most grammaticized uses, *bueno* is not obviously linked anymore to the adjectival meaning and it is used either as a connector (Fuentes Rodríguez 1993; Hummel 2012) or even as an "attention getter" (Ocampo 2004).

As a discourse marker there is a general tendency to analyze *bueno* as a marker determined by anaphora. Whatever is being evaluated is based on previous information shared by speaker and hearer. Most authors coincide in finding acceptance or approval of something previously expressed in discourse as its most representative meaning:

(1) A: ¿Quieres un café?
B: *bueno* gracias
'A: Do you want a coffee?
B: *bueno* thanks'

In contrast with this meaning, *bueno* is commonly treated as a marker of correction (Fuentes Rodríguez 1993; Martín Zorraquino 1991; Bauhr 1994; Gregori Signes 1996; Cortés Rodríguez 1991; Beinhauer 1964; Candón Sánchez 1999). *Bueno* is used to correct what an interlocutor may have expressed, as in (2), or may operate as a repair form in the speaker's own discourse (Castro Caycedo 1999; Travis 2005), as in (3):

(2) E: pues sí pero/ ¿tú nunca has chocado?
I: no/ *bueno*/ en el coche de mi papá una vez/ [pero]
'E: ok yes but / you have never crashed your car?
I: no/ *bueno*/ in my dad's car once, [but]' (CSCM: 1)
(3) sí/ ganaba bien poquito en ese entonces//*bueno*/ todavía/ ¿no? (risa) (CSCM: 1)
'yes/ I used to make very little money then //*bueno*/ I still do/ right? (laugh)'

There is also general agreement that *bueno* is most commonly used as a device of "concession" or "resignation" (Bauhr 1994; Beinhauer 1964; Fuentes Rodriguez 1993) or "dispreferred response" (Travis 2005) when expressing acceptance of some content previously uttered in discourse:

(4) S: sabes cómo le miden la edad a un árbol

A: Con ..el carbono catorce?
S: *Bueno*, también. No me acordaba de eso (restaurant 857-61) (Travis 2005)
'S: do you know how they calculate the age of a tree
A: with ..carbon fourteen?
S: *Bueno*, that way too. I didn't remember that one'

In more pragmatic domains *bueno* operates as a topic shifter. Here the speaker attempts to reorient the topic of conversation, as in (5). *Bueno* reorients the topic, returns to an old topic or makes a digression (Candón Sánchez 1999; Travis 2005; Hummel 2012):

(5) *bueno* a ver/ por ejemplo// cuéntame cuando entraste con el H/ el pri-/ la primera vez/ (CSCM: 1)
'*bueno* let's see/ for example// tell me about when you entered with the H/the first time'

Hummel (2012) rightly rejects the anaphoric representation of *bueno* and underlines the bidirectional ("bi-cephalic" in his words) function of the marker as it not only refers back to some previous content but also introduces new information, as in (6):

(6) A: ante de venirme ... (2) no sé, no: ... (2) no recuerdo que haya tenido alguna: ... que me: haya ilusionado con a:lgo de acá no=po nada
B: hm
A: uno llega y: ... *bueno*, ahí va conociendo de a poco, sí
B: hm
A: hay personas que no leh guhta=hm/, ((más rápido)) así que se devuelven+, a mí me guhtó=y-, me quedé=po (Kluge. Adela, 206) (*apud* Hummel 2012)
'A: Before I came ... I don't know, no ... I don't remember having had any... that turned me on with respect to something from here. Nope...nothing
B: hm
A: one gets there and ...*bueno*, there one gets to know [people] bit by bit
B: hm
A: There are people that don't like it hmmm/, ((faster)) so they go back, I did like it so I stayed'

In (6) *bueno* unites an anaphoric function of acceptance with a cataphoric function introducing further discourse elaboration. The new information involves

getting to know the place where the speaker arrives. That *bueno* is not always anaphoric is corroborated by intra-discursive uses where *bueno* forms a new discourse unit with succeeding discourse. An outstanding feature of this function is that *bueno* comes systematically after a pause which suggests that *bueno* is drastically separated from previous content as in (7):

(7) B: ya .. y:, en ese mihmo lugar=en- .. en PUEBLO también:, pasó toda su niñez
M: äh=hm, la=m- .. sí .. por la mayoría=de:-, casi toda la (mía niñez) porque: .. *bueno* a loh nueve A:ñoh .. yo, ((subiendo la voz)) a loh nuEve Añoh+ yo entré al colegio —(Kluge. Marcela, 40) (apud Hummel 2012)
'B: ok and:, in that same place in- .. in Town also:, she spent all her childhood
M: mhm the .. yes.. About all the majority of the...almost all (my childhood) because... *bueno* when I was nine .. I, (raising her voice), at nine I started going to school'

While Hummel's (2012) bidirectional properties of *bueno* as a discourse connector are sound, there are even further pragmatic uses that need to be accounted for. In (8) and (9) *bueno* is no longer bidirectional as all traces of the anaphoric use are lost. Here the speaker simply uses *bueno* to introduce a new event.

(8) *Bueno* me voy a leer que ya se terminó el mes y no he acabado mi libro!!! Ya casiiii;) (Twitter)
'*Bueno* I am going to read because the month is almost over and I have not finished reading my book!!! Almost done;)'
(9) *Bueno* pues me voy a dormir!!! Besitos y descansen :) (Twitter)
'*Bueno* I am going to sleep!!! Kisses and sleep well'

We will suggest that this new pragmatic function is the byproduct of an attenuation process (Langacker 1991, 1999) where the loss of some semantic properties of the lexical form implies a subjective incorporation of the speaker's view of the event. If this process is underway one may wonder if the notion of acceptance is as dominant as it has been claimed to be in a dialect like Mexican Spanish, where further pragmatic uses suggest new conceptualizations. Moreover, should the non-anaphoric and Hummel's (2012) bidirectional profiles of *bueno* be sufficiently entrenched (Geeraerts 1985a, 1985b, 1989; Langacker 1987, 1991, 1999) in Mexican Spanish there should be a shift in conceptualization: instead

of looking back in previous context *bueno* would tend to reorient the speaker-hearer's attention forward in discourse. *Bueno* should shift from being an anaphoric information retriever to a window opener in discourse. If this is correct one should expect a frequency adjustment in use such that the anaphoric instances of acceptance would decrease in favor of more cataphoric ones.

2 Anaphoric uses

In order to test if there has been a shift-in-view we analyzed 100 instances of *bueno* from two sources: the Corpus Socolingüístico de la Ciudad de México (CSCM) (Martín Butragueño and Yolanda 2011) and random uses in *Twitter* (22 instances).

In contrast with previous analyses, acceptance or agreement (80% in Travis 2005) is not the most frequent meaning found in our data. Instead, correction is by far the most dominant function. Although all contexts come from dialogues – which would imply enough contexts where acceptance should come up –, nor acceptance, nor concession are frequent in the data. Self-correction is by far the most dominant use. While correcting the interlocutor's stance (10a), did take place, 50% of the samples are self-correcting as in (10b):

(10) a. E: pues sí pero/ ¿tú nunca has chocado?
I: no/ *bueno*/ en el coche de mi papá una vez/ [pero] (CSCM: 1)
'E: well yes but/ you have never crashed a car?
I: no/ *bueno*/ in my dad's car once/[but]'

b. y ya me empecé a hacer amigo de ahí de los/de unos maestros / *bueno* / me empezaron a conocer poco a poco/ (CSCM: 1)
'and then I started to make friends there with/ of some teachers / *bueno* / they got to know me bit by bit'

This may suggest that the Hummel's (2012) bifunctional profile should have taken over the core meaning of *bueno*. The shift in view is manifest in that, while looking back, the focus is on the new information being reformulated. The fact that self-correction is dominant may imply some degree of entrenchment of an advanced process of attenuation where acceptance gives way to partial acceptance and the positive evaluation of the base meaning of the lexical form loses its nuclear property to further lose more of it in correcting the interlocutor's assertion (10a). This feature may even further be attenuated in reformulations where the speaker corrects himself (10b). The attenuation process goes

along with a subjective move from referential realms to more and more speaker-based domains, as suggested by Traugott (1995, 2003). The process goes along the direction of (11):

(11) Acceptance > partial acceptance > correction > self-correction

The direction of the attenuation process is corroborated by two facts. First, a considerable number of uses (19%) have a meaning of elaboration rather than one of correction. Here the speaker simply expands the content of what s/he may have said, as in (12). In some remote way these examples are corrective but the crucial content has to do with offering further detail about what has just been said:

(12) I: [que íbamos a poner/ el negocio] del plotter y no sé qué// todo ese rollo// que ya ni pusimos nada ya
E: mh
I: *bueno*/ no pusimos nada porque estaba muy caro... (CSCM: 1)
'I: [that we were going to put together/ a business] of the plotter and stuff ...//and we didn't do anything
E: mh
I: *bueno*/ we didn't do anything because it was too expensive...'

The second fact pertains to uses that confirm and reinforce the content of some previous assessment by the speaker (5%):

(13) a. pues me recomendaron// *bueno*// sí/me recomendaron (CSCM: 1)
'well they recommended me // *bueno* //yes /they recommended me'
b. E: (risa) qué mala onda// qué horror/ pero así pasa/ ¿no?
I: sí/ pues <~ps> si he ido manejando yo/ igual y me toca a mí// pero no creo/ *bueno*/ no creo o sea/ te puede pasar a cualquiera (CSCM: 1)
'E: (laugh) that's bad// how terrible/ but it happens that way/ no?
I: yes/ yes if I had been driving/ it might have been me// but I don't think so/ *bueno*/ I don't think so/ it can happen to anyone'

In (13a and b) the speaker is about to make a correction and yet s/he confirms her/his assertion. Both elaboration and reinforcement may be seen as subclasses of correction so long as the speaker looks back and then introduces further elaborations in discourse.

3 Moving away from anaphora

The use of *bueno* as marker to introduce a new topic as in (14) is a pristine manifestation of Hummel's (2012) bidirectional function of the marker. Yet the two directions are asymmetric. The cataphoric function is stronger than the anaphoric one. The shift in view towards upcoming information is profiled in detriment of the background context remaining in the base. Of interest is the fact that in our data there were only three samples of such use. Example (5) is repeated here as in (14) for convenience:

(14) *bueno* a ver/ por ejemplo// cuéntame cuando entraste con el H/ el pri-/ la primera vez/ (CSCM: 1)
'*bueno* let's see/ for example// tell me about when you entered with the H/the first time'

The corrective meaning of *bueno* becomes now one that cancels or disregards what the interlocutor has said and in doing so the speaker opens up a new topic.

More interesting is the fact that the use of *bueno* as a marker of closure is quite more frequent. Travis (2005) has rejected the notion of closure since the marker does not simply close an interaction. We propose that, in fact, not only does it close an interaction but it opens a new space to introduce a new event happening in an alternative dominion. This function as a *window opener* is the second most frequent use in the data (22%):

(15) a. *Bueno* ahora si ya me voy a dormir que segurito mañana me despiertan temprano!!! #TwitterOff descansen;)
'*Bueno* now I am going to sleep. For sure they will wake me up early tomorrow!!! #TwitterOff rest;)'
b. *Bueno* me voy a ver Kung Fu Panda 2 con mi flaka!!! #comper
'*Bueno* I'm going to see Kung Fu Panda 2 with my girl!!! #See you'

In these examples the previous context, being bleached out, is only inferred from *bueno* closing effects. *Bueno* opens a new situation, announces a new event where the speaker lets the hearer know that s/he will be leaving the current discourse domain to enter a new mental space (Fauconnier 1994). While canceling does take place, what is in profile now is the opening of a window to a new sphere. The bidirectional profile of *bueno* is now gone. No looking back is present anymore. *Bueno* occurs consistently in initial utterance position and

starts a new intonation unit thus detaching the statement from previous context.

That this construal is entrenched in the system is corroborated by the fact that *bueno* can be used as a window opener without a verb inflected for tense, as in (16). Here the verb vamos 'go future' is regularly deleted since the future meaning is already lexicalized in *bueno*. The new construction is *bueno+a+* Verb[INFINITIVE]:

(16) a. *Bueno*, a preparar el lunch escuchando música pa la relajación!!! (Twitter)
'*Bueno* to make lunch listening to music to relax'
b. *Bueno*, basta de quejas, a trabajar. (Twitter)
'*Bueno* enough of complaining let's get to work'

The orientation towards the future in new spaces is confirmed by the fact that examples like (15–16) are incompatible with past tense, as can be seen from (17):

(17) a. **Bueno*, a preparaba el lunch...
'*bueno* to makeIMPERF lunch...'
b. *Bueno*, basta de quejas, a trabajaba
'*Bueno* enough of complaining, to workIMPERF'

Notice that combining *bueno* with the projective future of *ir* 'go' in imperfect does not bring the window opening function. Instead it activates the concessive/corrective meaning, as in (18):

(18) A: ¿Me acompañas?
E: *Bueno*, me iba a dormir...
'A: Would you join me?
B: *Bueno*, I was about to go to sleep...'

The incompatibility with past tense argues in favor of the lexicalization of imminent future in *bueno* as a window opener.

The last manifestation of *bueno* as a window opener pertains to the way Mexicans answer the phone:

(19) ¿*Bueno*? ¿Con quién hablo?
'*Bueno* (Hello)? Who am I talking to?'

Here any looking back in time is simply gone. *Bueno* is used to start a conversation with no reference or implication to previous context. The shift is thus completed. While absent in previous analyses this has become an increasing function in Mexican Spanish that is now well attested.

4 Conclusions

In this paper we have attempted to show that the alleged anaphoric notion of acceptance associated with *bueno* has lost prominence to render alternative more subjective pragmatic functions in Mexican Spanish. The first important change found is that corrective and self-corrective uses have become the norm. Acceptance examples were scarcely present. Moreover the marker became bidirectional as it accomplishes not only anaphoric but cataphoric functions, as suggested by Hummel (2012). Crucially, in bidirectional uses the anaphoric values have also been attenuated to remain in the base as background information and let *bueno* cover cataphoric functions. First *bueno* is used to change topic and then to cancel previous discourse contexts. It then is used to introduce a new sphere of interest. In the last stage of this development no anaphoric value is present and *bueno* operates as a window opener where new situations are introduced with no consideration of previous context. The partial continuum offered in (11) is now completed in (20):

(20) Acceptance > partial acceptance > correction > self-correction > (cataphoric shift) > topic change > closer and window to new situation > window to new situation

The shift is far from surprising. It corresponds to a continuing attenuation process where anaphora loses weight and the shift-in-view starts taking place such that looking forward in cataphoric uses increasingly gains ground. While acceptance is of course still present in current Spanish, the vast majority of uses are (self)corrective. These open the door for a discourse orientation that looks ahead and, in doing so, *bueno* opens the window for new topics, for new situations, for new discourse interactions. As the shift-in-view becomes entrenched in the system the looking forward new conceptualization is established and speakers let *bueno* be the window to explore new discourse spaces.

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Zoltán Kövecses

How does context produce metaphors?

A contextualist view of conceptual metaphor theory

Abstract: In the paper, I propose that conceptualizers derive their metaphors from four large types of experience: the situational, discourse, conceptual-cognitive, and bodily contexts. The four context types and the contextual factors belonging to them prime conceptualizers to choose their metaphors in discourse. The priming effect can take place only if the conceptualizers (both speaker and hearer) can build the appropriate conceptual pathway between the intended target-domain meaning and the particular experiential content that is primed.

1 Introduction

A contextualist version of conceptual metaphor theory requires the characterization of at least three large issues that center around the following three questions: (1) What is needed for (metaphorical) meaning making?; (2) What are the most common contextual factors that play a role in the use and creation of metaphors?; and (3) What is the cognitive mechanism by means of which the contextual factors actually produce metaphors in natural discourse? It is the third issue that I will be concerned with in this paper.

The in-depth study of discourse shows that the use of metaphors in discourse is influenced by a large variety of contextual factors. The specific contextual factors can be grouped into four large categories: situational context, discourse context, conceptual-cognitive context, and bodily context. All four of these context types can be broken down into various kinds of specific contextual factors. In Kövecses (2015), I arrived at the following inventory of types of context and the kinds of specific contextual factors that belong to them.

Situational context
- Physical environment
- Social situation

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Cultural context
Discourse context
Surrounding discourse
Previous discourses on the same topic
Dominant forms of discourse and intertextuality
Conceptual-cognitive context
Metaphorical conceptual system
Knowledge about elements of the discourse
Ideology
Knowledge about past events
Interests and concerns
Bodily context

The body is not only responsible for the production of hundreds of conceptual metaphors through the many correlations between subjective and sensory-motor experience (cf. Grady 1997a, 1997b; Lakoff and Johnson 1999), but it can also prime the use of particular metaphors in more immediate, local contexts (see, e.g., Gibbs 2006; Gibbs and Colston 2012; Boroditsky 2001; Boroditsky and Ramscar 2002). In other words, it can lead to the production of metaphors in discourse in the same way as the other contextual factors previously mentioned can.

My general claim will be that it is differential experience (as defined by the contextual factors above) that is mainly responsible for the use of (especially novel) metaphors in discourse and that the cognitive operation that helps speakers achieve this is priming. The view I propose here may be thought of as a cognitively-oriented alternative to Sperber and Wilson's treatment of metaphor use and comprehension as an "inferential process" (Sperber and Wilson [1986] 1995; 2008).

2 Priming in metaphor use

In some previous publications (see, e.g., Kövecses 2005, 2010, 2015), I showed that contextual factors can motivate, trigger, prompt, facilitate, shape, etc. the use of a particular metaphor in discourse. We can think of these various mental operations as instances of "priming". Priming is a well-studied cognitive process used extensively in psychological and psycholinguistic experiments with a sizeable literature (see, e.g., Boroditsky and Ramscar 2002; Casasanto 2009; Gibbs and Colston 2012; and several other studies). Priming is based on the

simulation of some experience in the situational, discourse, bodily, and conceptual-cognitive context.

Experiments that make use of priming as a method in their design can range from "in vitro" to "in vivo" experiments (see Kövecses 2005). In the latter, people simply go through their everyday routines constituting particular contextual factors, and the researcher asks the participants questions about the way they conceptualize a particular situation, given those experiences. Studies, such as those mentioned above, indicate that various bodily and discourse (semantic) experiences that function as contextual factors do shape the subjects' metaphorical (and nonmetaphorical) conceptualizations of the situations related to those experiences. It is shared experience (the dynamically evolving "common ground" in a situation, as used by Clark 1996) that enables the production and comprehension of metaphors in discourse.

I suggest that contextual factors can all prime the use of particular metaphors in context – simply because the choice of the metaphors would be coherent with the contextual factors functioning as primes. I think of the use of context-induced metaphors as a result of real-world (i.e., in vivo) priming without the researcher being present.

Kahneman (2011), examining the issue from a non-cognitive-linguistic perspective, gives us a flavor of the strength of priming effects in metaphorical thought. This is what he writes concerning an experiment that involves metaphorical thought:

> Other experiments have confirmed Freudian insights about the role of symbols and metaphors in unconscious associations. For example, consider the ambiguous word fragments W_ _H and S_ _P. People who were recently asked to think of an action of which they were ashamed are more likely to complete those fragments as WASH and SOAP and less likely to see WISH and SOUP. Furthermore, merely thinking about stabbing a coworker in the back leaves people more inclined to buy soap, disinfectant, or detergent than batteries, juice, or candy bars (Kahneman 2011: 56).

This experiment involves the conceptual metaphor BAD/IMMORAL IS DIRTY and some of the actions (cleaning) that are associated with this metaphorical source domain. In general, my suggestion is that the various kinds of experiences in real life can prime people to choose particular metaphors (i.e., metaphorical source domains) in the course of conceptualizing target domains.

We typically talk about "the context for/of X." The X here is metaphor, or, more specifically, the use of metaphor in discourse. It can be suggested that the context for/of metaphorical discourse is some experiential content that controls or influences the use of metaphors in discourse. This experiential content con-

sists of the four types of context identified above: linguistic-discourse context, situational context, the conceptual-cognitive context, and the bodily context.

3 What kind of experiential content has a priming effect?

In every situation we have a large amount of experiential content to deal with in the course of communication. Consequently, the question arises: Which of these will prime the speaker to produce a metaphor (and the hearer to comprehend it)? Van Dijk (2009) proposes the idea that contextual content is represented by the conceptualizers as a "context model". A context model is a(n idealized) cognitive model of the situation in which communication takes place that comprises a number of components, including the following: Setting (time, location, circumstances, props) and Happening, which consists of Actors (individuals or groups) and Activity/Conduct (Van Dijk 2009: 39). The latter can be personal, social, and mental. We can think of such elements as the components of a context model that respond to the questions below (the questions are followed by the designations of various specific contextual factors as discussed above and in Kövecses 2010, 2015):

- What do I know about the speaker, the topic, and the hearer? *Knowledge about the main elements of the discourse*
- What was said in the present discourse so far? *Surrounding discourse*
- What was said about the topic on previous occasions? *Previous discourses on the same topic*
- What are the major discourse types that dominate public discourse? *Dominant forms of discourse and intertextuality*
- What are the systems of thought that govern public discourse? *Ideology underlying discourse*
- What are the properties of the physical situation where something is conceptualized? *Physical environment*
- What are the properties of the social situation in which something is conceptualized? *Social situation*
- What are the properties of the cultural situation in which something is conceptualized? *Cultural situation*
- What has happened preceding the discourse? *History*
- What are the people participating in the discourse interested in and concerned with? *Interests and concerns*

– What are the properties of the conceptualizers' body? *The body as context*
– What is the content of the participant's conceptual system? *The metaphorical conceptual system as context*

The conceptualizers are aware of, but probably also actively seek out, the information that responds to these questions, and, as a result, they can form a specific context model in every communicative situation where metaphorical conceptualization occurs. Given the model (of all of this experiential content), only a manageable set will become sufficiently active to prime the use of particular metaphors in the discourse. The set of potential contextual factors above is the result of empirically studying discourses that contain metaphors and the situations in which the discourses were used. In this sense, the factors form a "natural" set. Thus, the results of this empirical research indicate common tendencies in metaphorical conceptualization.

Although considerably limited to the (empirically arrived-at) twelve general factors above, a decision still has to be made by the speaker concerning which particular piece of perceptual or mental information they utilize for metaphor use. The only way to further constrain the available information for the purpose of metaphor creation in discourse seems to be to take into account the particular target domain meaning the speaker-conceptualizer wishes to express in the communicative situation. Given this target-domain meaning, the appropriate source-to-target mapping(s) may be activated from the experiential content of the contextual model.

Let us take an example for this from work by Semino (2008). Semino studied the metaphors used by various participants at the 2005 G8 summit meeting in Scotland on the basis of an article about the summit. The summit was accompanied by a major rock concert called Live 8. Some participants assessed what the G8 summit had achieved positively, while some had doubts concerning its results. Semino looked at one such negative assessment she found in an article about the summit. She states:

> In contrast, a representative of an anti-poverty group is quoted as negatively assessing the G8 summit in comparison with the Live 8 concert via a metaphor to do with sound:
>
> Dr Kumi Naidoo, from the anti-poverty lobby group G-Cap, said after "the roar" produced by Live 8, the G8 had uttered "a whisper".
>
> The reference to "roar" could be a nonmetaphorical description of the sound made by the crowd at the concert. However, the use of "whisper" in relation to the summit is clearly a (negative) metaphorical description of the outcome of the discussions in terms of a sound characterized by lack of loudness. Hence, the contrast in loudness between the sounds in-

> dicated by "roar" and "whisper" is used metaphorically to establish a contrast between the strength of feeling and commitment expressed by the concert audiences and the lack of resolve and effectiveness shown by the G8 leaders (Semino 2008: 3–4).

In my view, the metaphor *whisper* here emerges from the physical(-social) context in which it is produced. Dr. Kumi Naidoo creates the metaphor *whisper* against a background in which there is a very loud concert and a comparatively quiet summit meeting. We can think of the loudness and the relative quiet of the occasion as perceptual features of the two events. Thus, the original conceptualizer, Dr. Kumi Naidoo, chooses a perceptual property of the physical context from all the experiential content that is available to him.

4 The role of conceptual pathways

However, we are still left with another question: How can *whisper* be used in the sense of 'the lack of resolve and effectiveness,' as proposed by Semino? "Whisper" and "lack of resolve and effectiveness" appear to be fairly different and distant notions. Out of the many potential experiential experiences represented by the twelve questions above, this particular one can be selected, I suggest, because the specific (target-domain) meaning, "lack of resolve," seems to be expressible by it; i.e., it can convey the desired meaning. It can convey it because a particular *conceptual pathway* (made of several conceptual metaphors and metonymies) can be built between the two meanings (between that of *whisper* and "lack of resolve"), as I show elsewhere (Kövecses 2010, 2015). This way a particular piece and kind of information (or experiential content) and a particular context-induced metaphor (*whisper*) is chosen out of the huge number of available options in the situation.

5 Conclusions

Conceptualizers derive their metaphors from four large types of experience: the situational, discourse, conceptual-cognitive, and bodily contexts. The four context types and the contextual factors belonging to them prime conceptualizers to choose their metaphors in discourse. The priming effect can take place only if the conceptualizers (both speaker and hearer) can build the appropriate conceptual pathway between the intended target-domain meaning and the particular experiential content that is primed.

This view extends the study of metaphor beyond those cases that are body-based in the usual sense in conceptual metaphor theory (i.e., correlations between sensorimotor experience and abstract ideas). The metaphors based on the situational, the discourse, the conceptual-cognitive context, together with the bodily one that involves unique features of individual bodies may represent the majority of cases of metaphor use in natural communicative situations.

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Blending effects in *bahuvrihi* compounds

Abstract: The goal of the present paper is to discuss the role of blending in *bahuvrihi* compounds, with particular attention to two peculiar Spanish compounds, *manirroto* and *cuatro ojos*. The first section describes the notion of "bahuvrihi compound", the second section briefly reviews my earlier research on the conceptual motivation of these compounds in English and Spanish, and the third section is devoted to the central topic of the article. Section 4 presents the conclusions with a brief pointer to the connection of the article with Dirk Geeraerts's research and with some of the main thematic axes of this volume.

1 On the notion of "bahuvrihi" compound

Bahuvrihi compounds (Huddleston and Pullum 2002: 1651–1652; Jespersen 1909–1949: 149–152; Quirk et al. 1985: 1576) denote a type of entity, via one of the characteristic properties of that entity. For instance, *highbrow* ('intellectual') gets conventionalized on the basis of the popular belief that intellectuals are characterized by having a lofty expanse of forehead.

Metonymy is involved in bahuvrihis. This was acknowledged long ago by Jespersen: "They [bahivrihi compounds] must be classed simply as instances of *the stylistic* trick called *pars pro toto*" (Jespersen 1909–1949: 149). Bahuvrihi compounds are a *type of* "exocentric" compound. An exocentric compounds is characterized by not being a hyponym of its grammatical head, because it designates another entity (by mentioning a characteristic property of it. That is, its semantic head is not mentioned. Exocentric compounds are therefore "*semantically* headless" compounds. Endocentric compounds, on the other hand, are hyponyms of their grammatical head, which is at the same time their "semantic head". Whereas an endocentric compound like *call-girl* denotes *a type* of girl, an exocentric compound like *scarecrow* does not designate a type of crow, but something or someone used to scare birds (which are in this case (metonymically) represented by crows). Nor does the bahuvrihi exocentric compound *fathead* designate a type of head, but a type of person (a stupid person). Despite the problems with the exocentric-endocentric distinction (Benczes 2006) we will

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maintain it at least with respect to clear examples of each category.

The exact differences between bahuvrihis and other exocentric compounds are not easy to establish. Bahuvrihis are often confused with the other exocentrics, especially with the exocentric type *V+(object)N*, which is sometimes considered as a bahuvrihi. This type is very frequent in Spanish (Tuggy 2003): *abrelatas*, *rascacielos*, *paraguas*, *sacapuntas*, *matarratas*. Its distinction from bahuvrihis is somewhat fuzzy.

In traditional sanskrit grammar, bahuvrihis are called "possessive" noun compounds. They denote an entity by means of a *reified* characteristic property that the entity possesses (in a broad sense of "possession"), and are often paraphraseable by possessive constructions: *He is a fathead – He has a fat head*. Exocentric *V+(object)N* compounds do not denote a reified property "possessed" by the entity, but a *process i*n which the entity is typically involved:

– Spanish (Sp. henceforth) *abrelatas* 'can-opener' can be literally glossed as '(it) opens cans'.
– Sp. *matarratas* 'rat poison' can be literally glossed as '(it) kills rats'.

Bahuvrihi compounds are quite heterogeneous and constitute a prototype category (Barcelona 2008; n.d.). Prototypical members exhibit the following properties:

1. They are exocentric: A characteristic property is used to denote a category that is not explicitly mentioned in the compound.
2. The characteristic property is presented as a (typically physical) entity (hence it is *reified*).
3. There exists a "possessive" relationship between the entity and the reified characteristic property: A *redcoat* is a person that has a red coat; more specifically, a member of a division of the British Army characterized by wearing read coats. A *paleface* is a person that has a pale face, more specifically a white person.
4. They profile (in Langacker's 1987 sense of "profile") a category of "things" (again in Langacker's sense) via the mention of its characteristic property. That is, they are nouns.
5. Other properties:
  – They typically denote people.
  – They are typically derogatory and de-humanizing (at least in English and Spanish).
  – They are typically informal in style.
  – They respond to a number of typical morphosyntactic patterns (see Barcelona 2008; n.d.).

They are moderately productive. As Portero (2014; forthcoming) demonstrates, the productivity of these compounds in English is much higher than traditionally believed).

2 A brief review of my previous research on bahuvrihi compounds

My detailed conceptual analysis (Barcelona 2008) of a sample of forty Spanish and English bahuvrihi compounds (BC henceforth) confirmed the traditional view (expressed by e.g. Jespersen 1909–1949: VI, among others) that these compounds are basically motivated by a metonymy. I called this metonymy CHARACTERISTIC PROPERTY FOR CATEGORY. As far as I can tell, there was no previous large scale detailed analysis of BCs from a cognitive perspective (Benczes 2006 only describes a few) and no detailed, systematic investigation of the patterns in the conceptualization of the characteristic property mapped by that metonymy. The characteristic property is also called here the "reference point property" (RPP), since to Langacker (e.g. 1999) metonymic sources are a frequent type of what he calls "reference points", which are cognitive entities allowing mental access to other entities (the targets).

In my research I found that the *patterns of conceptualization of the RPP* in BCs respond to three main types (each with several subtypes)[1]:

A. *The RPP is conceptualized non-metonymically and non-metaphorically* (i.e. "literally"), as in *humpback* 'a person with a hump', as in Sp. *sinvergüenza*, 'scoundrel', 'shameless person' (literal gloss 'without shame'), and in a few others. In *humpback* the RPP is simply "(having) a hump(ed) back", so it seems to be conceptualized literally, since the compound maps a deformed body part onto a type of person. In *sinvergüenza* the RPP seems to be conceptualized negatively and literally, since the compound maps the absence of (feeling of) shame onto another type of person[2].

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1 This section, especially the part that starts here, is a very concise and oversimplified summary of my minute analyses of these patterns in Barcelona (2008). The reader is referred to that paper for the details. The present paper has been supported in part with the financial aid granted by the Spanish government to project FFI2012-36523.

2 The meanings of Spanish and English BCs registered in this paper have been taken respectively from the *Diccionario de la Real Academia Española de la Lengua* [RAE] (2001), and the *Oxford English Dictionary* [OED] (2002). The English translation of the Spanish terms has been

B. *The RPP is conceptualized metonymically and non-metaphorically*, as in *hardtop* 'a motor-car with a rigid or fixed roof', *wetback* 'illegal immigrant who crosses a watercourse to get into the target foreign country' or as in Sp. *simpecado* 'a type of religious banner about the Virgin bearing the legend *sine labe concepta*' (literal gloss 'without sin conceived', i.e. 'conceived without sin', 'conceived immaculate'', whose Spanish equivalent is *sin pecado concebida*); *milhojas* 'yarrow' (literal gloss 'thousand leaves') a type of plant characterized by having many leaves, many of them twice divided into two strips. There are many other examples in both languages. In *hardtop*, the RPP is "having a rigid or fixed roof" and its main part ("rigid or fixed [car] roof") is conceptualized by means of such metonymies as CATEGORY (TOP) FOR MEMBER (ROOF), PROPERTY (HARD) FOR CONCOMITANT PROPERTY (RIGID), and ENTITY (A HARD CAR ROOF) FOR TYPICAL PROPERTY (BEING A FIXED CAR ROOF). In *milhojas*, the RPP is "having many leaves" and is conceptualized by means of the metonymy MEMBER (THOUSAND) FOR CATEGORY (MULTAL QUANTIFIERS), that is the morpheme {mil} 'thousand' is to activate the notion of multal quantifiers in general.

C. The RPP is conceptualized by means of metaphorico-metonymic interaction. There are many subtypes in both languages: fathead, blockhead, featherweight (in boxing); peso pluma 'featherweight' (literal gloss 'weight feather'), manirroto, cuatro ojos (see below on the meaning and the analysis of these two Spanish BCs), etc. Most bahuvrihis respond to this third general type. In fathead, the RPP is "stupidity". The metonymies as SLOW OR INADEQUATE PHYSICAL MOBILITY (EFFECT) FOR FATNESS (CAUSE) and SLOW OR INADEQUATE MENTAL FUNCTIONING (EFFECT) FOR STUPIDITY (CAUSE) jointly motivate (and at the same time activate) the metaphor STUPIDITY IS FATNESS, and the activation of the metaphorical target is further facilitated by the metonymic chain HEAD FOR BRAIN FOR INTELLIGENCE, whereas the profiling of a category of people by this BC is facilitated by the metonymy BODY PART (HEAD) FOR PERSON.

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taken in most cases from the *Collins Spanish Dictionary*, 7th edition (2003) and in other cases by internet bilingual dictionaries like http://www.wordmagicsoft.com and others.

3 Blending and compression in two peculiar Spanish bahuvrihi compounds

At least types B and C of these compounds (i.e. those whose RPP is understood metonymically or metaphtonymically) can be claimed to exhibit "blending" in Fauconnier and Turner's (2002) sense, since selected elements of the various input spaces are projected into the blended space to construct the reference-point property, which then constitutes a blend. This blend is metonymically mapped onto the category (of people, objects, etc.) conventionally profiled by the compound.

All BCs, on the other hand, can be claimed to achieve conceptual *compression* of the RPP (which is a "decompressed" property of the target category, i.e. a property singled out to mentally access and name the category) with the various members of the target category. This RPP is conceptualized either as a physical "thing", typically a body part (the back, as in *wetback*, the blood as in Sp. *malasangre* 'person with a wicked character', (literally 'bad-blood'); or as a property of a physical "thing" (e.g. the SLOW OR INADEQUATE PHYSICAL MOBILITY of "fatty" heads, which is mapped onto STUPIDITY, as in *fathead*). This physical thing or thing-property can be claimed to be blended with the target category (a stupid person would be conceptualised as a partial blend between fatty heads and stupid people), and this blend would be mediated by the CHARACTERISTIC PROPERTY FOR CATEGORY metonymy.

However, the conceptualization of the RPP itself in most of the forty cases studied in Barcelona (2008) can be explained without necessarily invoking any blending process. The blending/compression in these cases could simply be described as a by-product of purely metonymic and/or metaphtonymic processes. But there are a few BCs where an explanation of their semantics and their form in terms of blending seems inevitable. I will restrict my attention to two Spanish bahuvrihis, *cuatro ojos* and *manirroto* (the latter is a member of a sizeable group of similar Spanish BCs like *pelirrojo*, *petirrojo, patizambo, boquirroto, manilargo*, etc.

I can only discuss *manirroto* very briefly first, and then *cuatro ojos* in some more detail; see Barcelona (2008) and Barcelona (n.d.) for a fuller discussion of their semantics which, however, touches only superficially on the blending process occurring in these compounds.

3.1 *Manirroto*

A *manirroto* (masculine)/a *manirrota* (feminine) is someone 'excessively generous, liberal', a 'spendthrift' (literal gloss: 'a hand broken person', 'a person broken as to the hand'). Compare with English adjective *open-handed* (*OED*: 'free in giving, liberal, generous, bountiful'), which, however, lacks the pejorative overtone of Spanish *manirroto*.

The RPP is conceptualized in this BC by means of two metonymy-motivated metaphors, among others:

– GIVING FREELY IS OPENING ONE'S HAND (a metaphor arising from the generalization of the metonymy opening one's hands [precondition] for giving physical objects [action]).
– HANDS ARE INERT CONTAINERS, arising from metonymy-extracted source-target structural *correlation*. The term "correlation" refers here to the "structural correspondence" holding between metaphorical source and target (Barcelona 2000; 2011: section 3.3).

The blending process in *manirroto* results in the compression of the personal target of the overriding metonymy CHARACTERISTIC PROPERTY FOR CATEGORY (i.e. the category of "excessively generous, liberal, spendthrift people") with the source "thing" BROKEN HAND (expressed in Sp. as *mano rota*). This compression is involved in/results from the metaphorical conceptualization of the RPP. The blending is highlighted even morphosyntactically. The conventional form of the BC, *manirroto* (remember the literal gloss above) grammatically assigns the property BROKEN to the metaphorical personal target, not to its source "thing" (a body part in this case). Note this and other similar BCs: **manorrota*, **manosrrotas*, **manolargo*, **pelorrojo*, **bocarroto*. In these forms, which would not result from the blending of the source from the target, that property is grammatically assigned to the corresponding body part, namely the hand ('*mano*'), the hair ('*pelo*'), or the mouth ('*boca*').

3.2 *Cuatro ojos*

Literal gloss: 'four eyes'. A close English equivalent is the noun *four-eyes*, which according to the *Collins English Dictionary*[3] is a disparaging term of address for a

3 *Collins English Dictionary - Complete & Unabridged*, digital edition. 2012. London: HarperCollins Publishers. http://dictionary.reference.com/browse/four-eyes (10 March, 2015).

person wearing spectacles. The Sp. BC *cuatro ojos* is also a colloquial contemptuous way of designating a person that usually wears eyeglasses.

In Barcelona (2008) this compound was included in a special subtype of type C, namely those which exhibited a metaphorico-metonymic conceptualization of the RPP (see section 2 above). In that subtype, the reference-point property is conceptualized by means of a correlation-based metaphor developed (extended, elaborated) by a further metonymy (see above on HANDS ARE ENOUGH CONTAINERS and below on the correlation-extracting metonymies extending THE LENSES IN A PAIR OF SPECTACLES ARE EYES).

The overriding metonymy is, as in every BC, CHARACTERISTIC PROPERTY (HAVING FOUR "EYES", i.e. TWO NATURAL EYES AND TWO ARTIFICIAL "EYES") FOR CATEGORY (PEOPLE THAT WEAR A PAIR OF EYEGLASSES). The conceptualization of the characteristic property (HAVING FOUR "EYES") is conceptually fairly complex and I can only offer here a reduced version of my complete analysis (Barcelona 2008). The RPP is conceptualized, first of all, on the basis of the *specific* metaphor THE LENSES IN A PAIR OF SPECTACLES ARE EYES. This is probably a manifestation of a more *general* metaphor ANY ENTITY (OBJECTS, PEOPLE, ETC.) SERVING AS AN AID FOR SEEING IS AN EYE (Take examples like *My wife is my eyes* or *I can't do my job without my binoculars, they are my eyes*. This general metaphor expresses figuratively the fact that these entities supplement the eyes when they are not sharp enough to see certain objects. The metaphor is based on the generalization of the metonymy SALIENT MEMBER (EYE) FOR CATEGORY (SEEING AIDS) but, most importantly, it is based on a correlation-extracting metonymy that highlights the common function of the eyes and of other seeing aids.

The above mentioned specific metaphor manifesting this general metaphor seems to be motivated by additional correlation-extracting metonymies. That is, THE LENSES IN A PAIR OF SPECTACLES ARE EYES is based on these further correlation-extracting metonymies:

A. The metonymy, operating within the metaphorical source (the EYE frame), SET OF SALIENT PROPERTIES (LOCATION+SHAPE+FUNCTION) FOR ENTITY (EYE, A BODY PART). This metonymy perspectivises the EYE frame from a subset of the subdomains making it up:
- LOCATION (in the head, above the nose and on both sides of the face);
- TYPICAL SHAPE (with clear boundaries marked by the eyelashes);
  and most particularly,
- PRIMARY FUNCTION (enabling a person to see).

B. The same type of metonymy operates within metaphorical target, i.e. the PAIR OF SPECTACLES frame, and it perspectivises this frame from the same subdomains as in the source:

- LOCATION (in the head, above the nose and on both sides of the face);
- TYPICAL SHAPE (with clear boundaries marked by the glass rims);
  and most particularly,
- PRIMARY FUNCTION (enabling a person to see).

That is, these metonymies bring out the abstract structural similarity between metaphorical the source and target and thus make the metaphorical mapping possible.

This specific metaphor is developed both by basic reasoning processes within the cognitive background created by the metaphorical mapping, and by the metonymic highlighting of certain elements in the encyclopedic knowledge about the source or the target frames linked by the metaphor. I cannot discuss these two types of factors in detail here, but I will simply say that some of those further metonymies highlight the fact that both the eyes and the lenses are normally *two* in number, whereas other metonymies highlight other aspects of the source (e.g. the knowledge that the need of artificial aids to improve vision is due to poor eyesight). All this metonymically highlighted knowledge is incorporated into the highly specific figurative RPP (HAVING FOUR "EYES").

As a result of all of these metaphtonymic processes each of the lenses in a pair of glasses are linguistically labelled "*eye*" and conceptualized as "EYE" (in both cases due to the metaphorical mapping). The double quotes in "*eye*" and "EYE" indicates that the linguistic form has been subjected to polysemous lexical extension (due to metaphor) and that the meaning attached to it ("EYE") is a metaphorical concept (SPECTACLE LENSE-AS-AN EYE) emerging from the mapping.

In Fauconnier and Turner's (2002) terms, the figurative RPP HAVING FOUR "EYES" (with its associated connotations) is a metaphorical blend. Together with other factors, this blend requires the creation of an *ad-hoc generic linguistic category* '*eye*'-'EYE' which includes both the "literal" linguistic category *eye*-EYE (that is, the form-meaning pairing in the basic, body-part use of *eye*) and the metaphorical linguistic category "*eye*"-"EYE". The single quotes indicate the generic form and meaning of the ad-hoc linguistic category. This ad-hoc linguistic category is doubtless a part of the generic space in the conceptual integration between source and target. This account is also compatible in part with Glucksberg's (2001) "class-inclusion" view of metaphor.

A fundamental issue is the use of the quantifier *cuatro* 'four' in *cuatro ojos*. Items quantified by means of the same quantifier must belong to the same category at some level of abstraction. That is, both the PHYSICAL EYES and the LENSES *must have been blended into one new category* to be quantified by the same

quantifier in the same phrase. The morphosyntax of this compound manifests this conceptual blend quite clearly.

This blended RPP invites a number of further implications (imported in part from the metaphorical source and/or the metaphorical target) which are metonymically highlighted as implicatures and added to the overall slightly pejorative meaning of the compound:

A. 'If people need an extra pair of "EYES", this is because their natural eyes are deficient.' This implication is triggered in part by the metonymy EFFECT (ADDING TWO EXTRA "EYES") FOR CAUSE (THE FACT THAT NATURAL EYES ARE DEFICIENT).

B. 'People having four eyes are not "normal".' This implication is triggered in part by the metonymy TYPICAL PROPERTY (EXHIBITING ABNORMAL PROPERTIES LIKE HAVING FOUR EYES) FOR CATEGORY (ABNORMAL PEOPLE). This second implication stems out from the ad-hoc generic linguistic category '*eye*-'EYE', but it is intentionally mapped back onto the literal linguistic category *eye*-EYE, to evoke the image of a person with four physical eyes.

4 Conclusions

Cuatro ojos and the BCs following the formal pattern Nominal Modifier (ending in *-i)* + Deadjectival Nominal Head (*manirroto*, *boquirroto*)[4] are special among Spanish BCs of type C. Two types of compression can be argued to occur in them:

1. The compression between the (normally) concrete, physical source of the metaphtonymic RPP and the target category (people, objects, etc.) is a usual by-product or effect of all types of BCs.

This compression is often manifested grammatically by English and Spanish BCs by several means such as personal concord, as in Sp. *un caradura* 'a (male) cheeky person', *el caradura* 'the (male) cheeky person' (note that the head noun morpheme {cara} is feminine); personal anaphor, as in "the *blockhead* has just

4 In *manirroto* and similar compounds the lexical morpheme {roto} is a noun derived from an adjective by conversion which, as head, causes the whole construction to profile "things" (Langacker 1987: 183). And the lexical morpheme {mano}, realized as the special morph *mani-* acts as the modifier; this special form to Alvar Ezquerra (1995: 31), is probably a syntactic remnant of Latin genitive in formations of the type *barbirasus*.

come. *He*'s looking for you", and other means. This blending effect can thus be used to explain certain aspects of the grammatical behavior of BCs.

2. The compression *within* the RPP is also a usual by-product of BCs of types B and C (metonymic and metaphtonymic conceptualization of the RPP). The concrete, physical literal/metonymic/metaphorical source of the RPP can be claimed to be blended with the (usually) more abstract RPP itself into a compressed concept and expression: *wetback*, *blockhead*.

Nonetheless, the meaning and grammatical behavior of most BCs can still be explained in terms of metaphor and/or metonymy, and blending would just be a side-effect in compression levels 1 and 2.

The Spanish BCs discussed in section 3 are special because their morpho-syntax manifests compression levels even more strongly than in other BCs. Compression level 1 (compression of RPP and target category) seems to work as in most other BCs. In *un manirroto* 'a (male) spendthrift'/*una manirrota* 'a female spendthrift' the head lexical morpheme {roto} does agree in gender or number with the modifier lexical morpheme {mano} (realized as *mani*), but with the unspecified personal referent. In *un cuatro ojos* 'a male four-eyes') and in *una cuatro ojos* ('a female four-eyes'), the head lexical morpheme {ojo} does not agree in gender or number with the modifier lexical morpheme {cuatro} but, again, with the unspecified personal referent.

Compression level 2 (compression within the figurative RPP) seems to be a constitutive process in the meaning and grammar of *cuatro ojos*, not just a by-product of its underlying metonymic and metaphorical processes, unlike most other BCs. The reason is that the quantifier morpheme {cuatro} coerces the interpretation of the head lexical morpheme {ojos} as coding the generic ad-hoc linguistic category '*eye*-'EYE'.

Blending and compression can be regarded as recurrent by-products of metonymic, metaphorical and metaphtonymic processes, but not as constitutive processes in the meaning and/or the form of constructions. Or they can be regarded as constitutive process in the emergence of the meaning and and/or the form of constructions, with metaphor and metonymy being two by-products of it.

The observations discussed in this paper seem to lend some support to both claims, but the first of them still seems to account for most BCs, except perhaps for *manirroto* and the other BCs following the same pattern, and most particularly for *cuatro ojos*.

I would finally like to add a brief note on the way this paper relates to Dirk Geeraerts's work. As a paper on compounding, it is related to his work in this

area (Geeraerts 2002); his *prismatic* model is a highly suggestive proposal to exploit the interaction of metaphor and metonymy in all possible directions, not mainly (as in this paper) from metonymy to metaphor. But it resembles the "metaphtonymic" approach followed in this paper in its close attention to the intricate web of interactions underlying the emergence and understanding of most of these idioms. Most of the basic tenets of Cognitive Linguistics are already present in Geeraerts's early work (e.g. Geeraerts 1985). Some of them are also reflected in the present paper: The assumption of general cognitive abilities like "mapping" abilities (metonymy, metaphor, blending), the role of salience, the "paradigmatic" approach (which does not stand in opposition to the syntagmatic perspective), which is reflected in the recognition of BCs as constructions and of the various patterns of conceptualization of the RPP, the recognition of prototypicality in BCs (see Barcelona 2008 for further details), and the inseparability of experience-based encyclopaedic knowledge from the meaning and form of these BCs (both in the conceptualization of the RPP and in the metonymic mapping of the latter onto the target category), among others.

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Klaus-Uwe Panther

Metonymic relationships among actuality, modality, evaluation, and emotion

Abstract: In this chapter I argue that associative relations exist among the conceptual categories of ACTUALITY, MODALITY, EVALUATION, and EMOTION, and that language users exploit these relations to invite metonymic inferences. These relations are significant in the construction of illocutionary meanings; they manifest themselves in the use of e.g. "hedged performatives" such as *I can inform you that p* or *I must inform you that p*. These utterances, despite the use of the hedges *can* and *must*, typically count as acts of *actual* informing. I argue that the ACTUALITY interpretation is motivated by general metonymic inference schemas, viz. ABILITY → ACTUALITY and OBLIGATION → ACTUALITY, respectively, which, under certain contextual conditions, induce a performative interpretation. Furthermore, modal hedges, like *can* and *must*, on performative verbs also metonymically evoke target senses of positive or negative EVALUATION and EMOTION. The metonymic relation between the latter two meaning components is reciprocal and is an instance of the high-level metonymy CAUSE → EFFECT.

1 Introduction

There exists no uniform conception of metonymy in cognitive linguistics, but it is generally agreed that metonymy is a fundamental conceptual tool that allows language users to convey meanings beyond those that are explicitly coded in a linguistic message (for overviews and discussion, see, e.g., Bierwiaczonek 2013; Littlemore 2015; Panther and Thornburg 2007; Ruiz de Mendoza Ibáñez 2014). The recipient of this volume, Dirk Geeraerts, has contributed substantially to this issue and many other central topics in cognitive linguistics (for metonymy, see, e.g., Geeraerts 2010; Peirsman and Geeraerts 2006).

The classical definition proposed by Radden and Kövecses (1999), which characterizes metonymy as a conceptual means to access target meanings on the basis of explicitly coded source meanings, is compatible with the idea that metonymies are natural inference schemas (e.g. Panther and Thornburg 2003). It is also compatible with Langacker's (2008: 69) characterization of metonymy

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as a reference-point phenomenon, and the notion of prototypical metonymy developed by Peirsman and Geeraerts (2006). The inferential nature of metonymy has been argued for by a number of cognitive linguists (see, e.g., Barcelona 2011 for an overview), and it this conception of metonymy that is adopted in this contribution.

The scholars cited in the preceding paragraph advocate a relatively broad view of metonymy. In contrast, Croft (2006: 321) proposes that the scope of metonymy should be restricted to "domain highlighting of autonomous predications". The notion of autonomous predication, which Croft adopts from Langacker, holds for nouns, and Croft claims that nouns (and presumably noun phrases) are the locus of metonymy. In other words, Croft restricts the use of the concept "metonymy" to referential metonymy, which to me seems an unnecessary limitation of the scope of metonymic processes. In this chapter it is assumed that metonymies are operative on the referential, predicational, and illocutionary levels (for a justification of this view, see, e.g., Panther and Thornburg 1999, 2007).

The aim of my contribution is to provide some evidence for tight associative or conceptually contiguous relations among the concepts of ACTUALITY, MODALITY, EVALUATION, and EMOTION. These associative relations may manifest themselves as linguistic metonymies. They are especially significant on the illocutionary level; i.e., they play an important role in the interpretation of speech acts.

To illustrate the role of the above-mentioned conceptual categories in speech act interpretation, consider the evaluative statement (1a) from the *Corpus of Contemporary American English* (COCA). I claim that (1a) is metonymically linked to a modal (deontic) statement such as (1b), and to the expression of an emotional attitude in (1c); and each of (1a–c) may be used to convey a directive illocutionary act as in (1d)[1]:

(1) a. It is *bad* to mistrust those who deserve trust [...] (COCA 2003) [evaluative]
    b. You/one *should* not mistrust those who deserve trust. [deontic modal]
    c. It is an *annoying*/*irritating* attitude to mistrust those who deserve trust. [emotive]
    d. Do not mistrust those who deserve trust. [directive speech act]

1 In this example, as throughout the chapter, italics have been added to highlight relevant parts of the data.

The metonymic relations between (1a–d) can be represented as an inferential chain such as (2) (where the metonymic relation is symbolized by the arrow '→'):

(2) BAD p → SHOULD (NEG p) → ANNOYING p → REQUEST (NEG p)

In (2), p denotes a propositional content, which in the case of (1a–d) is something like 'X mistrust(s) those who deserve trust', and NEG is a negation operator.

In English there exist also metonymically exploitable relations among modalities such as ABILITY, OBLIGATION, and PERMISSION as source meanings, and ACTUALITY as their respective target meanings (see, e.g., Panther and Thornburg 1999; Panther 2015). In other words, one may posit a high-level metonymy VIRTUALITY → ACTUALITY. The following data illustrate some subtypes of this metonymy, where the first utterance is the linguistic vehicle that provides the metonymic source meaning and the second utterance represents the metonymic target meaning:

ABILITY OF SENSE PERCEPTION → ACTUAL SENSE PERCEPTION (see Panther 2015: 215)

(3) Madam President, I *can hear* a ripple of laughter from the Socialists. (Europarl parallel corpus) → I *hear* a ripple of laughter from the socialists.
(4) We *could see* the northern lights today, thanks to solar flare. (Google search, accessed March 10, 2015) → We *saw* the northern lights today [...].

ABILITY TO ACT → ACTUAL ACTION

(5) My mother was *able to raise* two kids by herself while still going to college [...] (COCA 2012) → My mother *raised* two kids by herself [...].
(6) The Huthis were *able to seize* and *hold* various government installations and military bases [...]. (COCA 2012) → The Huthis *seized* and *held* various government installations and military bases [...].

OBLIGATION TO ACT → ACTUAL ACTION

(7) We *had to cut back* on spending, as you probably know [...]. (COCA 2012) → We *cut back* on spending [...].
(8) We *were obligated to make sure* the Danish art pieces got over here. (COCA 2005) → We *made sure* the Danish art pieces got over here.

PERMISSION TO ACT → ACTUAL ACTION

(9) Occasionally he was *allowed to conduct* research for a reporter. (COCA 2012) → Occasionally he *conducted* research for a reporter.
(10) He was *allowed to make* several calls from his cell phone. (COCA 2011) → He *made* several phone calls from his cell phone.

It should be noted that the link between metonymic source and metonymic target in examples (3)–(10) is *more or less* coercive. In the case of the inference from ABILITY OF SENSE PERCEPTION to ACTUAL SENSE PERCEPTION, the link is strong, especially if the intended target denotatum is a specific perceptual event[2]. In fact, in utterances (5) and (6), an ACTUALITY reading is so strongly evoked that various linguists and philosophers of language have argued that the relation between source and target is one of semantic implication, referred to as *actuality entailment* (see Bhatt 2006: 159–176, and the references therein)[3]. The link between OBLIGATION TO ACT and ACTUAL ACTION is also tight and not cancellable in the discourse context of (7). A contributing factor that strongly evokes an ACTUALITY reading is the past tense and the perfective aspect of the modal (for the inference from OBLIGATION to ACTUALITY in French, see, e.g., Asher & Hunter 2012: 57). However, the past tense and the perfective aspect do not seem to be the only factors that induce an ACTUALITY reading. In the case of (8), the ACTUALITY inference could be cancelled quite easily, as in (11):

(11) We *were obligated to make sure* the Danish art pieces got over here; but unfortunately, we didn't manage to get them over here.

The link between PERMISSION TO ACT and ACTUAL ACTION seems somewhat looser than in the case of past ABILITY and OBLIGATION, and more easily defeasible. Under normal circumstances, it is however expected that the addressee of an act of

2 Note however that there are languages like Hungarian and some Romance languages, in which actual sense perception can only be expressed non-metonymically.

3 If this analysis is correct, some metonymies would be based on an entailment relation between source and target meaning. In many publications, the present author and Linda Thornburg have argued against such a position and maintained that the relation between metonymic source and target is contingent, i.e. in principle defeasible (e.g. Panther 2006; Panther and Thornburg 2007, Forthcoming), but detailed discussion of this issue is beyond the scope of this contribution.

permission will actually carry out the permitted action – especially if it is assumed that the action benefits the permittee.

To summarize, the conceptual domain of EVALUATION is linked to EMOTION, and MODALITY may metonymically evoke ACTUALITY. The degree of coerciveness of metonymies constitutes an interesting topic in its own right but a discussion of this issue is beyond the scope of this contribution.

MODALITY and ACTUALITY are also tightly connected with EVALUATION and EMOTION. In section 2, the central part of this contribution, the functions of these metonymic associations are investigated in more detail. My thesis is that they are relevant to a proper understanding of illocutionary acts, and evidence for this hypothesis is provided by a specific type of speech acts known as *hedged performatives*. Section 3 concludes the chapter with a summary of the metonymies postulated, and the claim that a number of the metonymies postulated are instances of the high-level metonymy CAUSE → EFFECT.

2 The role of ability, obligation, evaluation and emotivity in hedged performatives

Among illocutionary acts, *explicit performative utterances* (e.g. Austin 1962; and from a cognitive linguistic perspective, Sweetser 2001) have been extensively studied by philosophers of language and linguists. Some examples are given in (12):

(12) a. I *promise* to repeal every single Obamacare regulation. (COCA 2011)
b. I *advise* you to start selling your surplus cattle right now. (COCA 2005)
c. I *admit* we sometimes eat it five nights a week [...]. (COCA 2010)
d. I *ask* you to help me get a ticket [...]. (COCA 2007)
e. [...] I *suggest* that we work together to build a raft. (COCA 2011)
f. I *invite* you all to have a wonderful weekend. (COCA 2010)

In uttering (12a–f), the speaker performs the illocutionary acts of promising, advising, admitting, asking (to), suggesting, and inviting, respectively. In each of (12a–f), the illocutionary act performed is explicitly named by the speaker.

Under certain circumstances, English and many other languages allow an illocutionary verb to be "hedged" by a modal or attitudinal expression without any effect on the illocutionary force of the utterance in question. In one of the

first pioneering studies in hedged performatives, Fraser (1975: 187) provides (made-up) examples like the following (my numbering):

(13) a. I *can promise* that we will be there on time.
b. I *must advise* you to remain quiet.
c. I *have to admit* that you have a point.
d. I *wish to invite* you to my party.
e. I *will* henceforth stipulate that x = 4.5.
f. I *might suggest* that you ask again.

Fraser (1975: 187) observes that "[e]ach example sentence has the general form of a performative sentence, and each may count as the performance of the illocutionary act denoted by the performative verb [...]". The sentences (13a–f) differ from explicit performative utterances "in that each contains a modal or semimodal" (187). Fraser also notes that the modal or attitudinal hedge is not a semantically empty element but makes a contribution to the overall meaning of the utterance in question. For example, (13a) has the illocutionary meaning 'I promise that we will be there in time', but there is also some additional meaning provided by the modal *can* (see below).

The interesting point about such modal hedges on performative verbs is that they may or may not affect the illocutionary force denoted by the performative verb. There are two possibilities regarding the semantic-pragmatic relation between hedges and performative verbs:

1. The modal is conceptually and pragmatically compatible with the performative verb and does not affect its illocutionary force. Such cases are genuine hedged performatives and are henceforth called *illocutionary force preserving*.
2. The modal is compatible with the illocutionary verb, but has the effect of *blocking* the force denoted by the performative verb.

Whether the hedge is illocutionary force preserving or not depends on the kind of hedge that specifies the performative verb in question. In sections 2.1 and 2.2, illocutionary force preserving hedged performatives are discussed and, by way of example, the contribution of the meaning of the modal hedges *can* and *must* to the overall meaning of the illocutionary act is analyzed. Section 2.3 discusses some utterances in which the modal cancels the illocutionary force denoted by the performative verb.

2.1 Illocutionary force preserving hedges: the positive role of *can*

Let us begin with a case in which the modal hedge *can* is used with an illocutionary verb of assertion:

(14) I can *inform* you that the government of Australia has changed for just the seventh time. You obviously enjoy hearing it [...]. (WebCorp)

Utterance (14) is a transcript from a speech given by the newly elected Prime Minister of Australia on September 7, 2013. In the first sentence, the Prime Minister-Elect *informs* his followers that the government of Australia has changed, i.e., the expression *can inform* metonymically evokes the actual act of informing, based on the metonymy ABLITY TO ACT → ACTUAL ACTION, and, more specifically, ABILITY TO PERFORM THE ILLOCUTIONARY ACT→ ACTUAL PERFORMANCE OF THE ILLOCUTIONARY ACT. Furthermore, the modal *can* induces the inference that the speaker of (14) believes he is *legitimized* to inform his audience about the change of the government. The term *legitimized* is meant as conveying that the conditions for a felicitous performance of the speech act of informing are fulfilled, including in this case e.g. that the speaker is an authorized spokesperson for a political party or government institution. Apart from triggering an actuality interpretation, *can* conveys implicitly that the propositional content of (14) is *evaluated* as positive, i.e. as good news. The "good news" implication, in turn, gives rise to an *emotional* reaction, viz. the propositional content of the illocutionary act causes, or, at least, is expected to cause, a feeling of pleasure, joy, or happiness in both the speaker and the hearer. This interpretation is bolstered by the second clause in (14) *You obviously enjoy hearing it*.

In this context, it is important to note that the act of informing *per se* has neither positive nor negative evaluative or emotional implications; the positive evaluation and emotional stance are brought into the semantic-pragmatic picture by the modal *can*.

Schematically, the metonymic inferences involved in (14) can be diagrammed as in Figure 1.

As another example with the hedge *can*, this time retrieved from the *Global Web-Based English* corpus (GLoWbE), consider the hedged recommendation (15):

(15) I *can recommend* the octopus and cress salad, and juicy scallops on a johnnycake (a cornmeal pancake). (GLoWbE 2011)

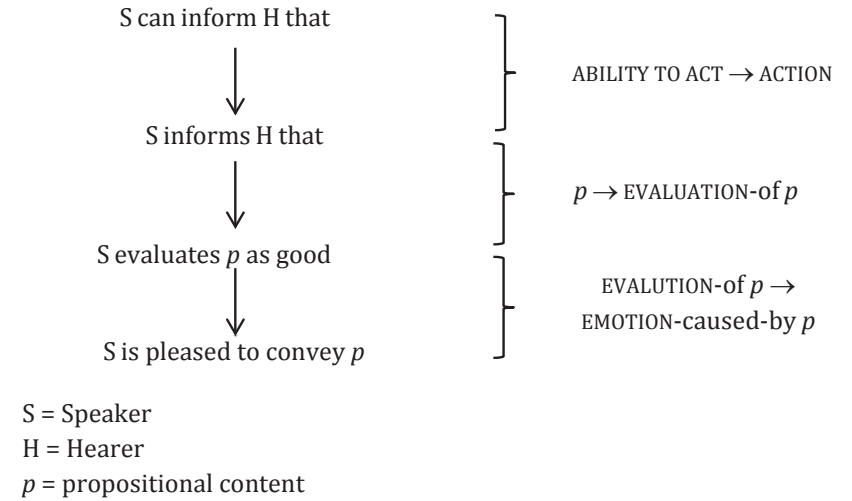

Fig. 1: *I can inform you that p*

Sentence (15) appeared in a newspaper article on the sights and local foods of San Diego. The writer *recommends* the octopus and cress salad, etc., on the menu, although he literally merely *says* that he *can recommend* these menu items. Literally then, in writing (15), the author asserts what kind of dishes he is able to recommend. As in the case of (14), the illocutionary force of recommending comes about through the metonymy ABILITY TO ACT → ACTUAL ACTION (see also Panther and Thornburg 1999).

The additional inferences triggered by *can* are analogous to those in (14). First, the author of (15) implies that he feels competent and/or legitimized to recommend the menu items in question because of his expertise as a travel writer and food critic. Second, there is, as in (14), an implicit positive evaluation of the propositional content *p* and a corresponding positive emotional stance. One important difference between (14) and (15) is however that in (14) the act of informing as such is evaluatively and emotionally *neutral*; the modal *can* (and possibly additional contextual factors) trigger a positive evaluation and emotion. In contrast, in (15), a positive evaluation is already an intrinsic part of the illocutionary scenario of a recommendation. The scenario contains a component '*p* is beneficial to the hearer'. The modal *can* thus reinforces an inherently given evaluative component of recommendations.

An illocutionary category that is especially "*can*-friendly" is the one that in Searle's (1969) terminology is called *commissive*. A common way to formulate a promise is (16):

(16) I *can promise* you that we won't give up [...]. (COCA 2001)

As in the other examples discussed so far, the use of *can* in (16) gives the hearer to understand that the speaker is legitimized to perform the commissive act, and a promise is in fact performed by the speaker. The PROMISE scenario contains as one of its meaning components the speaker's belief that the promised action (propositional content) benefits the promisee. Promises are thus, by definition, characterized by a positive evaluation of their propositional content. This positive evaluation is reinforced by the implications conveyed by the hedge *can*, which itself triggers metonymic inferences of evaluation and emotivity that are compatible with promises.

The same picture as for *promise* holds for other commissives such as *guarantee* and *offer*:

(17) And I *can guarantee* you that I will not be the only Democrat working for his re-election. (COCA 2004)
(18) I *can offer* you a month's wages and the fare for your transportation home to New England. (COCA 1994)

Both *guarantee* and *offer* are speech act verbs whose propositional contents are evaluated as good and that are therefore prone to produce sentiments of joy and contentment. As in the case of (14)–(16) *can* highlights these meaning components even more than they would have been if a non-hedged explicit performative utterance had been uttered.

2.2 Illocutionary force preserving hedges: the negative role of *must*

The assertive verb *inform* not only appears with *can* in hedged performative constructions but also with *must*:

(19) I *must inform* you that we are under no obligation to provide you any other documents other than those directly related to the payment of the invoice [...]. (GloWbE, GB)

The inferential structure of *I must inform you that p* is represented in Figure 2.

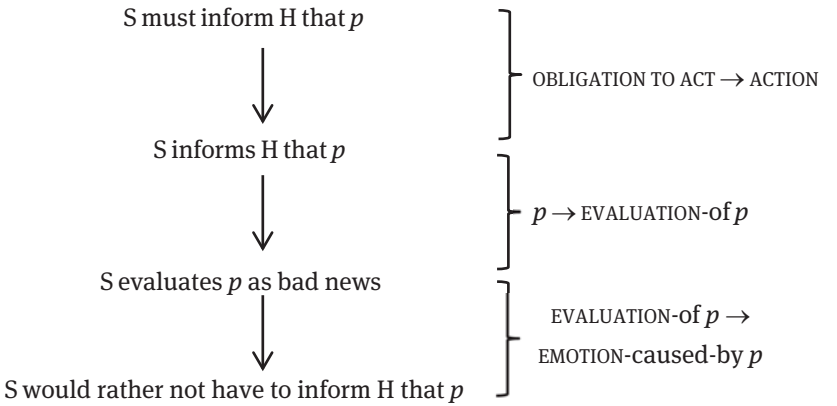

Fig. 2: *I must inform you that p*

The use of *I must inform you that p* counts as an act of informing – just like *I can inform you that p*. However, the pragmatic implications of these two minimally contrasting constructions are quite different. The performative interpretation of *I must inform you that p* is sanctioned by the metonymy OBLIGATION TO ACT → ACTUAL ACTION. Furthermore, in addition to producing an actuality effect, the modal *must* often correlates with a negative evaluation of the speech act and its propositional content *p*. In using the modal *must*, the speaker implies that she would rather not or only reluctantly perform the speech act because it conveys bad news for the addressee. Indirectly, the speaker distances herself from her own illocutionary act, conveying that it is the consequence of circumstances beyond her control. Nevertheless, in stating her duty to perform it, the speech act is actually performed.

The following example can be analyzed along the same lines:

(20) Although I am loath to broach this subject, I *must notify* you that the timely removal of his personal property will obviously impact the amount of money I am able to return to you. (COCA 2007)

Example (20) is to be interpreted as an actual act of notification. The propositional content is, at least potentially, negatively viewed, and, at the same time, the speaker/author gives to understand that the bad news for the addressee is not his or her responsibility.

In the following example, the reluctance to perform the illocutionary act of admitting is already implied by the performative verb itself, but it is reinforced by the use of *must*:

(21) I *must admit* you did it quite cleverly, but it was a wicked thing to do nonetheless. (COCA 2005)

There is also an implicit evaluation in (21), but, different from (19) and (20), where the propositional content is evaluated as bad for the addressee, the speaker of (21) assesses the action 'You did it quite cleverly' as bad, i.e. negative, for his own self-image, as becomes clear from the ensuing context, which qualifies the action carried out by the hearer as *a wicked thing to do*.

Negative evaluation of the propositional content is also an interpretive feature in the following example:

(22) I *must warn* you that this is not a propitious time to sell – in the middle of a war [...]. (COCA 2004)

Utterance (22) is not just a statement of the speaker that she is under some obligation to warn the hearer (source meaning), but it constitutes an actual warning (target meaning). A warning is a hybrid illocutionary act because it has an assertive force, i.e., its propositional content has a truth value; but implicitly it is also a directive speech act (see Panther and Köpcke 2008: 106). In (22), the propositional content 'It is not a propitious time to sell in the middle of a war' licenses the inference 'Do not sell'. The reasoning that leads to the hedging of the performative verb *warn* with *must* can be informally reconstructed as follows:

(23) a. S knows/believes that H wants to sell.
b. But selling in the middle of a war is bad for H, because H would probably not get the desired price.
c. S therefore feels it is her duty/obligation to warn H of the possibly bad consequences of the action that the hearer intends to perform.
d. S warns the hearer of the possibly bad consequences of the action that H intends to perform.

Typical directive verbs such as *ask (to)*, *insist (on)*, and *urge* co-occur quite readily with *must* to yield hedged performatives:

(24) Once again, I *must ask* you to lower your voice. (COCA 2011)
(25) Mr. Podgers, I *must insist* on your giving me a straightforward answer to a question I am going to put to you. (COCA 2003)
(26) I *must urge* you, too, to seek counseling, Mrs. Abbott. (COCA 1994)

Apart from signaling that the speaker performs the directive speech act with some reluctance but feels it his or her duty to perform it, *must* conveys a strong evaluation to the effect that the addressee did something inappropriate. In uttering (24), the speaker indirectly refers to the hearer speaking in a loud voice, a behavior that is deemed unacceptable. In (25), the speaker appears to suspect the hearer of not being willing to give a straightforward answer to his question; and in (26), the possibility that Mrs. Abbot is not going to seek counseling is also indirectly evaluated as undesirable. In all of utterances (24)–(26), a metonymic inference is conveyed that some state-of-affairs evoked by their propositional contents is characterized by the feature BAD.

Expressive speech act verbs are quite productively hedged with *must*. But contrary to what has been observed with directive verbs, expressive verbs specified by this modal do not necessarily signal that the speaker would rather not perform the illocutionary act denoted by the expressive verb. In fact, the term *hedged performative* does not even seem felicitous in this context. Thus, examples such as (27)–(30) convey that the speaker feels it is his or her moral or social duty to perform the speech act in question, but does not necessarily give to understand that this act is performed only reluctantly or unwillingly:

(27) I *must apologize* for not being here in person, but I am surprised, even astonished, and honored, to be making this acceptance speech here this evening. (COCA 2001)
(28) I *must thank* you for the dance, and even more for your conversation, Miss Bennet. (COCA 2008)
(29) I *must congratulate* you on your choice of marriage partner, Blake. (COCA 2001)
(30) Things are well. I *must congratulate* you on your successful trip through Europe. (COCA 2001)
(31) Higgins, I *must compliment* you, you have an excellent crop of students [...]. (COCA 1993)

As is well known, expressive speech acts convey an emotion (often accompanied by an evaluation). In (27)–(31) *must* has the function of *intensifying* this emotive meaning[4]. Thus, in (27), *must* intensifies the degree of contrition or regret, which is an inherent meaning component of the apology scenario. Also, there appears to be an intensification of the evaluation that it is bad that the speaker is not *here in person*. In (28), the feeling of gratitude the speaker expresses seems to be much stronger than it would have been in an explicit performative utterance *I thank you for the dance [...]*. Analogously, the degree of joy and positive evaluation conveyed by the speaker in (29) and (30) regarding the *choice of marriage partner* and *successful trip through Europe* is stronger than in the corresponding plain performatives. Finally, (31) constitutes a stronger compliment than the unspecified explicit performative *I compliment [...]*. It should also be noted that in examples (27)–(31) *must* has the function of intensifying the evaluation of the respective propositional contents as GOOD, much as *can* does in the commissive sentences in (16)–(18).

2.3 Blocking the force of the performative verb

So far modally specified performatives have been considered that preserve the illocutionary force expressed by the performative verb. In this section, I briefly consider some cases in which the modal has the effect of *canceling* the illocutionary force of the performative verb. The result of this operation is an assertive speech act.

Consider the following pieces of fictional discourse:

(32) "I'm the captain of this craft," Pancho said firmly. "I *can order* you to stay inside." (COCA 2001)
(33) He gave her a crooked grin. "And I'm the owner. I *can fire* you." "Not till we get back to Selene." (COCA 2001)

In (32), the character named *Pancho* does not order his interlocutor to stay inside. The utterance *I can order you to stay inside* merely conveys that Pancho feels authorized to do so. The utterance states the possibility of a future order. Analogously, in (33), which is taken from the same narrative, Pancho gives to understand that he is entitled to fire the female interlocutor, but in saying *I can*

4 I would like to thank Linda Thornburg for her suggestion that in expressive performatives specified by *must* this modal has an intensifying function.

fire you he does not actually fire her. The utterance is literally a statement and indirectly functions as a threat to fire the addressee.

Why would *order* in the construction *I can order you to VP* lose its performative force? One explanation is that *can* implicates that the illocutionary act denoted by the performative verb, and, by inheritance, its propositional content, is to be evaluated positively (GOOD) and conveys a positive emotional stance such as JOY or CONTENTMENT (see Panther 1981). Recall e.g. the contrast between *I can inform you that p* (positive evaluation/emotion) and *I must inform you that p* (negative evaluation/emotion). Given their impositive and face-threatening character, orders are generally not evaluated by addressees as positive acts that induce positive feelings.

In contrast to orders, which evoke negative connotations, promises are judged to be "positive" speech acts; the purpose of a promise is to do something good, i.e. something that benefits the hearer. *Promise* therefore collocates very well with *can* (see (16)), preserving and enhancing or intensifying the illocutionary force of the performative verb. However, although the collocation *I must promise* is possible, the modal cancels the illocutionary force of the performative, as can be seen from example (34):

(34) A kid from La Jolla told me about surfing and the sun-bleached rituals of the California beaches and the small coast towns I *must promise* to visit one day. (COCA 1997)

The result of combining *must* with *promise* in (34) is that the utterance is understood as the assertion of an obligation to perform the commissive speech act in the future. The loss of performativity is apparently caused by the pragmatic incompatibility between "positive" *promise* and "negative" *must*.

The reader will have noticed that assertives, commissives, directives, and expressives can be produced by means of hedged performatives, with certain constraints, some of which have been addressed in this chapter. But what about declarations? Declarations are like assertives in representing reality, but, in addition, if they are performed by authorized speakers, they *create* reality. Verbs of declaration cannot be hedged by modals without losing their performative character. Thus, (35a) is an act of pronouncing a couple man and wife, but (35b,c) are not declarations:

(35) a. As your pastor, I *pronounce* you man and wife. (COCA 1991)
b. As your pastor, I *can pronounce* you man and wife.
c. As your pastor, I *must pronounce* you man and wife.

Similarly, (36a) constitutes, if uttered by an authorized person, an act of appointing, i.e., the addresses *is*, as a result of the speech act, the official East-West Dialogue Contact Person. In contrast, in (36b, 36c) *can* and *must*, respectively, cancel the illocutionary force of appointing. Utterance (36b) functions as an offer to become the contact person in question, and (36c) is a statement of some obligation that is to be fulfilled in the future.

(36) a. I *appoint* you our official East-West Dialogue Contact Person. (COCA 2000)
b. I *can appoint* you our official East-West Dialogue Contact Person.
c. I *must appoint* you our official East-West Dialogue Contact Person.

One of the reasons for this idiosyncratic behavior of declarations may be that they require extra-linguistic institutions and, unlike other illocutionary types, they do not convey any kind of mental attitude, including beliefs, intentions, evaluations, or emotional attitudes (see Searle 1976: 15).

3 Conclusion

In this contribution I have made a case for associative relations among ACTUALITY, MODALITY, EVALUATION, and EMOTION. My main thesis is that these relations manifest themselves as metonymies in English, and presumably also in many other languages. These associative relations are not conceptually necessary, but what Panther and Thornburg (2007) call "contingent". The most important metonymies postulated in this chapter are summarized in (37)–(40).

(37) VIRTUALITY → ACTUALITY

The metonymy in (37) is a high-level inferential schema, two subtypes of which have been discussed in more detail in this chapter:

(38) a. ABILITY TO ACT → ACTUAL ACTION[5]
b. OBLIGATION TO ACT → ACTUAL ACTION

5 It is important to note that the reverse relationship, i.e. with ACTUAL ACTION as the source and A as the target, does not hold in the conception of metonymy proposed by e.g. Panther and Thornburg (2007). This latter relationship is not contingent, but one of semantic entailment.

I have also assumed that propositional contents *p* tend to be evaluated and that language users also have some emotional attitude towards *p*. The propositional content *p* may denote all kinds of states-of-affairs including events, actions, and more abstract situations. These metonymic relationships are given in (39):

(39) a. $p \rightarrow$ EVALUATION-OF p
b. $p \rightarrow$ EMOTION-CAUSED-BY p

Furthermore, I have argued that ABILITY in general triggers a concept of POSITIVE EVALUATION, such as GOOD, and a POSITIVE EMOTION, such as JOY, whereas OBLIGATION often (though not necessarily) evokes a NEGATIVE EVALUATION and a corresponding NEGATIVE EMOTION regarding a speech act and its propositional content.

From the preceding remarks, it follows that the concepts EVALUATION and EMOTION themselves are also metonymically linked. EVALUATION evokes EMOTION, but the reverse also holds: EMOTION can be the source for the target EVALUATION. This relation can be represented by means of two arrows pointing in opposite directions:

(40) EVALUATION $\rightleftarrows$ EMOTION

On a final note, I suggest that (39) and (40) are instances of the ubiquitous metonymic schema CAUSE $\rightarrow$ EFFECT. A propositional content may cause an evaluation of this content and emotional attitude towards it. And, last not least, there are strong ties of reciprocal causality between evaluations and emotions that are available for linguistic exploitation.

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Part Three: **Recontextualizing grammar**

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On the origins of cognitive grammar

Abstract: Cognitive grammar became prominent in the late 1980s both in Europe and in the United States. In Europe it arose in large part as a return to pre-structuralist approaches to linguistics, grounded in the hermeneutic tradition. In the United States it may have emerged as a descendent of the earlier, formalist theory called generative semantics. This paper explores the American roots of the theory and specifically investigates the way in which cognitive semantics is a more or less direct descendent of the formalist theory. Various aspects of the two approaches are compared, among them the role of semantics as fundamental to human language, psychological reality, and the intersection of semantics and pragmatics, all of which point toward a direct inheritance. On the other hand, representations of internal structure and the basic conception of meaning differentiate the theories to a point where direct inheritance is less likely.

1 Introduction

In the concluding chapter of *Diachronic prototype semantics* (1997), Dirk Geeraerts argues for affinities between cognitive semantics and pre-structuralist, historicist approaches to linguistics. He proposes several similarities in these approaches: first, they both emphasize the flexibility of linguistic categories and with this flexibility a less rigid view of the relationship of synchrony and diachrony than that found in structuralist models. Both approaches, secondly, take a strong view of psychological reality by foregrounding the role of the individual speaker/hearer; language meaning and change in that meaning must be derived from the nature of the mind and of mental representations. Finally, neither approach isolates encyclopedic knowledge from purely semantic meaning. It is not a distinction which was discussed in pre-structuralist linguistics and has been abandoned in the cognitive tradition.

What links pre- and post-structuralist (cognitive) linguistics, Geeraerts further argues, are their hermeneutic underpinnings. Each approach is based on the notion that the fundamental task of semantics (broadly construed) is interpretation since, in turn, interpretation is basic to human cognitive functioning.

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Categories and their constituent members, therefore, are a form of interpretation, as is the realignment of membership in a given category which brings about linguistic change. This is not to say that cognitive semantics itself is solely, or even primarily, historical; rather, the similarities outlined above to19th-century approaches are not constrained to diachronic studies within the theory. In the same way, other hermeneutic approaches may be synchronic, diachronic, or, like this linguistic theory, blur the sharp edges between the two imposed by structuralist theories.

This very brief summary illustrates one of the ways in which we can frame the emergence of cognitive linguistics, based on a comparison of theoretical approaches. There is no claim, however, that the contemporary theory was directly influenced by 19th century linguistics; Geeraerts is careful to talk of affinities between the two, sharing as they do an overarching hermeneutic viewpoint, but without any necessary direct inheritance. The distance in time is too great, of course and there is no claim that early cognitive semanticists immersed themselves in 19th century linguistics.

This is not, however, the only claim that can be made about the origins of cognitive linguistics. It has been suggested, for example, that other early practitioners of cognitive linguistics, and especially those who came to it from earlier adherence to American generative approaches, were directly influenced in their thinking by the relatively short-lived theory of generative semantics. George Lakoff, for example, in *Women, fire, and dangerous things* (1987: 582), says "[c]ognitive grammar, as I have presented it, has developed gradually over a number of years, evolving from generative semantics and case grammar through the theory of linguistic gestalts to its present form. [...] I view cognitive grammar as an updated version of generative semantics." This view is echoed by John Goldsmith (dust jacket of Lakoff 1987) who approves of and elaborates on this view: "George Lakoff stood at the center of the controversies that stirred around generative semantics in the late sixties, and now he plays a similar role in the cognitive linguistics movement that is likely, in Lakoff's view, to fulfill the promises that generative semantics was not able to keep"[1].

1 On the other hand, Ronald Langacker sees cognitive linguistics as unique. In the "Introduction" to his *Foundations of cognitive grammar* (1987: 4), Langacker muses on the origins of this theory and states that "[c]ognitive grammar is not in any significant sense an outgrowth of generative semantics, but it does share with that conception a concern for dealing explicitly with meaning, and for providing a unified account of grammar and lexicon". This comment reflects the same point of view Langacker had expressed almost ten years before, at a time when his theory had a different name (1978: 853): "[space grammar] differs substantially from any established theory."

Geeraerts (1997) takes care, in examining the relationship between pre-structuralist theories and cognitive grammar, to talk about "affinities" and that word, in its signaling the lack of any direct relationship, is key. It points to shared underpinnings which emerge in both frameworks. On the other hand, the relationship between generative semantics and cognitive grammar has been claimed, in varying degrees of absoluteness, to be a question of direct inheritance.

It can also be stated that cognitive semantics arose out of both traditions, the more European pre-structuralist and hermeneutic strand which might be exemplified by Geeraerts's (1997) description, and the more North American strand of generative semantics. They are not mutually exclusive, of course, and not entirely geographically determined. It is the case, however, that the relationship with generative semantics has not been greatly explored; attention has generally been paid to the more European roots of the theory. The rest of this paper, then, is an exploration of the particular relationship of these two approaches to the nature of language. The intent is to examine generative semantics and cognitive linguistics through their similarities and differences in an attempt to uncover both the areas of direct influence and also divergences. Cognitive linguistics and generative semantics will be very briefly outlined in section 2, followed, in section 3 by a more detailed consideration of certain convergences and points of difference. Finally, the last section will present conclusions on the likelihood of direct (or less direct) inheritance.

2 The theories

Cognitive grammar emerged in the late 1970s and in the beginning of the 1980s[2]. It was called variously space grammar (Langacker 1978, 1981, 1982) and cognitive linguistics (Lakoff 1977, 1982)[3]. From the earliest papers addressing versions of the questions which have since become cognitive grammar "trademark" issues like prototypes and radial sets (among others Labov 1973, Fillmore 1975, Langacker 1976; not all of whom have ever been identified with the theory),

2 Because George Lakoff and Ronald Langacker were, arguably, the earliest American theoretical linguists to be associated with cognitive linguistics, most of the illustrations of the points of view this framework will be drawn from their work.

3 As Langacker (1987) states, he decided for a range of reasons to abandon the name "space grammar". It would be interesting, although beyond the scope of this paper, to examine the intersecting uses of "cognitive semantics" and "cognitive linguistics".

there have been strong claims about the psychological reality of its hypotheses on the nature of linguistic processing and production. In these works and all subsequent ones, claims about language are tied directly to claims about the way the brain – and even body – function, so that, for example, Fillmore (1975: 123) talks about human beings' physical knowledge of what he calls "orientation frames" which include such notions as "up/down" and "right/left". Labov (1973) discusses the differences between the denotation of "mug" and "cup" as on a continuum and suggests experiments (at least mind experiments) to test his hypotheses with the goal of revealing the workings of the mind.

Secondly, also from the beginning, the theory and its precursors have concentrated on the meaning of linguistic items (called "units" within cognitive grammar). By the mid-1970s, Langacker (1976: 315) had already expressed doubts about there being a sharp division between syntax and semantics since they have the same motivation. He had already developed a stronger conceptualization of language, in which semantics is presented as occupying one pole of the unit under consideration (the other being its phonological/morphological shape). This view of the nature of the unit is close to but not identical to Saussure's ([1915] 1981: 99) since in this instance the so-called semantic pole reflects meaning in a number of ways and for all kinds of units, and not solely defined as the external referent of single words. We will return to the nature and place of semantics in these theories and others in the discussion below.

Generative semantics emerged earlier, in the mid-1960s, in reaction to certain tenets of the then-current version of generative grammar, in particular, those concerning the nature of deep structure. Without going into great detail (for that see Newmeyer 1986, Harris 1993 and the bibliographies contained in both), what divided the earlier variant of generative theory which came to be known as interpretive semantics (Chomsky 1965, 1970) from the rebellious generative semantics (McCawley 1976 is a typical statement) was whether deep structure was the same as semantic representation – the generative semantics view – or was rather purely syntactic in nature, as held by interpretive semantics following Chomsky. The consequences were important for a generative theory of grammar; if deep structure was the same as semantic representation then it followed that an elaborate apparatus of transformations was necessary to derive surface structure from this very abstract underlying form. On the other hand, if deep structure was exclusively a matter of grammatical structure, the question was one of the locus of lexical insertion into the structure, with the "stuff" of meaning being stored very much in the form of independent words in the mental lexicon and in a complex set of semantic interpretation rules which took as input the deep structure with inserted lexical items. Since many fewer

claims of semantic relatedness were to be made, transformations were of a different sort and, at the time, much less powerful. They were conceived of as operating on deep structures which were only slightly different from the target surface structure[4], since the changes they made were much less radical and in some ways less complex than those posited in the generative semantics model.

Even from this rather brief overview of generative semantics and cognitive linguistics it is clear that there are some similarities. They are both concerned with meaning and both are interested in a large range of linguistic phenomena, perhaps a wider range than the mainstream formal theory they each, in their time, reacted against. These similarities do not, necessarily, mean that there was a relationship between them, however, and we must look deeper to decide if there was indeed one and what form it took. The question, then, can be set out as a kind of multiple choice question, as follows: to what extent did cognitive linguistics: a) emerge from nowhere around 1975, b) follow directly from some other linguistic theory prevalent at about the same time (specifically generative semantics), or c) develop in the scientific milieu of its time without direct influence from any one theory? It must be said that option a) is very unlikely since theories rarely if ever emerge out of nothing. For b) to be fully correct, it would be necessary to show direct influence. However, there are a number of differences, from the beginning and the timing is not quite right for such *direct* succession; by the time cognitive linguistics emerges, generative semantics is already waning. Option c) avoids the rigidity of the claim made by b) since it allows for multiple sources for the theory despite the fact that the American founders were themselves part of the generative semantics movement. The next section explores these options in greater detail.

3 Comparison

3.1 Similarities

3.1.1 The most salient similarity between cognitive linguistics and generative semantics is the basic role played by semantics in the conceptualization of language in both theories. In the earlier theory, this basic role, as was said above,

4 It should be pointed out that contemporary syntactic structures within the minimalist theory greatly resemble generative semantics deep structures, at least in terms of the sheer number of nodes and levels between the root S-node and the terminal nodes of the lexical items; we, however, are talking about the 1960s and 1970s.

was closely tied to the semantic nature of deep structure. If semantic representation is the core of this component, it is impossible to think of structure as far separated from meaning, not just in the case of individual words or compounds (the smallest items to have internal structure), but also in complex grammatical structures like sentences. There is, in fact, no principled division between grammar and the lexicon for this very reason. Cognitive linguistics is in agreement on the basic semantic structure of language. Rather than thinking in terms of deep and surface structure, however, it states the same conclusion in a somewhat different way. Syntax, here, is directly symbolic of meaning (Langacker 1987: 2) and exists to provide, through conventionalization, a relatively restrained set of structures which reflect certain basic conceptualizations of the world. In this approach, for example, the difference between (1a) and (1b) is semantic, since, as will be discussed below, part of meaning is the focus it indicates for any given element. Here the recipient is in focus in the first sentence and the item being transferred gains greater salience in the second; it is explicitly claimed that this is a meaningful difference and not just "mere" pragmatics.

(1) a. Kim gave the book to Marion.
    b. Kim gave Marion the book.

3.1.2 The two theories also share a strong belief in the psychological reality of their claims, that is, that what is being hypothesized is not just a construct that accounts for the facts that have been presented, as, perhaps, one of several ways of making sense of them. Rather, the claim is that there is a straightforward and robust link between language and general cognition; language is – in one way or another – truly in the mind. This kind of commitment informs most versions of generative linguistics, with Chomsky eventually claiming (1975: 77) that language is a mirror to the mind. Generative semantics's heyday predates this specific declaration and subsequent debates on the modularity of the human mind, with one or more modules being specifically linguistic. More specifically the generative semantic version of the claim of psychological reality is based on the nature of meaning, to be discussed further below. In brief, syntactic deep structure reflects the notion that human beings divide the structure of language at the level of the sentence or clause into subjects and predicates. While not much was being made of universals of human language at the time, the implicit belief was that this structuring belonged to general human cognition.

Cognitive grammar makes a similar general claim, that language is produced and perceived in accord with structures of the mind. It is, however, a non-modular account, so much so that where generative semantics implies modularity before the fact, cognitive grammar, having arrived on the scene after this became an open debate, explicitly denies it[5]. Rather, in lieu of hypothesizing parts of the brain dedicated to language function, linguistic analysis (in the pan-human, not academic sense) makes use of more general functions such as scanning, assignment of salience, and, most importantly, categorization (Lakoff 1987 is a landmark statement). In all these cases (general generative grammar, generative semantics, and cognitive linguistics) the relationship between language and cognition is explicit, although the details of the relationship vary quite a bit. Since generative semantics predates overt consideration of modularity, cognitive linguistics is, of course, not debating that point with practitioners of that framework, but rather with Chomskian linguistics *grosso modo*.

3.1.3 Finally, let us consider the relationship between semantics and pragmatics in these two theories. For both the difference between these components is a matter of degree rather than clear-cut qualitative differentiation. Within cognitive linguistics, both what is traditionally called semantics and what is traditionally called pragmatics are different aspects of meaning, lying most usually along a continuum. There are, of course, meaningful units which are more centrally semantic or pragmatic; the choice of pronoun of direct address in many languages (the so-called T/V distinction) depends crucially on complexities of the social relationship of speaker and hearer, certainly a pragmatic consideration, while the relationship between *over* meaning "above" and *over* meaning "finished" is much more typically semantic. Between these two extremes, however, we find many units where both semantics and pragmatics are at issue. To take up again the examples in 1, it is certainly the case that one's understanding of the two sentences derives from the meaning of the verb *to give* and its relationship to the giver, the recipient, and the item being conveyed from one to the other. However, as was already pointed out, the relative salience of the recipient and the book in question here is a pragmatic question which also contributes to the meaning of the entire utterance and, as a result, the way it is structured.

Within generative semantics the approach to this question is slightly different. Where cognitive linguistics takes as a departure point that semantics and

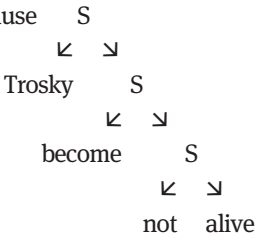
5 An exception is within phonology which, because of its close relationship to the phonetic pole of language and thus to human anatomy, may be more independent of other parts of the brain than would be the semantic pole (Geoffrey Nathan, p.c.).

pragmatics are on a continuum with most meaningful units showing aspects of both, generative semantics places pragmatic information in the deep structure alongside meaning but isolated from it. The theory did so by means of what were referred to as "performatives" (Sadock 1988, based on Austin [1955] 1962), that is, deep-structure elements which indicated the illocutionary force of the sentence, a pragmatic element. Through a node in the deep structure, sentences are designated as declarations or questions, an inheritance in categorization from traditional grammar, but also as promises, commands, requests, and other types recognized as distinct in philosophy but not usually in grammar. The link to semantics comes from the location of such indications in the deep structure which is, of itself, semantic in nature. This binding of semantics and pragmatics is therefore somewhat indirect, but serves the same purpose of underlining the fact that the difference between the two is one of degree and not of kind.

3.2 Differences

3.2.1 One of the most salient ways in which cognitive grammar and generative semantics diverge is in their respective conceptions of the internal configuration of a grammatical structure. In the earlier framework, there is no constraint on the number of levels, starting with semantic representation/deep structure and ending with surface structure. Because of the nature of the transformational model, modified rather than abandoned by the generative semanticists, a syntactic structure must, virtually by definition, consist of multiple levels. When an increased complexity of derivations as necessitated by starting with semantic structure is added to this need for multiple levels inherent in all versions of generative theory, the number of layers grows even greater. The sentence in (2a), which seems rather straight-forward, is represented by a four-layer derivation as in (2b) (taken from McCawley [1967] 1976: 158):

(2) a. Stalin killed Trotsky.

b. 

The claim in this often-cited verbal analysis is that the semantic representation of *kill* is *cause to become not alive*. At the lowest level the semantic structure is therefore a complex interaction of a negated quality, while further derivation brings us to a marker of process (*become*) and finally the causality bringing that process to a final state *(cause to become)*. At each level above the deep structure elements combine so that at a subsequent layer up we can attach a patient (*Trotsky*) to *become not alive*. The layer above that provides the causality and, finally, the agent of the causality. The whole structure is not only complex, but also quite abstract; we will return below to a closer look at the underlying semantic representation.

On the other hand, the claim of cognitive semantics is that there are no such derivational levels. The meaning of grammatical constructions, like that of lexical items, is all on one level, conceived of as what Lakoff (1987: 91–114) calls a "radial set", meanings arranged in relationship to a prototype. The result is a flat structure where various meaning of a unit (almost always polysemous) are arranged around the "best instance", judged by a variety of criteria These multiple meanings are not necessarily linked to each other, but all can be motivated by their relationship to the prototypical instance. Various links exist; extensions of the prototype may occur through metaphoric or metonymic variations of meaning interpreted as part of the unit through the speech and understanding of individuals.

Langacker (1987: 39) points out that one aspect of linguistic processing is the assignment of salience to some component(s) of the structure. He describes this function in terms of the psychological notion of the contrast between the foreground and background, with the background (his term is "landmark") providing the given and the foreground (or "trajector") as the new or at least the most noticeable facet of the entire conceptualization. This comparative degree of salience may reside in the nature of the construction (clearly the subject of a verb of motion will be a trajector against the landmark of the path being followed) or emerge with the point of view of the speaker/hearer. Instead of derivation, therefore, we have a view of language which depends crucially on the construal (Langacker's term, 1987: 138–141) of the situation rather than on the ways in which a deep structure is modified by structural transformations.

More recent work has suggested another multi-part aspect of the construction of meaning, through an understanding of what Fauconnier and Turner (1998, 2002) call cognitive blends. Meaning resides in domains ("space", "color"; Langacker 1987: 63) which are constructed into mental spaces (Fauconnier 1994), small conceptual packets whose purpose is local understanding and action. These spaces may – and often do – overlap to create new conceptualiza-

tions by the process of blending or conceptual integration (Fauconnier and Turner 1998); for example, hypothetical sentences of the kind in (3) involve blending:

(3) A speaking to B:
If I were you, I would leave tomorrow.

The space in which A is an observer of B overlaps the space in which B is, presumably making a decision about when (and even whether) to depart. A can therefore project herself into a new space containing B's weighing of alternatives and A's opinions, and announce a decision within that space.

The notions of conceptual integration and mental spaces shed light on meaning, although without necessitating derivations of the generative semantics variety. Everything is still on one level, although radial categories may overlap partially, merge through full overlapping, or split into two separate sets (Winters 1992 approaches this flat but dynamic model of configuration diachronically).

The schema seems, at first glance, to be a candidate for a multi-layered approach within cognitive linguistics. Schemas are abstractions based on members of the radial category and in some ways derive from them by this very process of abstraction. The schematic notion of *negation*, for example, will, to use Langacker's term (1987: 66–71) sanction units in English such as *not, nobody, nothing*. However the derivation is not unidirectional; schemas emerge from the various members of a given radial set, on the one hand, and, on the other, influence what new members may be added to the set; there is no claim that the schema is more basic or emerges earlier in language acquisition than the radial set, or vice versa.

3.2.2 A second area in which generative semantics and cognitive linguistics diverge most notably in their conception of Language concerns the essential nature of meaning. There are at least two areas of difference which fall under this general rubric, both the universality of meaning (or the lack thereof) and also what specific form meaning (as a unitary construct) may take. For the earlier theory, the emphasis is on the universality of semantic representation, so much so that Ross articulated what he called the universal base hypothesis, stating (Ross 1970: 258) "that the base is biologically innate", emerging as it does from the very nature of the human mind. This view of universality was not one which is caused by (or served to contribute to) the split between generative semanticists and interpretive semanticists, but rather one embraced by Chom-

sky as well (Chomsky 1965; cf. Harris 1993: 117–119) and dating back to the Port Royal grammarians. A more modern version of the same claim is that of there being a so-called "language organ" (Chomsky 1975: 10), aspects of cognition – whether physically isolated in the brain or not – which regulate basic linguistic behavior.

Cognitive linguistics, on the other hand, emphasizes the culture- and time-specific character of meaning. Its claims about the nature of cognition do not have to do with a dedicated, specified language center. Rather, the same kinds of functions which shape our ability as human beings to cope with our universe (scanning, assignment of salience, categorization, the evolution of our view of ourselves and the world in relationship to the physical universe, for example gravity and our up-right posture) will also come into play in language perception and processing. Otherwise, however, meaning, as manifest in the lexicon, in morphology, and in grammar, is a product of how any one community of speakers both conventionalizes and embroiders on the results of these cognitive functions. All human beings categorize, for example, but the categories are not the same from one language to another (even closely related languages) or from one time to another.

An examination of a second aspect of the nature of meaning brings us to the very core of each theory. To repeat for emphasis, generative semantics saw surface meaning as deriving from deep structure, through a complex series of transformations. Part of the claim is to be linked to attempts to simplify the mental lexicon, with the result that adjectives were considered deep verbs and other "minor" categories arose transformationally, most notably articles (Harris 1993: 115 has a discussion). In addition – and crucially – the generative semanticists hypothesized a deep structure which, by their own commitments, had to be posited for all human beings as part of basic cognitive architecture. They found the solution in predicate logic, the language of mathematical semantics (McCawley 1976).

Based on the work of Anglo-American philosophers (notably Russell and Whitehead 1925), they hypothesized a deep structure made up of propositions, in turn broken down into arguments and predicates, parallel to S, NP, and VP respectively. The result is a very abstract deep structure which can meet the claim for universality through its very abstraction. Its essence is semantic, with the claim being extended to the notion that this abstraction is indeed the core of meaning in language; items from the mental lexicon (really only nouns and verbs) are the most basic meaningful units and are inserted at the level of deep structure to form a proposition-like (and hence meaningful) structure called S. These "nouns" and "verbs", to be clear, were viewed as manifestations of the

logical concepts of "predicate" and "argument", in that they didn't correspond exactly to how those categories ended in any specific language.

It is here that cognitive linguistics differs most markedly from generative semantics. As was indicated above, cognitive linguistics has no derivations of the sort that generative semantics depended on. It is all on one layer, what the earlier theory would think of as surface structure. It also believes – crucially for this theory – that semantics is a complex matter which cannot be reduced to noun and verb phrases forming a proposition; rather meaning is viewed as the full, multifaceted network of the related notions, uses, and pragmatic functions of any given unit. The very nature of meaning arises out of concepts that are not even linguistic in nature; Langacker's (1987: 217) use of trajector and landmark[6] reflect gestalt psychology and research on vision, while Lakoff's recourse to radial categories constructed around prototypical meaning contains reflections of work in color perception and categorization in general (Rosch 1978). The theory not only rejects the semantic reductionism of generative semantics, but extends its notion of meaning to the point where it is criticized by practitioners of other functionalist, meaning-based theories for having insufficient constraints (Dressler 1990, p.c.; Wierzbicka 1990). An early statement by Langacker (1978: 881 note) sums up the cognitive linguistics (then space grammar) side of the dichotomy: "Needless to say, I reject the autonomy of syntax from semantics; but my level of propositional structure should not be equated with a level of 'logical' representation, and is quite different in concept and detail from the semantic representations proposed by generative semanticists".

3.2.3 Some aspects of the two theories, however, do not permit a clear-cut conclusion of full resemblance between them or complete divergence. Langacker (1987: 2), for example, is very explicit that syntax symbolizes meaning. One can argue for the influence of generative semantics and its equating the deep structure of syntactic trees with very basic (almost mathematical) meaning as the source for this strongly held commitment. It should be made clear, nonetheless, that cognitive grammar's notions about syntax include aspects ranging from

6 It has been pointed out to me that some generative semanticists might propose equating argument and predicates with, respectively, trajectories and landmarks. At the closest point of convergence these two sets of terms might be seen as competing metaphors drawn from different domains (formal logic and gestalt psychology). The point here, however, is that generative semantics reduced all of the meaningfulness of grammar to these notions and cognitive linguistics sees semantics, even the semantics of constructions, as a more complex, multifaceted matter.

core meaning (versions of what might be equated to the meaning of the verb phrase (predicate) and noun phrases (arguments) in other theories) to purely pragmatic considerations. A sentence like the following will serve as illustration:

(4) The books must belong to her sister.

While the core meaning includes the meaning of "book", "belong to" and "sister", a cognitive grammar account will include the notions of count noun and definiteness for "book", the emphasis on certainty as part of the modality of "belong to", and the relationship between "sister" and the so-called possessive "her". It would have to account as well for the choice of the possessive in a non-prototypical use to indicate kinship relationships as well as ownership of physical items which can be bought and sold[7]. In the end, however, it is true that Langacker, who denies direct influence of generative semantics on his work of the last decades, holds to a notion of syntax as symbolic of meaning which can be understood as evolving from the notion of meaningful deep structure.

Finally, there are elements of cognitive linguistics that Lakoff agrees are not direct descendants of generative semantics; on the contrary he goes as far as to provide a list of them at the end of *Women, fire, and dangerous things* (1987: 584–585). The earlier theory could not, for example, deal with the kinds of syntactico-semantic blends discussed above, nor with prototype semantics, nor syntactic iconicity, an area where the relationship between semantics and pragmatics, on the one hand, and constructions, on the other, is paramount. Perhaps most saliently for Lakoff and his collaborators, it could not account for metaphor and metaphoric extensions. Given Lakoff's recognition that the entire earlier theory did not evolve into the later one and Langacker's clear use of the earlier theory despite his rejection of any direct influence, it will be no surprise that any conclusion to be drawn about the relationship of one theory to the other will have to be nuanced.

3.2.4 Before drawing conclusions, however, let us summarize the shared features and divergences which emerge in a comparison of generative semantics and cognitive linguistics. The two theories share, first of all, a belief that the

7 This is not to say that generative semantics (and many other generative and functionalist theories) would not account, one way or another, for these semantic notions. The point is rather that for cognitive linguistics all of them belong in the semantics reflected in the syntax of this sentence.

fundamental nature of language lies in meaning. Secondly, both theories make strong claims to psychological reality; what is being modeled and analyzed is precisely what is in the mind of speakers. Finally, they are in agreement that there is no clear line between syntax and pragmatics, the structure of language and the uses to which language is put by speakers.

There are, however, important areas of divergence. The most important of these is the nature of meaning itself. Generative semantics proposes that the deep structure is encoded in the vocabulary of predicate logic. In that way basic units of meaning are propositions, arguments, and predicates. The later theory, on the other hand, takes its notion of meaning from cognitive psychology and, more specifically, prototype theory with its polysemous units (as most are) arranged around the prototypical meaning. As was said above, this view of meaning is a very inclusive one, integrating questions of truth and logic with encyclopedic knowledge of the world and social interactions through language. While both models are making claims about the nature of the mind, generative semantics is driven by a desire for economy; predicate logic provides a way of reducing the number of entities called upon to describe meaning while cognitive linguistics values this very different multivalent approach.

4 Conclusions

It should be clear from the discussion in this paper that the question which opened it, that is, whether or not cognitive linguistics, as developed in America, is a direct descendent of generative semantics, cannot be answered by a simple yes or no. In quite a few respects it is certainly a related theory; it makes some of the same assumptions, asks some of the same questions, and draws some of the same conclusions. From a temporal point of view, it follows generative semantics after a short gap, but not long enough a time between to preclude inheritance, especially given that some of the founders and practitioners of the two theories are the same. Langacker's comment that the two approaches share a belief in the primacy of semantics (1987: 4) and that their goal is a unified account of the lexicon and grammar can well serve a summary of features they hold in common. When he rejects is the idea that the later theory is a direct outgrowth of the earlier one, as was introduced in footnote 1, what he sets out is a new theoretical insight, "quite different in concept and detail from the semantic representations proposed by generative semanticists" (1978: 881 note). This view has certainly been supported by the differences between the theories. Lakoff (1987), similarly, emphasizes the shared claim of the basic meaningful-

ness of language, but he too has mentioned several aspects of the nature of language (notably metaphor) which were not touched upon in generative semantics and could not be accounted for given the fundamental commitments and modes of analysis of that theory. The influence of cognitive science on his thinking not only gives a name to the theory, but also leads him to the fundamental importance of categorization in the construction and understanding of meaning.

Some points remain to be examined, if just briefly. Neither generative semantics nor cognitive linguistics arose solely as a reaction to a single theory. The broader context of their development, although within a matter of two decades, differs substantially. Generative semantics was developed at a time when the very idea of generativity was very new, although it quickly became important for the ways in which it turned the thoughts of linguistic researchers away from the restraints of earlier structuralism. The period, therefore, was one of rapid growth in linguistic theory of this new sort. The first generations of generativists were brought up to challenge their colleagues and propose new analyses in place of those they were encountering in print, in classes, and at meetings. It is not a surprise, therefore, that variations of generative theory, even broadly different ones like interpretative semantics and generative semantics were coming forward, almost in counterpoint, and were considered important enough to start the so-called linguistic wars. Cognitive grammar arose long enough after the birth of generative theory for the sense of unbounded adventure and the new interest in syntax to have diminished[8]. Rather, its cultural-linguistic setting is one where the diversity of theories has expanded both in North America and in Europe. The result is a range of semantics-based frameworks ranging from the formal to the functional. Among the most formal is Montague grammar (set out in Dowty, Wall, and Peters 1981) which started not from a notion of semantics as deep structure, but rather from a view of language calling for a direct one-to-one mapping of structure and meaning, hence another kind of semantically informed theory of grammar. It gave rise in turn to head-driven phrase structure grammar (Pollard and Sag 1994), a theory of syntax taking up the explicit mapping of grammar from semantics proposed by Montague. Other semantics-based theories fall into the functionalist camp and vary very much among themselves as to approach. Without going into detail, one can mention the Columbia School founded by William Diver (1982, for ex-

8 Newmeyer (1986: 172) suggests, as was mentioned above, that one of the reasons for the demise of generative semantics was precisely its excessive exuberance; titles of articles, example sentences, and general style were seen as whimsical and unbefitting a serious theory.

ample), Gustave Guillaume's semantics of grammar (1929), and work labeled natural semantic metalanguage by Anna Wierzbicka and her colleagues (Wierzbicka 1988 is very typical of the approach). One might say that looking at language structure as emerging from its essential meaningfulness is very much in the air in this period and that one does not need to look directly at generative semantics to find a basis for cognitive linguistics[9].

In another domain, as was recognized above, cognitive science and artificial intelligence are also growing as fields in the 1980s. Lakoff is very explicit (1987: 7 and elsewhere) as to the early influence of Eleanor Rosch's work on categorization (for example 1978) on his thinking. Later discoveries about the nature of neuronal functioning have also colored his approach to language; most notably his work since 1999 (Lakoff and Johnson 1999) has dealt with mirror neurons which he interprets as proof of his claims about the nature of mind and meaning.

It should also be clear that the question of how comparisons are framed will dictate to a great extent how we arrive at one or the other answer to our initial question of direct inheritance. In part the key is the range of comparison. The two theories look much more alike from a distance; compared to structuralist approaches where phonology and morphology were the subject of investigation, from that distance any frameworks which took semantics as their base would look similar. However, if we start comparing theories of this type with each other instead of with those where meaning is not a central element, we find that the differences become much more important. Particularly salient is the question of what meaning is, and the difference between predicate logic and prototype theory is a very large one for the many reasons mentioned above.

One final point of discussion is the putative point of change from one theory to another. In some ways the relationship between generative semantics and cognitive grammar may be said to be describable by the Kuhnian notion of scientific revolution (Kuhn [1962] 1970) since practitioners of the earlier theory became not only practitioners but founders of the later one. It is not wrong to say that Lakoff and Langacker both identified a salient anomaly in generative semantics, that is, the nature of meaning and, as their linguistic investigations became increasingly colored their lack of satisfaction with the use of predicate logic as underpinning both syntax and semantics, arrived at cognitive linguistics. The result is a new paradigm, to use the Kuhnian expression, which seeks a

9 The issues are complex and beyond the scope of this paper.

better answer to a question which was until then unsatisfactorily accounted for[10].

The question of scope becomes important, then, in bringing to some resolution the difference in viewpoints with which we began. If the perspective is a distant one, then indeed cognitive linguistics fulfills the promises made by generative semantics; it does so by providing a unified view of language which, like the earlier theory, depends crucially on the meaningfulness of language. If we look more closely at the two theories, however, we find that in order to fulfill this promise so many changes had to occur (most notably in how meaning is conceptualized and described) that the shared resemblances may seem somewhat superficial.

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10 They were not alone in this "revolution". Chafe (1968) argued that idioms couldn't be accounted for in an interpretive semantics, or even a generative semantics view, and that this weakness in the theories constituted an anomaly in the Kuhnian sense. It is the case that, although Chafe does not explicitly label himself as a cognitive grammarian, he does present talks at CG conferences.

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Fuyin Li, Mengmin Xu, and Alan Cienki

The linguistic representations of agency in causal chains

Abstract: This article examines a few Talmyan claims (Talmy 2000: 471) about the morphosyntactic features of agency in causal situations. Talmy proposes a basic agentive construction S_R RESULTed FROM S_a as well as a distinction between Agent and Author for the semantic organization of agency. Narratives were elicited from a set of 20 video clips of real situations; 50 native speakers of Mandarin Chinese were interviewed to set up a closed corpus of 1000 agentive causal sentences. They indicate that Talmy's claims about agency can be supported, while his claims about the syntactic structures cannot. This article further proposes a causal model for the semantic organization of agency. It is concluded that there does not exist a universal pattern for representing agentive situations, and the semantic structure of agency can be determined using the causal model of agency.

1 Introduction

Talmy (2000: 471–565) makes a series of important claims about causation, including the morphosyntactic features of causing event, caused event, agency, and a number of other causative factors. Li, Du, and Wolff (2015) test his claims about the morphosyntactic features of causing event and caused event in narratives, and propose some revisions. The present research is particularly concerned with Talmyan claims about the role of agency in causative situations. Together with Li, Du, and Wolff (2015), the present research constitutes part of a series of articles of empirical studies on Talmyan theory. In this brief introductory section, we first outline Talmyan claims concerning causing events and caused events, and the revisions made by Li, Du, and Wolff (2015), and then proceed to introduce Talmy's claims about agency. The second section is concerned with the methodology. The third and the fourth sections address the issue of agentive event (represented as S_a) and intentionality respectively. Sec-

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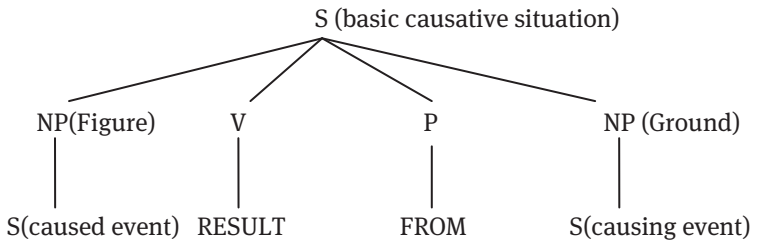
tion five brings this article to a conclusion. We first have a look at what Li, Du, and Wolff (2015) have done as a prelude for agency.

Talmy proposes a syntactic representation for the basic causative situation as indicated in (1).

(1)



Concerning with the morphosyntactic features of the causal elements, Talmy makes the following five claims.

Claim 1: There are three components for basic causative situation: caused event, causal relation, and causing event (Talmy 2000: 480).

Claim 2: The representation of the caused event always appears in the main clause, and the causing event is always represented in the subordinate clause (Talmy 2000: 483).

Claim 3: The caused event is represented in the precursor of the main clause, and the causing event is represented in the precursor of the subordinate clause (Talmy 2000: 485).

Claim 4: The caused event is either in nominalized form, or raised into the whole clause, while the causing event is always in a nominalized form (Talmy 2000: 483).

Claim 5: The caused event functions as the Figure, and the causing event functions as the Ground (Talmy 2000: 485).

These claims are generally concerned with the linguistic representations of causative elements. In particular, they are basically concerned with the issues of the elements of causative type; the order and linguistic forms of causal events, as well as the Figure and Ground assignment of causal events. Li, Du, and Wolff (2015) support the idea that the three components for basic causative situation, caused event, causal relation, and causing event, are not mandatory in narrative discourse. In fact, caused event and causing event could work together to create causative meaning without overtly indicating the causal relation; Temporal sequence could also create causal relations; A caused event by itself could independently represent causal relations as well; Causing events

would be omitted, or implied by the verb. It seems that the only mandatory element required to express causative meaning is the caused event. Concerning the order of these elements, it is indicated that the majority of the data in Chinese is dominated by two important constructions; one is the BA construction, and the other: the BEI construction. Both constructions have their own requirements for the event order. For the linguistic forms of causing event and caused event, there is a strong tendency to indicate that both events should be clauses. The last claim, the issue of Figure and Ground alignment for causing and caused event, is not supported either. In Talmy's treatment, the caused event functions as the Figure, and the Figure is the topic and the subject in the sentence. In the research by Li, Du, and Wolff (2015), the data seem not to be consistent with the Talmy's ideal pattern, largely due to the power of various constructions.

The present research specifically addresses the major claims by Talmy about the role of agency. These claims, to be coherent with those previous claims, from claim 1 to 5 mentioned above, are summarized below as containing claims from claim 6 to 10. Again these claims only represent part of Talmy's whole range of detailed discussions on agency (Talmy 2000: 509–542).

Claim 6: To study agency, conceptually it is necessary to distinguish the semantic concept of "Agent" from that of "Author" (Talmy 2000: 514).

Claim 7: Constituents specifying nonintentionality: S must have initial Author
S in/with...
S...too...
May S! (Talmy 2000: 515)

Claim 8: Constituents specifying intentionality: S must have initial Agent
(S by ...)
S in order that...
NP intend to/refrain from S
NP' persuade/force NP to S
S! (Talmy 2000: 515)

Claim 9: The basic syntactic structure for agentive causal situation is represented as S_R RESULTed FROM S_a (Talmy 2000: 519)

Claim 10: The semantic organization of agency contains a fixed set of particular components, namely, the events involving intention, volition and body parts (Talmy 2000: 531–532).

These claims could be further illustrated with the sentences in (2).

(2) a. I killed the snail.
b. I killed the snail by pressing on it *too* hard with my hand. (unint.)

c. I killed the snail *in order* to protect the plant. (int.)
d. I *mislaid* the pen somewhere in the kitchen. (unint.)
e. I *hid* the pen in the kitchen. (int.)
f. I *accidently* mislaid the pen somewhere in the kitchen. (unint.)
g. *I *accidently* hid the pen somewhere in the kitchen.
h. I *intentionally* hid the pen somewhere in the kitchen. (int.)
i. *I *intentionally* mislaid the pen somewhere in the kitchen.
j. The snail died as a result of my hitting it with my hand.

According to Talmy, to study agency, conceptually we can distinguish the semantic concept of "Agent" from that of "Author". Sentence (2a) is ambiguous in the sentient entity's intentionality. Naturally, there are two readings for (2a): one is intentional and the other is unintentional. Sentence (2b) represents the unintentional reading, while (2c) represents the intentional one. The sentient entity "I" specified in (2b) functions as the Author, while the "I" specified in (2c) functions as the Agent. In both sentences, the Agent and the Author are specified initially in the sentence. Language may provide the lexical means for this distinction. In English, there exists a pair of lexical forms that specifically distinguish the intentional from its opposite unintentional form as illustrated in (2d) and (2e) respectively. Other means listed under claim 7 and 8 are also among the types of constructions and sentences in distinguishing intentionality. The fact that the use of "accidently" in (2f) intensifies the unintentionality, and the use of the same lexical item makes (2g) ungrammatical, lends further support to the distinction of intentionality between "mislay" and "hide". The lexical item of "intentionally" functions similarly in (2h) and (2i). But in (2h), it emphasizes the intentional action of "hide", while the collocation of this lexical item with "mislay" makes (2i) unacceptable. Sentence (2j) represents the syntactic structure for claim 9. The "snail died" functions as the S_R, and "my hitting it with my hand", as S_a.

As far as our literature review is concerned, there are relatively few (if not none) empirical studies specifically addressing the issue of the linguistic representation of agency, especially not in narrative discourse. Therefore, these claims are examined empirically in narratives in the present study. We now turn to the methodological procedures in section 2.

2 Methodology and basic findings

Narratives were elicited from 20 video clips. Some of the videos were obtained from the internet (http://v.youku.com), and some were recorded by the authors. The detailed information of these videos, including their Agent, agentive event, and resulting event, is listed in (3). The present study completely parallels with Li, Du, and Wolff (2015) in data in that clip 1–20 and subject 1–50 are used in Li, Du, and Wolff (2015), while clip 21–40 and subject 51–100 are used in the present study. The two studies differ only in agentivity.

(3) Description of video stimuli

Number	Agent	Causing event	Caused event	Length/ seconds	Original source
Clip21	Worker	Cutting	Tree/Cutting down	9	http://v.youku.com/v_show/id_XNjI4NzQ3NTY0.html
Clip22	Athlete	Kicking	Football/Flew away	6	http://v.youku.com/v_show/id_XNjI2OTQ3NzU2.html
Clip23	Boy	Cutting	Apple/Cutting into pieces	6	http://v.youku.com/v_show/id_XMjMzMDMxMzY0.html
Clip24	Two hands	Cracking	Egg/Cracked	7	http://v.youku.com/v_show/id_XMjUzNDcxMjYw.html
Clip25	Athlete	Knocking	Plate/Knocked Down	5	http://v.youku.com/v_show/id_XNTUyODA0NjM2.html
Clip26	Man	Breaking	Car window/Broke into pieces	5	http://v.youku.com/v_show/id_XNTUyODA0NjM2.html
Clip27	Girl	Blowing	Balloon/Popped	9	http://v.youku.com/v_show/id_XMjEzODg0NTA4.html
Clip28	Kid	Opening	Window/Opened	7	http://v.youku.com/v_show/id_XMzA2OTk2Nzgw.html
Clip29	Student	Open	Pen/Uncovered	8	Corpus at Max Planck institute of Psycholinguistic
Clip30	Student	Open	Book /Opened	7	Corpus at Max Planck institute of Psycholinguistic
Clip31	Lady	Opening	Box/Opened	9	Corpus at Max Planck institute of Psycholinguistic
Clip32	House-wife	Open	Scissors/Opened	5	Corpus at Max Planck institute of Psycholinguistic
Clip33	Girl	Melting	Ice/Melt away	42	Recorded by author
Clip34	Girl	Pouring water	Cloth/Wet	7	Recorded by author
Clip35	Girl	Closing	Door/Closed	6	Recorded by author
Clip36	Girl	Rolling	Map/Roll up	12	Recorded by author
Clip37	Girl	Blowing	Candle/Blew out	7	Recorded by author

Clip38	Girl	Switch off	Table lamp/Switched off	7	Recorded by author
Clip39	Girl	Wash	Handkerchief/Washed	24	Recorded by author
Clip40	Girl	start	Clock face/Start	15	Recorded by author

Methods

Subjects: Fifty native speakers of Mandarin Chinese (N=50), aged from 18 to 65, were obtained from the Beihang University community and included students, faculty members, and others with working experience, but all with a higher education background.

Procedures: Narratives were elicited from various venues on the Beihang University campus, including bus stations, public parks, and classrooms. Participants were shown a series of those 20 videos described in (3). After each video, participants were asked the question in Chinese meaning "could you describe what you have just seen?" or "what happened in the video?"

All interactions were audio-recorded and later transcribed into text. One sentence was elicited for each video clip for each speaker, resulting in a corpus of 1000 sentences. The major findings are listed in (4).

(4) Patterns in the agentive narratives

Number	**Pattern Type**	**Rate/1000**
Pattern I	$BA_{construction}$: S_a + BA+S_R	390
Pattern II	S_a +S_R	271
Pattern III	S_a, S_R	190
Pattern IV	S_a, S_r ($BA_{construction}$)	85
Pattern V	S_a+S_r ($BEI_{construction}$)	35
Pattern VI	S_r ($BEI_{construction}$)	29

A terminological note is provided here for table (4) as follows. S_a and S_R represent agentive event and resulting event respectively. The symbol "+" indicates that the elements linked by this symbol are in one complete whole sentence, either in simple sentence or complex sentence, such as "S_a+BA+S_R", "S_a+S_R", and "S_a+S_R ($BEL_{construction}$)", while if two elements are separated by a comma ",", the sentence is a co-ordinate sentence consisting of two clauses.

Table (4) represents a very general statistics classification. Each of the patterns will be characterized. We first turn to the description of agentive events contained in the pattern types in section 3 as follows.

3 Agentive events

All the data fall neatly into six pattern types as indicated in (4). Since we are most concerned with the components of agentive events and their order in the sentence, we first discuss the order and the linguistic forms of agentive events in 3.1 below.

3.1 The order and linguistic forms of agentive events

Of all the six types in (4), five of them contain agentive events that are represented initially in the sentence. The initial agentive events occupy 971 cases out of the 1000, as indicated in (5). The only exception not containing agentive event is the passive $BEI_{construction}$ indicated in Pattern VI. Each of these types is characterized below.

(5) Initial agentive events

Number	Pattern Type	Frequency/1000	
Pattern I	$BA_{construction}$: S_a + BA+S_R	390	971(Initial S_a)
Pattern II	S_a +S_R	271	
Pattern III	S_a, S_R	190	
Pattern IV	S_a, S_R ($BA_{construction}$)	85	
Pattern V	S_a+S_R ($BEI_{construction}$)	35	
Pattern VI	S_R ($BEI_{construction}$)	29	

Pattern I: $BA_{construction}$: S_a(AGENT) + BA+S_R(PATIENT+Resultative)

(6) a. C21S55: 一个伐木工人把树砍倒了.
Yige famugongren ba shu kan-dao le.
one-CL lumberer BA tree cut down-LE[1]
A lumberer cut down the tree.

1 List of Abbreviations
BA: pretransitive marker "把" (ba),"将"(jiang)
CL: classifier
DE: attributive particle "的" (de)
DUR: durative aspect,"在" (zai)
GEI: passive marker, "给" (gei)
LE: perfective aspect, "了" (le)
PL: plural form

b. C22S76: 球员把球踢飞了.
Qiuyuan ba qiu ti-fei le.
football player BA ball kick away-LE
A football player kicked the ball away.
c. C23S99: 他把苹果用刀切成了三瓣.
Ta ba pingguo yong dao qie-cheng le sanban.
he BA apple with knife cut into-LE three pieces
He cut the apple into three pieces with a knife.
d. C24S59: 这个人把鸡蛋打到碗里面了.
Zhege ren ba jidan dadao wan limian le.
this-CL person BA egg crack bowl into-LE
This person cracked the egg into the bowl.
e. C25S75: 运动员把盘子碰倒了.
Yundongyuan ba panzi peng-dao le.
sportsman BA dish knock down-LE
The sportsman knocked down the dish.

In Pattern I, the whole sentence is dominated by $BA_{construction,}$ the agentive event takes the form of NP as the subject and occupies the initial position in the sentence. The resulting event is represented after the preposition BA, followed with the verb.

Pattern II: S_A(AGENT) + S_R(Resultative + PATIENT)

(7) a. C21S93: 一个男子砍断一棵树.
Yige nanzi kan-duan yike shu.
one-CL man cut off one-CL tree
A man cut off a tree.
b. C26S76: 一个人打破了车窗.
Yige ren da-po le chechuang.
one-CL person break-LE car window
A man broke the car window.
c. C36S75: 小女孩卷起纸.
Xiao nühai juan-qi zhi.
little girl roll up paper
A little girl rolled up the paper.

ZHE: continuative aspect marker, "着" (zhe)
PFV: perfective

d. C37S100: 她吹灭了蜡烛.
Ta chui-mie le lazhu.
she blow out-LE candle
She blew out the candle.
e. C40S94: 小女孩拨动了钟摆.
Xiao nühai bo-dong le zhongbai.
little girl start-LE pendulum
A little girl started the pendulum.

Sentences in Pattern II indicate that the agentive event functions the same as that in Pattern I in that it occupies the initial position in the sentence and represented as NP, while the composition of resulting event in Pattern II is different from that of Pattern I. Sentences in Pattern II follow the regular SVO order, while in Pattern I, they follow SOV order. The $BA_{construction}$ in Pattern I reverses the regular SVO into SOV.

Pattern III: S_a(AGENT+verb+object), S_R(PATIENT+verb)

(8) a. C21S53 一个人拿斧头砍树，树倒了.
Yige ren na futou kan shu, shu dao le.
one-CL with axe chop tree, tree fall-LE down
A man chopped the tree with an axe, and the tree was down.
b. C25S59 这个人碰到奖杯，给碰倒了.
Zhege ren peng-dao jiangbei, gei peng-dao le.
this-CL man run into a trophy cup, GEI knock over-LE
This man run into a trophy cup, and the trophy cup was knocked over.
c. C27S60 一个女孩在吹气球，吹破了.
Yige nühai zai chui qiqiu, chui-po le.
one-CL girl DUR blow balloon, blow broken-LE
One girl was blowing a balloon, and the balloon was blown broken.
d. C34S75 一小女孩把水倒在布上，布湿了.
Yi xiao nühai ba shui dao zai bushang, bu shi le.
one-CL little girl BA water pour cloth-on, cloth wet-LE
One little girl poured water on the cloth, and the cloth was wet.
e. C40S91 女孩将钟摆拨动了一下，钟摆在做有规律的运动.
Nühai jiang zhongbai bodong le yixia, zhongbai zai zuo youguilv de yundong.
girl JIANG pendulum switch-LE one-CL, pendulum DUR do regular movement
The girl started the pendulum, and the pendulum was moving regularly.

Sentences in Pattern III are different from those in Pattern I and II in structure. Sentences in both Patterns I and II are simple sentences, while sentences in Pattern III take the form of coordinate sentences containing two clauses. The first clause is the real agentive clause; the second one is the resulting clause. That is to say, the initial position of agentive event in Pattern III is the same as that in the first two patterns, but it differs from them in linguistic forms. The agentive event in the first two is represented as nominal phrase, while it is represented as a clause in Pattern III. The sentences in (8) are all coordinate sentences, consisting of two simple clauses. There is an interesting finding here for the verbs in the two simple clauses. The compounding of the two verbs could result in the resultative verb in (6) and (7). Syntactically speaking, this observation indicates that the integration of those two events represented by two clauses in the sentences in (8) may result in the sentences in (6) and (7) we will have further research on this important observation.

Pattern IV: S_a, S_R ($BA_{construction}$)

(9) a. C21S54 一个人在砍树，把树砍断了.
Yige ren zai kan shu, ba shu kan-duan le.
one-CL man DUR cut tree, BA tree cut broken-LE
A man was cutting a tree, and the tree was cut off.

b. C23S51 一个男子在切苹果，把它切成了三片.
Yige nanzi zai qie pingguo, ba ta qiecheng le san pian.
one-CL man DUR cut apple, BA it cut into-LE three pieces
One man was cutting an apple, and it was cut into three pieces.

c. C24S67一个人在打鸡蛋，把鸡蛋打盘子里.
Yige ren zai da jidan, ba jidan da panzi li.
one-CL DUR crack egg, BA egg crack inside dish
One man was cracking an egg, and the egg was cracked inside the dish.

d. C33S64一个人用夹子夹了一块冰放在热水里，把冰化了.
Yige ren yong jiazi jia le yikuai bing fangzai reshui li, ba bing hua le.
One-CL man with a clip hold-PF one-CL ice put into hot water, BA ice melt
One man put a piece of ice into the hot water with a clip, and the ice melted.

e. C36S82 还是这个女生抓着一张纸，把它卷起来.
Haishi zhege nvsheng zhuazhe yizhang zhi, ba ta juan-qilai.
also this-CL girl hold-DUR one-CL paper, BA it roll-up
The same girl was holding a piece of paper, and rolled it up.

Sentences in (9) are the same as those in (8) in that they are all coordinate sentences consisting of two clauses, but they differ from those in (8) in that the second clause in (9) are BA constructions.

Pattern V: S_a, S_R ($BEI_{construction}$)

(10) a. C22S79人踢球，球被踢飞了.
Ren ti qiu, qiu bei ti-fei le.
man kick ball, ball BEI kick away-LE
This man was kicking a ball, and the ball was kicked away.

b. C23S87 他是切苹果，苹果被切开了.
Ta shi qie pingguo, pingguo bei qie-kai le.
he is cut apple, apple BEI cut broken-LE
He was cutting an apple and the apple was cut apart.

c. C24S69 一个人在打鸡蛋，鸡蛋被打掉了.
Yige ren zai da jidan, jidan bei da-diao le.
one-CL person DUR crack egg, egg BEI crack-LE
A man was cracking an egg, and the egg was cracked.

d. C35S58 小女孩在关门，门被关上了.
Xiao nühai zai guanmen, men bei guan-shang le.
little girl DUR close door, door BEI close-LE
A little girl was closing the door, and the door was closed.

e. C36S57 小女孩在卷一张画，然后画被卷上了.
Xiao nühai zai juan yizhang hua, ranhou hua bei juan-shang le.
little girl DUR roll one-CL picture, then picture BEI roll up-LE
A little girl was rolling a picture, and the picture was then rolled up.

Sentences in (10) are the same as those in (9) except that the second clauses in (10) are BEI constructions.

Pattern VI: S_R ($BEI_{construction}$): PATIENT+BEI+S_a+Verb

(11) a. C21S75: 树被人砍断了.
Shu bei ren kan-duan le.
tree BEI man cut broken-LE
The tree was cut down by someone.

b. C25S95: 盘子被一个人打翻了.
Panzi bei yige ren da-fan le.
cup BEI one-CL man knock over-LE
The cup was knocked over by a man.

c. C29S83: 笔帽被打开了.
Bimao bei da-kai le.
pen cap BEI pull-LE
The pen cap was pulled out.

d. C37S78: 蜡烛被她吹灭了.
Lazhu bei ta chui-mie le.
candle BEI she blow out-LE
The candle was blown out by her.

e. C26S25 玻璃被人敲碎了.
Boli bei ren qiao sui le.
glass BEI man break into pieces-LE
The glass was broken into pieces.

The last pattern in the data, Pattern VI, is a BEI construction, indicating passive voice. The whole sentence represents a resulting event. While the agentive event, in the form of NP, functions as the prepositional object following the preposition BEI.

The verbs contained across all the patterns have their own properties. The majority of them are either resultative verbs (compound verbs) or just simple verbs. The resultative verbs largely consist of cause-result as indicated in (12). Few or none are of manner-result type. The verbs analyzed below are excerpted from the example sentences discussed above.

(12) Resultative verbs

Verbs	**Compounding elements**	**Meaning**	**Type**
C21 S55: 砍倒Kan-dao	cut-fall	cut down	cause-result
C37 S100: 吹灭chui-mie	blow-extinguish	blow out	cause-result
C23 S99: 切成qie-cheng	cut-change	cut into	cause-result
C22 S79: 踢飞ti-fei	kick-fly	kick away	cause-result
C21 S75: 砍断kan-duan	cut-break	Cut off	cause-result

Now it could be summarized that five out of the six types contains an initial agentive event, which represents 971 cases out of the 1000. In principle, this result does not support Talmy's claim about the basic syntactic structure for agentive causal situation, which is represented as S_R RESULTed FROM S_A (Talmy 2000: 519). A revision could be suggested as "S_a +S_r" for the agentive causal

situations. In what follows, we will compare the agentive patterns with those non-agentive types.

3.2 A comparison with non-agentive events

As it is indicated above, the set of data used for the present study is completely comparable with that used in Li, Du, and Wolff (2015). The only difference lies in that the former study is on non-agentive events, while the latter, the present study is on agentive events. This contrast provides a vantage perspective to study agentivity. Table (13) provides a basic contrast of the pattern types between these two studies.

(13): A comparison between agentive and non-agentive causal situations

	Non-agentive causal situation as revised from Li, Du, and Wolff (2015)		**Agentive causal situation**	
Column	**Pattern Type**	**Freq./ 1000**	**Pattern Type**	**Freq./ 1000**
1	$BA_{construction}$: S_c+BA+S_r C5S1: 洪水把人冲走了. *The flood carried the people away.*	292	$BA_{construction}$: S_a + BA+S_r C21S55: 一个伐木工人把树砍倒了. *A lumberer cut down the tree.*	390
			S_a, S_R ($BA_{construction}$) C21S54 一个人在砍树，把树砍断了. *A man was cutting a tree, and the tree was cut off.*	85
2	S_c+S_R C4S2: 卡车轧倒奶牛. The truck run over the cows.	185	S_a +S_R C21S93: 一个男子砍断一棵树. *A man cut off a tree.*	271
3	S_c, S_R C1S30：发大水了，房子倒了. Flooding occurred, the house fell down.	38	S_a, S_R C21S53 一个人拿斧头砍树，树倒了. A man chopped the tree with an axe, and the tree was down.	190
			S_a, S_R ($BEI_{construction}$) C35S58 小女孩在关门，门被关上了. A little girl was closing the door, and the door was closed.	35
4	S_R（$BEI_{construction}$） C20S12: 车被大雪覆盖了. A car was covered by the heavy snow.	280	S_R ($BEI_{construction}$) C26S25玻璃被人敲碎了. The glass was broken into pieces.	29

	Non-agentive causal situation as revised from Li, Du, and Wolff (2015)		Agentive causal situation
5	S_R C15S1: 蜡烛灭了. The candle went out.	205	

In table (13), a number of similarities and differences could be found between these two studies. Firstly, the causing event (S_c) in the former study almost parallels with the agentive event (S_a) in the latter study in almost all the patterns. Both S_c and S_a are represented initially in the sentence across all the pattern types, without exception. That means, S_a functions exactly the same as S_c, both syntactically and semantically. This initial order for S_c and S_a is emphasized by the $BA_{construction}$ in two studies, in which $BA_{construction}$ plays a dominant role. This construction in Mandarin Chinese has its own fixed requirement for the sentence order, which could be labeled as CAUSER-INITIAL requirement. This first similarity, CAUSER-INITIAL, may indicate that in cognition our mind does not treat agentive events separately from causing events. This point might be further extended to claim that in the processing of causative situations, our cognition is mainly concerned with what-causes-WHAT, rather than WHAT-causes-what. In other words, our cognition is more interested in the last WHAT in the what-causes-WHAT formula. The agentive WHO is included in the first what in the formula, therefore it is normally ignored, unless there is a special requirement. This finding contrasts interestingly with the second below.

Secondly, there is a pattern preference for both studies. The total amount of independent resulting events, S_r, contrast sharply in two studies, with 485 cases in the former study, including 280 cases for S_r ($BEI_{construction}$) plus 205 cases for S_r, and only 29 cases for the latter study. This general finding may indicate that in representing non-agentive causative situations, our mind is biased toward passive voice, and favors the formula of what-causes-WHAT representation. In passive voice, the agentive event or causing event are regularly omitted. The fact that the prevailing amount of passive voice used for the former and the few passive used for the latter may indicate that in the latter study the Agent is an unavoidable role in representation.

Besides what has been discussed above, it seems there is nothing yet discovered so far that uniquely ties to agentive situations. So far, the distinction made by Talmy between Agent and Author, and the distinction between intentional and unintentional action, cannot be observed in the data set. Let us move one step further to scrutinize on the role of intentionality.

4 Intentionality: A causal model of agency judgment

According to Talmy, a sentence like "I killed the snail" is basically ambiguous because the intentionality of the sentient entity "I" is not clear. Therefore this sentence might have two readings, which could be made explicit as in (2a) or (2b) respectively by adding the related lexical items. In the present study, there are only two video stimuli that are most likely to express intentionality explicitly. They are clip 5 and 8 as characterized below.

Description of Clip 5: *What appeared first in the video was a cup on a table at the side of a sports ground. A sportsman rushed to the ground and unintentionally touched the cup when passing it, which made the cup turn over and fall off the table.*
Description of Clip 8: *A 3-or-4 year old kid was playing close to the window in a room in a high building. The window was fastened with iron bars for the sake of safety as this is normal in high buildings. Then the kid went over to have opened the window with his little hands.*

It can be observed that none of the sentences elicited from Clip 8 represent intentionality. We only find representation of intentionality from a few sentences elicited from Clip 5. In total, 9 sentences concerning intentionality were found among the 50 sentences for the description of clip 5. They are listed exhaustively in (14).

(14) Unintentional
   a. C5S4 这人随手把镜子给搬倒了.
      Zhe ren suishou ba jingzi gei ban-dao le.
      this man unintentionally BA mirror GEI knock over-LE
      This man inadvertently knocked the mirror over.
   a. C5S7 一个人在足球场上不小心把盘子给碰倒了.
      Yige ren zai zuqiuchang shang buxiaoxin ba panzi gei peng-dao le.
      one-CL man football playground-on incautiously BA dish GEI upset-LE
      A man on the football playground unintentionally knocked over the dish.
   b. C5S12一个运动员不小心扶了一下桌上的盘子, 然后把盘子弄倒了.
      Yige yundongyuan buxiaoxin fu le yixia zhuoshang de panzi, ranhou ba panzi nong-dao le.
      one-CL player carelessly touch-LE table-on dish, then BA dish knock over-LE

A player unintentionally touched the dish on the table, and then it was turned over.

c. C5S13这个球员路过，碰了一下奖杯的盘子，把盘子不小心碰到了.
Zhege qiuyuan luguo, peng le yixia jiangbei de panzi, ba panzi buxiaoxin peng-dao le.
this player pass by, touch trophy DE panzi, ba panzi buxiaoxin knock over-LE
When passing by, this player touched the dish of the trophy and knocked over the dish unintentionally.

d. C5S15 他不小心把奖杯碰掉了.
Ta buxiaoxin ba jiangbei peng-diao le.
he unintentionally BA trophy knock over-LE
He unintentionally knocked the trophy off.

e. C5S17 这个人把奖杯碰了一下，不小心碰倒了.
Zhege ren ba jiangbei peng le yixia, buxiaoxin peng-dao le.
this-CL person BA trophy touch once, unintentionally knock over LE.
This person touched the trophy and unintentionally knocked it over.

f. C5S46 他随手把盘给碰倒了.
Ta suishou ba pan gei peng-dao le.
he unintentionally BA dish GEI knock over-LE
He unintentionally knocked over the dish.

g. C5S47 有人不小心把奖盘弄倒了.
Youren buxiaoxin ba jiangpan nong-dao le.
a man unintentionally BA trophy knock over-LE
A man unintentionally knocked over the trophy.

h. C5S49 一个人不小心把奖杯碰倒了.
Yige ren buxiaoxin ba jiangbei peng-dao le.
one-CL person unintentionally BA trophy knock over-LE
A man unintentionally knocked over the trophy.

(15) Intentional
C5S44 一个运动员故意把盘子弄倒了.
Yige yundongyuan guyi ba panzi nong-dao le.
one-CL player intentionally BA dish knock over-LE
A player intentionally knocked over the dish.

Data in (14) indicate that only 9 subjects out of the 50 express the Agents' intentionality for the most salient case of stimulus for intentionality, which only counts for 18% for the total representation on Clip 5, and a negligible rate of 0.9% in the whole corpus of 1000 causative sentences.

If these 9 sentences are clear cases of being AUTHORed causative sentences, then what is the status of intentionality for all other sentences with initial sentient subject? Are they Agent or Author? To answer this question, it seems that we have to make clear the intentionality of the sentient subject.

Sentences in (15), though they represent the subjects' misjudgment on the situation, do represent explicit cases of Agent.

In fact there might exist several stages prior to the agentive event. These stages are also represented as events. As Talmy pointed out, in the sentence "I killed the snail by hitting it with ***my*** hand", the entity referred to by ***my*** is understood as a volitional entity. Neurophysically speaking, this volition probably comprises one portion of an extensive causal chain of neural and muscular events culminating in the motion of a body part. The exigencies of semantic organization in natural language would seem to call for a notion of volition as the only and immediately prior causing event to a body part's motion. (Talmy 2000: 512) If that is the case, the agentive causative chain could be extended to include Volitional event-Body part's motion event (as S_a)-Resulting event. While the first event, the volitional event is not represented linguistically in surface form, and the second event, body part's motion event, is only incorporated in the sentient entity in NP forms including "I", "He", "A man", etc. Alternatively, this sentient NP could refer to the initial two events in semantic organization. Again this analysis could not solve the problem of assigning the status of Author or Agent to the initial sentient subject, since only a negligible portion (0.9%) of the data explicitly represents the intentionality. In fact, this problem might be solved by intentionality judgments. For this, we propose a causal model of agency judgment.

To judge the semantic organization of agency, that is, if the sentient entity is Agent or Author, is to judge the intentionality of the sentient entity. If the sentient entity is intentional, then it is an Agent; otherwise if it is unintentional, it is an Author.

The present theoretical framework, which is based on causal model literature (Pearl 2000; Slowman 2005; Waldman and Holyoak 1992), is borrowed from Slowman et al. (2012). According to the literature, we judge the intentionality of others' action rapidly and effortlessly, for most situations. Slowman et al. (2012) proposes a mental model of intentionality judgment of another person's actions to evaluate the intentionality of those actions for particular outcomes. For present purposes, it is a judgment of Agent and Author. The proposed causal model of agency is illustrated in Figure 1.

This causal model of agency is characterized as follows. For an event to be agentive, we first must have a sentient entity. This is where we start from the

very top in the diagram. An Agent is judged to have an intention to perform an agentive event if and only if he or she has a desire for the resulting event of the action as well as a belief that the action would lead to the resulting event. An agentive event is intentional if and only if the Agent has the intention, awareness of his action as it is being performed, and sufficient skill to bring about the result of the action.

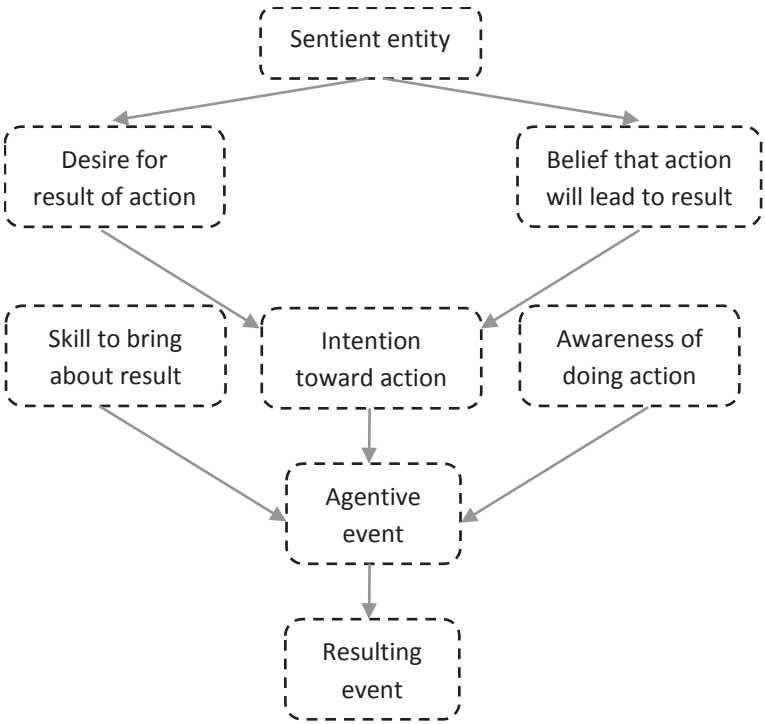


Fig. 1: A causal model of agency

5 Conclusions

In this study, the syntactic features and the semantic organization of agency are examined in the data collected from oral narratives in Mandarin Chinese. The data lend support to the following.

Talmyan Claim 6 can be fully supported that to study agency, it is necessary to distinguish conceptually the semantic notion of "Agent" from that of "Au-

thor" (Talmy 2000: 514). In the present study, Authors are represented explicitly with some additional lexical items, such as "unintentionally", "carelessly", etc. These Authored representations can be regarded as marked expressions of causative situation, while the unmarked ones are the agentive representations. In fact the agentive representations are the default patterns for causative situations. We further propose a causal model of agency to explain the nature of the events prior to the causing event or agentive event. Meanwhile both claim 7, that S must have initial Author with constituents specifying nonintentionality, as well as claim 8, that S must have initial Agent with constituents specifying intentionality, could be supported. But the reverse is not true, that is: a sentence without constituents specifying intentionality is not an agentive sentence, and a sentence without constituents specifying nonintentionality is not an Authored sentence.

The current data do not support claim 9 that the basic syntactic structure for agentive causal situation is represented as S_R RESULTed FROM S_a (Talmy 2000: 519). The present research mainly supports the pattern of S_a+S_R, while the concept of CAUSE or RESULTed FROM are integrated in S_R, the resulting event.

In the end, claim 10 could also be supported: that the semantic organization of agency contains a fixed set of particular components, namely, the events involving intention, volition and body parts (Talmy 2000: 531–532).

In sum, the present data do not support the existence of a universal pattern for representing agentive situations. The distinction between Agent and Author can be made explicit with constituents specifying intentionality or nonintentionality respectively.

The proposed causal model of agency applies to both types of data, cases for Agent and cases for Author, with constituents specifying intentionality or nonintentionality as well as without them. The mechanisms of this model require further empirical study.

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John R. Taylor

Much in all as: The anatomy of a strange expression

Abstract: *Much in all* as functions as a concessive subordinator. It is a curious expression, not least because of its seemingly non-compositional internal structure. Second, although the expression is extremely rare, being attested in only the very largest of corpora, it appears to have been gaining some traction in the English-speaking world. This paper approaches the expression from various perspectives, starting with the use of *as* (along with the specialized location *much as*) in a preposed concessive construction, noting the variations in the construction's wording, and proceeding to documenting the concessive prosody associated with and all. These factors, together with the possibility of phonological confusion between unstressed *and* and *in*, conspire to render the expression a suitable exponent of the concession relation. Although the account does not equate to a compositional analysis, the expression turns out by no means to be the singleton which it at first sight appears to be.

1 Introduction

I first became aware of the strange expression much in all as when reading of John Howard, the former Australian Prime Minister's put-down of Bono:

> **Door shuts on Bono**
>
> Prime Minister John Howard says he is happy to meet U2's frontman Bono, but only without the conditions imposed by the Irish rock star and aid campaigner.
>
> Bono was immediately quizzed on his intentions to meet Mr Howard when the singer and his band mates arrived in Australia this week.
>
> He said he would meet Mr Howard, but only if the prime minister was serious about a global aid coalition trying to convince nations to contribute 0.7 per cent of their gross domestic product to foreign aid.
>
> "I don't accept preconditions from anybody," Mr Howard told reporters today.

John R. Taylor: University of Otago

> "I don't commit in advance to businessmen in this country and I certainly don't do it to – *much in all as* he's high grade – Irish entertainers."
>
> Sydney Morning Herald, 8 November 2006

The expression is functioning as a concessive. The content of the subordinated clause ("he's high grade") is presented (by the speaker, i.e. John Howard) as being true, its truth, however, contrary to what one might expect, has no bearing on the validity of the main clause assertion ("I don't commit in advance to Irish entertainers, even Bono"). There are also some additional nuances. The speaker appears to be rather dismissive of the relevance of Bono's supposedly high-grade status to the matter in mind. There is also, perhaps, a hint of scalarity: no matter to what extent Bono is high-grade, this will in no way influence the Prime Minister's stance.

Several aspects of the expression interested me. Most striking is its seemingly non-compositional internal structure; while *(as) much as* can function as a concessive subordinator, what is *in all* doing in there? Non-compositional phrases – by definition – cannot be created by combining their parts. How, then, do these expressions arise? And why would a speaker choose to use an internally opaque construction when so many other resources are available? English can hardly be said to be lacking in means for expressing the relation of concession: *Even though he's high grade, high grade though he may be, no matter how high-grade he is* – to name just a few – would all, it seems to me, be appropriate to the context. A second aspect is the rarity, even novelty, of the expression. According to Google News Archive, there are only four attestations of *much in all as* prior to 2006, the earliest from December 1996, contained in a transcript from a speech by, once again, John Howard (suggesting, even, that the expression could be a personal idiosyncrasy of the former Premier).

(1) *Much in all as* businessmen out there – and I can understand their sense of frustration – would will it otherwise, we have to operate within the constraints properly laid down in the Constitution of Australia (Howard 1996: 1).

The expression is not recorded in the British National Corpus (BNC) (Davies 2004–) nor in the Corpus of Contemporary American English (COCA; Davies 2008–), though 2 instances are to be found in the 1.9 billion word Corpus of Global Web-Based English (GloWbE) (Davies 2013), one in a New Zealand source, the other of Irish provenance, and both from 2011. (The Irish connection will show up again later in this chapter.) On the other hand, Google searches

would suggest that in the last decade or so the expression has gained some traction. A Google search conducted late 2006 returned 100 hits; by May 2007 the number had risen to 61,300; in January 2015 it was 317,000. While bearing in mind the unreliability of search engine figures (especially for phrases made up of very common words), there does seem to be evidence for the increased use – and geographical spread – of the expression. Here are some Googled examples (January 2015), with indications of date of usage and (as far as it was possible to ascertain) geographical provenance:

(2) *Much in all as* I admire the member who has just resumed his seat, I have not heard such an antiquated speech in a long time. (NZ; 2013)
(3) "*Much in all as* I despise what they did, I do not believe that it should be a criminal offence," he told Neil Mitchell of radio 3AW. (AU; 2008)
(4) *Much in all as* I'd like to get stuck into this game, I realize that there are some things that need to be dealt with in order to make this happen. (AU; 2014)
(5) *Much in all as* I enjoyed this commercial, something bothered me about it. (US; 2007)
(6) *Much in all as* we all admire technique, it has to remain musical. (US; 2001)
(7) *Much in all as* I liked Jim Carrey and Ed Harris in "The Truman Show", it did feel that it was two actors going against type. (US; 2012)

The Googled data sharpen the question of how a seemingly non-compositional expression – one, moreover, which would not appear to be filling an onomasiological gap – was able to spread throughout the English-speaking world.

The facts are especially paradoxical from the perspective of usage-based models of language (Barlow and Kemmer 2000). According to these, an expression's entrenchment in the speaker's mental grammar is a function of the frequency of its previous use (in both production and reception). The more entrenched an expression, the more readily available it is for use in future production. For example, a speaker who wishes to form the past tense of the verb *strive* may not be able to retrieve the low frequency and hence cognitively not very salient irregular form *strove*. Instead, she may make use of the highly entrenched past tense morpheme [ed], coming out with the regularized past tense *strived* (Langacker 1987: 433). On the other hand, high frequent irregulars such as *drove*, *wrote*, and *became* – precisely because of their high frequency – are hardly likely to be supplanted by the regularized forms *drived*, *writed*, and *becomed*.

While usage-based models are able to account for the persistence and even spread of high-frequency constructions, particularly those which are irregular or idiomatic in some way, they fail spectacularly with regard to the preservation of rare expressions. *Strove* is indeed quite rare – there are only 455 tokens in the 450 million words of the COCA corpus, alongside a mere 104 tokens of *striven*. Yet *strived* – with 149 tokens – can hardly be said to have supplanted the irregular forms. *Strove* and *striven* still persist in the language. If future usage were simply a function of frequency of previous usage, we should expect that infrequently encountered expressions will not be learned, or learned very shallowly; hence, over a few generations of speakers, they will disappear entirely from the language. While some rare expressions do indeed drop out of the language, others do not; sometimes, even, they may increase their footprint (as in the case of *much in all as*).

We might attempt to account for the survival of less frequently used expressions by appeal to the surprisal effect (Jaeger and Snider 2007; Taylor 2012: 213–215). Rare expressions, precisely because of their rarity and unexpectedness, are likely to get noticed, and hence can lodge themselves in a person's mental grammar. Something of this kind probably ensures the survival of curious idioms, *kick the bucket* being a parade example (*fly by the seat of one's pants* is another of my favourites). Everyone knows these expressions, yet they are not at all in frequent use (they are much less frequent, per million words, than *strove*, for example). No doubt their very bizarreness causes people to notice them, and hence to register them. Indeed, it was the surprisal effect which first triggered my interest in *much in all as*. The expression struck me as so usual in its internal structure that it caught my attention, and prompted my study of it.

There is probably more to it than the unexpectedness of an expression, however. After all, all manner of unique and curious expressions hit one's ears – slips of the tongue, genuine mistakes, malapropisms, false starts, and corrections mid-sentence. Mostly, these do not attract attention to themselves, nor are they likely to be repeated and to establish themselves in the language (there are exceptions, of course, which prove the rule). Clearly, an expression needs to have some additional properties if it is to have a chance of being replicated in the language.

Drawing on Langacker's (1987) notion of language knowledge residing in a network of linguistic units, I suggested (Taylor 2004) that for an expression to be viable in a language it needs to be the hub of a network of associations (phonological, phraseological, semantic, syntactic) with other expressions in a language; as Jespersen ([1938] 1956: 134) put it, an expression needs to be supported by "invisible threads" that "knit words together in the human mind".

These "threads" constitute the (language-internal) motivation of an expression and secure its ecological niche in the language. An expression which lacked language-internal motivation would probably be perceived as not really being part of the language at all; it would have the status of noise, and would wither the moment it had been created, and certainly would not be able to be propagated from speaker to speaker throughout the language.

The network approach suggests a way of addressing the paradox of rare expressions, how they arise, and how they are able to spread throughout a far-flung linguistic community. We need, namely, to investigate the language-internal motivation of the expression, especially as regards its similarities and resonances with others things in the language. Approaching the matter from this perspective, it turns out that *much in all as* is by no means the singleton that it at first sight appears to be.

First, I present some thoughts on the concession relation, then I turn to the component elements of *much in all as*, also paying attention to variants of the expression.

2 Concession, cause, condition

The conceptual affinity of concession, cause, and condition is well known (Couper-Kuhlen and Kortmann 2009). Compare:

(8) I fell, because the steps were slippery. (cause)
(9) I didn't fall, although the step were slippery. (concession)
(10) If the steps had been slippery, I would have fallen. (condition)

In a sense, concession is the contrary of cause: not-Q although P versus Q because P. Both relations are based in the expectation that, in the normal course of events, Q follows, and can even be explained, by P, this being also the basis of the condition relation (if P, then Q). Two further affinities (probably not unrelated) between concession, cause, and condition may be mentioned.

a) All three relations are quintessentially subjective in nature. Unlike relations of temporal coincidence, overlap, and succession – which can in principle be verified by reference to states of affairs in the world – concession, cause, and condition cannot be 'read off' from how the world is, but have to do with how a speaker construes the relationship between situations. Strictly speaking, one can only observe situations P and Q; there can, however, be no speaker-independent grounds for claiming that Q is the result of P, or

that P is the cause of Q. The subjective element is perhaps even more in evidence in the case of concession (where Q is presented as being unexpected, given P), or when P and Q are hypothetical situations (one semantic value of conditional sentences).

b) The three relations may be expressed by a myriad of linguistic resources, involving a range of subordinating conjunctions, sentence adverbials, and linking phrases; they can even be implied by simple paradigmatic juxtaposition of clauses. For cause we have *since, because, seeing that, so, therefore, that's why, for this reason*, to name just a few. For condition we have *if ... then, in case, in that case*. For concession, we have *though, although, still, while, whereas, despite, in spite of the fact that*. Many other adversative expressions are available: *however*, *nevertheless*, and, of course, *but*.

I suggested above that these two observations – the inherently subjective nature of the relations and the multiplicity of linguistic resources that are available for their expression – might not be unrelated. The variety of available resources no doubt reflects the very complexity and multi-faceted nature of the semantic relations, which in turn is likely a reflection of different facets and sources of subjectivity. For example, P or Q may be a matter of objective, observable fact ("I fell"); it may be a matter of assessment ("the steps were slippery"); or it may be a matter of a person's attitude or epistemic stance (what someone wants, knows, believes, etc.). Additional factors are the locus of subjectivity (the speaking subject, a named protagonist, an unnamed third party), the degree of epistemic commitment by the speaker towards the contents of the propositions, as well as the status of P and/or Q as given, presupposed, etc., a factor which is also likely to influence the information structure and the sequencing of the two clauses, as well as their status as independent clauses or as clauses in a relation of dependence. These matters have been quite intensively studied with respect to causal relations (e.g. Pit 2006; Taylor and Pang 2008). This is not the place for a detailed examination of concession. It is worth observing, however, the tendency for *much in all as* to introduce, in sentence-initial position, a personal stance of the speaker – what the speaker admires, despises, loves, enjoys, etc. This is the case with all the Googled examples cited above, and in quite a few of the examples cited later in this chapter (though not, it might be noted, in the case of John Howard's reported statement). The observation suggests that *much in all as* may be offering a distinctive "take" on the concessive relation.

3 *As*

As is a curious word. First, its syntactic status is fluid. Sometimes it functions as a conjunction, at other times it has preposition-like properties; in some uses it may be construed as a relative, while in non-standard varieties it may serve as a complementizer. Semantically, its dominant uses pertain to the domains of temporal relations, of cause/reason, and of course comparison. The word is also associated with a number of fixed locutions, often in conjunction with another high-frequency item: *as if, as though, as to, as for*, *as with*; these are expressions for which a compositional analysis is not reality available. Interestingly, *as* can be used to express both cause and concession, albeit in different syntactic environments, symptomatic, no doubt, of the close conceptual relation between the two concepts. Playing on one of Quirk et al.'s (1972: 612) examples, compare:

(11) Naked *as* I was, I braved the storm. (concession)
(12) *As* I was naked, I braved the storm. (cause/reason)

In both expressions there is the implication of temporal overlap between my being naked and my braving the storm. In addition, the first presents that fact of my being naked as going against the expectation that I would brave the storm. The second suggests, on the contrary, that my being naked facilitated, or even enabled, my braving the storm.

There is, as noted, a syntactic difference between the two uses. Concessive *as* is associated with a preposed element; in the above the preposed element is an adjective, though other predicational elements are also admitted: *Object as you may, Change your mind as you will* (Quirk et al. 1972: 612).

For a fuller exemplification of the construction we may turn to Jespersen's ([1954] 1961) *Grammar* and his discussion of what he called "relative *as*". According to Jespersen, we are dealing with two concessive constructions, a supposedly older construction with *so/as … as*, and a more recent construction, without initial *so/as*. The former is exemplified by the following citations (Jespersen 1961: 174; I have modernized the spelling):

(13) Henry V, III, 2.28: *As* young *as* I am, I have observed these three swashers.
(14) Henry V, IV, 1.119: I believe, *as* cold a night *as* 'tis, he could wish himself in Thames up to the neck.

This supposedly older construction is still very much in use. Here is a more recent (Googled) example:

(15) *As* appealing *as* that portrayal may be, it's most likely not true.

Jespersen exemplifies the second construction (without initial *as*) by the following:

(16) Stevenson, *Treasure Island*: bad *as* his clothes were, and coarsely as he spoke, he had none of the appearance of a man who sailed before the mast.
(17) George Eliot, *Adam Bede*: Often *as* Dinah had visited Lisbeth … she had never slept in the cottage.
(18) Mary Shelley, *Frankenstein*: Pitiless *as* you have been towards me, I now see compassion in your eyes.
(19) Mary Shelley, *Frankenstein*: This winter has been passed most miserably, tortured *as* I have been by anxious suspense.

These last two *Frankenstein* examples also illustrate the ambiguity of the construction. The former is concessive, the second offers a reason, or explanation, showing, once again, the close conceptual relation between cause/reason and concession, as well as suggesting that the semantics of the preposed construction are not fully fixed.

Zooming in now on the particularities of the expression which is the subject of this chapter, there is the possibility that the preposed element is *much*:

(20) *Much as* I would like to help (Quirk et al. 1972: 612)
(21) *Much as* I hated to admit it – even to myself – I was totally lost, stuck in a place where the turf was nothing like the kind I was used to and the rules weren't the ones I was used to bending (Google)
(22) *Much as* I love the works of J.R.R. Tolkien, I refuse to call any dog Bilbo Baggins, so Bill he has become (BNC)

Initial *as* is also possible:

(23) *As much as* she loved Lizzy, and *as much as* she wanted to help her, without her job they would all be up a creek without a paddle. (BNC)
(24) *As much as* he is thoroughly yankified, …, he none the less still feels a strong connection to his native island. (BNC)

Concessive *much as* receives little discussion in the standard reference works. There is no mention in the Shorter OED (either under the entries for *as* or for *much*), nor, even more surprisingly, in the monumental *Cambridge grammar of*

the English language (Huddleston et al. 2002), though we do find a brief reference in Quirk et al. (1972) and in Leech & Svartvik (1975: 98). The absence of discussion in the major reference works is strange, since the expression undoubtedly has a special status. *Naked as I was* is clearly based on *I was naked*, while *Often as Dinah had visited Lisbeth* is based on *Dinah had often visited Lisbeth*. However, *Much as I hated to admit it to myself* cannot be based on *I hated much to admit it to myself*; the latter is simply not well-formed. *Much as* is thus best regarded as a specialized, or idiomatized instantiation of the preposed construction. It is motivated, perhaps, by the notion of scalarity; the speaker dismisses as irrelevant the extent to which I hated to admit it to myself (or: no matter how much I hated to admit it). Even so, the semantic value of *(as) much as* is not entirely fixed, its interpretation appearing to be very much context-dependent. In the first of the examples below, adversative connotations are backgrounded, while in the second example they are completely absent:

(25) He's not teaching tolerance *as much as* he is teaching love (Google)
(26) The reluctant singer … came legging in and out of the junkyard noise with goofyhinged quatrains, singing *much as* I imagined a tarantula might (COCA)

4 Variants

The above discussion has established the concessive value of the outermost constituents of *much in all as* (at least in some contexts). I now turn to variants of the expression. Given that *much as* and *as much as* can both function as concessives, it is not surprising that we find examples of *as much in all as* – though *so much in all as* is not returned by Google searches.

(27) *As much in all as* we'd love the cast of 300 to appear at our front door for some tasty nosh it won't happen. (Google)

More interesting, however, were the Google returns for expressions which varied the internal element *in*. Unstressed *in* is phonologically indistinguishable (in most accents) from unstressed *an* and reduced *and*. Indeed, the internal element appears, variously, as *and*, *an*, and *n*. In fact, *much an(d) all as* turned out to be rather more common that *much in all as*.

(28) *Much and all as* I don't like a lot of Key's social policy, I do think the man is genuine about keeping NZ and all NZers in a good place.
(29) *Much an all as* I like adventure I like company too.
(30) *Much an' all as* I dislike McCarthy its a new campaign and we have to get behind the team.
(31) *Much n all as* we hate to admit it, Christmas is just around the corner...
(32) *Much 'n' all as* i love 'em my folks had pretty shite taste in music.

The internal element may even appear as *as* (possibly by contagion with the final *as* of the expression):

(33) And *much as all as* I have affection for my former profession of the law, I don't want to make it my business to line their pockets even more.
(34) *Much as all as* I agree that political parties should have to openly disclose their sources of funding, the logistics of doing so in such a way that the public is aware and informed would be very difficult to do

The above variants are also attested with initial *as*, and, occasionally, *so*:

(35) *As much and all as* I don't spend lots of time in lifts, they can certainly be a great meeting place.
(36) *As much an all as* I like Dean, I'd rather it was Carly who had returned.
(37) *As much n'all as* I love being away from home, can't wait to get back to Galway for Christmas.
(38) *So much and all as* I'd love a few Solpadeine the following website does not recommend them in pregnancy.
(39) *So much and all as* I'm not ready to blog about The Wiggles, it might happen.

The following are notable for the repeated *as*:

(40) *As much as all as* you're excited...give it time to dry!
(41) And *as much as all as* I am a dyed in the wool monohull yachtie, the Andaman Cabriolet is a great boat, with plenty of feel on the helm and an impressive build.

The following is particular curious:

(42) *Much and all as* **though** I love golf, this public #SPOTY vote proves it is still very much regarded as a minority sport.

This is the only search engine return for the underlined expression; it probably arose through contagion (or blending) with concessive *though*.

5 *And all*

From the above, it would seem that the "canonical" form of the expression (to the extent that a canonical form can be identified at all), contains the internal element *and all* (and its graphological variants). There are 9 examples (7 of Irish provenance) with internal *an(d) all* in the GloWbE corpus, as against only 2 for internal *in all*. It is worth noting in this connection that the example which opened this chapter is a transcription of what John Howard supposedly said. It was the transcriber who identified the utterance as *much in all as*; we may not infer from this that the speaker actually intended to use the word *in* rather than *and*. Let us therefore turn our attention to the location *and all*.

As a tag, *and all* is characteristic of informal registers throughout the English-speaking world; Hughes and Trudgill (1979: 79) suggest that it corresponds to "as well" – though this is surely an inadequate gloss. The expression is reportedly especially characteristic of South African Indian English (Mesthrie 2012) and of Irish English (Hickey 2007). In Mesthrie (1992) we find such examples as the following:

(43) Hawa, she's telling she cooks an' all. (Mesthrie 1992: 51)
(44) I don' go church *an' all*. (Mesthrie 1992: 78)

Mesthrie (2012: 359) comments that while the tag is by no means unique to South African Indian English, it is "felt to be so by other speakers". Hickey (2007) refers to *and all*/*an' all* as a reinforcer, though what is meant by this term is not clear. His examples include:

(45) She get her hair done *and all*. (Hickey 2007: 175)
(46) The women *an' all* have to drive. (Hickey 2007: 375)
(47) Sure he had to go to Dr O'C . . . with that *an' all*, hadn't he? (Hickey 2007: 375)

In order to investigate the use of *and all* as a tag, I searched the GloWbE corpus for *and all* followed by a comma. Here are some examples:

(48) I wanted to say something to her, since she was my cousin *and all*, but she gave me this cool, drop-dead look. (GB)
(49) At this point I was awkward - you know, being Canadian *and all*, but the people standing in line behind us were all smiles. (CA)
(50) i know we can help by giving money *and all*, and that'll raise awareness. but once the politicians are aware, what then? (US)

There were in all 3694 tokens of *and all* followed by a comma. Interestingly, the most frequent right-most collocate by far was adversative (concessive) *but* (1078 examples), strongly suggesting that *and all* is associated with a concessive prosody. Here are some further examples with two of the more frequent left-most collocates, *great* and *nice*. It will be noted that the usage is attested throughout the English-speaking world.

(51) Obstacle avoidance is *great and all*, but how does this thing handle things like stairs? (US)
(52) Being healthy is *great and all*, but there are a lot of other things that are way more important. (ZA)
(53) Now, water-skiing's *great and all*, but there are some down sides. (IE)
(54) That's *nice and all*, ma'am, but you can put your clothes on now. (IE)
(55) Free clothes are *nice and all*, but they won't put food in your mouth. (IE)
(56) Your idea is *nice and all*, but it won't put bread on the table. (GB)
(57) Sure Avatar is *great and all*, but do you feel anything after watching it? (GB)
(58) Murchison is *nice and all* but there's more to see via Kaikoura. (NZ)
(59) Fast internet is *nice and all*, but people don't buy fast internet, they buy products or experiences. (AU)

Concessive force is also in evidence in cases where the subsequent item is *however*.

(60) She was *very friendly and all*. However, the 3rd time, she asked me to reserve RM 300 worth of stuffs for her. (MY)
(61) what you say is *important and all*. However ... (GB)

The association of *and all* with concession is confirmed, further, by what appears to be a predominantly US usage, namely, the expression *still and all*. (Huddleston et al. 2002: 779 characterize *still* as an "impure concessive".) Of the 78 instances in GloWbE, 30 are of US provenance:

(62) *Still and all, as* my grandmother used to say, we enjoyed getting together, especially during the holidays.
(63) *Still and all, as* collectors and purveyors of fine period tapestries, we are happy to see this wonderful art form get the exposure and coverage it
(64) But *still and all,* trekking in Nepal is an expensive undertaking.

According to *Merriam Webster* (2015), the expression has been in use since 1829.

The above examples mostly have to do with the use of *and all* as a clause-final tag. Another salient use is in association with adjectives, specifically in the preposed concessive construction with *as*. Notable here is the predominance of examples of Irish provenance.

(65) However *bad and all as* pension funds are doing, they have still beaten inflation. (IE)
(66) *Bad and all as* the emigration situation is in Ireland, if we want to have any hope of attracting these young people back, we should at least give them the right to participate in Irish elections. (IE)
(67) the poet Craftin, who, *poet and all as* he was, nearly lost his head in the adventure, was the most welcome of all welcome guests at the nuptial feast. (IE)
(68) *nice and all as* that was, she's in a much better place now. (IE)
(69) So I hope, *cash-strapped and all as* we are, that we can club together, even if only ten euros/pounds/dollars at a time. (IE)
(70) So we need to imaginatively strengthen our hand (p1ss *poor an all as* it is) on the stimulus side. (IE)
(71) I feel it would be difficult for you to understand, or even have any idea about, the whole setup of this organisation – *gifted and all as* you are. (IE)
(72) And *serious and all as* the situation is, we couldn't help think what we could do (GB)
(73) I can translate one of his statements: "I hope we're not just replacing a tissue philosophy with a neurosciences one – *fascinating and all as* it is?" What he meant was: "I hope we're not just replacing a flat-Earth philosophy with a round-Earth one – fascinating and all as it is?" (AU)

6 In conclusion

The above discussion has highlighted a number of factors which conspire to give *much and all as* its status as a concessive connector. Let us recapitulate:

- *as*, with a preposed predicational element, is well established as a concessive construction
- also well established is the use of *much as* as a concessive connector
- *and all*, widely used in colloquial English, is often associated with a concessive prosody
- *and all* may appear in the preposed *as* construction, tagged to the initial predicational element, a usage which appears to be typical of (though by no means exclusive to) Irish English
- *and all* can also be tagged to initial *much* in the *much as* construction.

I would hesitate to claim that *much and all as* is simply a compositional function of its component elements. Rather, the expression represents a fusion of elements which, separately, can express concession. A similar phenomenon was observed by Taylor and Pang (2008: 132) in their study of 'strange' causal connectives. *Seeing that*, *seeing how*, and *seeing as* can all function as causal subordinators. The expressions can also merge, as in the following (Googled) examples:

(74) I am kind of sorry if this offends you, *seeing as that* it is the 'holiest' holiday on the Christian calendar.
(75) I have seen many fires like that *seeing how that* i am a firefighter and i would know.
(76) Of course, the assumption that Batman has had time to find out who Spawn is and prepare for the fight is a given, *seeing as how that* he has the minor disadvantage of being mortal.

What about *much in all as*? As suggested, this expression could well be an orthographic variant of *much and all as*, reflecting the fact that unstressed *in* and *and* would be virtually indistinguishable in most accents. Just this kind of homophony lies behind the common writing of *must of* instead of the normative *must have*. (It also explains the occasional use of *seen as* and *been as* as variants of causal *seeing as* and *being as*).

The fact remains, of course, that *much and/in all as* is at the extreme periphery of the English language. It is an expression so rare that it is recorded only in the very largest of corpora. This in itself constitutes a major obstacle to

its systematic study. Nevertheless, an examination of these curious specimens may be able to shed light on important aspects of linguistic creativity and change, and of the cognitive processing of language more generally.

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Ronald W. Langacker

Descriptive and discursive organization in cognitive grammar

Abstract: Expressions have import with respect to four dimensions: individual, interactive, descriptive, and discursive. Certain phenomena pertaining to the descriptive and discursive axes are abstractly parallel but must nonetheless be distinguished. The cases examined are the focusing of attention and anchoring, i.e. the prominence associated with initial position. These occur at different levels of organization, in processing windows on different time scales. Profiling (conceptual reference) is one kind of descriptive focusing. Discursive analogs include informational focusing and the status of a complement clause as the main focus of interest (e.g. *I think she's brilliant*). Subject and topic are descriptive and discursive analogs with respect to anchoring. Each can be initial in either of two ways, which tend to coincide: concretely, in the order of presentation; or abstractly, as a matter of conceptual priority (starting point for interpretation). Despite their similarity and close association, subject and topic are in principle distinct, as are profiling and focus of interest. In each case the discursive phenomenon can be reinterpreted as its descriptive analog. With complementation, the reanalysis of focus of interest as profiling produces a single-clause expression in which the matrix functions as a formulaic stance marker.

1 Introduction

In his characteristically broad view of our discipline, Geeraerts (2010) has aptly described cognitive linguistics as "recontextualizing" grammatical investigation. Grammar is not autonomous, but can only be understood in the context of lexicon, language use, discourse, and social interaction. This recontextualization is reflected in the basic architecture of cognitive grammar (CG), which holds that linguistic units are abstracted from usage events, that their import includes the interlocutors and their interaction, and that lexicon, grammar, and discourse form a continuum of symbolic assemblies (Langacker 2008). Here I expand on recent efforts (e.g. Langacker 2001a, 2012) to achieve an integrated view of grammar and discourse.

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Linguistic structures can be arranged along four dimensions, or axes; though a particular axis is often primary, they generally have values in more than one. Primarily individual are manifestations of expressiveness, emotion, and affect (e.g. *Yuck!*). Along the interactive axis are expressions representing enactment by the interlocutors of a social routine (e.g. *Thanks*). Lexicon and grammar (as traditionally conceived) constitute the descriptive axis. The discursive axis concerns how descriptive structures relate to one another.

Each axis subsumes the preceding ones. Interaction depends on individuals. Description is interactive and intersubjective, being aimed at conceptual alignment on the part of the offstage interlocutors; an expression's profile (conceptual referent) is the focus of attention within the onstage descriptive content. Discursive structures involve the presentation of descriptive content for interactive purposes. Primarily discursive factors include the order of presentation, the packaging of content (e.g. in clauses and prosodic windows), information structure, and speech management (such as turn taking). Having little conceptual or phonological substance of their own, discursive structures are supervenient on the content provided by descriptive structures.

Grammar is shaped by the interplay of descriptive and discursive factors. Being based on different considerations, the structures along these axes are often non-congruent. However, descriptive and discursive structure cannot be neatly separated (any more than lexicon and grammar can), but are better viewed as facets of same overall assembly. They exhibit a number of parallels—analogous phenomena that are related at an abstract level but have to be distinguished in a careful analysis. A well-known example is the distinction between clausal and metalinguistic negation. Clause-internal grounding (by tense and modals) and interactive negotiation (by questions and negation) are also abstractly parallel (Langacker to appear). The present discussion concerns two other cases: focusing and anchoring.

2 Focusing and anchoring

Focusing is a general feature of language and cognition, which consist in processing activity. For a particular kind of focusing, the relevant activity takes place in a certain domain (such as phonology, clause structure, or conversational discourse). It runs concurrently on different time scales, in each case unfolding in successive processing windows of a certain rough duration. The content appearing in a given window (a portion of the relevant domain) constitutes its scope. Usually the content in a window has a single focus, a structure of special

prominence (presumably consisting in a high level of activation). Focusing occurs at multiple levels of organization, where a series of windows on one time scale are subsumed in a single, higher-level window on a larger time scale.

Figure (1a) represents focusing at a single level of organization. Diagrams (1b) and (1c) show two levels of phonological focusing: a vowel is focused within a syllable, and the accented syllable within a word. Diagram (1d) shows multiple levels of semantic focusing for the complex expression *football equipment repair facility*. A heavy-line box indicates a structure that is focused in its window, in the sense of being the profile determinant: it imposes its profile on the composite conception emerging at that level. At the first level, *football equipment* profiles the equipment (not the ball), while *repair facility* designates the facility (not the activity). When these combine at the higher level, *repair facility* is the profile determinant. The full expression thus profiles the facility.

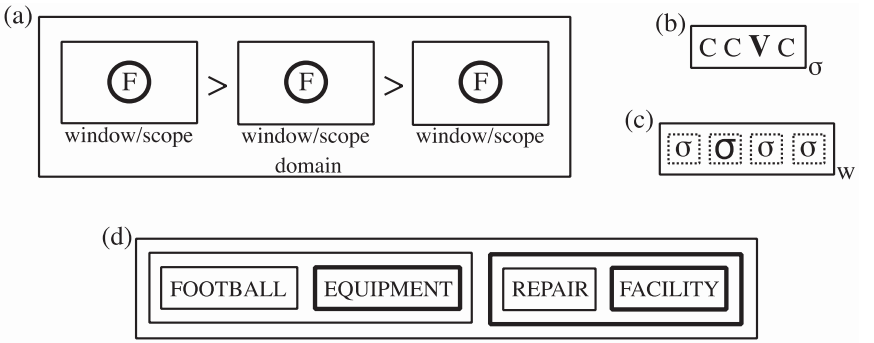

Fig. 1

Profiling is one kind of descriptive focusing. A discursive analog – marked in English by unreduced stress – is the informational focus, roughly characterized as being new or otherwise noteworthy in the immediate discourse context. The two are clearly distinct. Whereas profiling is a matter of reference, informational focusing is one of significance, largely based on relation to prior expressions. Informational focusing represents a discursive overlay on descriptive structure. As seen in (1), it varies freely with no effect on a clause's profile (the process destroy) or grammatical relations like subject and object.

(1) a. *TERMITES destroyed my house.*
b. *Termites DESTROYED my house.*
c. *Termites destroyed my HOUSE.*

Another kind of descriptive focusing is the prominence accorded to the central participants in a profiled relationship. The subject of a clause is characterized in CG as the trajector, i.e. the primary focal participant in the process it profiles. Its discursive analog is a topic. Their relationship is evident, as topics evolve into subjects, and the two are sometimes hard to distinguish (Li and Thompson 1976; Langacker 2001b). But they are not equivalent, the difference being a matter of descriptive versus discursive anchoring.

If the focus in a window has the highest level of activation, the anchor has the lesser salience associated with initial activation. The arrow in Figure (2a) indicates that the processing in a window (W) has a time course, with structures accessed in a certain sequence. The first structure to be accessed is the anchor (A). An anchor has a measure of salience just by virtue of being initial; already active when other structures are accessed, it unavoidably has some influence on subsequent processing (MacWhinney 1977; Gernsbacher and Hargreaves 1992). To the extent that it has a real impact, affecting or even shaping the mental experience, the anchor has a framing function. Like focusing, anchoring is relative to a particular level of organization. Figure (2b) shows both kinds of salience at successive levels of compounding, in which the first element functions as anchor and the second one as focus. So while *football equipment* profiles the equipment, *football* frames the expression by activating the conceptual domain where *equipment* is interpreted.

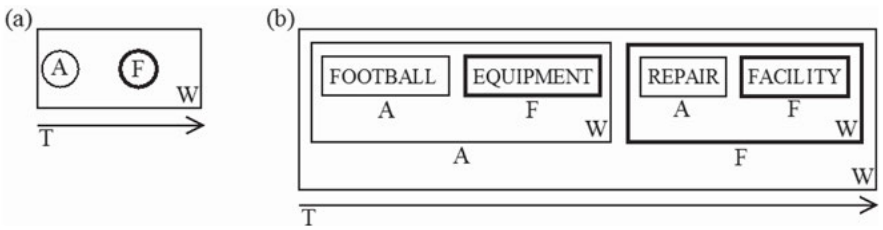

Fig. 2

The claim, then, is that subject and topic are descriptive and discursive analogs in regard to anchoring, which is defined in terms of being initial. But an element can be initial in either of two ways: concretely, by being first in the order of presentation (preceding other elements in the phonological sequence); or abstractly, by having conceptual priority (as the basis for interpreting the content in its window). Here the term anchor is used in the concrete sense. The element with conceptual priority is referred to as the starting point (a term previously

employed by MacWhinney (1977) and Chafe (1994) in related but slightly different ways). Since both have a framing function, processing is more efficient if anchor and starting point coincide, so that order of presentation reinforces the inherent order of conception. For this reason subjects tend to be initial in a clause, and a topic normally precedes it, as in (2a). There are of course exceptions, as in (2b): *in just six months* functions as both descriptive and discursive anchor, while *they* and *my house* retain their roles as descriptive and discursive starting points.

(2) a. *My house, they destroyed it in just six months.*
b. *In just six months they destroyed it, my house.*

These parallels help explain why subjects and topics are sometimes not easily distinguished. There is however a clear distinction for cases reasonably considered prototypical. A subject frames a clause, whose function is basically descriptive. It is the starting point for describing the profiled clausal occurrence. More specifically, it expresses the main participant in that occurrence – the trajectory – characterized in CG as the first reference point accessed in building up to a full conception of a profiled relationship (Langacker 1998). The choice of subject is determined by the verb, and semantically there always is a subject, even when it is left implicit because its identity is evident from the context.

By contrast, a topic frames a coherent discourse sequence. This may just be a single clause, but often it comprises a series of clauses in a window on a larger time scale, as in (3a). Because it pertains to the larger discourse, a topic is typically external to a clause. And while it frames a clausal proposition (providing the basis for its interpretation), we observe in (3b) that it need not be a central participant in the profiled process. The choice of topic is not determined by the verb, nor does every clause even have one.

(3) a. *Termites, they're really bad here. They destroyed my house in just six months.*
b. *My house, the termites are winning.*

These anchoring functions pertain to different levels and are basically independent, affording an array of nuanced framing options, as in (4). The event is framed in alternate ways by constructions affecting the choice of subject, like the passive. The clauses in (4a) and (4c) describe what the termites did, while those in (4b) and (4d) describe what happened to the house. On the other hand, the choice of topic anchors the clausal proposition as a whole to a particular entity in the realm of discourse (it is what the clause is "about"). This is not to

deny that the choice of subject has discursive motivation. Structures have import with respect to multiple axes – being primarily descriptive does not entail being exclusively descriptive.

(4) a. *Termites, they destroyed my house in just six months.*
b. *Termites, my house was destroyed by them in just six months.*
c. *My house, termites destroyed it in just six months.*
d. *My house, it was destroyed by termites in just six months.*

A topic is typically external to the clause it frames and occupies a separate prosodic window. In Figure 3, the windows labeled W delimit the salient prosodic groupings that Chafe (1994, 1998) refers to as intonation units. In (3a) the topic and the clause appear in separate windows of this sort. Descriptively, each has a focus (F), its profile, and the clause has a separate anchor (A), its subject. This is a serial construction, in which the nominal and clausal referents are focused in succession – there is no composite conception with a single profile for the whole. Still, the structures are connected in a more inclusive scope of awareness (dashed-line box) on a larger time scale. At this higher level of organization, the nominal functions as discursive anchor (A') and the clause as discursive focus (F'). It is focused in the sense that the nominal provides the basis for interpreting the clause, rather than conversely.

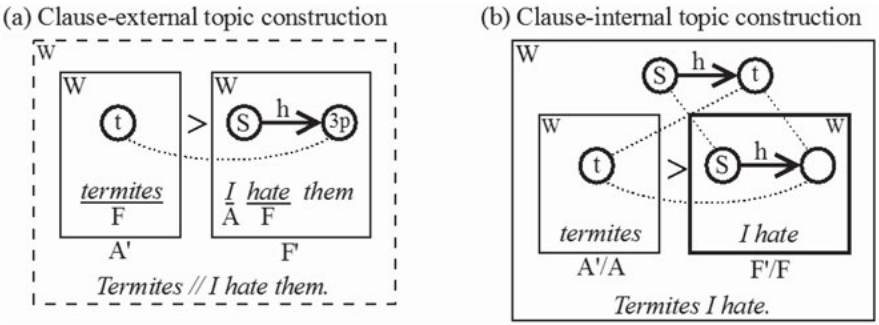

Fig. 3

The alternative construction in (3b) exhibits grammatical and phonological compression: it is all a single clause, with a single overall profile, appearing in one clause-sized window without a prosodic break. The pronoun *I* is still the subject, i.e. the descriptive starting point. But *termites* – being initial in the

clause – is now the descriptive anchor (A), in addition to its role as topic, or discursive anchor (A'). *I hate* is the discursive focus (F'), as *termites* provides the basis for interpreting it. At this higher level of organization, *I hate* is also the descriptive focus (F), i.e. the profile determinant. (Should the topic be reanalyzed as clausal subject, it would simply function as A, the discursive notions A' and F' no longer being operative.)

3 Profile and focus of interest

Let us now consider more carefully the nature of profiling and how it relates to other kinds of focusing, both descriptive and discursive. It is specifically defined in CG as the intersubjective focusing induced by symbolic expressions, either lexical or grammatically constructed. It pertains to the descriptive axis, where the offstage interlocutors – by using an expression – coordinate their scope of awareness and focus of attention with respect to the situation being described. An expression's profile is the focus of attention within the immediate scope of conception comprising the content in the current processing window. It is focused by virtue of being the conceptual referent: what the expression designates (refers to) within the immediate scope. The profile does not necessarily represent the most detailed or important content. For instance, a grounding element (like tense) profiles the onstage referent, characterized only schematically, not the ground or the grounding relationship (Langacker 2002).

A clause profiles a process (or occurrence), i.e. a relationship tracked through time. This occurrence is the overall descriptive focus in the sense of being the clausal referent. Profiling can thereby be distinguished from another kind of descriptive focusing: the one that characterizes the trajector, expressed as the clausal subject. Compared to profiling, the trajector has the lesser salience of a starting point. It is analyzed in CG as the initial reference point accessed in arriving at the full conception of a profiled relationship. While it is thus a clausal participant – and the nominal expressing it has its own profile internally – the trajector is not per se the focus of attention for the clause as a whole.

How does profiling relate to discursive focusing? We can start by observing that the notion of profiling is limited in its application. It applies most straightforwardly to a full nominal or a finite clause. These are grounded structures whose descriptive function is specifically referential: they enable the interlocutors to direct their joint attention to a particular thing or occurrence out of all those we are capable of conceiving. Inside a nominal or a finite clause, smaller

structures that are not themselves grounded contribute to the overall referential function by focusing attention on a certain element within the conceptual content they invoke. For example, the lexical item *roof* evokes the conception of a building and directs attention to the structure that covers it. In local terms such expressions do single out a kind of referent – not in our mental world at large (e.g. a particular roof, as opposed to all others), but just in the scope of conception (roof as opposed to building). One such referent is inherited by the nominal or the clause as a whole, where grounding singles out a particular instance of the type described (e.g. *that roof*).

Extending the notion of profiling to more complex expressions, especially with multiple finite clauses, is at best problematic. The global apprehension of a structure, and the emergence of an overall focus, become more tenuous in processing windows of longer duration. So normally, as in (5), the finite clauses in a complex sentence are processed with a certain amount of autonomy in clause-sized windows. Despite a global awareness of their relationship, they do not constitute a simultaneously activated whole with a single overall referent. Packaged in this way, the sentences provide serial access to facets of a complex conception. So any salience asymmetries between the clauses must be due to something other than profiling. In (5), for example, the initial clause is in each case a discursive anchor (essentially by definition). Moreover, in (5b) and (5c) the matrix clause functions as discursive starting point by virtue of being the trajector of *after* or *if*.

(5) a. *Bill complained // and they fired him.*
b. *They fired Bill // after he complained.*
c. *If Bill complains // they will fire him.*

Serial access of this sort is obviously characteristic of longer discourses, like a conversation, a lecture, or a novel. These may have an overall topic, but not an overall referent. They do however exhibit various kinds of salience asymmetries plausibly analyzed as discursive focusing. The following list is certainly not exhaustive: how many kinds there are, and how they relate to one another, remains to be determined.

We have already noted the asymmetry in a topic construction between the topic nominal and following clause: *Termites // I hate them*. The clause is focused in the sense that the nominal (the discursive anchor and starting point) provides the basis for interpreting it, rather than conversely. Rather different is the focusing observed in a joke, where the punch line has special prominence within the whole. This is clearly discursive, not a matter of reference – a joke

does not refer to its punch line. A third type of asymmetry is informational focusing, which in English is marked iconically by the phonological salience of unreduced stress: *He* HATES TERMITES. *After all, termites* DESTROYED *his* HOUSE. Semantically the focus is salient by virtue of representing content that is new or otherwise noteworthy. Grammatical elements tend not to be focused since their descriptive conceptual content is highly schematic, hence not significant enough to be discursively addressable (Boye and Harder 2012).

In recent years scholars have noted another kind of prominence referred to here as focus of interest. It started with challenges to the traditional notion that a complement clause is "subordinate" to the matrix. Diessel and Tomasello (2001) observed that complement constructions, at least when first acquired, are single-clause expressions in which the so-called "main clause" functions as a clausal operator with epistemic, attention-getting, or speech-act import. Thompson (2002) argued that, in conversational discourse, main clauses are "formulaic stance markers", the complement being the focus of interest. Certainly, many complement expressions are properly analyzed in this fashion, e.g. (6a). But other scholars pointed out that the matrix clause may instead be of primary discursive interest, as in (6b), and that sometimes, as in (6c), the clauses are equal in this regard (Verhagen 2005; Boye and Harder 2007).

(6) a. *I think* ***the company will hire Rebecca***.
b. *But* ***her mother really can't believe*** *they will*.
c. ***Rebecca's mother certainly hopes // the company will hire her immediately***.

How does focus of interest relate to other sorts of focusing? The possibility that it might just be profiling was considered for a time in CG. This developed from the original CG characterization of a subordinate clause as one whose profile is overridden at the composite structure level (Langacker 1991). Illustration is given in Figure (4a). In *Alice knows Bill resigned*, the process *know* is profiled by the matrix clause, and *resign* by the complement. Given the standard view that the full expression refers to the knowing (not the resigning), it was said to profile just the former at the composite structure level. The matrix clause thus functions as profile determinant, overriding the profile of the complement.

How, then, to accommodate the valid insight that a complement clause is really not subordinate to the matrix? Or more generally, that either or both of the clauses can be focused, as in (6)? To handle this, a later CG analysis (Langacker 2008, 2009: ch. 11) allowed either clausal process, or both, to be profiled by the full expression, as in Figure (4b).

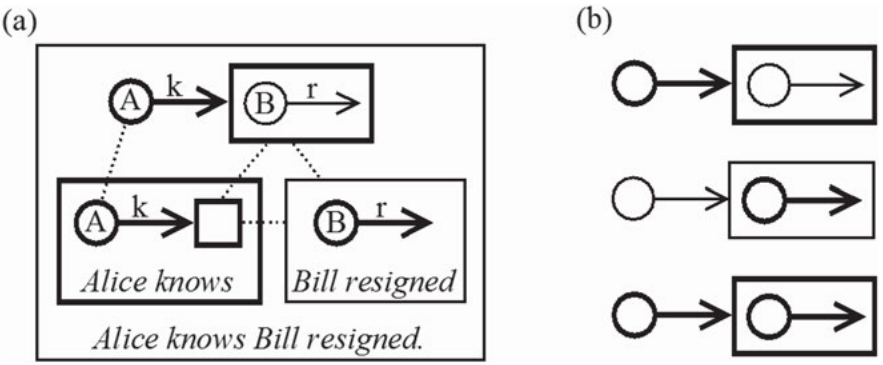

Fig. 4

I now have a different take on this matter based on a broader perspective encompassing both grammar and discourse. We can put aside the question of subordination, which proves to be a multifaceted notion not amenable to categorical distinctions (Langacker 2014). The real problem is to elucidate the various kinds of focusing and their relationships. It should be evident that, in contrast to profiling, focus of interest is discursive rather than descriptive – not a matter of reference, but of presentation. In fact, focus of interest seems quite similar to informational focusing. Clear examples, like those in (6), have substantial new descriptive content. And like the informational focus, the focus of interest can vary without affecting basic grammatical organization, as in (7a–b) [cf. (1)].

(7) a. *[I don't know what the company plans for Rebecca,] but I think* ***they will*** HIRE ***her***.
b. *[We don't know if the company will hire Rebecca,] but* ***we*** THINK *they will (hire her)*.
c. *Her* MOTHER *thinks //* ***they will*** HIRE ***her*** IMMEDIATELY.

To be sure, the examples in (7) show that informational focus (small caps) and focus of interest (boldface) are also to some extent independent; the informational focus (which may be discontinuous) is usually not exhaustive of a clause functioning as focus of interest, nor is it confined to a single clause. So these two kinds of focusing are related but not identical. Precisely how they are related is a matter for further investigation. But at least we can say that the amount of new and noteworthy content in a clause (its degree of informational focusing)

correlates with the extent or likelihood of the clause being a focus of interest in discourse.

How does focus of interest relate to profiling? They are similar enough to be plausibly characterized as direct analogs: main focus of attention at the discursive and descriptive levels. Focus of interest is thus a discursive overlay on descriptive organization. The analysis is sketched in Figure 5.

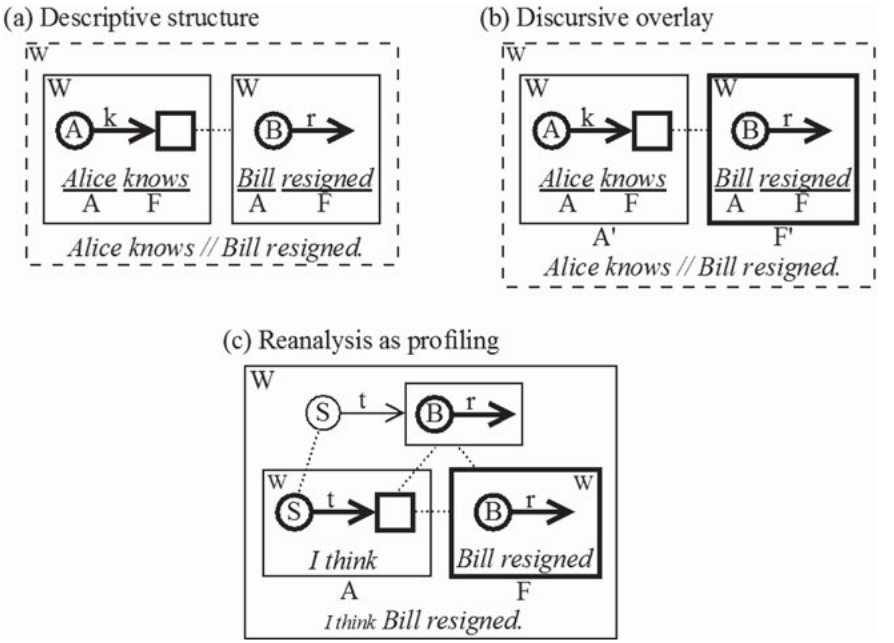

Fig. 5

With finite complements, the canonical organization is basically serial, the clauses appearing in separate windows. This is most apparent in longer sequences: *Joe says // Tracy believes // Alice knows // Bill resigned*. The clauses provide sequential access to overlapping facets of an integrated conception (just as sentences do for a story). But there is no need to posit an overarching composite structure – distinct from the sequence of component structures – with a single occurrence as the overall profile and referent. Serial access to the target conception is itself an aspect of linguistic meaning, the semantic contribution of discursive packaging.

The descriptive structure in (5a) is unspecified in regard to discursive focusing. But clauses tend to be unequal in this regard, with one of them – usually the complement – being the focus of interest. As shown in (5b), this discursive overlay consists in focusing at a higher level of organization within a scope of awareness encompassing both clauses. When the focus at this level (F') is an object complement, the matrix functions as a higher-level anchor (A'). Various factors contribute to a clause being chosen as discursive focus. One is the amount of significant new content (informational focusing). Another factor is distinctness from the interlocutors and the speech situation (e.g. *her mother certainly hopes* versus *I think*). It also helps to be an objective situation "in the world", as opposed to its apprehension or mental assessment (e.g. *resign* versus *know*).

Description has discursive import and motivation. Profiling can thus be characterized as discursive focusing for the specific, descriptive purpose of nominal or clausal reference. Supporting their characterization as analogs is the possibility of focus of interest being reanalyzed as referential, i.e. as profiling at a higher-level. Such is the case for the construction in (5c): *I think Bill resigned*. As a whole, it profiles the complement process. This is evident from a constructional variant which reverses the order of matrix and complement: *Bill resigned, I think*.

The entire expression in (5c) fits in a single clause-sized window because the matrix undergoes semantic and phonological compression: phonologically it is unstressed and of short duration; semantically, the matrix and complement clauses are integrated to form a distinct composite whole which profiles just one occurrence (that of resigning) and thereby qualifies as a single clause (as defined in CG). Being the profile determinant, the complement functions as descriptive focus (F) at this higher level; when it precedes, the matrix is the descriptive anchor (A).

This expression represents a kind of blend, in which the component clauses are still recognized as such, despite its single-clause status at the higher level. Numerous matrix clauses are conventionally established in this construction: *I think*, *I know*, *I believe*, *I suppose*, *they say*, *it is said*, *you know*, etc. Further compression and loss of analyzability leads to their reinterpretation as nonclausal elements serving to assess the complement – i.e. as formulaic stance markers.

4 Conclusion

Notions like anchor and focus apply so broadly that labeling a structure as such is only one facet of a full analysis. The unification achieved by general characterizations does not eliminate the need for precise, fine-grained descriptions of their varied manifestations. In particular, anchoring and focusing have both descriptive and discursive manifestations. Their general characterizations capture the abstract commonality of the related notions subject versus topic and profile versus focus of interest, which are distinguished by virtue of belonging to different axes.

Descriptive and discursive organization must each be dealt with in its own terms, but they are not sharply distinct, nor do they constitute separate components. Grammar reflects the interplay of descriptive and discursive factors, which come together as indissociable aspects of a single construction or a single element. In accordance with a basic tenet of the functionalist tradition (e.g. Givón 1979; Hopper and Thompson 1980; Du Bois 2014), even basic features of clause-level grammar have discursive import and motivation. One can argue, in fact, that all linguistic units have some kind of value with respect to all four axes: individual, interactive, descriptive, and discursive.

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Part Four: **The importance of socio-cultural context**

Ewa Dąbrowska

Language in the mind and in the community

Abstract: Why are languages the way they are? Cognitive theories attempt to explain language structure by appealing to cognitive mechanisms, which may include general abilities such as categorization and pattern-finding skills, innate linguistic representations, or some combination of the two; functional theories, on the other hand, emphasize discourse pressures and processing limitations. While it is undeniable that both of these play an important role, many aspects of grammar are best understood by appealing to cultural processes such as language transmission, community size, exotericity, standardization and education. Consequently, some patterns found in a language may not be represented in speakers' mental grammars, or at least not all speakers' mental grammars. Languages belong to communities, and individual speakers "own" only parts of their language. To explain language structure, acquisition and change, it is important to distinguish between individual grammars, the patterns found in the language as a whole, and the complex interactions between them.

1 Introduction

Why are languages the way they are? Cognitive linguists[1] attempt to explain the properties of language by appealing to properties of the human mind. For instance, the presence of regularities in language – word order regularities such as the fact that adjectives come before nouns in English, morphological patterns, and so on – is often attributed to language learners' preference for general rules. However, there is no evidence that humans actually prefer highly general linguistic rules, other than the fact that they are often found in human languages, and considerable evidence against it. In language change, irregularization is at least as common as regularization (Dahl 2004); and, as I argued in earlier work (Dąbrowska 2010), even when there are high-level pat-

1 I am using the term "cognitive linguists" in the broadest sense here. Thus the term includes all linguistic theories which treat language as a cognitive phenomenon, including generative linguistics.

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terns in the language, they are not necessarily represented in its speakers' minds: in some cases at least, speakers appear to acquire a number of low-level schemas rather than a rule which applies "across-the-board", even when the linguistic phenomena in question can be described by a single general rule. The preference for low-level, lexically specific patterns is particularly striking in children (see Tomasello 2000, 2003, Dąbrowska 2004). This means that linguists' generalizations are not necessarily psychologically real: they may be no more than "post-hoc rationalizations" introduced by the analyst (Wray and Grace 2007; see also Hopper 1998; Linell 2005).

There is no doubt that human languages are strongly constrained by human learning and processing mechanisms. But language isn't just a cognitive phenomenon: it is used for communication between people and emerges in and is maintained by communities of speakers. Thus, any realistic explanation of why languages are the way they are must consider the social and the cultural dimension. Although few cognitive linguists would disagree with this, in practice this fact is often forgotten. The present paper examines some of the community-level processes that shape language. I will argue that in order to understand how language works, must consider both the individual and the social level and how they interact. In other words, although languages live in the mind, they belong to communities, not to individuals.

2 Language transmission

It is well known that languages change as they are transmitted down generations. This is often attributed to learner biases: children prefer regular patterns, and thus will create a regular system even when exposed to inconsistent input (Hudson Kam and Newport 2009, Lightfoot 1999). However, a series of "iterated learning" experiments conducted by Simon Kirby and his colleagues (Kirby, Cornish, and Smith 2008; Cornish, Tamariz, and Kirby 2009; Scott-Phillips and Kirby 2010) has demonstrated that it may be the transmission process itself, rather than learner biases, that is responsible for the emergence of systematicity in language. In such studies, an artificial language is transmitted down a chain of participants. The initial language is produced by generating strings of nonsense syllables and randomly assigning a meaning to each string. In the Kirby, Cornish, and Smith (2008) study the artificial language described a mini-universe consisting of three shapes (triangle, square and circle), three colours (grey, red, and blue) and three types of motion (horizontal motion, up and down motion, and spiralling motion). For instance, the string *tuge* might be paired

with a scene in which a grey square moves up and down, *miniku* might mean 'red circle moving across', and so on. The first participant in the chain is exposed to this random set of pairings. After exposure, the participant is shown the scenes and asked to reproduce the labels. The first participant's output is the input given to the second participant in the chain, whose output in turn constitutes the input for participant 3, and so on down a chain of ten participants. In one condition, each participant was exposed to the entire language, that is to say, the full set of the 27 possible form-meaning mappings (three shapes × three colours × three actions). In this condition, participants simply memorized the full set of mappings. In another condition, each participant was exposed to a random sample of 14 of the possible 27 mappings. This was intended to simulate the transmission bottleneck that occurs in natural language transmission: the fact that learners are exposed only to a subset of the possible sentences in the language they are acquiring. Transmission with a bottleneck resulted in the gradual evolution of linguistic structure, that is to say, increase in the predictability of the form-meaning pairings, as well as gradual decrease in transmission error. Figure 1 shows one of the languages that emerged in the Kirby, Cornish, and Smith (2008) study. The language shows clear evidence of compositionality: most strings consist of three morphemes specifying colour, shape and movement respectively. There is one suppletive form, *renana*, as well as other irregularities: for instance, 'square' is sometimes realized as *ere*, sometimes as *e*, and sometimes as *ane*. This mixture of regularity and exception is eerily like human language.

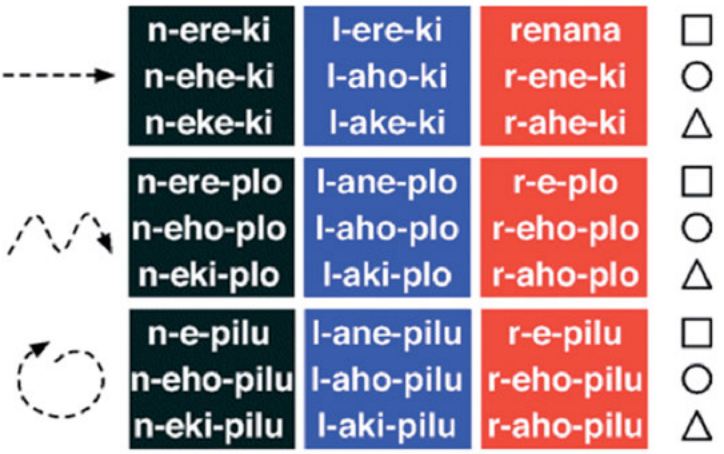

Fig. 1: One of the languages that evolved in the Kirby, Cornish, and Smith (2008) study.

Where do these regularities come from? Clearly, they could not have evolved if the participants in the study were not able to notice patterns and analogize. But this cannot be the whole story: after all, when an otherwise equivalent group of participants was exposed to the whole language, no regularties emerged. Kirby, Cornish, and Smith (2008) point out that there are two ways for a form-meaning pairing to survive in the language: either it must be very frequent (which guarantees that each "generation" learns it) or it must be *inferable from something else*. In the experimental set-up described here, structure emerges as a result of the bottleneck in transmission rather than from learner biases. Without a transmission bottleneck, learners simply memorize the entire language; when a bottleneck is present, in contrast, learners have to infer the whole language from a subset of utterances.

3 Language emergence

The clearest evidence for the social nature of language comes from research examining the emergence of new languages. This happens in situations when speakers of different languages are brought together and need to communicate, which results in the creation of a pidgin which may subsequently develop into a creole. The standard view on creolization is that a creole language emerges when a pidgin acquires native speakers: children exposed to a pidgin expand and regularize it, thus increasing its complexity and expressive power (see, for example, Bickerton 1982, 1984). An alternative view is that creoles emerge when a pidgin becomes the primary language of a speech community, and is thus not necessarily created by children (Jourdan and Keesing 1997; Sankoff and Laberge 1973; Shnukal and Marchese 1983). Since the existence of a stable community is inextricably bound up with children being born into it, it is difficult to tease these two factors apart. However, Sankoff and Laberge, in their study of the emergence of grammatical markers in Tok Pisin, tellingly entitled "On the acquisition of native speakers by a language", point out that the process of grammaticalization began when there were very few native speakers – in other words, in this case at least, it was initiated by adults.

Another factor which makes it difficult to interpret findings from pidgin and creole research is the fact that such languages emerge in contact situations, and as a result, they frequently borrow grammatical as well as lexical devices from other languages rather than creating a completely new grammar. For this reason, I focus here on work on the emergence of new sign languages, which, in

some cases at least, are genuine cases of language creation in that there are no linguistic models to borrow from.

There is now a considerable body of research on all stages of development of sign languages, from ad hoc gestural communication systems used when people who do not share a language need to communicate, to homesigns (more stable but rudimentary systems which develop for communication between deaf and hearing family members when no conventional sign language is available as a model) to emerging sign languages (village sign languages which develop in small communities with a high proportion of deaf people and new deaf community sign languages which emerge in deaf communities such as schools for the deaf), and, finally, to mature sign languages such as American Sign Language (ASL) or British Sign Language (BSL). While mature sign languages are fully blown languages with grammatical devices for marking argument structure, tracking reference, marking relationships between clauses, etc., homesign systems and emerging sign languages are grammatically very simple (Meir 2010; Meir et al. 2010; Washabaugh 1986). They have little or no inflectional morphology and no embedding; a typical utterance contains only one nominal. Thus, to describe a situation involving two or more participants, signers typically distribute information over several clauses, as in the following examples from Al-Sayyid Beduin Sign Language (ASBL), both taken from Meir et al. (2010). (Note that the second clause does contain two nominals, but one is animate and the other inanimate, so the addressee can easily determine semantic roles even without explicit marking.)

(1) WOMAN SIT; GIRL FEED
'The girl is feeding a woman.'
(2) GIRL STAND; MAN BALL THROW; GIRL CATCH
'The man is throwing a ball to a girl.'

Studies examining these sign languages at various stages of development give us some insight into how grammatical complexity evolves. First, it is a gradual process: for instance, it took Israeli Sign Language three generations to develop a full verb agreement system (Meir et al. 2010). Secondly, the process is not inevitable. For instance, Washabaugh (1986) notes that Providence Island Sign Language (PSL) never developed a grammar, in spite of being used on the island for at least three generations. Washabaugh attributes this to paternalistic attitudes towards the deaf. Hearing family members felt that that they had to "look after" their deaf relatives. This meant that the deaf interacted mostly with hearing members of their families (rather than other deaf people), and the latter

tended to do most of the communicative work during interaction and limit conversations to simple topics. As a result, the deaf had few opportunities to interact in sufficiently varied and difficult contexts. Finally, as argued by Ragir (2002), the development of grammar may require a critical mass of language users. While home sign users may be very efficient communicators, their linguistic systems are not grammaticalized, even when there are several generations of deaf members in the same family. The same is true of sign languages which emerged in very small communities, such as Noyha (12 deaf signers) and Grand Cayman (18 deaf signers). In contrast, languages which evolved in larger communities such as Martha's Vineyard (over 150 signers), Nicaraguan Sign Language (100 signers in 1979 and many more later), and ASBL (130 deaf adults) all developed at least some grammaticalized features. Thus, the recipe for grammar calls for three essential ingredients in addition to the abilities manifested by the individual human mind: (1) a critical mass of speakers or signers, (2) frequent and varied interaction and (3) time.

4 Elaboration and complexification

As we have seen, a critical mass of people who regularly interact with each other in a variety of contexts will, in the course of two or three generations, create a linguistic system which allows them to communicate effectively about a wide range of topics in normal settings: i.e., face-to-face encounters with other members of the speech community – what one might call the "basic package". However, many communities do not stop at this, but develop the basic package in different ways, yielding the bewildering variety of structures that we find in the world's languages. Thanks to the large body of work on grammaticalization (see for example Bybee, Perkins, and Pagliuca 1994; Heine and Kuteva 2002, 2006; Hopper and Traugott 2003) we now know a great deal about how this happens. Grammaticalization begins with extension, whereby an existing lexical item is expanded to new contexts. Extension leads to desemantization, or semantic bleaching (the item acquires a more general meaning) which in turn may lead to decategorialization (loss of the morphosyntactic properties characteristic of the item) and erosion, or loss of phonetic substance. Such processes have been documented in hundreds of languages; and although they typically proceed very slowly, they are constantly at work. The gradual accretion of grammatical markers over centuries or even millennia may lead to systems of enormous complexity. As several linguists have noted (see, e.g., Gil 2009; Haiman 2013), languages are often much more complex than they need to be to serve as effi-

cient means of communication. In the next two sections, I discuss two cultural factors which exert a strong influence on language elaboration processes: the type of society that the language is used in and the availability of the written medium.

4.1 Mature phenomena in morphology

Wray and Grace (2007), in a paper entitled "The consequences of talking to strangers", make a distinction between languages associated with two types of societies, esoteric and exoteric. Esoteric societies are traditional, closely knit communities in which there is relatively little specialization and little contact with outsiders. Such societies, Wray and Grace argue, develop esoteric languages – languages which are complex (i.e., full of morphological and morphophonemic irregularities, opaque idioms, and constraints on derivations), but easily learnable by children. Exoteric societies, in contrast, are typically larger societies with a high amount of specialization. Members of such societies frequently interact with strangers (speakers of other languages and speakers of the same language who fill a different social niche), and their languages are "simplified" towards rule-based regularity and semantic transparency, and hence easier for adult learners to acquire. Importantly, both distinctions, the linguistic and the cultural one, involve a number of dimensions, and hence the terms "exoteric" and "esoteric" are best seen as designating endpoints on a continuum rather than distinct categories.

The correlation between esoteric society and linguistic complexity, particularly in the area of morphology, is richly documented by Trudgill (2011) who compares genetically related languages spoken by groups which differ in size and amount of contact with speakers of other languages, such as Faroese and Icelandic (both spoken by small groups in relatively isolated regions of the world) versus the continental Scandinavian languages, or Estonian versus Finnish. To take a simple example: in Icelandic, the paradigm for the adjective *rikur* 'rich' contains fourteen forms contrasting in gender, number and case (*rika, rikan, rikar, rikri, riki, rikir, rikt, rikur, rik, riku, rikum, riks, rikrar, rikra*), while in Norwegian Bokmål the same adjectives has just three forms (*rik, rike,* and *rikt*) – and English, of course, has lost all case, gender and number marking on adjectives. Trudgill also discusses the diachronic processes resulting in complexification (irregularization, increase in opacity, increase in syntagmatic redundancy, and addition of morphological categories), showing that all of these changes are most likely to occur in small isolated societies with dense social networks.

Complementing Trudgill's in-depth studies of language change, Lupyan and Dale (2010) compared inflectional complexity of 2200 languages using information from World Atlas of Language Structures (Dryer and Haspelmath 2013). They found significant correlations between the number of speakers and 26 out of the 28 inflectional features they examined: for example, languages spoken by larger groups tend to have fewer case markings and a higher degree of case syncretism, are more likely to have nominative-accusative than ergative-absolutive alignment, have fewer grammatical categories marked on the verb, are more likely to encode negation, possibility and evidentiality analytically, are more likely to have obligatory plural markers and question particles, are less likely to distinguish between alienable and inalienable possession or to use inflection to mark possession, are less likely to have definite and indefinite articles, and are more likely to express pronominal subjects lexically. Other measures of exotericity (area over which the language is spoken, number of linguistic neighbours) were also found to predict inflectional complexity, although the correlations were somewhat weaker.

A particularly interesting type of evidence bearing on this issue comes from a study of different varieties of the same language, English, conducted by Kortmann and Szmerecsanyi (2009). Using data from the *Handbook of Varieties of English* (Kortmann and Schneider 2004), the authors examined 46 spoken varieties for the presence of "ornamentally complex" and "simplifying" features. "Ornamentally complex" features were defined as those which complicate the system vis-à-vis the standard variety without any obvious communicative advantage (for example, the Northern Subject Rule, which complicates the agreement system), while simplifying features, as the name suggests, are features which make it less complex (for instance, the levelling of past tense and past participle forms). The varieties studied were divided into four groups: traditional dialects (e.g. Orkney and Shetland English, Appalachian English), high-contact varieties (e.g. Scottish English, Colloquial Australian English), pidgins and creoles (e.g. Tok Pisin, Jamaican Creole), and L2 varieties (for instance, Chicano and Cameroon English). Kortmann and Szmerecsanyi found that traditional varieties were the most ornamental: they typically had two to three ornamental features, while all the other varieties had one on average. In a second study, they examined the frequency of grammatical markers in the four types of varieties as well as in standard British and American English. Again traditional dialects were found to be more complex than all the other varieties including standard BE and standard AE: they had higher densities of grammatical morphemes, both free and bound, than high-contact varieties, as well as a higher proportion of irregular inflections.

Why is complexification in morphology associated with esoteric societies? We know from historical research (Dahl 2004; Heine and Kuteva 2006; Trudgill 2011) that grammatical phenomena such as complex agreement patterns, gender and fusional morphology take a long time to develop and tend to get lost in high-contact situations. This is because complex morphology is particularly difficult for adults to acquire (Ellis and Sagarra 2010; Jiang 2004); thus, whenever there is significant adult L2 learning, morphological simplification ensues. Conversely, learning a large number of irregular items or semi-regular patterns poses no problem for child learners with their excellent item-learning abilities; as a consequence, irregular properties gradually accumulate in languages which are spoken in isolated communities whose members have little contact with outsiders.

4.2 Writing and complex hypotactic syntax

As we have seen, there is considerable evidence that complexification in morphology, and possibly also in phonology (see Trudgill 2011) is associated with esoteric societies. However, another type of complexity – namely complex hypotactic syntax – appears to be associated with exoteric communication, and in particular, with the widespread use of writing (Givón 1979; Kay 1977; Pawley and Syder 1983). Here, I will focus on the relationship between the existence of a written tradition and the development of explicit subordination markers.

There are a number of reports in the literature which suggest that some languages lack subordination. Such claims have been made, among others, for Inuktitut (Kalmár 1985), ABSL (Aronoff et al. 2008), and, most famously, Pirahã (Everett 2005, 2012). Speakers of such languages are able to convey ideas which English speakers would express using subordinate structures, but they achieve this by using discourse rather than syntactic means (see below). Claims that some languages lack subordination have not gone unchallenged, and are likely to remain controversial because during the early stages of syntacticization, it is often difficult to determine if a clause is grammatically dependent or independent (Cristofaro 2014; Mithun 1984). However, there is considerable evidence for a close relationship between subordination and writing.

First, we my note that al the languages that have been claimed to lack subordination are oral languages spoken by small groups living in relative isolation. Conversely, all chirographic languages (i.e., languages with an established literary tradition) have a range of subordinate structures. Furthermore, oral languages, even when they have subordination, appear to make less use of it than chirographic languages. For instance, Mithun (1984) observes that the

frequency of subordinate clauses in oral narratives in the three languages that she studied (Kathlamet, Gunwinggu, and Mohawk) ranged from 2% to 7%, compared to 34% in English narratives. Related to this, in chirographic languages the frequency of subordination is usually considerably higher in writing than in speech (Miller and Weinert 1998).

A larger crosslinguistic survey of 43 oral and 34 chirographic languages conducted by Pascual (2014) adds offers a somewhat different perspective on these issues. Pascual notes that oral languages often use direct speech where chirographic languages would use subordination – for instance, to express ideas such as mental and emotional states, desires, intentions, causation, reason and purpose. Consider the following two examples from Kombai, an oral language spoken in New Guinea, and their English translations (the morpheme in boldface can be glossed as a quotative):

(3) *yafo-fina wa-khumlei-**neno***
'They think that he is dead' (literally: They think: "He is dead").
(4) *nu me-la-ra ai gelemo-fo-**nera** wa-me-de*
'I have come to buy a pig' (literally: I have come, "I want to buy a pig").

Pascual argues that these and other "fictive interaction" constructions, i.e. constructions which convey abstract ideas using imaginary conversations are typical of oral languages because they "emerge from orality" (2014: 21). While this is undeniably true, it doesn't really explain the paucity of such constructions in chirographic languages, where fictive interaction is used primarily as a stylistic device. I suggest that Pascual's findings should be taken as evidence that subordinating constructions are less grammaticalized in oral languages than in chirographic languages. It is also worth noting in this connection that languages with a long literary tradition tend to have larger repertoires of clause linkers (Kortmann 1997; Martowicz 2011).

Further telling evidence can be gleaned from historical data. The earliest written texts in a language are usually highly paratactic (see, for example, Deutscher 2000 for Akkadian; Givón 1991 and Ong 1982 for Biblical Hebrew; O'Neil 1977 and Berg 2009 for Old English; König and van der Auwera 1988 for Dutch and German; Pulleyblank 1995 for Old Chinese), while later texts typically show more use of subordination. The historical increase in the frequency of subordination is gradual: according to Karlsson (2009), it takes about 500 years for a language to reach complexity maxima for various types of embedding.

Why is increased syntacticization associated with writing? It seems that there are at least three reasons for this. First, written communication occurs in

very different situations from spoken communication. There is less shared knowledge, little in the way of non-linguistic context and no opportunity for negotiating meaning as there is in face-to-face interaction. Furthermore, communicators cannot rely on intonation, gesture or gaze to augment the linguistic signal. Because of this, the linguistic message needs to be made more explicit: the writer needs to provide more details about referents and overtly mark relationships between clauses. Secondly, unlike speech, writing is permanent. This means that the writer can take as much time as he or she needs to edit and revise the message and is less restricted by working memory limitations. The same goes for readers, who can go back and re-read difficult stretches of text. In other words, writing provides a kind of processing crutch which enables both readers and writers to process more complex expressions than they are able to process in the spoken medium. In addition, writing may provide training wheels for learning more difficult constructions, giving learners the opportunity to practice using them in conditions which are less taxing on working memory. Once learners become proficient with a construction acquired in this way, they may be able to use it in speech as well. Needless to say, this acquisition route is only available in later stages of development in first language acquisition, although it plays a more prominent role in L2 learning.

5 Some final remarks

Much of twentieth century linguistics involved strict compartmentalization: different components of linguistic knowledge (phonology, morphology, syntax, semantics, pragmatics) were studied in isolation from each other, linguistic knowledge (competence) was studied in isolation from language use (performance), and linguistics itself had little interest in other disciplines studying human cognitive and social abilities. Although many important advances were made during this period, from a twenty-first century perspective one cannot help comparing the linguists engaged in this enterprise to blind men feeling different parts of the elephant. In the last three decades, we have seen a gradual reintegration of the different aspects of language study. This was driven largely by the recognition that grammars exist to convey meaning and are shaped by language use, as well as by a better understanding of the relationship between linguistic knowledge and general cognitive abilities, and of the embodied nature of language. As Geeraerts (2010) points out, cognitive linguists were at the forefront of these "recontextualizing" approaches; and Dirk himself was one of the most important figures who brought this change about. Dirk's own work

from the very beginning combined interest in the cognitive and the social aspects of language (Geeraerts, Grondelaers and Bakema 1994, Geeraerts 2010), as well as a strong commitment to diachrony (Geeraerts 1997), which is crucial to showing how grammar "emerges" over a number of generations through the interaction of many distinct individuals who contribute to its growth in different ways. To understand language structure, use, acquisition and change we need to understand both of the individual and the social level, and how they interact. We need to see language as a complex, multi-agent, inherently dynamic system in which regularities emerge from interactions between speakers with different grammars (Geeraerts 2010), which may be lexically specific (see Dąbrowska 2014).

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Peter Harder

Cognitive sociolinguistics, language systems and the fall of empires

Abstract: Variationist linguistics highlights the role of the social dimension and of processes of identity construction for understanding the choice of linguistic expressions in actual communication, while backgrounding the concept of an overall language "system". This is a natural consequence of the associations of the concept of the "system" with the abstract, quasi-mathematical monolith of the structuralist paradigm. However, after a generation of research predicated on emergence and variation, a sanitized version of a macro-level system may serve to profile the significance of the overall framework within which variation occurs, also in a perspective where the "system" is no longer the centrepiece. The paper explores this perspective both in relation to language as an object of description in itself and to language as an aspect of the wider social framework. In relation to language, the main point is that operating with the concept of a language system understood as a fact about the community, analogous to the education system, makes it possible to see variation as part of the system rather than antithetical to it: it encompasses the expressive options that are available in a given community, including variational choices. In relation to language as part of the wider sociocultural order, variation acquires significance as an integral part of overall social change. As an example, the paper discusses the changing role of the concept of Britishness as part of the processes that brought about the demise of the British Empire.

1 Introduction

As pointed out by Dirk Geeraerts (e.g., 2005), inclusion of the social and variational dimension of language is not a special interest within linguistics – but, rather, recovery from an aberration. Over the past decades, an impressive body of work by Geeraerts and the QLVL group of which he is the driving force has demonstrated how this dimension can not only make its own specific contribution but also throw light on a number of fundamental issues in cognitive linguistics including saliency and prototype effects, the relation between culture

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and embodiment, and the interface between construal and variation.

The present paper aims to contribute to this project, focusing on the role of macro-level structures. It does so in two instalments. The first focuses on language, while the second perspectivises language and linguistic variation in relation to what might provocatively be called the overall social "order". I view the linguistic dimension of the social order as a necessary successor concept to Saussurean "langue" (language as the property of the speech community). In going from linguistic to social structure I also describe what is needed if we want to take the step from regarding concepts solely as resources for linguistic communication (the purely linguistic perspective) to investigating their role as factors of causal power in society. The case presented is the non-selection of the term *British* for the name of the Commonwealth after WW2. In addition to illustrating the role of language in society, it also shows the advantages of understanding emergence in relation to macro-social structure: it is part of the history of the demise of the British Empire, as studied in a historical research project that I am taking part in as resident linguist, "Embers of Empire", headed by Stuart Ward (cf. Ward 2004).

A macro-social approach to such issues may have a whiff of paradox about it, considering the general climate of opinion in usage based linguistics, which tends to focus on variation instead of regularity, bottom-up rather than top-down directionality of explanation, micro-level rather than macro-level categories, and usage events rather than systems. Eckert (2012) sums up the movement away from reliance on the level of overarching macro categories by articulating a "third wave" in the understanding of variation, stressing that "[n]either language nor the social world is static – it is in the continual articulation of the two that people create meaning". Instead of looking for the overarching framework, the third wave looks for the ongoing, local processes of remaking it.

The point put forward below is not to reject this development. I agree with its basic premises, especially that situated, interactive usage events constitute the fundamental phenomenon in understanding language as well as social reality – there is no ghostly Platonic underlying order behind the "surface" of real life. The point is instead to return to the issue of macro-level structure in the light of what we have gained from focusing on the other end of the scale, addressing both language and the social world (cp. Eckert): the study of language as a macro-phenomenon is viewed in connection with the study of the social world at macro-level. This paper is meant as a continuation of what I see as a fruitful discussion on this issue (cp. Harder 2010; Geeraerts 2010: 239; Harder 2012: 304; Ruette, Speelman, and Geeraerts 2014).

2 The language "system" in a usage based and variational framework

An attempt to look for the role of the "social order" in linguistics can take its point of departure in a basic theoretical lacuna in mainstream thinking about language, cp. Geeraerts (2003b): the absence of an account of the relation between language in the mind and language in society.

The general assumption – usually implicit, with Chomsky's dictum on the ideal speaker-hearer in a homogeneous speech community as a striking exception – has been that the two could be understood as isomorphic. This would imply that each individual carried around in his head a full representation of language as the property of a community. For some phenomena, such as core vocabulary like *child* and *water*, and grammatical features like plural and singular, this sounds reasonable enough. But even so, it cannot take the place of a proper account of the social anchoring of linguistic facts.

A systematic account of social facts would go beyond the scope of this paper (but cp. Harder 2010). The assumptions I build on include Searle's concept of "status functions", understood as a mechanism that endows certain objects with causal powers that go beyond what they have by virtue of laws of nature. The fact that you can get goods in return for paper money is due to what might be called a cultural law rather than a natural law. Unlike laws of nature like gravity, cultural laws are subject to continual change, cp. Eckert (2012) as quoted above. But the point that is underemphasized in the postmodern Zeitgeist is that while cultural laws are in operation, their causal powers are just as real as those of the laws of nature. The power of words to serve as a medium of communication between strangers is due to cultural laws of this kind.

The law-like properties of linguistic facts thus have some similarities with natural facts – but there is one important difference, which is at the same time the reason why the role of macro-level regularity is constitutive in linguistics – including usage based linguistics. The reason why social facts (as opposed to biological facts) have a constitutive top-down dimension is that in order to be a social fact, a feature has to be recognized as being "the same" across the relevant group. This is true not only of language – two different noises uttered by different people only represent the "same" word because in the population they "count as" as manifestations of the same word – but also of all other social facts. If each of us recognized different pieces of paper as money, no monetary system would be possible. Social facts are social only because of the existence of institutionalized sameness.

Languages viewed as "systems" can therefore be understood as institutions, resting on cultural laws of the kind described above. As such, they exist by virtue of states of co-ordination in the population. This status makes it clear why the structuralist dream of a neat, monolithic and variation-free system as the fundamental level in language is wholly misguided. Recognizing that systematicity extends only as far as permitted by states of co-ordination entails that order is essentially partial. In this respect the language system is like other macro-institutions such as education systems: new educations arise and old ones are changed or closed down in a mix that may be more or less messy, but the outcome is never fully neat and compact. The "structuring operation" takes multifarious social reality as its input and enriches it with structures that weren't there before, but the variational world remains, inside and outside the structural regularities that are added. Establishing a category "horse" in the linguistic system does not eliminate the difference between horse varieties – and classes that are officially "the same" within the education system are only as similar as actual local participants make them. At the same time, the presence of an education *system* rather than solely local learning events is reflected in the fact that at any given point the student may (paradigmatically) choose certain courses but not others, just as the speaker may choose certain expressions but not others; and syntagmatic sequences are partially pre-structured in educations as well as in languages.

One major consequence of this view of the language system is that variational *patterns* of the kind that sociolinguists are interested in constitute part of the system rather than exceptions to it (cp. Harder 2012). Structure thus acquires a new dimension with the transfer of the location of structure into the population rather than the individual mind. As pointed out by Geeraerts ([2000] 2006: 83), the choice between lexical variants in a complex speech community such as the Dutch (the example is *legging* versus *caleçon*) is not really *free* variation, although that is what a (pre-variationist) structuralist would call it – because "it signals a specific stratification of the linguistic community". Stratification is a form of structuring; and in terms of the conception argued in this paper, where the system is the full pattern of institutionalized linguistic practices in the population, the inevitable conclusion is that an adequate variationist linguistics involves a necessary *extension* of the role of structure rather than a reduction. To the structural relations between items in an individual competency we must add the structural relations between practices in the social world. When there is a set of significant variational choices in the population, as in Eckert's highschool culture of "jocks" and "burnouts", this is a systemic feature of community life, not an exception to systematicity. In this, patterned variation is

to be distinguished from "fluctuation" (cp. also Ruette, Speelman, and Geeraerts 2014), which reflects the basic incompleteness in systematicity of all kinds.

It may be asked what remains of the basic idea of a *system* under such a messy conception? What remains is the crucial fact that both speakers and students face choices whose significance is (partially) defined in advance. Although processes of emergence are at work all the time, they do not work in a completely open space of possibilities.

Based on this account of "the system", we can now return to the question of the relation between individual minds and social systems. The basic mechanism is known from evolutionary theory, cf. Croft (2000): just as laws of nature are sources of selection pressures, so are the cultural laws that underlie institutional systems. Newcomers in the population arrive in an environment where there are both natural and cultural affordances as well as constraints, and successful individuals are those who best manage to tap the affordances and navigate the constraints. Growing up in a French-speaking population confers certain advantages on saying *cheval* rather than *horse*, and to this cultural law speakers tend to adapt. The process of socialization is a process whereby individuals learn to recognize as well as adapt to the aggregate state of coordination in their social environment. Language acquisition is part of this process. This is the basic top-down feature of social facts: the process of fitting into pre-defined functional categorizations.

On this view, individual competencies are states of adaptation in individuals' cognitive systems to the language system. Not all speakers are equally well adapted to the system in the messy and sprawling sense that I have outlined. Command of prestige varieties is a familiar case, but the same applies to local and subcultural varieties – and as pointed out by Dąbrowska (2012), variational command even applies to choices within what has often been regarded as core grammar.

I would like to round off this discussion of the role of the socially entrenched macro-level system by comparing with the findings presented in Ruette, Speelman, and Geeraerts (2014). Very roughly, their analysis of lexical variation across the Netherlandic and Belgian populations of speakers of Dutch shows the difference between taking semantic sameness into consideration and leaving it out. If semantic sameness is taken into consideration, the findings reveal an expected distinction between the two national units; if it is left out, no such clarity emerges.

The convergence between the way the authors conceive of the issue and the revised concept of "system" outlined above is explicitly pointed out in the paper and comes out in passages such as the following: "assuming a system that is

able to predict linguistic choices, we should find a probabilistic model that fits observed variation" (2014: 105). The role of a "conceptual sameness factor" in making it possible to find such a model reflects exactly this key assumption: only with an assumption about systematic sameness can we bring out systematic variation.

I understand their position as wholly compatible with the understanding of the language system that I have outlined above. Yet there remains an illustrative figure-ground difference between what that paper says and what I have been concerned to say. This can be seen in the final passage of their paper:

> Although practical as a methodological and heuristic device, the conceptual categories remain somewhat artificial because of the flexibility in their definition. In the current case study, the makers of the RBBN clearly had referential equivalence in mind for most categories. However, conceptual categories can be defined more strictly or less strictly at a whim of the researcher, because there is no consensus over the appropriate level of detail in the definition, especially since the incorporation of encyclopedic knowledge in word-meaning. The level of detail that is operational in the language community can only be retrieved by studying the actual use of words.
> And then we are back at variation (Ruette, Speelman, and Geeraerts 2014: 122).

I feel the urge to retort: Yes – and by the very same token we are back at the system! The criteria of sameness are no more artificial than the patterns of variation that are the outcome of the analysis – for the simple reason that they are two sides of the same coin. It is true that researchers have to make difficult decisions about criteria of sameness, also because of the encyclopedic permeability of word meaning – but if they did not assume that there were *real* criteria of sameness in operation in the community, the decision would not be merely difficult, it would be meaningless. In concluding this section, I would therefore like to congratulate the authors on the important contribution they have made to putting *system* linguistics on a sounder empirical footing.

3 From meaning in language to meaning in society

I now take the step from the analysis of the macro-level system in a linguistic perspective to the wider social world. In doing so, I maintain a focus on the topic of the relation between the aggregate system and local, variational features. Meaning remains the central concept, and the role of macro-level sameness in relation to variation (synchronic as well as diachronic) remains the cen-

tral issue. At the end, I will bring the two issues together, hoping to demonstrate that this widening of the perspective can bring the social and the linguistic dimensions to illuminate each other.

The argument takes its point of departure in the claim that meaning-in-*language* exists essentially for the purpose of the understanding and encoding of utterances. Possessing a *linguistic* concept enables you to use words in communicating with fellow members of the population. This means that the link between language and thought in the sense of "world picture" is more indirect than one would assume if linguistic concepts were inherently carriers of identity, including metaphysical convictions: we also know words for stuff we detest and for stuff we do not believe in. An extra step needs to be taken if we want to address issues of world picture by means of words and concepts.

I have suggested two basic dimensions of anchoring that concepts may have in the social reality that people see themselves as living in (Harder 2010: 304): "acceptance" and "efficacy". In combination, they are that which makes social constructions such as money operational. Money involves a conceptual component in the form of the assignment of value to pieces of paper, cp. Searle (1995); but conceptual understanding is not enough: this conceptualization has to be *accepted* by wage earners and shopkeepers, and paper notes also have to work in practice to exchange goods and services. Only if this is the case has money become part of social reality. A crucial component in enabling human beings to form larger communities with shared institutions is the ability to understand themselves as members of a "we". The root is what in Tomasello's (2008) terms is the capacity for joint attention and activity, which again enables collective intentionality in Searle's terms: the ability to adopt a stance according to which "we" take this piece of paper to be money rests on the ability to assign a significance to joint activities that goes beyond the individual perspective.

An under-awareness of the difference between "being able to understand a concept" and "operate with the concept as part of the way the world works" may be detected in the title *Metaphors we live by*, as compared to the actual theory it introduced. What Lakoff and Johnson (1980) argue in this seminal book is that there are metaphors we *think* by. In relation to incompatible metaphors, Lakoff has later argued that we may be "bi-conceptual", so that we are able to operate both (e.g.) with the strict father family and the nurturing parent family, depending on whether we are watching an Arnold Schwarzenegger movie or playing with our children. While I agree with this assessment as far as it goes, it raises the issue of what precisely is entailed by being "bi-conceptual". The most unproblematic case is if a family that actually lives by the "nurturing parent" principle is *mentally* bi-conceptual – in which case they *understand* the

"strict father" model without living by it. If both principles are *in operation* simultaneously, however, it is liable to give rise to some confusion.

The distinction above is related to the point made in Kristiansen and Geeraerts (2007) in a critique of Wierzbicka: there is no direct relationship between word meanings and cultural patterns. Cultural patterns are subject to variation across the population, just as linguistic patterns – in fact even more so, because it is practical that you can understand more people than those you share cultural practices with.

In concluding this section, I return to the "third wave" approach as described by Eckert, which also addresses the interface between linguistic and social categories. Stressing the focus on meanings involved in "particular variable performances", the "stylistic perspective" of the third wave is described as targeting studies listed as four bullet points: ethnographic studies of communities of practice; local categories as built on common stances; variables as indexing stances, activities, characteristics; and finally, style as persona construction. All these bullet points address meanings that straddle the linguistic and the societal status of meanings. The perspective I am pursuing here aims to contextualize this endeavour within the horizon of the macro level[1].

4 National identity and the decline of Britishness

The most salient and the most contested macro-level unit in talking about language and social identity is probably the nation. The concept of national identity (cf. Harder 2014) has a key element that epitomizes the role of the macro-level unit and its role in framing the level of micro-processes of meaning assignment. It is a familiar fact of English grammar that adjectives may either assign descriptive or classifying properties to noun heads – and some adjectives may have either function. Among these are national adjectives: in *the British Isles*, the adjective *British* classifies the head as belonging to Britain, while in *a very British attitude*, the adjective describes the attitude in question as having descriptive features associated with the nation.

This technical linguistic distinction is useful in relation to the typical pattern of postmodern deconstructions of nationhood, in which it is seen as a float-

1 It should be pointed out that Eckert explicitly acknowledges the existence and relevance of the macro-level categories, although this is not what she focuses on.

ing signifier without substantive content. A sample quotation may give the flavour:

> National identity is the "floating signifier" in the politics of culture and location among diasporic people residing in France. Constructed discursively as a precious, yet threatened, commodity, French national identity is a form of symbolic power that excludes in its very definition of inclusion by implicitly conflating constructs of culture with "race" (Keaton 1999: 47).

Without disputing the reality of discursive processes of this kind, the "classifying" sense frames such processes within an overarching reality in which concepts like "British" and "French" baldly invoke a particular societal entity and ascribe affiliation with that entity – regardless of how that entity is construed. Geeraerts ([2003a] 2006) has described the two cultural traditions of construing what is entailed by nationhood, the enlightenment tradition associated with the French Revolution, in which citizenship is central, and the romantic tradition where ethnic identity is central – but the key point here is that the classifying sense is neutral between them.

In the context of the framework adopted here, we may regard "identification" with a concept as a strong version of "acceptance": while one may accept construals of the world for many different reasons, those construals that you build your sense of self on may be assumed to have a higher degree of acceptance than others. The functions associated with nationhood depend on the sustainable existence of a WE, a shared focus of loyalty[2]. If that identification is strong enough (for whatever reasons), it will be part of the way the world works in terms of making nations fully operational units – e.g., by serving as a motivation for paying taxes and serving in the army.

Because of this, a major factor in understanding the history of Britishness is the upheavals that occurred in the delimitation of the political unit which defined what it meant to be British in the classifying sense. Very roughly (but cf. Harder 2014), since Britain became a state with the Union of 1707, the British went from being the inhabitants of the British Isles, to being the conquerors and settlers of a worldwide Empire, to being all citizens in British territories regardless of ethnic differences (more on this below), to being again restricted to the

2 The extension from a face-to-face community to a larger group requires a conceptual component, as described in Anderson ([1983] 2006). Anderson's seminal concept of an "imagined community" is often understood as if it meant "illusory", but as he emphasizes (2006: 6), this is a misunderstanding – on the contrary, nations are made real by the power of imagining a community that goes beyond face-to-face familiarity.

British Isles (in connection with Britain's movement towards entering the Common Market).

These changes were at the same time changes in the conditions under which the element of loyalty that I described as crucial to national identity had to operate. Although national narratives are not defining for national identity, they obviously have a function in *underpinning* the defining element of loyalty. As pointed out by Lakoff, a key element of the conceptualization of what it means to be a citizen is the family metaphor. The force of this observation actually goes beyond Lakoff's two versions in ways that can be illustrated by the British case.

In the heyday of the British Empire, the family metaphor was based on a quasi-feudal conception of "family as lineage". The thinking based on continuity across generations was expressed in slogans like "kith and kin" as well as in the term "race", which was often used interchangeably with "lineage". As grounds for identification, the success of imperial expansion endowed Britons with the sense of standing above "lesser breeds" (cp. Kipling's "Recessional", celebrating Queen Victoria's Diamond Jubilee at the height of Britain's imperial grandeur.

When World War II broke out, a different family model came to the fore, as shown in King George VI's speeches to his subjects: Now the Empire had become a *nurturing* family of nations, coming to the aid of the mother country in the hour of need. Another factor was that the war against Hitler rendered conceptualizations based on standing above "lesser breeds" unsustainable in terms of "acceptance" in the relevant global constituency. Although the term "race" used about the British lineage did not typically refer to skin colour (in South Africa, issues of "race" referred to problems in the relations between the Dutch and the British, while problems with the indigenous population were discussed as "the native question", cf. Lowry 2010: 124), it was obviously badly suited as a rallying point for British national identity after the defeat of Hitler. With the promise of independence to India, the issue after the war was how to keep the (British) family together – and the extension in 1948 of British citizenship, including rights of abode, to include all members of the newly-established nuclear family, was a logical step towards making the conceptual and the classifying dimensions cohere.

However, a number of circumstances made it obvious that the global British entity could not generate the global loyalty that was necessary to make it sustainable as the uniting macro-level unit on the world stage. If overseas Britons had stayed where they were, it might have been easier, but for metropolitan Britain, immigration was one of the factors that undermined the sense of cohe-

sion: "acceptance" was withdrawn from the idea of all overseas potential immigrants "counting as" British. At the same time, Britain's economic weakness made it impossible to maintain global policies (in terms of defence or economic clout) that would generate an "attractor force" sufficient to underpinning a shared orientation towards Britain as the natural focus of loyalty. In the terms described above, Britishness lost its "efficacy".

When Britain decided to seek entry into what was then the European Common Market, the classifying sense of what it meant to be British was restricted to inhabitants of the British Isles – and the family of nations qualifying as British to the English, the Welsh and the Scots, plus the citizens of Northern Ireland. Britishness around the world lost its classifying anchoring. In evolutionary terms, there was no longer any enhanced selectional fitness associated with being British.

5 The end of the British world: a question of onomasiological salience?

An illuminating variational spotlight on this issue is provided by the dilemma that arose of how to name the global British entity, as highlighted in connection with the Embers of Empire project (for a detailed account, see Ward et al. in prep.). Since the terms designate political communities in which the parties have a stake, the choice of the name has an identity dimension: it is not just a question of naming an object appropriately but also a question of how a "we" group want to see themselves.

The story begins in 1887 with the so-called *colonial* conferences. It is clear that at the overall level involved in the consultations there was a political community with a sense of shared identity, a "we". The fact that the conferences were for a long time organized purely informally, rather than by formal regulations, testifies to the fact that there was a strong factor of community cohesion. The conceptual universe that was underpinned by this identification contained a variational spectrum of choices of linguistic expressions for the whole macro entity and its constituent parts. In the period discussed above, apart from the overriding term *British*, the terms include *colonies/colonial, dominion, empire/imperial* and *commonwealth*. In Geeraerts's (2000) terms, the issue comes under the heading of onomasiological variation.

The terms were not in free variation – each term was associated with a different range of construals. Key aspects of the conceptualizations of the overall

political unit include the role of "symmetry" vs. "asymmetry" of status and power. The terms *empire, dominion* and *colony* encode elements of asymmetry, with colonies and dominions both in a subordinate position, while *empire* designates the asymmetric exertion of power over both. The term *commonwealth* as an alternative to *empire* had a special role in that its meaning involves symmetry rather than asymmetry; also from the community perspective it was no community's particular property, as opposed the other terms which could only be understood in terms of a configuration with metropolitan Britain at the centre: the "colonies" and the "dominions" (the predominantly white settler colonies) were British and belonged to Britain, not the other way round.

In the years up to WW1, there was a drive to introduce the term *commonwealth*, promoted especially by the South African Prime Minister Jan Smuts (cf. Ward et al. in prep). This may be understood partly as simply reflecting an attempt to find a more adequate term-cum-conceptualization for what was understood to be the reality in this period, cf. Hall (1971: 4): "The Empire had taken on the attributes of Commonwealth; though it still lacked that name". Yet there was clearly also an element of discursive construction in Smuts's efforts to promote the term – a drive to shape historical reality by imposing an appropriate reconceptualization on it, with obvious strategic advantages in relation to Ireland as well as South Africa.

More generally, there is a long-term historical change going on over the period described, with a linguistic dimension. A common factor may be assumed to be the declining acceptance of asymmetry in power and status that was described above as inherent in all terms other than commonwealth. This factor may be assumed to underlie Lord Rosebery's (1900) assessment, which refers to the term *empire* as developing a negative "taint" (Hall 1971: 186). The change from "colonial" to "imperial" conferences is explicitly motivated by reference to the inferior status of "colonies". The fact that *empire* was problematic, while *imperial* was introduced as a step forward, may appear contradictory – but the negative connotations of the noun are stronger than that of the adjective, and as an alternative to "colonial" status (the lowest rung in the hierarchy) having "imperial status" meant a terminological promotion to co-equal status with the power centre.

In the beginning of the period, variation was no problem as seen from the power centre: because the British Empire was perceived to be secure, the semantics (of asymmetric status and power) and its community backing were also secure for the time being. The political situation thus contained both elements of asymmetry, with the "empire" configuration at the core, and elements of symmetry symbolized by the term "commonwealth". This social configuration is

parallel with a pervasive pattern in the social structure of speech communities: a standard variety associated with power and prestige at the centre, and a variational corona of regional variation with gradually diminishing prestige and looser identification with the core.

The naming issue came up again when the global alliance had to be reconstituted after WW2 and Indian independence. The new situation clearly ruled out "Empire" as the common denominator, leaving "commonwealth" alone on the scene. In the process, "dominions" sank without a trace and "colony" was hastily backgrounded (the "Colonial Office" was renamed the "Commonwealth Relations Office"). But the most striking development in terms of macro-level identity was one involving the backgrounding of the term "British". In most accounts, it is generally understood that "British" was dropped as part of the name of the Commonwealth out of deference to Indian sensibilities after independence in 1947 and admission to the Commonwealth as a Republic in 1949, so that from that time on, the name was "The Commonwealth of Nations". (The story is actually rather more complex and also more entertaining, cp. Ward et al. in prep.). For the purposes of the present paper, one thing that is of interest is that it is impossible to chart precisely what happened at the meeting, and its outcome was fiercely contested – which makes it, for high politics, an unusually clear case of the fluid, situational quality of language that Hopper (1987: 141) uses to argue against system-level grammar: "always in a process, but never arriving, and therefore emergent".

Yet this beautiful case of emergence must be understood in relation to the macro-situation of Britain after WW2. For reasons described in the previous section, the relationship between variability and (secure) cohesion had shifted decisively compared with the situation in 1900, with erosion of cohesion in the British world as the crucial feature. The intersubjective identification with the British world around 1900, within which it was a matter of unproblematic preference whether to use *empire* or *commonwealth,* was unable to survive into a successor form that could subsume the group of nations as it reconstituted itself after Indian independence.

The *non*-naming of the Commonwealth as British was a discursive choice (by abstention), but one that reflected political circumstances on the ground rather than losing out to a stronger, explicitly asserted counter-discourse. If the "efficacy" of being British had survived, it might not have mattered, and (cf. Ward et al. in prep.) the name "British Commonwealth" survived in Australia and New Zealand into the 1980s. But ultimately, the story suggests, this was because that world was in fact no longer British. It is a case of a specific varia-

tional choice, in Geeraerts's words, (2006: 85), losing out because it failed to be "stronger than the alternatives".

6 Conclusion

The story of Britishness illustrates that variation is a crucial key to understanding also conceptualization as part of social reality, not just as part of language. But by the same token it illustrates that variation can only be properly understood if it is viewed against the background of the system. The non-selection at a crucial geopolitical junction, among the variational alternatives available, of the term *British* is indeed a case of emergence in a specific context, thus fitting well with Eckert's third wave approach. At the same time, however, we cannot capture its significance if we do not see it in the context of the expiry of a world order – showing that empires may end not with a bang, but with the loss of onomasiological salience.

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Cultural cognitive models of language variation

Romanticism and rationalism in language policy debates about the unity/diversity of European and Brazilian Portuguese

Abstract: We think about social reality in terms of *cultural cognitive models* and, consequently, we use these models to categorize and attitudinally evaluate language variation and to produce language policies and language ideologies. Leaning on Geeraerts's (2003) seminal paper on competing *rationalist* and *romantic* models of linguistic standardization, we analyze the cultural cognitive models underlying attitudes towards the two national varieties of Portuguese, namely European Portuguese and Brazilian Portuguese, as well as the language policy debates about the unity/diversity of Portuguese. Analyzing a corpus of press, political, didactic and scientific texts on Portuguese language policy, linguistic standardization, spelling agreement and Lusophony, four attitudes towards Portuguese as a pluricentric language are identified, namely romantic versus rationalist unifying (converging) attitudes and romantic versus rationalist dividing (diverging) attitudes. The most radically convergent and divergent attitudes found in the corpus are typically romantic. Moreover, romantic attitudes appear to be more frequent and more explicit in Brazil than in Portugal.

A critical discussion of the ideologies inherent in the romantic and rationalist models of Portuguese variation is provided. In line with some studies focusing on the role of metaphoric and metonymic conceptualizations of language in language policy debates (Berthele 2008; Polzenhagen and Dirven 2008), we also relate the key arguments made in the debates on the unity/diversity of Portuguese to conceptual metaphors and metonymies for language, such as the metaphors LANGUAGE IS A TOOL and LANGUAGE IS AN IDENTITY MARKER. Although these metaphors are typically related to the rationalist and romantic models, respectively, the same metaphor can contribute to the opposing cultural models and ideologies. In this way, prototypes, paradoxes and blends of the romantic and rationalist models of Portuguese unity/diversity are identified. Prototypical patterns are the rationalist ideology of promoting the *superior unity* of Portuguese in the current transcontinental global context and its economic and political benefits, and the romantic ideology of claiming the Brazilian *language* as

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distinct from Portuguese. The main paradox of the rationalist model lies in the nationalist subversion of the ideal of the unity of Portuguese in favor of the democratically inevitable recognition of the *emancipation* of the Brazilian variety. And the main paradox of the romantic model is in the nationalist subversion of the ideal of diversity of the Brazilian variety in favor of the *purity* of the European variety mother tongue as a mark of Lusophone cultural identity. Possible influences of the romantic and rationalist models on the convergence and divergence between the two national varieties are discussed.

1 Introduction

Cognitive linguistics has stressed the idea that we think about social reality in terms of *cultural cognitive models* (e.g. Holland and Quinn 1987; Dirven, Frank, and Pütz 2003; Dirven, Wolf, and Polzenhagen 2007; Sharifian 2011) and cognitive sociolinguistics has explored how these models are used to categorize and attitudinally evaluate language variation and to produce language policies and ideologies (e.g. Kristiansen & Dirven 2008; Geeraerts, Kristiansen & Peirsman 2010). Leaning on Geeraerts's (2003) seminal paper on competing rationalist and romantic models of linguistic standardization, we analyze the cultural cognitive models underlying attitudes towards the two national varieties of Portuguese, namely European Portuguese (EP) and Brazilian Portuguese (BP), as well as the language policy debates about the unity/diversity of Portuguese.

Geeraerts (2003) demonstrates that our thinking about questions of language variation and linguistic standardization is shaped by two underlying, opposing cultural models: the rationalist model, which has its roots in the 18th century Enlightenment thinking, and the romantic model, which derives its basic assumptions from the 18th and 19th century Romantic tradition. As Geeraerts (2003) explains, whereas the rationalist model views language as a medium of communication, the standard language as a neutral medium of social participation and language variation as an impediment to emancipation, the romantic model takes language as a medium of expression, the standard language as a medium of oppression and social exclusion, and values language variation as a recognition of a fundamental respect for different identities. Both models, Geeraerts (2003) observes, underwent nationalist and postmodern transformations over the last centuries, leading to coalescence but not canceling out the basic tension between them.

Given that cultural cognitive models emerge in discourse, we analyzed a corpus of press, political, didactic and scientific texts on Portuguese language

policies, linguistic standardization, spelling agreement and Lusophony. Corpus material was extracted from opinion articles and grammar columns in the press, political speeches and books on language policies, linguistic standardization and Lusophony, such as Bagno (2000), Faraco (2001), Coelho (2005), Martins, Sousa, and Cabecinhas (2006), Gama (2007) and Cristóvão (2008). Four attitudes towards the unity/diversity of Portuguese were identified, namely romantic versus rationalist unifying (converging) attitudes and romantic versus rationalist dividing (diverging) attitudes. The most radically convergent and divergent attitudes found in the corpus are typically romantic. Moreover, romantic attitudes appear to be more frequent and more explicit in Brazil than in Portugal.

After a brief overview (in the second section) of Portuguese as a pluricentric language in the context of traditional and sociocognitive research on pluricentricity (Clyne 1992; Soares da Silva 2014), we provide a brief critical discussion of the ideologies inherent in the romantic and rationalist models of Portuguese variation (Sections 3 and 4). In line with some studies focusing on the role of metaphoric and metonymic conceptualizations of language in language policy debates (e.g. Berthele 2008; Polzenhagen and Dirven 2008), we also relate the key arguments made in the debates on the unity/diversity of Portuguese to conceptual metaphors and metonymies for language, such as the metaphors LANGUAGE IS A TOOL/KEY and LANGUAGE IS AN IDENTITY MARKER/THE SOUL OF A PEOPLE. Finally, in Section 5, prototypes, paradoxes and blends of the romantic and rationalist models of Portuguese unity/diversity are identified. At the same time, and taking into account the results of our sociocognitive and sociolectometrical research on Portuguese pluricentricity (Soares da Silva 2010, 2012, 2014 a, b), possible influences of the romantic and rationalist models on the convergence and divergence between the two national varieties are discussed.

2 Portuguese as a pluricentric language

Including written texts dating back to the founding of the Portuguese nation in the 12th century, Portuguese is currently spoken by 245 million people, and is the sixth most widely spoken language in the world, the fifth most used language on the Internet and the third most used on the social networks Facebook and Twitter. It is the official language of 8 countries in Europe, America, Africa and Asia, namely Angola, Brazil, Cape Verde, East Timor, Guinea Bissau, Mozambique, Portugal and São Tomé and Príncipe, and an official language of

another two – Equatorial Guinea and the Macau Special Administrative Region of China

Portuguese is a *pluricentric* language in the sense that it has different national varieties, each with its own cultivated, standard register (Clyne 1992: 1). Portuguese has two standard varieties, European Portuguese (EP), the official language in seven of the aforementioned nations, and Brazilian Portuguese (BP), and other standards in development, namely those of Mozambique and Angola (Baxter 1992; Soares da Silva 2014b). As Clyne (1992: 463) states in the seminal work on pluricentric languages, Portuguese is one of the few languages that comes closest to the rare condition of *symmetric pluricentricity*. In fact, the historical advantage of Portugal is balanced out by Brazil's much larger population.

Amongst the factors that have favored the symmetric pluricentricity of Portuguese the following may be highlighted: the balance between the time supremacy of one of the centers and the spatial supremacy of the other; the fact that neither Portugal nor Brazil is now a great political or major power; the fact that both countries have recently gained international prestige, Portugal as a member of the European Union and Brazil as an emerging economic power; the development of dictionaries and grammar books and the consequent greater codification of the standard versions of both Portugal and Brazil; the creation of institutions which aim to promote the Portuguese language internationally, such as the Community of Portuguese-Speaking Countries, the International Institute of Portuguese Language and the Association of Portuguese Language Universities; the increasing awareness of the importance of the pluricentricity of Portuguese in socio-political, geostrategic, economic and cultural terms.

However, there are also certain imbalances. For example, whereas BP enjoys wide exposure on a popular level in Portugal, exposure to EP in Brazil is minimal. In fact, few Brazilians have any contact with spoken EP, meaning that Brazilians in general have difficulty in understanding the spoken European standard. A second imbalance concerns the fact that standard BP remains much more distant from the reality and diversity of the spoken language than standard EP.

Differences between EP and BP exist at all levels of linguistic structure. Innovative and conservative trends have emerged in both varieties, such that tradition is not the privilege of EP nor is innovation the privilege of BP. For example, in terms of phonetics and phonology, BP is more conservative than EP: there has been a marked change in the system for unstressed vowels in EP towards a strong rise, reduction and even disappearance. BP is also more conservative than EP with regard to clitic placement: in BP the proclisis of Middle

and Classical Portuguese still predominates, whereas EP has moved towards enclisis.

BP presents a situation of diglossia and is characterized by a wide dialectal continuum, while an increasing standardization of EP has been observed since the 1974 democratic revolution. BP is now facing two major challenges: a sociolinguistic dilemma (due to great regional and social variation) and a didactic dilemma (teaching the language to a soaring population). The change in the official language teaching policy in Brazil has helped reduce the impact of these problems and schools are now more receptive to sociolects than before. In addition, the intensive and rapid urbanization of Brazil has brought popular and educated varieties of BP into closer contact and therefore reduced the gap between them.

Linguists are divided on the issue of why BP is different from EP and how this has happened. Three hypotheses have been put forward for the origins of BP. According to the antiquity hypothesis, BP is the continuation of 15th century Middle Portuguese and various features of BP are linked to this phase in the history of Portuguese, whilst EP embarked on a different path from the 18th century onwards (Naro and Scherre 2007). The new grammar emergence hypothesis argues that since the 19th century the language spoken in Brazil has created a new grammar (Tarallo 1993; Bagno 2001). On the basis of the mixed-race nature of the Brazilian population, the creolistic hypothesis argues that the creolization of Portuguese was inevitable and that the characteristics of BP have emerged from African-based creoles (Guy 1981; Baxter and Lucchesi 1997).

Both Brazilian and Portuguese writers, grammarians, linguists and other intellectuals have explicitly or implicitly revealed contrasting attitudes towards the unity/diversity of the Portuguese language. Some believe that what is spoken in Brazil and what is spoken in Portugal are already different languages, whilst others consider them different varieties of the same language. There are, as yet, no sufficiently developed and systematic studies on the question of convergence or divergence between the two national varieties. The hypothesis of *divergence* currently holds the greatest consensus amongst both Portuguese and Brazilian linguists.

The hypothesis of divergence between EP and BP is confirmed by our sociolectometrical research on Portuguese pluricentricity (Soares da Silva 2010, 2012, 2014a, 2014b). The studies examine the extent to which lexical, constructional and attitudinal variables correlate as indicators of convergence/divergence between EP and BP within a time span of 60 years. It is concerned with onomasiological variation between semantically equivalent terms or constructions and uses advanced corpus-based and sociolectometrical meth-

ods, specifically uniformity measures for language varieties based on onomasiological profiles (sets of alternative synonymous terms/constructions, together with their frequencies). The data include thousands of observations of the usage of alternative terms to refer to football and clothing concepts, prepositional, complement and noun-adjective alternative constructions, and elicitations of attitudinal intentions with regard to clothing concepts. Corpus material was extracted from sports newspapers and fashion magazines from the 1950s, 1970s and 2000s, Internet chats related to football, and labels and price tags pictured from clothes shop windows.

The study on lexical variation indicates that the two varieties diverge with regard to clothing terminology but converge with regard to football terminology. Clothing terms are more representative of common vocabulary and, therefore, the results obtained for clothing are probably closer to the sociolinguistic reality. The slight convergence in the field of football is probably the effect of globalization and standardization of the vocabulary of football. The lexical indicators analyzed also reveal that BP has changed more than EP, the influence of loanwords is stronger in BP than in EP, and diachronic divergence apply as much to one variety as to the other, which suggests a situation of symmetric pluricentricity between EP and BP. The studies on grammatical variation and language attitudes both point in the direction of divergence.

3 Romantic models of Portuguese unity/diversity

In Brazil, the *romantic convergent attitude* takes the form of a conservative and dogmatic normativism, a strong linguistic purism which seeks to impose a standard calqued on literary EP that is very different from cultured Brazilian varieties. Subscribers to this point of view tend to perceive errors everywhere, issue alarmist warnings about the "deterioration of grammar", and consider most speakers to be ignorant, irresponsible and "sloppy" in their use of language. They also condemn the use of foreign terms and typically BP constructions. This position is widespread in the media and has even been manifested in the legal sphere. For example, the federal bill issued by deputy Aldo Rebelo on "the promotion, protection, defense and use of the Portuguese language" (Bill 1676/1999) contained provisions for banning the use of foreign words and fines for those who broke the law (Faraco 2001). In fact, there is in Brazilian society a powerful *social imagery* that leads journalists, intellectuals and teachers to wage social "wars" in defense of the dogmatic, immutable and single "standard norm". These "guardians of the language" have constructed a culture of linguis-

tic error and disqualification of Brazilian speakers. In the context of public debate, there is even the tendency to disqualify adversaries by pointing out their "mistakes of Portuguese" – which is why it is said that, in Brazil, all controversies end in grammar (Faraco 2011).

This form of *identity nationalism* and the desire to impose the European standard can be traced back to the second half of the 19th century and the elitism underlying the formation of the Brazilian state. Most of the Brazilian lettered elite of that time supported the project of constructing for the new country a white Europeanized society through policies that resulted in the "hygienization of the race" and also of the language, and in the "whitening" of the country (Schwarcz 1993). The differences between the Portuguese spoken in Brazil and that spoken in Portugal were thus interpreted as errors, deformations or distortions of the language, whose purity lay in the educated European norm. This created the image that Brazilian society spoke and wrote Portuguese badly, hence the need to impose the European educated standard. Pinto (1978) collected texts by Brazilian intellectuals from the end of the 19th century, such as the speech by Joaquim Nabuco made in the Brazilian Academy of Letters in 1897, which refer to the "purity of the Portuguese race" to argue that it is the Portuguese that "keep the language better", thus relegating the Brazilians to a position of eternal "vassalage".

This linguistic imagery constructed in the 19th century is today perpetrated by those that defend the *purity* of the Portuguese language and oppose foreignizing and globalizing influences and language change. Three typical social effects may be cited: (i) the conservatism manifested in the style guides used by the main Brazilian newspapers, which merely transcribe the prescriptions laid down in the old grammar books; (ii) the proliferation and success of grammar columns in newspapers, which attempt to root out errors of all kinds; and (iii) the importance given to the (artificial) "standard" form of the language in the national high school exams, associated to an elitist linguistic pedagogy that leads teachers to become fixated on "mistakes" and stigmatize all linguistic variants (Faraco 2008).

This linguistic purism is cognitively based on prototypical categorization and metaphoric mapping. A good language is a language which has prototypical features, both in the sense of salient characteristics and in the sense of original properties. The decline that a language suffers over time through mixing with other languages, careless use and other external influences, and the concern to preserve its essence are based on the biological metaphor LANGUAGE IS AN ORGANISM and on romantic elaborations of the PURITY, PERFECTION and HEALTH of the language in earlier times.

Beneath this linguistic purism lies an ideology of social exclusion, economic discrimination and white supremacy. This has given rise to linguistic myths and prejudices about the inferiority of the language spoken in Brazil and the respective superiority of the language spoken in Portugal. Some of these myths, constructed in the 19th century and still clearly present today in the Brazilian media and schools are: "EP is a pure unchanged language, while BP is borrowed and corrupt"; "Brazilians do not know how to speak Portuguese properly"; "Brazilians speak and write wrongly"; "Portuguese is very difficult"; "Brazilian is ungrammatical"; "it is ugly to speak like that because that is how the Indians speak"; "failure to use the ideal standard form of the language will damage one's job prospects and therefore the opportunity to rise in life" (Bagno 1999, 2000; Scherre 2005). We have here the series of metonyms LANGUAGE STANDS FOR INTELLIGENCE/STUPIDITY, COMPETENCE/INCOMPETENCE, BEAUTY/UGLINESS, SUCCESS/FAILURE. There is also the mythical idea of a single homogeneous language in the immense territory of Brazil and the so-called "veritable Brazilian miracle" – a myth reinforced by the anthropologist Darcy Ribeiro who argues that the numerous immigrants were irrelevant in establishing the characteristics of Brazilian culture and the amazing "cultural homogeneity" of the Brazilian people (Ribeiro 1997). In short, this is the ideology of "national unity" founded in the romantic vision of "one nation, one culture, one language" (see below for this folk model of the nation-state, which is also at the base of the opposite romantic attitude).

The romantic nationalist attitude is also found in Portugal, and in this case, Brazilian language forms are considered to be "invaders" and even "killers" of the language. Frequent metaphors are LANGUAGE IS A KILLER and LANGUAGE IS A VICTIM, which are derived from the romantic-rooted biological metaphor of language, i.e. LANGUAGE IS AN ORGANISM (see below). A collective book entitled "Estão a assassinar o português!" ('Murdering the Portuguese language!'), was published in Portugal in 1983 in which the "language killer" is the Brazilian soap-operas (Moura 1983). More recently, aversion to the Brazilian language variety has re-emerged within the context of the recent Spelling Agreement, which implies more changes in EP than BP and which has generated a heated controversy in recent years. Many Portuguese people see the Agreement as representing the unacceptable submission of Portugal to Brazil and even (in the context of Portugal's severe financial and economic crisis) of the "sale of the language" to Brazil. Some Portuguese intellectuals consider the Agreement a "national disaster" (Moura 2008). The movement against the Agreement has announced that it represents the "murder of the language" and has produced nationalist slogans like "Don't sit there with your arms crossed while they force us to speak

the Portuguese of Brazil! Are you Portuguese or Brazilian?". These attitudes reflect a *neocolonialist* stance still espoused by many Portuguese, according to which miscegenation leads to the corruption and impoverishment of a hypothetically "authentic Portuguese tongue".

Let us now consider the opposite romantic attitude. The *romantic divergent attitude* is generally manifested by scientific positions (linguistic and ethnographic) that argue for the existence of a specifically *Brazilian language*. This position contains ideological and emotive traces dating from the period of Brazilian independence (1822) and the Romantic-Modernist project of the late 19th century, when the Brazilian national identity was being forged by a process of drastic differentiation in relation to other peoples in the world, particularly the Portuguese. Linguistic nationalism has led to the replacement of the term *Portuguese* when referring to the official language by expressions such as *a língua nacional* ('the national language') and *a língua brasileira* ('the Brazilian language').

Currently, the most influential scientific expression of this attitude can be found in the work of the Brazilian writer and popular linguist, Marcos Bagno. In one of his famous essays on language and language policies, Bagno (2001) argues not only that the two varieties began to diverge in 1500 (when the Portuguese arrived in Brazil), and that the five syntactic differences noted are sufficient to mark the existence of a separate *Brazilian tongue*, but also brings ecological, ethnic and cultural issues to bear on the matter: "The ecology is different, the ethnic makeup is different, the *culture* is different. Why, then, should language be the only thing that is the same?" (Bagno 2001: 176). Bagno (2001: 175) also claims that it is important to recognize the existence of a Brazilian language in order to raise Brazilians' "linguistic self-esteem", and to begin to deal with the issue of the "diglossic schizophrenia that exists in Brazil". In 2000, an influential Brazilian magazine (*Superinteressante*) published a report entitled "Falamos a língua de Cabral?" ('Do we speak the language of Cabral?'), in which all but one of the linguists interviewed claimed that "in Brazil, the language spoken is definitely different from that spoken in Portugal". Other Brazilian linguists, such as Perini (1997: 31–38) consider that "Portuguese" (the standard European variety) and the "vernacular" (the language spoken by Brazilians) "are as different as Portuguese and Spanish, or as Danish and Norwegian".

The linguists M. Bagno and M. Perini have waged a political-linguistic struggle against the dogmatic normativism and linguistic prejudice, in support of a genuinely Brazilian tongue. They see standardization as "repression" of the only "authentic" linguistic variety, which can be found in the language of the

common folk. This conception reflects Rousseau's myth of *natural goodness*: the living language of oral and informal records is the *natural* language, while the standard norm is the *artificial* language; underlying this dichotomy is the metaphoric dichotomy of NATURAL IS GOOD and ARTIFICIAL (SOCIAL, CULTURAL) IS BAD. From this also arises a nationalist and populist discourse that insists on the connection between language and people, between language and *folk spirit* ("Volksgeist"), between political independence and linguistic independence. The following words from Bagno from one of his political-linguistic intervention texts entitled "What country? What people? What language" are revealing: "If someone answers 'Brazil' to the question 'what country?' and 'Brazilian' to the question 'what people?', then I have difficulty in accepting the answer 'Portuguese' to the question 'what language?'"(www.marcosbagno.com.br).

Bagno's words clearly illustrate the idealized cognitive model (ICM), in Lakoff's (1987) sense, which underpins the romantic divergent attitude. It is the ICM of the nation-state which includes the idea that "a nation is formed by people of one culture and one language, living in a politically independent territory" (Berthele 2008: 303). An important part of the ICM of the nation-state has to do with the metonymic and metaphoric conceptualization of language, namely the romantic metonymy LANGUAGE STANDS FOR NATION-STATE/CULTURE and the romantic metaphors LANGUAGE IS AN IDENTITY MARKER and LANGUAGE IS THE SOUL OF A PEOPLE (Berthele 2008).

The metaphor LANGUAGE IS AN ORGANISM evolved in the romantic tradition, alongside evolution theory (Dirven, Polzenhagen, and Wolf 2007) and includes the romantic idea of the fatal endogenous linguistic drift and consequent fragmentation of the language. This biological metaphor of language, reinforced by the enormous physical distance between Brazil and Portugal, is present in the first structuralist and generativist approaches to the genesis of BP from the 1970s and 80s, particularly from Brazilian linguists. Structuralism saw the formation of BP as determined by the very *internal structure* of Portuguese (see Câmara 1976). Generative grammar considered that the *deep structures* of BP and EP were inevitably moving apart in important grammatical phenomena (see Roberts and Kato 1993).

The romantic divergent attitude sustaining linguistic nationalism and the autonomy of the Brazilian language is also socially represented, particularly in Brazilian society. There are examples from the Brazilian media, such as the subtitling of interviews with Portuguese youngsters on the MTV television channel, and the subtitling and translation into BP of Portuguese films such as *Capitães de Abril*, filmed in 2000, based on the Revolution of 25 April 1974, and

the television series *Equador*, produced by the Portuguese television in 2008 and first shown on Brazilian television in 2011.

In short, the convergent romantic attitude reclaims the purity of the Portuguese language, declaring war on the specificities of the language spoken in Brazil and imposing the European standard in Brazil and preserving it in Portugal. In contrast, the divergent romantic attitude, which is more heartfelt in Brazil, proclaims the independence of the Brazilian language, as opposed to EP, and waging war on the European standard as its reference model. The same romantic metonymic-metaphoric mappings for the conceptualization of language, namely LANGUAGE STANDS FOR NATION-STATE/CULTURE, LANGUAGE IS AN IDENTITY MARKER and LANGUAGE IS AN ORGANISM are thus used for different Portuguese language policies, both for linguistic purism and for linguistic independence.

4 Rationalist models of Portuguese unity/diversity

The *rationalist convergent attitude* is manifested in the idea of "unity in diversity" or the "superior unity" of the Portuguese language – an old notion that was widely diffused and accepted by the first generation of linguists in Portugal and Brazil. It is the opinion shared by various linguists who belong to Instituto Camões Linguists' Forum. Today, this attitude is more common in Portugal than in Brazil. But there are also some Brazilian linguists for whom "no feature of Brazilian Portuguese has yet been identified whose ancestry cannot be traced back to Portugal" (Naro and Scherre 2007: 68).

The idea of "unity in diversity" has now taken on new *political* contours. The unity of the Portuguese language is presented as "a political and socioeconomic choice" that should not be squandered. The Portuguese linguist Maria Helena Mateus claims that "given the impossibility of being able to unequivocally demonstrate the separation of the linguistic varieties into different languages, the maintenance of those varieties within the framework of what is called a language is, in the last analysis, a *political option*" (Mateus 2002: 67). She concludes that the term "Portuguese" should be understood as "an important device for encouraging cohesion between the various peoples, and as a means of political and economic affirmation in the transcontinental framework" (Mateus 2002: 67).

In the present context of globalization, linguistic unity is thus seen as an *opportunity* for Portuguese to project itself as a language of international com-

munication and economic affirmation, as a major world language. The economic value of the Portuguese language is estimated at 17% of the Portuguese GDP and 4% of world GDP (Reto 2012). In this context, it has been claimed that there is an urgent need for an *international* or *transnational* policy for the Portuguese language (Aguiar e Silva 2005, 2007) or the *internationalization* of its management (Oliveira 2013). It is argued that this policy would enable "the profound unity of the Portuguese language to be preserved", preventing "the diversity of tongues and standards that occurs when the unity of the linguistic system is broken up" (Aguiar e Silva 2007: 18).

The old discourse of "unity in diversity" persists today in the discourse of Lusophony (a relatively recent term). *Lusophony* is a "symbolic and political space" that is invested with "performative" value, in the sense of orienting social behavior (Fiorin 2006). Along with romantic ideology also contained in it, the discourse of Lusophony adopts a utilitarian political ideology of affirming a super-space of economic, cultural and linguistic identity. As Mateus (2002: 42) puts it, the Portuguese language is "a valuable investment capital, it is our way of manifesting difference" and "it is through Portuguese that Portuguese and Brazilian people create their own path in the world".

The rationalist discourse of Lusophony is manifested in the globalized world of the 21st century in pressures for a *convergent standardization* of the Portuguese language, inverting the divergent standardization implemented in the 20th century. These are pressures that arise from recent transformations such as the presence of the language on the Internet, the growth of the diasporas within the Community of Portuguese Language Countries and the increase in the exchange of cultural products between the eight Portuguese-speaking countries (Oliveira 2013). The 1990 Spelling Agreement, which came into force in Brazil in 2009 and in Portugal in 2011, is one of the first expressions of this pressure for a convergent norm. Others are: the Common Orthographic Vocabulary of the Portuguese Language and joint actions between the eight Portuguese-speaking countries, such as the Brasilia Action Plan for the Promotion, Dissemination and Projection of the Portuguese Language (2010) and other multilateral initiatives for the *shared international management* of the language.

The rationalist-utilitarian discourse of unity in diversity and Lusophony is cognitively based on the metaphor LANGUAGE IS A TOOL for wider communication, enabling people to achieve particular goals (Polzenhagen and Dirven 2008). Parallel to this metaphor is the metonym LANGUAGE STANDS FOR THE ACHIEVED GOALS. Thus, the Portuguese language is a suitable and useful tool for the achievement of objectives of political, economic, scientific and technological affirmation in the globalized world, and metonymically to represent those ob-

jectives. As the LANGUAGE IS A TOOL metaphor may also be used in the romantic way, i.e. LANGUAGE IS A TOOL FOR EXPRESSING IDENTITY (Polzenhagen and Dirven 2008: 242), the discourse of Lusophony has its romantic component, affirming an identity over and beyond natural cultural heterogeneities.

Finally, let us see the *rationalist divergent attitude*, which is more explicit in Brazil than in Portugal. It has been present in the process of divergent standardization over the course of the last century. It is adopted by those that consider the valorization, study and teaching of the Brazilian urban standards to be an important instrument for political and educational participation, as well as a basis of *civic* nationalism and liberal democracy. These objectives are necessary in contemporary Brazilian society: despite being an independent democratic country, Brazil still retains many characteristics of the colonial era, such as political authoritarianism, economic oligarchies and cultural elitism. We have here again the LANGUAGE IS A TOOL rationalist metaphor now at the service of the *civic* model of a nation state and of a national language as a medium of social participation and emancipation.

The rationalist divergent attitude is manifested in large-scale research projects on language variation and in education projects. In Brazil, there is the NURC (*Norma Urbana Culta* 'Educated Urban Standard') project, begun in 1969, which documents educated varieties of BP from five urban centers, and the "Grammar of Spoken Brazilian Portuguese" project, since 1988 (Castilho 1991). In Portugal, joint research projects have been going on since the early eighties, such as the "Fundamental Portuguese" and the "Spoken Portuguese: social and geographic varieties" projects. With regards to education and literacy, we should mention the recent schooling projects in Brazil, and in Portugal the National Reading Plan, launched in 2007.

On a meta-theoretical level, the rationalist divergent attitude is also evident in those for whom the idea of the "Portuguese language" is no more than an illusive notion of a historical, cultural and political nature.

5 Prototypes, paradoxes, blends and effects of the rationalist and romantic models

Let us now compare the rationalist and romantic views of Portuguese with the basic assumptions of the rationalist and romantic models of language variation and standardization, as identified by Geeraerts (2003). Table 1 presents

Geeraerts's (2003: 40, 55) systematization of the two cultural models including their nationalist and postmodern transformations, in a slightly adapted form.

Tab. 1: The rationalist and the romantic models of language variation and standardization

	the rationalist model	**the romantic model**
linguistic-philosophical basis	language as a medium of communication	language as a medium of expression
conception of standardization and internationalization	a democratic ideal: standard/inter-national language as a neutral medium of social participation and an opportunity	anti-ideological criticism: standard/international language as a medium of social exclusion and a threat to local identities
conception of language variation	language variation/multilingualism as an impediment to emancipation and as functional specialization	language variation/multilingualism as expressing different/fragmented identities
conception of the nation	the nation as the basis of a liberal democracy	the nation as a focus of cultural or ethnic identity

Table 2 systematizes the analysis, undertaken in the previous two sections, of the rationalist and romantic models in language policy debates about the unity/diversity of Portuguese. The rationalist and the romantic views of Portuguese differ in their theoretical conception of language and nationalism, but present prototypicality effects and internal contradictions in relation to the conceptions of language variation and standardization. The rationalist model assumes the *communicative* conception of language and the liberal conception of nationalism and therefore the LANGUAGE IS A TOOL/KEY metaphor, focusing either on the supranational or the national dimensions of Portuguese, principally the new national tongue (BP). The romantic model, on the other hand, assumes the *expressive* and identity-related conception of language and nationalism and therefore the LANGUAGE IS AN IDENTITY MARKER/THE SOUL OF A PEOPLE metaphor, focusing either on the mother tongue (EP) or the new tongue (BP).

However, the rationale underlying these two cultural cognitive models of Portuguese is more complex. The prototypical pattern of romantic ideology is found in the discourse of those that support the divergence of BP as a distinct language, as represented in the fourth quadrant of Table 2 and described in Section 3 as the *romantic divergent attitude*. In addition to the linguistic-philosophical basis of the romantic view manifested in the *expressive* concep-

Tab. 2: The rationalist and the romantic models of the unity/diversity of Portuguese

	the rationalist model	**the romantic model**
EP/BP convergence	– Portuguese as a medium of international communication – standardization as social and international participation – unity as an opportunity	– Portuguese as a medium of expressing identity – standardization as social participation – diversity as a threat (to EP purity)
EP/BP divergence	– BP as a medium of communication and civic nationalism – standardization as social participation – diversity as an opportunity	– BP as a medium of expressing identity and identity nationalism – standardization as social exclusion – unity as a threat (to BP independence)

tion of the new language (BP), we can also find the other two prototypical features of romantic view, namely the negative evaluation of linguistic standardization (external standardization by the imposition in Brazil of EP and internal standardization by the imposition of an urban standard variety) as a tool of discrimination and social exclusion, and the positive evaluation of language variation and diversity (external variation defending the independence of BP and internal variation defending all the varieties of BP) as a recognition of a fundamental respect for different identities. As for the prototypical pattern of rationalist ideology, this is found in the discourse of those that support Portuguese unity, as represented in the first quadrant of Table 2 and described in Section 4 as the *rationalist convergent attitude*. In addition to the linguistic-philosophical basis of the rationalist view expressed in the *communicative* conception of Portuguese as an international language, we also find the two other prototypical features of the rationalist view, namely the positive evaluation of standardization as a tool of maximizing mutual communication and social and political participation within and between the different Portuguese-speaking nations, and the negative evaluation of language variation as an impediment to communicability and participation, both nationally and (above all) internationally.

The *rationalist convergent attitude* and the *romantic divergent attitude*, represented at the extremes of Table 2, are thus closest to the prototypes of the rationalist and romantic ideologies and consequently the two that are most clearly opposed. The *rationalist divergent attitude* deviates from the prototype of the rationalist model because it positively assesses the diversity or pluricentricity of Portuguese, specifically the divergence between BP and EP.

And the *romantic convergent attitude* deviates from the prototype of the romantic model because it positively assesses standardization through the EP standard and negatively assesses linguistic diversity, thereby trying to impede the affirmation of BP.

Each of the cultural cognitive models of Portuguese unity/diversity thus contains internal contradictions or paradoxes, which are inscribed into the dialectical relationship between the two basic rationalist and romantic models and their nationalist and postmodern transformations, as has been carefully identified by Geeraerts (2003). The main paradox of the romantic model of Portuguese is the combination of the original romantic vindication of the idea of linguistic *diversity* (specifically the claim for the independence of BP as the Brazilian language) and the nationalist subversion of diversity expressed in the defense of unity and of the *purity* of the language (specifically the purity of EP), as a defense of the cultural identity of the people. The main paradox of the rationalist model of Portuguese is the articulation of the enlightened ideal of linguistic *unity* and its benefits (especially the "superior unity" of Portuguese as an opportunity for linguistic, economic and political affirmation in the current global transcontinental context) and the nationalist subversion of this idea of unity expressed in the democratically inevitable recognition of the *diversity* and *emancipation* of BP.

Tab. 3: Rationalist and romantic use of the main conceptual metaphors

	the rationalist model	**the romantic model**
TOOL, KEY	– Portuguese is the key to international communication and political-economic success	– EP is the key to preserving cultural identity
	– BP is the key to civic nationalism	– BP is the key to identity nationalism
SOUL	– Portuguese is the soul of Lusophony (as a political supra-space of identity)	– EP is the soul of the Lusophone cultural identity of a people
	– BP is the soul of the Brazilian nation	– BP is the soul of the Brazilian identity
BARRIER	– EP/BP diversity is a barrier	– EP-BP unity is a barrier
	– EP-BP unity is a barrier	– EP/BP diversity is a barrier

These paradoxes are also manifested in the conceptual metaphors used in the two cultural models of Portuguese, as systematized in Table 3. The typically rationalist functional metaphor LANGUAGE IS A TOOL/KEY is also used romantically to defend the purity of EP and the independence of BP. The typically romantic identity metaphor LANGUAGE IS THE SOUL OF A PEOPLE is also used rationalistically

in support of the communicative and socioeconomic-political benefits of the unity of Portuguese and independence of BP. And the metaphor LANGUAGE IS A BARRIER is used in both models in relation to EP/BP diversity/unity and in the romantic model both against and in favor of standardization.

Despite these paradoxes (and others that we cannot analyze here), current debates about the unity/diversity of Portuguese maintain the fundamental opposition between the rationalist ideology of defense of the *superior unity of Portuguese* on the international level and in the current context of economic, political and linguistic globalization, and the romantic ideology of defense of the *Brazilian language* as distinct from Portuguese.

Various current discourses about Portuguese language policies blend the romantic and rationalist models. Examples of the main blends include the discourse about Lusophony as a space of plural cultures and factor of economic relevance (Fiorin 2006; Martins 2006; Cristóvão 2008), the discourse on the *economic potential* of the Portuguese language (Reto 2012), the discourse in favor of the Spelling Agreement as a political tool for the ideological strategy of Lusophony and some discourses on the internationalization of the Portuguese language and its management. Each of these discourses deserves to be subjected to *critical discourse analysis*, something which we are unable to do here.

We should also ask about the influence that the romantic and rationalist models have on the process of convergence and divergence between EP and BP, summarized in Section 2. It is difficult to answer, as the evolution of the two national varieties certainly have little to do with these romantic and rationalist models. Even so, it is possible to correlate the probable developments with these cultural cognitive models, to the extent that the models lie at the heart of language users' attitudes. Let us indicate three scenarios that could be expected.

First scenario: the expected process of divergence between EP and BP, confirmed by our sociolectometrical and sociocognitive research (Soares da Silva 2010, 2012, 2014a, 2014b), will receive a strong impetus in Brazil both from the romantic defense of the *Brazilian tongue* as the *soul* of a specifically Brazilian identity and from the rationalist attitude towards *civic* nationalism and the democratization of education (and language teaching in particular). This rationalist attitude, however, may also have convergent effects, and this is the second scenario. In fact, the reduction of the marked Brazilian diglossia, and the reinforcement and acceleration of the standardization process in Brazil may lead to "bottom-up" changes to the extent of eliminating typical features of popular and colloquial BP. A third scenario is also possible. This involves interruptions or reversals in the expected process of continuing divergence brought about

both by the rationalist promotion of the economic and political benefits of (the *superior unity* of) Portuguese in the current transcontinental global context and by the romantic promotion of Lusophony in the sense of establishing a Lusophone identity.

6 Conclusions

Certain conclusions can be drawn from this cognitive-sociolinguistic approach to the cultural cognitive models of Portuguese variation. First, current language policies and attitudes towards the unity/diversity of Portuguese are shaped by underlying rationalist and romantic models of language and language variation, pluricentricity and standardization, as described by Geeraerts (2003). Specifically, rationalist and romantic covert ideologies sustain four attitudes in relation to EP and BP national varieties, namely rationalist versus romantic unifying, purist (converging) and pro-independence (diverging) attitudes, as well as arguments and discussions in the discourses about language policy, planning, standardization, internationalization, economic potential and even linguistic theorizing about the Portuguese language and Lusophony.

Second, the rationalist and romantic models of Portuguese exhibit prototypicality effects and paradoxes. The two diametrically opposed prototypical patterns are, on the one hand, the rationalist ideology of promoting the superior unity of Portuguese in the current transcontinental global context and its economic and political benefits, and on the other, the romantic ideology of claiming the Brazilian language as distinct from Portuguese. The main paradox of the rationalist model lies in the nationalist subversion of the ideal of the superior unity of Portuguese in favor of the democratically inevitable recognition of the diversity and emancipation of BP. And the main paradox of the romantic model is in the nationalist subversion of the ideal of diversity of BP in relation to EP in favor of the purity of the EP mother tongue as a mark of Lusophone cultural identity.

Third, conceptual metaphors and metonymies for language play an important role in rationalist and romantic ideologies of Portuguese. However, and in line with Berthele (2008), the metaphors underlying the opposing ideologies are surprisingly similar. Specifically, the typically rationalist metaphor LANGUAGE IS A TOOL/KEY is also used in a romantic way in order to defend both the independence of BP and the purity of EP. And the typically romantic metaphor LANGUAGE IS THE SOUL OF A PEOPLE is used also in a rationalist way to defend both

the communicative, socioeconomic and political benefits of the unity of Portuguese and the independence of BP.

Finally, the rationalist and romantic models not only determine the way the Portuguese and Brazilians think and speak about Portuguese but they can also influence the way they act linguistically. The sociolectometrically confirmed process of divergence between EP and BP (Soares da Silva 2010, 2012, 2014a, 2014b), which may be reinforced by the romantic defense of the Brazilian langue and the rationalist attitude towards civic nationalism in Brazil, may nevertheless suffer interruptions and reversals triggered both by the rationalist promotion of the economic and political benefits of Portuguese unity on the international plane and by the romantic promotion of Lusophone identity.

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Raphael Berthele

Googling Toubon

Testing the effects of institutional French language purism

Abstract: This study investigates the impact of French corpus planning efforts in two semantic domains, telecommunication and sport. Lists of anglicisms and their French counterparts pertaining to these two domains are used in a corpus study using the Google Books corpus. A method to explore this corpus diachronically is proposed, and analyses assessing the odds of encountering the "official" French terms over English loanwords are carried out. Despite a certain success of the French competitors in some specific cases, the overall analyses, modelling the odds ratios using mixed effect models, show no sustainable effect of the efforts to impose French alternatives to English neologisms. The results and possible explanations for the statistical patterns are discussed in the light of previous research on anglicisms and language planning.

1 Introduction

Linguists sometimes forget that the boundaries of their most fundamental categories can be vague. As researchers working on highly diverse and dynamic linguistic ecologies have pointed out, categorizing and counting the "languages" in areas such as the South Pacific is often impossible (Mühlhäusler 1996). Anthropological linguists have long criticized the use of Western ideologies about "language" for the investigation of language practices in other cultural and geographical areas (Hill 2002). However, there are also effects of the stereotypical representation of "language" within the Western world, e.g. when the purity of a language is at stake, or more fundamentally when a language needs to be construed as a national, regional or ethnic symbol. Linguists are often central actors in various types of language management (Shohamy 2006; Spolsky 2009). Often, the policy measures involved betray stereotypical thinking about what (a) language is, even on the part of "experts". One of the most notorious examples of language management is linguistic purism, when it serves as a form of cultural defense of the modern and post-modern nation:

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> In the linguistic debate, the specific form of the romantically nationalist position is a concern for the purity of the language. Defending the common language against foreign influences (loan words, basically) is at the same time a defense of the cultural identity of the people (Geeraerts 2003: 49).

As Geeraerts (2003) points out, both rationalist and romantic models of language can provide an ideological basis for linguistic purism. Both models, in my view, relate to instrumental values of language: the former to the instrumental value of language as a tool for communication shared by all citizens of the nation, the latter to the instrumental value of language as a means of identity construction of the ethnically or culturally defined nation. Both ideologies use language as a tool in the construction of the nation, and both perspectives foster arguments in favor of linguistic purism. Purism is needed either to allow smooth communication unhindered by unintelligible foreignisms, or to keep the national symbol clean.

It is common for linguists to condemn linguistic purism as the quixotic struggle of reactionary language planners against the evolutionary processes that cause languages to change. The cognitive sociolinguist, however, might have a more nuanced view on this phenomenon: I see cognitive sociolinguistics as a sub-discipline that tries to understand the interplay of social forces and cognitive processes in shaping the thinking about and the use of languages. From this perspective, linguistic purism is neither *a priori* ridiculous nor "unscientific". Arguably, there is no fundamental difference between lay ideologies and linguists' language ideologies: linguists are themselves inevitably ideological when they frame linguistic practices with their categories. In doing so they create languages and varieties such as Makedonian, Singlish, or *tussentaal* (Geeraerts, Penne, and Vanswegenoven 2000). Despite many linguists' self-delusive claims to be "descriptivists" rather than "prescriptivists", their descriptions cannot avoid a normative potential. If, for example, Singlish becomes a recognized category in linguistics, this inevitably leads to the erasure of within-category differences and to the profiling of between-category differences. In this sense, there is only a small step from the cognitive modeling of the chaotic realities of language use to the purist modeling of a language or dialect.

In this paper I assess the impact of a particular attempt at language management – French language purism as instantiated in the Loi Toubon from 1994. The question I try to answer is not whether French or any other linguistic purism is tenable from the linguistic point of view, but rather whether the top-down attempt to steer language change in a particular direction, a form of corpus planning (Haugen 1987), has any impact whatsoever on language use. In order to do this, I made use of technology that has recently become available to lin-

guists, viz. the Google Books corpus and software packages that facilitate extracting and analyzing data from this corpus.

In section 2, I sketch the backdrop of the type of phenomena that I investigate by briefly discussing French corpus planning and purism. Section 3 gives an overview of the corpus and the data extracted from it. In section 4, I provide quantitative analyses of the data. A final discussion (5) focuses on the results and on some critical aspects of the analyses presented.

2 Purism and French language management in the 20th century

Purism can either focus on the linguistic matter only, or also involve the fight against foreign influences on pattern replication. In this contribution, I use Matras's (2009) terms *matter* and *pattern replication*. The former refers to the integration of morphological or phonological matter from a "foreign" into a receiving language. The latter refers to the copying of semantics or constructional patterns into the replicating language. Since my main goal is to investigate the impact of ideology and language management on language use, the philological details of the history of instances of borrowed matter are not relevant. Indeed, in some cases, French matter migrates into English and then back into French (e.g. *cash* or *bar* that were replicated in English based on middle French *caisse* and old French *bare*). It is sufficient, for my present purposes, that a linguistic form is perceived as foreign and is thus potentially the target of linguistic purism.

Linguistic purism may also include a fight against pattern replication. For instance, the French linguist Claude Hagège (2011) uses what I refer to as a "Whorfoid ideology" (Berthele 2014) in his struggle for the status of French as the language of the French (and the world). According to this view, linguistic usage that converges towards patterns of a foreign language also involves convergence towards the thinking patterns of this language (which explains the – in my view misguided – reference to Slobin's (1996) thinking for speaking approach).

2.1 Language management in 20th century French legislation

Chansou (1997) provides an overview of the history of French language legislation in the second half of the 20th century. There is great continuity across the

different legislative actions discussed: The main goal is to promote the status of French in the face of the increasing importance of English as a global language. However, different types of action and also different aspects of language are in focus at different times. As shown in Chansou (1997), the policy implemented under Presidents de Gaulle and Pompidou is a "dirigist" attempt to impose French instead of English or other foreign terms in the educational context, inspired by treatises such as Etiemble's "Parlez-vous franglais?" (1964). A decree from 1972, entitled "enrichissement de la langue française", spells out the mechanism of corpus planning in the domain of terminology ("proposer les termes nécessaires soit pour désigner une réalité nouvelle soit pour remplacer des emprunts indésirables aux langues étrangères"; cf. Chansou 1997: 26). Worth mentioning are some rather comprehensive and constraining predecessors of the currently applicable law, e.g. a text submitted to Parliament in which not only borrowings (in the sense of matter replication) are prohibited, but loan translations, i.e. the replication of "foreign" patterns, as well:

> Sont prohibés le recours à des termes étrangers ou dérivés de termes étrangers ou l'utilisation de formes de langue calquées sur un modèle étranger. (Proposition de loi n° 306 relative à la défense de la langue française présentée par Pierre Bas le 10 mai 1973, article premier) (cf. Chansou 1997: 31).
> [It is forbidden to take refuge with foreign terms or those derived from foreign terms or to make use of language forms calqued on a foreign model. (Law proposal n° 306 for the protection of the French language presented by Pierre Bas 10 May 1973, first article.)]

For the sake of brevity I will not discuss the different stages that led to the current central legal regulations, most prominently instantiated by the Loi Toubon that was submitted to the French Senate in 1993. As a general tendency, the rather strict and dirigistic view of language management in earlier legal texts gradually shifted towards what is now called the "enrichment of the French language" via suggestions from a terminology committee ("Commission générale de terminologie et de néologie"), as stated in a decree from 1996. The terminological suggestions are obligatory in documents produced by government agencies and services, and in the "Journal officiel de la République française", the daily bulletin of the French government. The French neologisms proposed by this committee are published in different channels, among others in thematically grouped brochures (see below), two of which were used for the analyses in this contribution.

Maybe due to the generally rather critical view held by scholars regarding linguistic purism, there is only rather scarce work on the actual impact of these terminological recommendations. Traditionally, as Humbley (2008: 85) discusses, linguists think that such attempts are both wrong and bound to fail. At least

two scholars, however, acknowledge that in particular in the domain of IT terminology, there is a detectable impact of corpus planning efforts on language uses (Depecker 2001; Kaltz 1988). From the methodological point of view, the suggestions made by Humbley (2008) are not really satisfying for linguists interested in usage-based approaches: Comparing dictionary entries across time is certainly a first attempt, but cannot provide reliable evidence for actual patterns of language use. And simply counting hits in a search engine lacks the necessary diachronic dimension. As argued by Zenner, Speelman, and Geeraerts (2012; 2014), counting occurrences of the loanword only is insufficient, also because this procedure does not take into account the topic specificity. As Zenner, Speelman, and Geeraerts argue, only a method that includes receptor language alternatives to the Anglicisms will provide valid insights into the diffusion of borrowed words or their terminological alternatives. In the remainder of this paper I will propose a method of how the possible impact of these recommendations could be measured.

3 Method and data

This section describes the data used to answer the research questions formulated above. First, I describe how I identified the lexical candidates based on the official terminological recommendations. Second, I describe briefly how the French_2012 version of the Google Books corpus can be used to extract occurrences of terminological pairs (a potential English borrowing and its French correspondence) that are in competition.

3.1 *Bulletin officiel*

The language management process described in section 2 leads to a great number of terminological recommendations in different domains. To keep the amount of work and data within reasonable bounds, I selected two domains for further analysis: sport and telecommunication. Both domains are highly international and thus potential fields of contact with and borrowing of international, i.e. English, terminology. The two brochures (Premier ministre & Commis-

sion générale de terminologie et de néologie 2009; 2011) are freely available from the webservers of the French government[1].

These brochures contain suggested French equivalents to international terms, as illustrated in Figure 1.

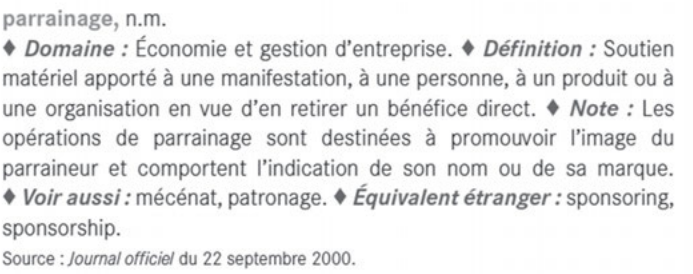
parrainage, n.m.
♦ ***Domaine :*** Économie et gestion d'entreprise. ♦ ***Définition :*** Soutien matériel apporté à une manifestation, à une personne, à un produit ou à une organisation en vue d'en retirer un bénéfice direct. ♦ ***Note :*** Les opérations de parrainage sont destinées à promouvoir l'image du parrainneur et comportent l'indication de son nom ou de sa marque. ♦ ***Voir aussi :*** mécénat, patronage. ♦ ***Équivalent étranger :*** sponsoring, sponsorship.
Source : *Journal officiel* du 22 septembre 2000.

Fig. 1: An entry in the sports brochure

From these entries, the foreign word ("équivalent étranger") and the French word were extracted. These lexical pairs were written into an item table that also contains the year of norm-imposition (2000 for 'parrainage') as well as part-of-speech information.

If, as in the case shown in Figure 1, the entry contained several variants (sometimes both on the French on the "foreign" side), I selected the most frequent words. If two spellings were possible in either English of French, the most frequent one was chosen (*freestyle* versus *free-style*).

The adjectives in the list were discarded, since there were only few of them. Only verbs and nouns were considered for further analyses. Extremely polysemous items were discarded as well: French *dehors* and English *out* are frequent adverbs and do not only refer to the footballing concept "out"; their presence in the list of search terms would hardly be informative for the investigation of usage patterns of the sports term. Similar problems arise with terms such as French *lièvre* for the *pace-maker* in athletics. If abbreviations were more frequently used than their spelled out forms (*ADSL* instead of *asymmetric digital subscriber line*), the former were used as search terms. Identical terms (*modem*

1 http://www.culture.fr/Ressources/FranceTerme/Vous-pouvez-le-dire-en-francais (26 February, 2015).

both in English and French) in both languages were deleted from the list of analyzed terms.

3.2 Google Books corpus

In order to investigate use patterns of the terms listed by the Academy committee, absolute occurrences in the French Google Books corpus were extracted (see Michel et al. 2011 for further information on the Google Books corpus). This was done using the ngramr package (Carmody 2013) and a script in the statistical programming language *R* that automatically extracted the frequencies of pairs of terms across the different corpora per year. The script is freely accessible online at http://figshare.com/articles/Googling_Toubon/1321270. The period from 1950 to 2008 was selected (no newer data are currently available). Figure 2 shows the size of the French Google Books corpus (version 2012) in millions of words.

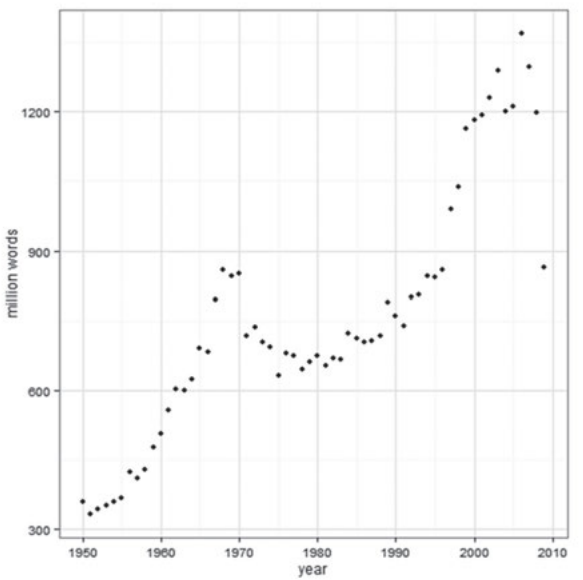

Fig. 2: The Google Books French 2012 corpus across the time period under investigation

Preliminary versions of the search revealed that the "French" corpus also contains texts in English. The search for English search terms thus also potentially

yields hits within English books, texts or longer citations inside French texts. For the nouns, this unwanted effect was minimized by adding the "_DET_" tag before both French and English search terms. Test searches proved that this leads to hits that only contain French determiners (*le, la, les, un, une, des, l'*), even for the English search terms. For the verbs, unfortunately, no such procedure that leads to a purer proportion of French language hits could be found, since adding the POS tag "_VERB_" also yields hits from English text passages within the French corpus.

The search for corpus occurrences for the terms of the two domains produced a large number of empty results, both in French and in English. For example, neither the English loan word *aquabike* nor the French term *aquacycle* produced any hits. In 173 cases, the English term is never found in the corpus (e.g. *announcer*), only the French (e.g. *annonceur*). One reason for this could be that the foreign terms in the brochure are not exactly the terms used in French. At least in one case, "*cache memory* versus *antémémoire*", the term actually used, at least as far as my personal observation goes, is *mémoire cache*, i.e. a French noun modified by an English loanword. In this case, I modified the "foreign" search term in order to reflect a usage pattern involving the target loan word that can actually be observed in French. Lastly, in other cases, no hits were found for the French term (*canyonisme*), but only for the English (*canyoning*).

As Table 1 shows, a majority of the terms subject to regulation by the terminology committee do not show up at all in the Google Books corpus. It is thus safe to say that they have only rather marginal usage frequencies, at least in written publications. Only 30 sports terms and 151 telecom terms produced any hits in the period under investigation that can be used for the analysis below.

Tab. 1: Number of search terms per domain

pairs of noun expressions:	**sports**	**telecommunication**
total pairs in search list	206	595
neither French nor English ngrams produced	111	239
no French ngrams produced	37	60
no English ngrams produced	28	145
total usable	30 (28 N, 2 V)	151 (130 N, 21 V)

4 Analyses

The data collected as described above were analyzed descriptively and inferentially. In both cases, the overarching questions were (a) whether there are changes over time in the probability of use of the French versus the English variant of the pairs, and (b) whether a change in relative frequency can be observed after norming in the *bulletin officiel* took place.

4.1 Descriptives

In the figures below, the relative frequencies in each pair of terms are displayed in odds ratios of the choice of the French variant[2]. The dependent variable thus stands for the odds that the French term was chosen over the English competitor. Figure 3 plots all the data points of the telecom subset across the period investigated. Two scatterplots illustrate the development of the odds for two selected pairs of terms.

The plot for the pair "*software* versus *logiciel*" indicates that, at the beginning of the period investigated, only a few occurrences are found in the corpus. In many years until the mid-1970s, the odds of the French variant are below or around 1, which means that the English word was as likely or even more likely to be used than the French term. At the end of the period, the odds of encountering the French term are about 125 times larger than of encountering the English term (odds of 125:1). It is probably examples such as this one that led some scholar to the conclusion that corpus planning, at least in the IT domain, was a "big success story" (Humbley 2008: 93). Indeed, if all terms in the sample showed this development, one would have evidence for a shift in preference towards the French terms. However, it is quite obvious that not all items do, e.g. the other item in the figure (*scanner* versus *numériseur*), shows the opposite pattern of change over time, with odds around 0.006 for the French term, i.e. the French term is selected 0.006 times for each English term selected. It is more intuitive to express the odds of the occurrence of the English term in this case, which would be around 175 for each French term.

2 The odds ratio is calculated as follows: (count of hits for French term + 0.5) / (count of hits for English term + 0.5).

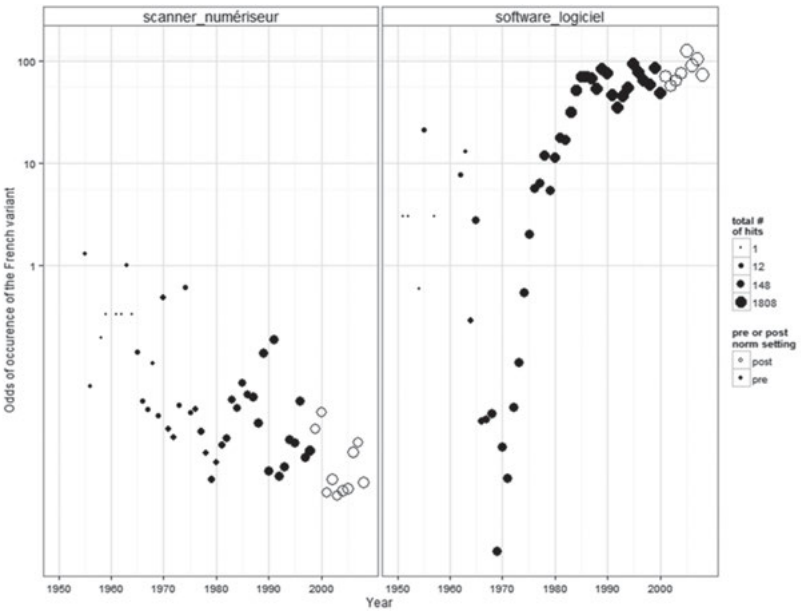

Fig. 3: Odds for the choice of the French variants of two selected items from the telecom domain across time. The hits for the French and English competitors are expressed in the odds of encountering the French word. As an example, a value of 100 indicates that for each hit of *software* there are 100 hits of *logiciel*. Larger point sizes indicate a larger sum of hits for both terms combined. The solid points refer to corpus frequencies before the terminology committee has issued a language norm for the given term. The *y*-axis is log-transformed.

As the two items highlighted show, different types of changes in frequency before and after the year norm-setting took place can be observed. Figure 4 gives the same account for two items from the domain of sports.

As the two figures illustrate, the odds of the choice of the French variant can change in different ways across time. From the visual inspection of each item pair's plots (not shown here), three different types of development can be observed.

1) General trend towards French
2) General trend towards English
3) No trend, odds do not seem to change

The example "*doping* versus *dopage*" in Figure 4 is an example of (1). Examples of other, similarly pattering terms are "*disk* versus *disquette*" or "*click* versus *cliquer*". The example "*scanner* versus *numériseur*" in Figure 3 is an example of

(2). Other, similarly patterning terms are "*hub* versus *concentrateur*" or "*ADSL* versus *RNA*". In these latter cases, as Figure 5 below illustrates, the trend towards English is often the consequence of a pre-existing French word used to refer to a non-telecom entity.

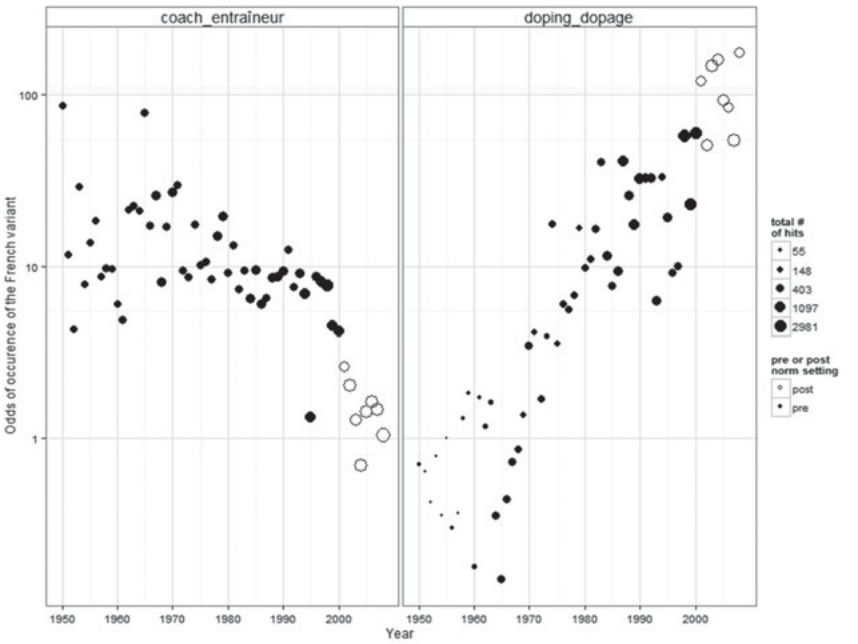

Fig. 4: Odds for the choice of the French variants of two selected items from the telecom domain across time. The solid points refer to corpus frequencies before the terminology committee has issued a language norm for the given term.

Figure 5 thus shows that the French word was used without much competition from English *spamming*. *Spamming* is almost absent from the corpus until the mid-nineties. From the moment that the practice of spamming was first observed[3], the English term becomes increasingly frequent relative to the French competitor. For readers who are used to the Google ngram-viewer, I added

3 According to Templeton http://www.templetons.com/brad/spamterm.html, the message "Global Alert for All: Jesus is Coming Soon." was sent to all USENET members on January 18 1994.

"ngram-style" plots with smoothers based on the relative frequencies on the right hand side of plots 5–7.

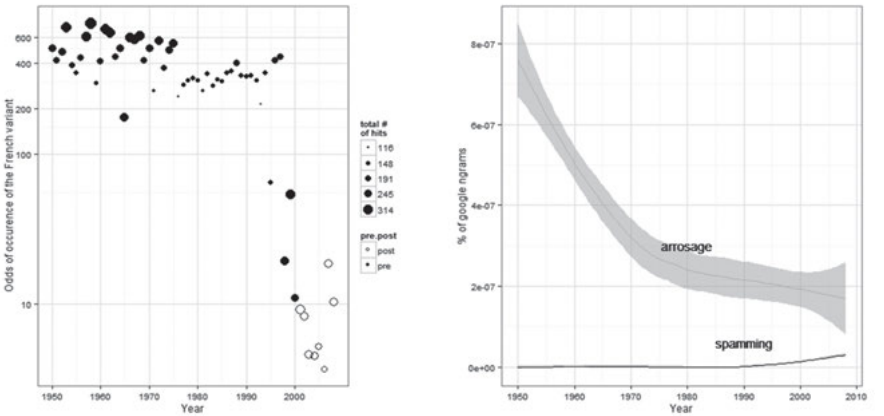

Fig. 5: The usage frequency of "*arrosage* versus *spamming*" across the observation period

Since the French terms suggested by the committee are often polysemous, the numbers produced by the procedure applied do not necessarily directly reflect the competition of the two terms as a means to convey the particular sports or telecom semantics. Obviously, spam via email was not a major problem before about the year 2000 and thus the loanword was highly unlikely to show up in French texts anyway; at the same time, the term *arrosage* is used in its literal sense, i.e. to refer to 'watering' (flowers, etc.). The change in relative occurrences across time is thus probably not due to some policy change, but simply to the fact that an English term was borrowed to refer to an emerging phenomenon. The size of the data points in Figure 5 between the years 1975 and 1995 shows that the number of hits was relatively low before the phenomenon of spam messages arose around the year 2000.

One could argue that the pair of terms should not be included also due to the polysemy of the French term. Only corpus searches taking into account more neighbors and probably also involving manual selection of search results could separate the wanted from the unwanted tokens. Despite this presence of unwanted tokens in the data, there is still the question whether it is nevertheless possible to detect changes in odds from the onset of spam practice on. We will give a tentative answer to this question below in section 4.2.

As shown in Figure 5, there are item pairs that shift across time towards the use of English. Others, as already illustrated in Figure 3 and Figure 4, shift towards the use of French: The verb *cliquer* (a Francized verb based on English *to click*) is an example of change towards the use of the French word (Figure 6).

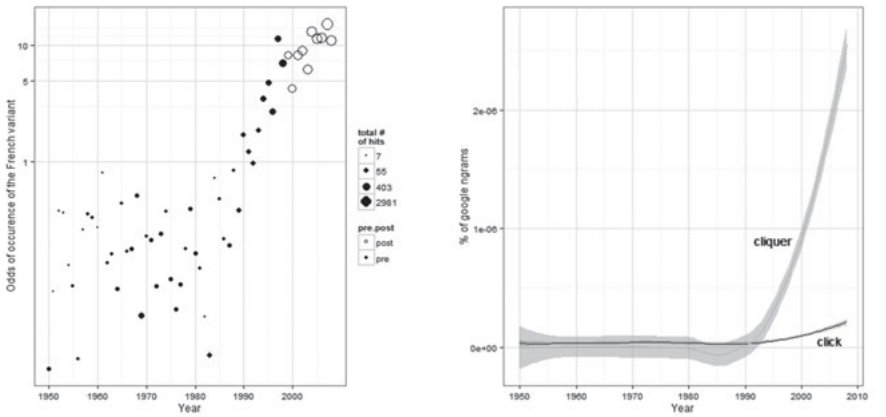

Fig. 6: Odds and frequencies of the verb pair "*click* versus *cliquer*"

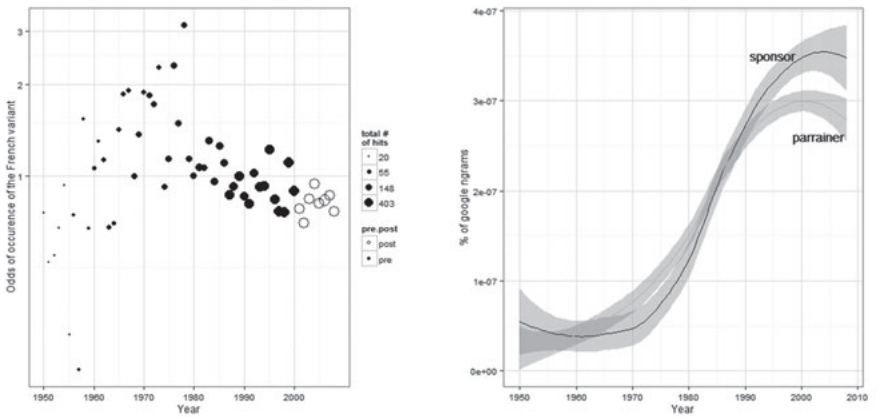

Fig. 7: Odds and frequencies of the verb pair "*sponsor* versus *parrainer*"

A third group of items does not display any striking changes of odds at all. As an example, the pair of verbs "*sponsor* versus *parrainer*" does not shift into either direction, as shown in Figure 7.

To sum up this descriptive analysis of the data and of some selected examples, we can conclude that no clear tendency can be read out of (or should be read into) the data. Some item pairs display a change in the direction of the language planning process intended by the French legislator, others show no change at all, and others even change in the opposite direction. None of the items discussed in more detail above suggest that there is a strong change after the committee issued a recommendation with respect to the use of a particular French variant to the English term. As in Figure 5 and Figure 6, the tendency either towards English or towards French was already under way before, or there is simply no tendency as in Figure 7. We will come back in the final section to the question of the existence and the direction of a causal link between tendencies in use patterns and imposed language norms by the committee in charge of the enrichment of the French language.

4.2 Statistical modeling

In order to assess the impact of the language enrichment policy implemented in France, an attempt to model the development using inferential statistics seems appropriate. Such an attempt is made in this section using logistic linear mixed effects models.

The dependent variable is the odds of encountering a French term given the absolute frequencies of the French and the English competitors in the Google Books corpus. This is the variable selected for the y-axes in all corpus based figures above. The first predictor modeled is time. Change over time in general could hint at an effect of the policy calling for the use of French linguistic matter, as part of the general goal of official French language policy. The question asked, therefore, is whether there is a general tendency increasing the odds of the choice of French in the data. Moreover, since we know exactly in which year the *bulletin officiel* issued a terminological recommendation for each foreign term, we can also ask the additional question whether there are detectable changes, compared to the *terminus ante quem*, in linguistic choices in the years following the issue.

Although one might be tempted to let these two factors interact, it is problematic to hypothesize that the norm-imposing process had a different influence before it even existed compared to afterwards – which is what an interaction of between "time" and "before versus after norming" would be modeling. Thus, it

seems more appropriate to include the years since norm-imposition for each item pair as a second main effect into the model (0 when before norm-setting). This modeling approach is akin to piecewise regression (or segmented regression). If the parameter of this main effect turns out to be significant – even after an overall effect of time is taken into consideration–, this would count as evidence for a measurable impact of the norm-imposition.

In addition to these two main effects, all item pairs are modeled using random intercepts and random slopes for the two predictor variables, since, as we have seen above, item pairs tend to show different diachronic patterns, and the model should account for this variation.

The models were fitted in *R* (version 3.1.2) with the lme4 package (version 1.1-7; Bates et al. 2014).

There is a statistically significant tendency towards the choice of the English variant across the time period investigated (beta = -0.194, standard error = 0.059, $p<0.001$). The low estimate and high p values of the "years since norming" variable shows that there is no detectable change in the slope of the regression line after the norming of the terminology committee (beta= 0.080, standard error= 0.153, $p=0.603$). A likelihood ratio test was used to compare this model to the simpler model that only contains one fixed effect (year of publication) and discards the effect of norming. This test shows that the second main effect can be dropped (Chi-Square (1)=0.27, $p=0.60$). Thus, the additional parameter modelling the impact of terminological norming does not contribute in any noteworthy way to the explanation of the patterns in the data.

These estimates suggest that there is a general tendency towards more use of the English terms, since the negative value of the estimate stands for a declining slope of the regression line. The additional fixed effect representing the potential impact of the norming intervention (*years since norming*) does not yield any noticeable change in slope.

5 Discussion and conclusion

The analysis of the data overall suggests that the drive for linguistic purism which expresses itself, among other things, in the French language legislation discussed in section 2, does not seem to allow a reversal of the tendency of increasing use of English loan words. In a nutshell, the model confirms the general tendency towards the use of the English terms in the two domains, and there is no evidence for any impact of the norming intervention.

The discussion of these results comes with a caveat: The statistical procedure applied presupposes that the development is linear. However, as some of the figures shown above suggest, changes may well be non-linear. This could be taken into account by fitting non-linear mixed models (Wood 2012). Fortunately, fitting such models and discussing their output are beyond the space limitations of this article – since, unfortunately, they would also require statistical skills that lie way beyond those of its author.

Another point worth considering is that the time span between the committee's act of norming and the observable language uses is possibly not long enough. There might be more time required before the new norms sink into authors' language use. Moreover, texts published in a given year after the norming took place may well have been written *before* this norming, which could be a source of error obscuring possible effects of the norming. The arbitrarily chosen domains of sports and telecom may be domains where norming is particularly unsuccessful; in other domains the committee's recommendations might bear more fruit.

The absence of any measurable impact of the committee's attempts to influence language use may not surprise scholars studying language change. Changing – potentially – millions of language users' lexical preferences means changing the sociolinguistic constraints that shape the acquisition and use of those variants. These constraints or forces are often strong and certainly hard to overcome with official policy measures. The institutional banning of loanwords stemming from a language that incarnates economic, political, cultural and scientific strength requires changing the communicative maxims that motivate the speakers to prefer those borrowings to "native" words of the language they use (see Croft 2000; Keller 1994 for theoretical models of language change). Moreover, from the legal perspective, imposing the selection of a language or of particular terms, at least in western societies, is possible only in highly regulated domains such as text production in the central administration. Imposing terms and languages in other, less controlled domains, goes against the fundamental rights and freedoms cherished in Western societies. In some exceptional cases, however, it might be possible for a state agency to have an impact on language use, as the case of institutionalized Icelandic language purism (Árnason & Helgadóttir 1993) seems to suggest. What exactly the requirements for the success of such language policy are remains to be investigated.

The present contribution does not lend any support to the claim that the French effort to control and impose linguistic matter in sports and telecommunication terminology is crowned by success. This ties in with the conclusions of another corpus-based study on the productivity of loanwords that showed that

English loans in French are distinctively productive (Chesley 2010). When I started my investigation, I was surprised that it was difficult to find corpus-based analyses of the actual effects the French language legislation. In retrospect, I conclude that there are two reasons that this might not be so surprising. First, it may well be that the authors of the terminological recommendations themselves do not believe in the potential effectiveness of their actions. Second, the real function of French language purism and its institutional instantiations might be one that lies well beyond their potential effects on users of French. They stand as a symbol, as an emblem for a cultural model of French as a language that does not need to import terms from other languages. In this sense, these policy measures are performative components of the cultural models of language described in Geeraerts (2003), i.e. their mere existence is what really counts.

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Part Five: **Methodological challenges of contextual parameters**

Dagmar Divjak

Four challenges for usage-based linguistics

Abstract: Dirk Geeraerts has played a key role in launching cognitive linguistics as a full-fledged theory of linguistics and in expanding its sphere of influence in Western Europe. Dirk is furthermore one of the first and strongest advocates for the incorporation of empirical methods – and quantitative, corpus-based methods in particular – into cognitive linguistic research. The *Quantitative turn* (Janda 2013) is in large part due to his relentless insistence on methodological rigour. In this chapter, I want to take a closer look at what is currently methodological "good practice" in the field and draw attention to some of the assumptions that underlie our methodology and thereby shape our findings yet have gone unquestioned. Four challenges are highlighted – data annotation, statistical analysis, model validation and experimental design – and their theoretical foundations and implications discussed.

1 Introduction

After half a century of self-imposed exile from the cognitive scene, cognitive linguists have put language back on stage – language is no longer considered a highly specialized and largely autonomous cognitive module that needs "special treatment". Instead, linguistic abilities are seen as rooted in general cognitive abilities and meaning is understood as conceptualization. In fact, cognitive linguists are bound by two major commitments: the generalization commitment and the cognitive commitment (Lakoff 1990: 40). All cognitive linguists are committed (or are assumed to be committed) to providing a characterization of the general principles governing all aspects of human language in a way that is informed by and accords with what is known about the brain and mind from other disciplines. Work in the cognitive linguistic tradition therefore likes to stress that the analyses proposed are "in line with what is known about the mind" and abounds with claims that the proposed analysis would be cognitively realistic, if not cognitively real. But is this really so?

Unlike many other modern theories of linguistics, cognitive linguistics also aims to be a usage-based model of language structure (Langacker 1987: 46). All

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language units arise from and are shaped by usage events by means of the aforementioned general cognitive abilities such as perception, attention, memory, categorization and abstraction. Usage events are observable, and therefore they can be collected, measured, and analyzed (Glynn and Fischer 2010: 5–6). A decade ago, Tummers, Heylen, and Geeraerts (2005: 225-226) concluded that "[c]orpus linguistics would be an obvious methodology for a usage-based linguistics: you cannot have a usage-based linguistics unless you study actual usage – as it appears in an online and elicited form in experimental settings or as it appears in its most natural form in corpora in the shape of spontaneous, non-elicited language data". While in 2005 "the use of corpus materials [was] not yet the dominant approach, and to the extent that the research is actually corpus-based, a tendency toward the use of advanced corpus techniques [was] only beginning to emerge" (Tummers, Heylen, and Geeraerts 2005: 248), the situation is rather different now. In order to describe a phenomenon and uncover the mechanisms that govern it, linguists tend to turn to the linguistic analysis and statistical modeling of data from large corpora or elicited through experiments. Anno 2015, there are plenty of published articles that rely on data extracted from corpora and annotated for a multitude of morphological, syntactic, semantic and pragmatic parameters, to model a phenomenon and/or predict the choice for one morpheme, lexeme or construction over another. According to Janda (2013: 4) we can "divide the history of Cognitive Linguistics [the journal – D.D.] into two eras, 1990–2007 – when most articles were not quantitative, and 2008–2012 – when most articles were quantitative" [a "quantitative article" being defined as an article in which a researcher reports numbers for some kind of authentic language data]. She continues "[w]e can [...] securely identify 2008–2012 as a distinct period in the history of Cognitive Linguistics. During this period quantitative analysis emerges as common practice, dominating the pages of our journal" (Janda 2013: 6).

Dirk Geeraerts was instrumental in launching cognitive linguistics as a full-fledged theory of linguistics and has shown particular concern for its methodological machinery. In the next two sections I will take a closer look at the usage-based approach of which Dirk has been one of the strongest advocates, and I will discuss some of the challenges that this changed paradigm is currently facing. I will discuss the following challenges in turn:

– **Challenge 1.** We work in a corpus-based fashion, at the heart of which lies the manual annotation of data. Do we reflect sufficiently on how our very first decisions affect our findings?
– **Challenge 2.** We analyze our data statistically, using approaches from the frequentist tradition. Do we give enough consideration to the assumptions

on which these techniques are based and to the implications that has for our findings?
- **Challenge 3.** We capture human behavior in models, knowing that "all models are wrong" (Box 1976: 792). Are we sufficiently concerned about testing our models against human behavior?
- **Challenge 4.** We run experiments on language, complying with methodological requirements developed for other aspects of human behavior. Should we not pause to consider whether the nature of language meshes with the standard designs?

In other words, I want to draw attention to assumptions that underlie our choice of methods and hence shape our findings, yet have hitherto gone unquestioned.

2 Challenge 1: data annotation categories and principles vary widely

An important contribution to the statistical analysis of linguistic data – of any data, really – is made by the variables used to capture the phenomenon. At the heart of a corpus-based study of linguistic phenomena lies the (often manual) annotation of examples. These data annotations are typically "linguistic" in nature, that is, they are based on categories that were designed to aid the description of a language's form and meaning. Some of these categories have been around for millennia; the classification of words into categories, for example, predates Christianity. As early as the 5th century BC, Sanskrit grammarians grouped words into classes – that would later become known as parts of speech – distinguishing between inflected nouns and verbs and uninflected pre-verbs and particles. Other linguistic categories that are well established in theoretical linguistics, regardless of framework, are, for example, phonemes, morphemes, tense, mood, aspect etc. Cognitive linguistics has created its own categories, such as image schemas, trajectors and landmarks, conceptual metaphors, constructions and frames. With few exceptions the universality of the adopted traditional linguistic categories has gone unquestioned (e.g. Evans and Levinson 2009) and the cognitive reality of the newly introduced cognitive linguistic categories has not been systematically addressed (cf. Gibbs and Colston 1995).

Linguistic reality and psychological reality seem to have become one, resulting in a situation whereby linguists elevate linguistic descriptions to psychological explanations and psycholinguists expect to find evidence of the cog-

nitive reality of classifications that were designed to aid the description of language data, not to reflect the workings of the mind (compare also Eddington 2002: 212–213). Yet "[c]ognitively real generalizations may not at all accord with generalizations arrived at by classical techniques of linguistic analysis" (Lakoff 1990: 41). In fact, there is no agreed-upon definition of what is meant by "cognitively real(istic)" and what level of cognitive commitment is expected. Categories that are "consistent with our overall knowledge about cognition and the brain" (Lakoff 1990: 45) could well range from categories that can be presented as radial categories with prototype structure to those for which there is neurological evidence, i.e. a unique neurological signature that proves that a category is treated as a processing unit in its own right by actual language users.

A second question that would benefit from more consideration relates to the nature and extent of our data annotation: a typical analysis involves coding a large number of extractions for a number of properties, yet studies diverge in their implementation of this principle. The vast majority of studies annotate their data for a limited number of properties that operationalize a specific hypothesis. Some more recent studies, however, explicitly advocate the annotation of as many potentially relevant properties as possible in as linguistically naive a way as possible (Arppe 2008; Divjak 2010). While the former approach seems suited if we aim to pitch competing linguistic hypotheses against each other, the latter approach is more appropriate if we are interested in letting the relevant patterns fall out from the data (but see Challenge 2). In fact, cognitive linguistics has been "accused" of using "categories gained from introspection rather than from the data itself" (Teubert 2005: 2). Syntactic, semantic and discourse-related higher-level abstract features are believed to help reveal more general patterns (Theijssen et al. 2013: 228), but recent research has shown that including these features – that are often difficult to define and to annotate with high agreement levels between human annotators – does not necessarily yield a better model than working with lexical features, such as the actual words used (Theijssen et al. 2013: 246, 257). An approach that stays close to the raw data and captures "every possible clue" comes with the added benefit that "[k]eeping as much detail[ed] information as long as possible – even throughout advanced stages of analysis – is crucial because we never know if what we believe to be the relevant features really are the only essential ones" (Wälchli and Cysouw 2012: 703).

3 Challenge 2: "probabilistic" is a polysemous word

Usage constitutes the dataset in which general patterns can be detected, and this is more and more frequently done by making use of statistical techniques. The number of publications that rely on empirical data collections and statistical data modeling has increased spectacularly. Reliance on data and statistics certainly gives us more confidence in our conclusions, but does it guarantee that our models are any cognitively more real(istic) than they were before? We do not seem to worry very much about detecting patterns in a cognitively realistic fashion. Much of modern statistics was developed on the basis of the frequentist (rather than Bayesian) interpretation of probability and we readily adopt frequentist techniques to model our data. For those models to be cognitively real(istic), we would need to assume that probabilistic reasoning underlies language knowledge and use. But, "probabilistic" is a polysemous word and in linguistic circles, the non-technical meaning of "supported by evidence strong enough to establish presumption but not proof" appears to prevail. Probabilistic grammars are seen as opposed to rule-based grammars and this reflects the insight that the phenomenon studied is not fully predictable. As Kilgariff (2005) and many others have observed: language is never ever random; however, it is also rarely, if ever, fully predictable.

This "linguistic" interpretation of the statistical term "probabilistic" is rather different from the frequentist statistical interpretation as "the ratio of the number of outcomes in an exhaustive set of equally likely outcomes that produce a given event to the total number of possible outcomes" or "the chance that a given event will occur". According to frequentists, the probability of an event is defined as the relative frequency of the event in some reference class (Lassiter 2012). The reference class is a core component in the probability calculation and one that is highly problematic: it makes the probability of an event dependent on the choice of a reference class, and because an event belongs to many reference classes, it is not always obvious which reference class to choose (cf. the cell 4 problem reported for collostructional analysis in Schmid and Küchenhoffer 2013). Moreover, the interpretation of probability as relative frequency cannot make intuitive sense of the fact that probabilities can attach to non-repeatable events (Lassiter 2012): according to the frequentist definition, the probability of an event that can only happen once is either 1 (if it happens) or 0 (if it does not happen). A variant of frequentism (Mises 1957) therefore claims that the probability of an event should be identified with the relative

frequency in a hypothetical sequence generated by flipping the coin an infinite number of times.

A more palatable approach to uncertainty is found in Bayesianism, which remains rare in linguistics, however. For Bayesians, probability is weight of evidence: it is a measure of a rational agent's degree of belief in a proposition (Lassiter 2012). Bayesian methods apply in a wider range of situations than frequentist methods, and are more flexible. Crucially, Bayesian methods can be applied to estimating probabilities for repeatable and non-repeatable events and it is possible to incorporate prior information into a model (Lassiter 2012). This seems crucial for modeling cognitive phenomena such as language, since human beings usually approach inference problems with some prior knowledge. However, research from decision making has shown that people have extreme difficulty if information is given and answers are asked for in single-event probabilities; but they appear to behave like good "intuitive statisticians" when information is given and answers are asked for in frequencies (Brase, Cosmides, and Tooby1998: 19).

4 Challenge 3: models are rarely tested on speakers

The number of publications relying on empirical data collections and statistical data modelling has increased spectacularly. The most advanced analyses rely on regression analyses to model which of the candidate properties are predictive of the form which is the focus of the study. These techniques are attractive because they allow to (1) estimate the relative weights of the linguistic explanatory variables in natural terms as odds, and to (2) model the impact of the co-occurrence of these variables in various combinations as expected probability distributions for the alternative lexemes/constructions. Yet neither frequentist nor Bayesian models are based on learning mechanisms.

If we want our linguistics to be cognitively realistic, should we not consider using modeling techniques that are directly based on principles of human learning? Several models of learning have been implemented for and tested on language data, and the predictions have been compared to the behavior of subjects in experimental settings. The best-known ones in cognitive linguistic circles are connectionist modelling (Rumelhart and McClelland 1986), analogical modelling (Skousen 1989), memory-based learning (Daelemans and van den Bosch 2005) and more recently naive discriminative learning (Baayen 2010). Edding-

ton (2000) compared a connectionist model with an analogical model and a memory-based model in their performance on the English past tense. His findings showed that, different from the connectionist model that only handled the irregular items well, the analogical and memory-based models successfully predicted subject's choice of past tense for nonce verbs for both regular and irregular items, and they did so by comparing the nonce words to words in the database in terms of their phonological similarity. Theijssen et al. (2013) compared the performance of logistic regression (using higher-level features), Bayesian networks (using higher-level features) and memory-based learning (using lexical items) in predicting the English dative alternation. They found the overall performance of the three models to be virtually identical, although the classification of the individual cases by the memory-based model differed most from the other two approaches. Baayen et al. (2013) have shown that statistical classifiers based on cognitively realistic approximations of how humans learn such as NDL perform as well as regression models for binary choices. Preliminary results support this finding for more complex corpus models that predict a 4-way polytomous choice (Arppe and Baayen 2011).

Another important challenge faced by linguists is the question of how to evaluate such models. The most rigorous studies fit a statistical model to one part of the data (the training set) and test it on a new set of corpus examples (the testing set) to see how well the findings generalize to new data. But is a corpus-based model with high predictive power satisfactory even if the model's performance is not tested against speakers' performance? If interest is in modeling *human* knowledge, should we not compare our models' performance to that of native speakers of the language? Surprisingly few papers currently attempt this (for an overview, see Klavan and Divjak, under review) and linguists who run an experimental study after a corpus-based study often refer to this process as "validation". This, unfortunately, creates the impression that behavioral experimental data is inherently more valuable than textual data, be it transcribed spoken language or originally written language. But for language, textual data is the result of one of the most natural types of linguistic behavior: "[a] corpus is a collection of non-elicited usage events. It constitutes a sample of spontaneous language use that is (generally) realized by native speakers" (Tummers, Heylen, and Geeraerts 2005: 231). Observing the output qualifies as an "observational study" and possibly as a "natural experiment"; these types of experiments are quite popular in disciplines where experimental manipulation of groups and treatments would be unethical, e.g. epidemiology. Through observation we get a real picture of the phenomenon as it manifests in natural settings, although we should not forget that corpus data is not actually representative of any single

speaker; instead, it represents a non-existing average speaker (cf. Blumenthal-Dramé 2012: 30, 34).

5 Challenge 4: language in the lab versus language in use

Experiments, and laboratory-based experiments in particular, afford the researcher a high level of control over variables; by manipulating the variables, it becomes possible to establish cause and effect relationships. Due to the need to maintain control over the variables experimental studies are often run in artificial settings. It is maintained that the physical situations in the real world and in the lab may differ, provided that the same processes are occurring. And this is where the shoe pinches: experimental linguistic studies standardly present words in isolation or use artificially constructed stimuli that bear little resemblance to naturally produced data. There are at least two reasons to suspect that the customary approach to stimulus selection makes it unlikely that the same processes that regulate language use in real life occur in the lab.

First, when selecting stimuli for an experiment, psycholinguists do not routinely conduct a multivariate corpus-based analysis, and often limit their interest in corpora to the possibility to use them as source of information on the frequency of occurrence of words or chunks. This is because frequency, just like familiarity and length, is known to exert a strong influence on a number of behaviors, including processing speed: to avoid the "confound of frequency" when comparing reaction times to different categories of words or other language structures experimental items are routinely matched for frequency. Yet extracting only frequency of occurrence information from a corpus severely impoverishes the richness of the linguistic experience from which learners extract patterns; there is more to a word than its frequency of occurrence. In fact, in a natural setting so many factors influence a given phenomenon that any selection, not based on an exhaustive, i.e. multivariate, study of the phenomenon is a stab in the dark. Speakers have extremely specific expectations about words that are learned from encountering those words in their natural contexts. It has been shown that probabilities are essential for a cognitive model of sentence processing (Jurafsky 1996) and Divjak and Arppe (2014) have established that this is not only the case when probable combinations are compared to (artificially created) improbable combinations but even when all combinations occur naturally, i.e. are *more or less* likely. Context is another confound, yet one

that is routinely ignored. Psycholinguists might want to worry less about length-based, familiarity-based, or frequency-based lexical effects and more about properties of language in use that might affect experimental results. Ignoring the dependence of a word and the specific form it occurs in on its context may well skew our understanding of the cognitive mechanisms underlying word processing.

Second, experimental settings may "force participants to tackle problems that are not faced in normal discourse" (Deignan 2005: 117). While it is justified to adhere to standard experimental methodology in order to identify basic mechanisms such as frequency effects that are of core relevance to the theory, it seems questionable to also apply these methods when validating specific predictions. The results of the latter type of experiments may well tell us something interesting about the processing of X under condition Y, but if condition Y is not typically encountered in reality, they do not tell us much about the processing of language in use. Now that corpus-based techniques are available to calculate the probability of a word (form) given all other words in the sentence, and advances in analysis techniques make it possible to control for a plethora of factors statistically, running experiments with words in their natural contexts is achievable. This will, in fact, bring closer the ideal of "controlling everything but the variables that are being manipulated" while also ensuring the external validity of the findings. The ecological validity of laboratory results has been questioned in more general terms. Mitchell (2012) aggregated results of several meta-analyses and concluded that, although many psychological results found in the laboratory can be replicated in the field, their effects often differ greatly in size and sometimes even in direction (Mitchell 2012: 114). It remains to be seen to what extent current experimental linguistic findings are side-effects of the experimental settings used.

6 Where do we go from here?

Paraphrasing Divjak (2012) I conclude that studying language in use is a discipline at the intersection of linguistics and psychology. Yet many psycholinguistic studies have been carried out by research teams that do not include (corpus) linguists who love getting their hands dirty in the data. Counting readily identifiable forms taken out of their natural context significantly diminishes the richness of the input from which human beings extract and learn distributional patterns. At the same time, many cognitive corpus linguistic studies continue to take their painstakingly annotated textual datasets to be a pretty reliable map of

speakers' minds, forgetting that what is learned or acquired by probabilistic means is not strictly proportional to the stimulus (and that frequency of occurrence is not the "be all and end all" in language, see Baayen 2010; Ellis 2012). Probabilistic learning theory holds that language learning is based on complex, higher-order properties of probabilistic patterns in sensory experience, not a mere tabulation of frequency of patterns (Elman 2003). Driven to its extreme, this split approach reduces our billion-neuron brains that enable us to adapt quickly to an immense array of stimuli to nothing more than sophisticated abacuses used to keep tallies of all the words found in the messy bag that language is.

David Poeppel tweeted recently (05.01.2015) "I'm pretty tired of big data and definitely ready for big theory. Let's stop collecting so much damn data and use 2015 to think about stuff". It wouldn't be a bad idea to take a break from collecting and modeling data and indeed spend some time "thinking about stuff", about the methodological questions raised in this chapter, and about their theoretical foundations and implications. Twenty five years ago Lakoff (1990) wrote that "I am sure that others who consider themselves cognitive linguists do not have the same primary commitments that I do, and that disagreements over how to properly analyze a given phenomenon are sure to follow from differences in primary commitments" (43). "Without agreement on initial premises, arguments about conclusions will be pointless" (36). That is as true today as it was then. Among the questions we need to answer are the following: are we, or are we not, concerned with cognitively real generalizations? What do we mean by "cognitively real generalizations"? If we take cognitively real generalizations to encompass only that for which evidence can be found in the minds of speakers, can we, or can we not, arrive at such generalizations given that our data elicitation paradigms do not require that language is studied in use; our data annotation schemas hinge on linguistic insights that the average speaker may well lack; and our modeling techniques are not implementations of the way in which human beings learn? Lakoff (1990: 41) pointed out, "If we are fortunate, these [i.e. generalization and cognitive] commitments will mesh: the general principles we seek will be cognitively real. If not, the cognitive commitment takes priority: we are concerned with cognitively real generalizations. This is anything but a trivial matter". That, too, is as true today as it was then.

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Stefan Th. Gries

The role of quantitative methods in cognitive linguistics

Corpus and experimental data on (relative) frequency and contingency of words and constructions

Abstract: One relatively frequently used corpus-based method in cognitive/usage-based linguistics is collexeme analysis, the study of the function of a construction on the basis of the words that are strongly attracted to particular slots of that construction. This approach has recently been discussed critically particularly in Schmid and Küchenhoff (2013). This paper argues that many of the points of critique raised in that paper are invalid and that its exploratory analysis – monofactorial rank correlations – are far from sufficient to identify and tease apart (i) the many interrelated ways in which the association of a word and a construction can be measures and (ii) how these operationalizations are correlated with experimental data. Two more appropriate statistical approaches – mixed-effects modeling with model selection and multimodel inferencing – are applied to the data to showcase not only what kinds of issues analysts face in the study of association measures, but also how these methods can contribute to more sophisticated analyses.

1 Introduction

1.1 General introduction

One of the greatest paradigmatic changes in theoretical linguistics over the past few decades has been the joint way in which (i) cognitive, or usage/exemplar-based, linguistics has developed into a full-fledged attractive theoretical approach to language competing with generative linguistics and (ii) how this development brought about, and was in turn reinforced by a similarly profound change in linguistic methodology, namely the more and more widespread adoption of quantitative methods in theoretical linguistics. Dirk's work and impact

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on both the theoretical and the methodological side of this field has been profound and it is with great honor that I accepted an invitation to participate in this volume celebrating Dirk's 60th birthday; the present paper will hopefully be a good way to congratulate him by discussing and involving things central to Dirk's research – usage-based linguistics (specifically, the association of verbs and constructions), the use of non-introspective methods (specifically, corpus and experimental data), and, I hope, careful statistical analysis using both methods that bring together hypothesis-testing and exploratory work.

More precisely, the focus of the present paper is a re-analysis of previous experimental results on one method of the family of collostructional analysis, viz. collexeme analysis (CA). CA is essentially a very basic application of the corpus-linguistic notion of (lexical) association measures as applied to the co-occurrence of words to the co-occurrence of words (often verbs) and constructions (often sentence-level/argument structure constructions). As outlined in the first publication on CA, Stefanowitsch and Gries (2003), CA is typically done as follows:

i. retrieve all instances of a construction *cx* in question (such as the ditransitive) from a corpus;
ii. compute an association measure (AM) for every word type *v* that occurs in the relevant slot of construction *cx* (these are referred to as *collexemes*) (such as *give*, *send*, *tell*, ...). Such AMs are usually computed on the basis of a 2×2 co-occurrence table that cross-tabulates token (non-)occurrences of *cx* against every single co-occurring element/type *v* as schematically represented in Table 1; thus, for instance, *a* is the number of times v_1 occurs in *cx*, etc.

Tab. 1: Schematic frequency table of verb v_1 and *cx* and their co-occurrence

	***cx* is present**	***cx* is absent**	**Totals**
v_1 is present	a	b	a+b
v_1 is absent	c	d	c+d
Totals	a+c	b+d	a+b+c+d=N

iii. rank all types $v_{1\text{-}n}$ by the value of the AM;
iv. explore the top *n* (often 10-50) co-occurring types for functional patterns.

Crucially and as stated by Stefanowitsch and Gries (2003: 217) or Gries (2012: 480), pretty much any AM can be used to compute what has been called *collexeme strength*, but most published studies have chosen the negative log of the *p*-value of the Fisher-Yates exact test (for collexemes that occur more often than expected with the construction), henceforth *FYE*; this is because (based on Stefanowitsch and Gries 2003: 239, n. 6):

– since FYE involves an exact test, it does not come with distributional assumptions and can handle small frequencies well (see also Evert 2009);
– since it is based on a significance test, its results incorporate both observed frequencies and effect size.

CA has recently been discussed critically in two publications, Bybee (2010) and Schmid and Küchenhoff (2013, henceforth S&K). The shortcomings of Bybee (2010) were addressed comprehensively in Gries (2012) and will not be repeated here; the many problems of Schmid and Küchenhoff (2013) are discussed in Gries (to appear) and will be recapitulated here only to the extent that is required for the present analysis.

First and as Bybee before them, S&K criticize the choice of FYE as an AM because it is not a significance measure and not intuitively easy to understand. Second, they problematize the computation of AMs based on tables like Table 1 as discussed above on the assumption that defining the frequency to insert in cell *d* – i.e. the frequency of constructions that are not *cx* and that do not involve *v* – is difficult/treacherous. Third, they argue that FYE is a bidirectional AM, i.e. an AM that cannot distinguish the attraction of *v* to *cx* from the attraction of *cx* to *v*, which they claim is desirable. Finally, they criticize a study attempting to validate CA – Gries, Hampe, and Schönefeld (2005), henceforth GHS – for how in that study the effects of frequency and FYE were compared. In that study, GHS used corpus data to determine verbs of high/low frequency and high/low collexeme strength in the *as*-predicative construction (e.g. *She is regarded as an astute observer or He sees himself as a total fraud*). Then, they asked subjects to complete sentence fragments ending in such verbs, and S&K criticize the way in which the numeric variables of frequency and FYE were dichotomized in GHS's study of how much particular verbs lead to *as*-predicative completions.

Many of their points of critique are problematic on several levels, however (see Gries to appear for comprehensive discussion). Their first criticism misses the point because it is like criticizing the whole paradigm of reaction time studies in psycholinguistics because they often use linear models for the statistical

analysis of their data – even if the choice of FYE were as problematic as they claim, which has been shown it is not (see Gries 2012, to appear), that does not invalidate the idea of exploring constructions on the basis of which words are attracted to their (main) slots. In addition, their argumentation ignores the fact that FYE is merely used to then rank all collexemes in step iii. and ranks of types are certainly intuitively straightforward. Also, they ignore the fact that, unlike an effect size, FYE can distinguish identical effects that result from high- or low-frequency co-occurrence.

Their second criticism ignores Gries (2012), which has shown on the basis of statistical simulations that the impact of different frequencies of *d* (and thus, different corpus sizes) on the overall ranking of word/verb types (recall step iii. from above) is negligible.

Their third point of critique, the bidirectionality of FYE, is a more useful observation and leads to two related suggestions of theirs: First, they discuss directional alternatives to FYE, namely two conditional probabilities: $p(v|cx)$ (i.e., $^{a}/_{a+c}$), which they call *attraction*, and $p(cx|v)$ (i.e., $^{a}/_{a+b}$), which they call *reliance*. Somewhat confusingly, they also discuss another alternative to FYE, namely the odds ratio (i.e., $^{a/b}/_{c/d}$). This is confusing because (i) the odds ratio requires filling cell *d* in the cross-tabulation (just like FYE), (ii) is bidirectional (like FYE), and (iii) contributes very little that is not already covered by their proposed measure reliance: In both the *as*-predicative data to be discussed below as well as their own N-*that* construction data, the Spearman rank correlations between the odds ratio and reliance exceed >0.99! The only major theoretical difference between FYE and the odds ratio is that the latter is an effect size, which a priori is neither good nor bad. A final issue to be mentioned here is that they do not discuss in this regard is that attraction and reliance per se do not reveal whether a word is attracted to a construction or repelled by it – for that, the measures $\Delta P_{\text{construction} \rightarrow \text{word}} = (^{a}/_{a+c})\text{-}(^{b}/_{b+d})$ and $\Delta P_{\text{word} \rightarrow \text{construction}} = (^{a}/_{a+b})\text{-}(^{c}/_{c+d})$ (cf. Ellis 2007; Gries 2013), which have been outputted by the *R* script most people have been using to do CAs, are more useful (because they reflect attraction/repulsion with positive/negative signs).

As for the final point of critique, S&K are right in pointing out that the dichotomization GHS employed is sub-optimal: While the cut-off points to dichotomize frequency and FYE into *low* and *high* were chosen in a bottom-up fashion, they lose too much information compared to what now, 10 years later, is more profitably explored using numeric predictors in a more appropriate statistical analysis. That being freely admitted, unfortunately, the kind of analysis that S&K then report on themselves is even more problematic: At a time where the state-of-the-art in cognitive/usage-based linguistics has evolved to multivariate

exploratory methods and/or multifactorial regression (see Levshina, Geeraerts, and Speelman 2013 for an excellent recent example, whose combination of exploration and hypothesis-testing is mirrored in this article), they merely report a variety of monofactorial Spearman rank-order correlations between all the different measures for the corpus-based and experimental data of GHS as well as their N-*that* construction data[1], which is problematic given that we know that this, like every other linguistic phenomenon, is not mono- but multifactorial. Nonetheless, it is revealing to see that even in their own re-analysis of the by-verb data of GHS, it is the supposedly inferior measure of FYE that is most strongly correlated with GHS's experimental results.

1.2 The present paper

In this paper, I will explore ways in which CA in general and the potential confluence of GHS's CA results and their experimental completion results in particular can be explored in more detail. While both space and the size of the data set do not allow for a fully comprehensive re-analysis of the data, the focus of this brief exploration here is to showcase what the current state-of-the-art in cognitive/usage-based linguistics might allow one to begin to do to shed more light on the doubtlessly complex interplay between corpus-based frequency and contingency and speakers' experimental reactions. Two approaches will be presented. Section 2 discusses a regression-based approach to GHS's data, in which (i) an exploratory principal components analysis (PCA) will be applied to a variety of different AMs for the verbs in GHS's experiment (to address the problem that AMs are highly correlated with each other), followed by (ii) a generalized linear multilevel modeling (GLMM) approach that controls for subject-specific variation as well as verb-specific variation as well as experimental-stimulus variation nested into the verbs.

Section 3 takes a slightly different approach with regard to the policy of model selection and how collinearity might be addressed: On the basis of the above-mentioned principal components, I use multimodel inferencing (cf. Burnham and Anderson 2002; Kuperman and Bresnan 2012), a regression approach that generates a variety of models and weighs their regressions' coefficients proportionally to the degree to which each model deviates from the best model's performance/*AIC*.

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1 Admittedly, they presumably did not have access to the whole set of experimental data of GHS, however, they also didn't conduct an experiment for their own data.

The input data analyzed in both ways are 512 sentence completions by native speakers of English to sentence fragments ending in verbs that are differently frequent and differently strongly attracted to the *as*-predicative. For each of the completions, the following data are available, which were used in the following two sections:

- SUBJECT: the speaker who provided the sentence completion;
- ASPRED: a binary variable coding whether the subject used an *as*-predicative, *no* versus *yes*;
- VERB: the verb used in the experimental stimulus;
- ITEM: the experimental stimulus;
- VOICE: the voice of the stimulus: *active* versus *passive*;
- COLLSTR: FYE as defined above;
- ATTRACTION: the attraction value of the verb in the stimulus as defined by S&K;
- DPC2W: $\Delta P_{\text{construction} \rightarrow \text{word}}$, i.e. essentially a normalized ATTRACTION value as defined above;
- KLDATTRACTION: the Kullback-Leibler divergence of how the distribution of the verb in and outside of the construction differs from the distribution of everything else in and outside of the construction (cf. Baayen 2011 for discussion);
- RELIANCE: the reliance value of the verb in the stimulus as defined by S&K;
- DPW2C: $\Delta P_{\text{word} \rightarrow \text{construction}}$, i.e. essentially a normalized RELIANCE value as defined above;
- KLDRELIANCE: the Kullback-Leibler divergence of how the distribution of the construction with and without the verb differs from the distribution of everything else with and without the verb (cf. again Baayen 2011);
- ORLOG: the odds ratio as computed above and logged to the base of 2.

As mentioned above, the analyses below can only be first steps towards future research, but they do indicate the complexities usage-based linguistics will need to deal with if it wants to stay true to its promise of taking usage and its effect one representation, processing, and use seriously.

2 Approach 1: PCA and GLMM

2.1 The principal components analysis

In a first step, the data were subjected to two PCAs. One was done on the four columns containing AMs that are related to $p(v|cx)$, i.e. CollStr, Attraction, DPc2w, and KLDAttraction, the other on the columns with AMs that are related to $p(cx|v)$, i.e. ORlog, Reliance, DPw2c, and KLDReliance. Both PCAs indicated that the four variables were extremely highly correlated and that each could be well summarized by their first principal component. In the case of the $p(v|cx)$, that first principal component accounted for 94% of the variance of the four variables; in the case of the $p(cx|v)$, the first principal component accounted for 96.3% of the variance of the four variables. In each case, I then computed principal component scores that summarized the original four predictors that had been entered into the analysis. These were very highly correlated with the four predictors that they reflected and little with the other four; the two principal components, PCcx|v and PCv|cx, were still somewhat, but just about not significantly correlated with each other: $r_{\text{over verb types}}=0.357$, $p>0.06$. These result show that, on the whole, the used AMs capture two dimensions of the association of words to constructions and the other way round – a bidirectional exploration of association is therefore useful, see Gries (2013) and of course S&K – but also that these two dimensions are still related to each other – in other words, there may well be yet one "deeper" dimension that underlies even these two principal components. (In fact, a follow-up exploratory PCA on just PCcx|v and Pv|cx suggests just that because it returns one such "deeper" component, which accounts for more than 69% of the variance of these two, indicating that the last word on how many dimensions AMs need to cover has not yet been spoken[2].) These factor scores were then added to the original data set and used in the regression-based approach discussed in the next section.

2 Also, Gries (to appear) performed one PCA on all eight variables and found that the first principal component of that analysis accounts for 66% of the variance of all eight measures. This strategy is not pursued here because that component is uninterpretable: all eight AMs load highly on it.

2.2 The generalized linear multilevel model

In order to determine how the two factors co-determine the subjects' fragment completions, a series of generalized linear multilevel models was fit. The maximal model involved ASPRED as a dependent variable, the fixed effects of Voice as well as the two principal components PCCX|V and PCV|CX and all their interactions. In addition, I added varying intercepts for each experimental subjects (1|SUBJECT) as well as varying intercepts for all experimental stimuli, which in turn were nested into varying intercepts for all verbs (1|VERB/ITEM). In a first series of tests, it became obvious that the varying intercepts for the subjects were not required and thus omitted whereas the varying intercepts for verbs and stimuli were required; after the PCA, neither collinearity nor overdispersion were a problem. A subsequent model selection process resulted in the deletion of several interaction as well as the main effect of VOICE: The minimal adequate model contained only the two principal components and their significant interactions, as shown in the results in Table 2.

Tab. 2: Results of the GLMM on ASPRED

	coef	*se*	*z*	*p*
Intercept	−1.3583	0.3398	−3.997	<0.001
Pv|cx	−0.5628	0.1915	−2.939	0.0033
Pcx|v	−0.6376	0.1812	−3.518	<0.001
Pcv|cx : Pv|cx	−0.1734	0.0575	−3.017	0.0026

This model was significantly better than an intercept-only model (Chi-squared =20.228, df=3, p<0.001) and came with moderately high correlations: $R^2_{marginal}$=0.3, $R^2_{conditional}$=0.6 (computed as suggested by Nakagawa and Schielzeth 2013); also, the classification accuracies with and without random effects were 83.2% (C=0.91) and 75.8% (C=0.77) respectively; both these results point to the fact that the subjects' completions were affected to quite some degree by the specific verbs used. The main result, the effect of the interaction of the two principal components on the predicted probability of *as*-predicatives by the subjects (fixed effects only) is represented in Figure 1: PCV|CX is shown on the x-axis, PCCX|V is shown on the y-axis, and the plotted numbers represent the predicted probability of an *as*-predicative (higher/larger numbers meaning higher probabilities); in addition, all experimental verbs are plotted at their PCA-scores coordinates in a size reflecting their proportion of *as*-predicatives.

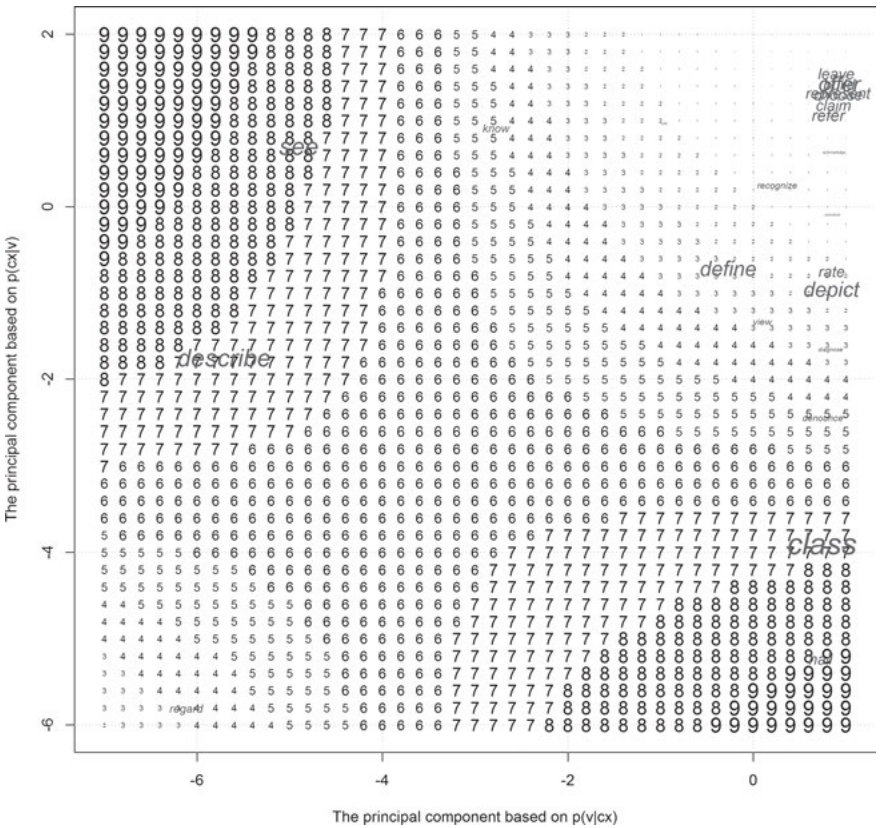

Fig. 1: The interaction of PCcx|v : Pv|cx in the minimal adequate model

What does the visualization reflect with regard to the roles of the two perspectives on association? Before we can begin to answer that question, two things need to be pointed out. First, the graph needs to be interpreted with some caution since the two principal components are from different PCAs so they are *not* orthogonal, even if that is what the traditional 90º angle between the *x*- and the *y*-axis suggests! Second, the orientation of the two axes is what might seem counterintuitive, because, on both the *x*- and the *y*-axis, highly negative values mean that the verb "likes to occur" in the construction or that the construction "likes to occur" with the verb, and values around 0 or positive values reflect an absence of such a preference; this is why *regard* is located in the lower left corner of the plot: *regard* occurs with the *as*-predicative so frequently that both perspectives reflect that fact.

With these things in mind, the interaction indicates that each principal component seems to have an *as*-predicative boosting effect when the other component is at its weakest:

- in the top left corner, *as*-predicatives are strongly predicted to be produced, which is where PV|CX has its strong effect and PCX|V has its weaker effect; this is characteristic of verbs like *see* and *describe*, which, e.g., have high COLLSTR values and low $\Delta P_{\text{construction} \rightarrow \text{word}}$ values but lead to *as*-predicative completions >80% of the time (compared to an overall baseline of 29.3%);
- in the bottom right corner, *as*-predicatives are also strongly predicted to be produced, which is where PV|CX has its weaker effect and PCX|V has its stronger effect; this is characteristic of verbs like *class* and *hail*, which, e.g., have low COLLSTR values and high $\Delta P_{\text{construction} \rightarrow \text{word}}$ values (both >0.59) but lead to *as*-predicative completions 100% and 50% of the time respectively;
- in the bottom left corner, where both principal components would lead one to expect very high numbers of *as*-predicatives, we only find the verb *regard*, which is an interesting case: Its overall proportion of *as*-predicatives (37.5%) is only slightly above average, but that is largely due to the fact that 75% of the responses to the active experimental item were not *as*-predicatives. Thus, while that experimental item's effect on the overall regression results is probably not too damaging (because it was "dealt with" by the multilevel structure of the model), this individual verb's result are a bit unexpected;
- in the top right corner, we see many different verbs that do not have high scores on either principal component and thus do not lead to *as*-predicative completions much, and in fact the average proportion of *as*-predicatives for all verbs with positive principal component scores is 14.2%, i.e. not even half the overall baseline.

In sum, the two principal components capture what are two somewhat different but nonetheless related distributional dimensions. Probably in part because of unexpected results for the verb *regard*, however, the interaction of these two dimensions reveals that each of these dimensions is strongest in co-determining sentence completions when the other dimensions does not have a strong effect itself.

3 Approach 2: Multimodel inferencing (MuMIn)

One of the trickiest aspect of the current debate surrounding AMS for both lexical collocation and word-construction associations (colligation/collostruction) is that the many different measures that have been proposed (see Pecina 2009 for an overview of >80 measures) are so highly correlated that a simple regression-based approach will run into huge problems of collinearity, i.e. the fact that sizes and even signs of regression coefficients – the very measures intended to reflect the importance of predictors – will vary erratically. The above approach was a traditional method to deal with collinearity: use a PCA to capture what is shared among collinear predictors and proceed with a regression-based approach on the basis of the PCA scores. In this section, I am using a different, more recent approach: multimodel inferencing. This approach begins by fitting one maximal model (maximal in terms of both its fixed- and random-effects structure), of which then all possible sub-models are fit, i.e. all subsets of the predictors of the maximal model. For each of these models, coefficients and *AICc*-values are computed and stored. Once that process is done, the best model (in terms of *AICc*) identified and the coefficient values of all regressions are averaged such that each model's contribution to these averages are weighted by how much the model deviates from the best model. Because of this averaging of the standard errors, collinearity is less of an issue than it would be if only one regression was run on the raw data[3].

As mentioned above, this particular application is based on the same two principal components the previous section, Pv|cx and Pcx|v. The first/maximal model that was fit had ASpred as the binary dependent variable and involved the two principal components and Voice as well as all their interactions as fixed effects and, as before, (1|Subject) and (1|Verb/Item) as random effects; in addition, all submodels of this maximal model were fit with an eye to determine (i) which model provides the best fit for the data (measured in terms of *AICc*) and (ii) which predictors are most important in predicting the sentence completions.

In this particular case, the results are very compatible with those of the model selection procedure in the previous section. The best model contains an intercept, the two principal components, and their interaction (*AICc*=453.8).

3 The degree to which multimodel inferencing helps is determined in part by the amount of collinearity in the data. In this particular case, the above-mentioned correlation between the two principal components is of a size that multimodel inferencing is supposed to be able to handle well (see Freckleton 2011).

More specifically even, of all 19 possible submodels, only five have *AICc*-values less than 4 higher than the optimal model and all these models contain these three predictors[4]. For the shrinkage-corrected coefficients and variable importance measures of all predictors in these five models, see Table 3.

Tab. 3: Results of the MuMIn approach on ASPRED (full model-averaged coefficients)

Predictors	*coef*	*se*	adj. *se*	*z*	*p*	importance
PCX|V	−2.8	0.81	0.81	3.45	<0.001	1
PV|CX	−2.43	0.85	0.85	2.87	0.004	1
PCX|V : PV|CX	−2.55	0.85	0.85	3	0.003	1
$\text{VOICE}_{\text{active} \rightarrow \text{passive}}$	−0.2	0.37	0.37	0.54	0.59	0.49
PV|CX : $\text{VOICE}_{\text{active} \rightarrow \text{passive}}$	−0.03	0.19	0.19	0.14	0.89	0.11
PCX|V : $\text{VOICE}_{\text{active} \rightarrow \text{passive}}$	0.001	0.18	0.18	0.01	1	0.1

While these overall results are very similar to the ones from Section 2 above, they are nonetheless important to arrive at: First, the MuMIn regression results are less likely to be affected by all the risks of model selection processes (most importantly, a high confirmation bias) and are more robust (since they are obtained from multiple different statistical models). Second, the fact that multiple models are studied makes it possible to compute an overall variable importance score ranging from 0 to 1 to determine how important each predictor is. In this case, the two principal components and their interactions all score the maximal value; if this computation is done on the basis of all 19 models regardless of their quality, then the value for PCX|V remains at 1, and the values for PV|CX and PCX|V : PV|CX change minimally to 0.97 and 0.93 respectively.

In sum, the results of the MuMIn approach are conceptually very similar to those of the model selection procedure and point again to the fact that both perspectives on AMs have something to offer although future work is needed to determine to what information exactly it is that the two separately derived principal components share (see the above-mentioned correlation between the two).

4 The value of 4 is a difference threshold mentioned by Burnham & Anderson (2002: 70) and indicates that a model that has an *AIC*-difference of >4 is "considerably less" likely to be the best model.

4 Concluding remarks

Given the size of both the currently available experimental data on word-construction associations as well as limitations of space, this paper cannot be, but only hope to stimulate, a full-fledged discussion on what different association measures exactly reflect/operationalize and how that is related to subjects' behavior in different experimental tasks. More specifically, I hope to have shown two kinds of things: First, with regard to recent critiques of CA, I hope to have shown that

- the critique of CA by S&K is problematic in a variety of theoretical aspects, some of which were mentioned above and more of which are discussed in Gries (to appear);
- the suggestion made by S&K to take the potential bidirectionality of association into consideration is potentially useful (both principal components return significant results but are correlated with each other) and compatible with existing claims in that regard for lexical and colligational/collostructional co-occurrence (Ellis 2007; Gries 2013);
- the way in which S&K study word-construction associations is not useful: instead of recognizing the complex multifactoriality of the phenomenon in question, their exploration is restricted to mere monofactorial rank correlations, which actually return FYE as the strongest predictor.

Second, I hope to have given a first impression of the actual complexity of the phenomenon and how the current methodological state-of-the-art in cognitive/usage-based linguistics can begin to address it. Specifically,

- instead of monofactorial correlations, we need to use more advanced regression-based methods that can handle the *multivariate nature* of the issue while at the same time avoiding, or at least checking to, potential pitfalls of model selection procedures;
- at the same time, we need to be able to address in some way the obvious fact that AMs from both the $P_{V|CX}$ and $P_{CX|V}$ perspectives exhibit *intercorrelations* with each other;
- we need to be able to handle the ways in which corpus and experimental data violate the *independence-of-datapoints* assumptions. Much existing work uses mixed-effects modeling to handle crossed random effects such as speakers and lexical items, but we also need to take nested random effects into consideration as when verbs are tested with multiple different experimental stimuli or when multiple data points come from the same file and thus sub-register and thus register (see Gries 2015);

– we need to be able to add *more predictors* into the mix. For instance, Gries (2012, to appear) discusses the role that verbs' constructional entropies may play. In order to explore this possibility, I used the data of Roland, Dick, and Elman (2007) to compute for each verb used in the sentence-completion experiment the difference between the entropy of all construction frequencies with and without the transitive+PP uses (like the *as*-predicative), which (i) in a GLMM turned out to interact marginally significantly ($p<0.1$) with each principal component and (ii) in a MuMIn scored an importance value of 0.72 even in the tiny data set that is left once all verbs not attested in Roland, Dick, and Elman (2007) are left out.

Again, while I cannot provide hard-and-fast solutions here, I hope it has become obvious what to consider in future research and how – given the complexities involved, methodological simplification is certainly not the answer, which I am certain is a statement that Dirk would subscribe to whole-heartedly. Congratulations, Dirk, and many happy returns!

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Hans-Jörg Schmid

Does gender-related variation still have an effect, even when topic and (almost) everything else is controlled?

Abstract: Corpus-based studies of gender-related grammatical and lexical variation generally run the risk of underestimating the confounding effects of topic. When significant differences in the frequency of usage of certain linguistic elements and features are observed, it cannot be ruled out that they are ultimately due to gender-linked differences regarding preferred topics.

This paper presents a methodological exercise probing the question whether gender-related linguistic usage differences persist if effects of topic are neutralized. To this end, a very special corpus is exploited: the HCRC Map Task Corpus collected at the universities of Glasgow and Edinburgh, which consist of 128 dialogues revolving around the same topic. Frequency data on seven linguistic target items (*the, of, and, I, you, okay* and *mmhmm*) are collected and analyzed with regard to gender-linked differences by means of three types of regression models: negative binomial regressions, zero-inflated negative binomial regressions and mixed-effect regression models. The results of the study indicate that gender-related differences between women and men in same-gender and mixed-gender dyads can still be observed to some extent, even if the variable topic is kept constant and the functional range of the language produced is very limited.

1 Introduction

Previous research suggests that the gender of the participants involved in a conversation can affect their use of language in three different ways:

– as a function of the gender of the person speaking: female versus male (see Mulac, Bradac, and Gibbons 2001; Newman et al. 2008 for extensive surveys);
– as a function of the gender of the person addressed vis-à-vis the person speaking: same-gender talk versus mixed-gender talk (Bilous and Krauss

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1988; Mulac et al. 1988; Hirschman 1994; Hancock and Rubin 2015);
– as a function of the interaction of the two: effects of the gender of the speaker that are contingent on same-gender or mixed-gender talk, or vice versa (McMillan et al. 1977; Palomares 2008).

Previous research also suggests, however, that the observable differences could simply be due women's and men's preferences regarding topics of conversation (Newman et al. 2008: 229). Women have been claimed to spend more time talking about people, past events and personal topics, while men's favourites include job-related topics, sports, politics and technology. Of course, topic choices have a strong effect on linguistic choices. For example, talk about people and past events is much more likely to contain larger numbers of proper nouns, personal and possessive pronouns, temporal and spatial adverbials as well as past tense verbs than talk about politics or cutting-edge technology. Linguistic investigations that seek to identify the effect of gender on linguistic variation are thus well advised to take the confounding effect of topic into consideration. Since topic keeps changing and drifting in casual conversation, it has turned out to be extremely difficult to control this variable in quantitative corpus studies.

It is precisely this dilemma which forms the backdrop and motivation for the present study. What is presented here is actually not much more than a methodological exercise whose key aim is to show to what extent gender-related effects on language use can still be observed if the variable TOPIC is kept constant. The characteristics of a very special dataset are exploited to reach this goal: the Human Communication Research Centre (HCRC) Map Task Corpus collected at the universities of Glasgow and Edinburgh in the 1980s (see Anderson et al. 1991 and http://groups.inf.ed.ac.uk/maptask/#top for more information)[1]. This corpus consists of transcripts of 128 dialogues, all of which had the same setup and involved the same task:

> [...] two speakers sit opposite one another and each has a map which the other cannot see. One speaker – designated the Instruction Giver – has a route marked on her map; the other speaker – the Instruction Follower – has no route. The speakers are told that their goal is to reproduce the Instruction Giver's route on the Instruction Follower's map. The maps are not identical and the speakers are told this explicitly at the beginning of their

1 I would like to thank the compilers of the Map Task Corpus for sharing their material with the scientific community and Jean Carletta from the University of Edinburgh for directing me to pertinent information on the HCRC Map Task corpus website.

first session. It is, however, up to them to discover how the two maps differ (http://groups.inf.ed.ac.uk/maptask/maptask-description.html).

What makes this corpus extremely attractive for the current undertaking is that all of the 128 dialogues revolved around one topic which involves: giving directions, receiving directions and sorting out commonalities and differences between the two maps. If gender-linked differences regarding the usage frequencies of selected linguistic items can be observed in this extremely homogeneous dataset, then it seems quite certain that they are not confounded by the choice of typically feminine or masculine topics. Instead, these differences can either be correlated with the gender of the speaker, with the gender of the person addressed or with other identifiable factors such as the role of the speaker in the dialogue and the familiarity between the participants, many of which are also controlled in the dataset.

2 Research question and zero-hypothesis

The considerations sketched out so far lead to the following research question:

– Do women and men use selected words with different frequencies of occurrence if the variable TOPIC is kept constant and other variables affecting language use are also controlled?

The zero-hypothesis corresponding to this research question can be formulated as follows:

– H_0: The relative frequencies of usage of selected words (*the, of, and, I, you, okay, mmhmm*) by women and men does **not** differ in the HCRC Map Task Corpus.

3 Data, pre-processing, target variables and data retrieval

32 women and 32 men took part in the study that produced the raw material for the HCRC Map Task Corpus. All 64 persons were students at the University of Glasgow, 61 of them were native Scots. Participants were between 17 and 30 years old, with a mean age of just under 20 years. Each participant in the test served twice as Instruction Giver (GIVER) and twice as Instruction Follower (FOL-

LOWER), once talking to a person they already knew (FAMILIAR) and once to someone they were not familiar with (UNFAMILIAR). Each participant thus produced language under four different conditions: talking to a FAMILIAR and an UNFAMILIAR person in the role of GIVER and FOLLOWER. A further predictor that was controlled systematically in the study concerned eye-contact between the interlocutors. In one half of the conversations, the givers and followers could see each other (EYE.YES), in the other half there was a screen preventing eye-contact (EYE.NO). As far as the four combinations in terms of the genders of the two interlocutors are concerned, the corpus is less well balanced. In fact, as the diagrams in Figure 1 show, the number of words contributed in the different combinations varies greatly: There is much less material from mixed-gender DYADS (DYAD.MIXED) than from same-gender ones (DYAD.SAME), and, as is the case in many corpora, MALE participants contribute a considerably larger proportion to the corpus than FEMALE ones.

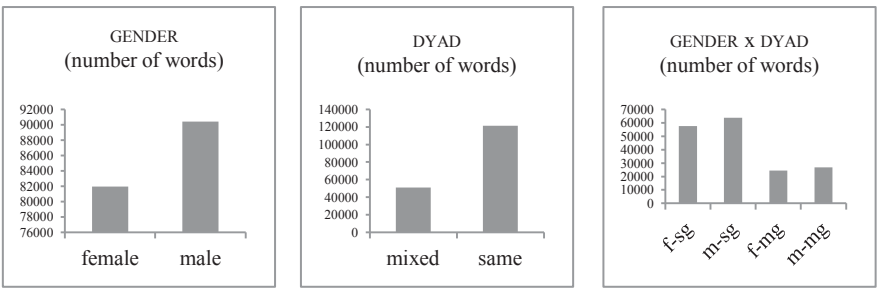

Fig. 1: Distribution of words in the HCRC Map Task Corpus across the target predictors GENDER and DYAD and their combination (absolute numbers; f-sg = female same-gender, m-sg = male same-gender, f-mg = female mixed-gender, m-mg = male same-gender)

Figure 2 provides a more detailed view of the distribution of the data by including the predictors ROLE and FAMILIARITY. The bar chart demonstrates that certain combinations of predictors are represented by a comparatively small number of observations, especially talk by FAMILIAR speakers in MIXED DYADS.

The HCRC Map Task Corpus is made available by the corpus compilers in the form of 128 files each containing one dialogue. The specific aims pursued in the present project required a substantial reprocessing of the original corpus data. The 128 original files were split in such a way that 256 files consisting of the contributions of one speaker to one conversation were created. Each of the resulting files was specified with regard to the five predictor variables: GENDER, DYAD, ROLE, EYE-CONTACT and FAMILIARITY. This revised corpus of 256 files was

used in order to retrieve the frequencies of occurrence of seven linguistic target variables[2].

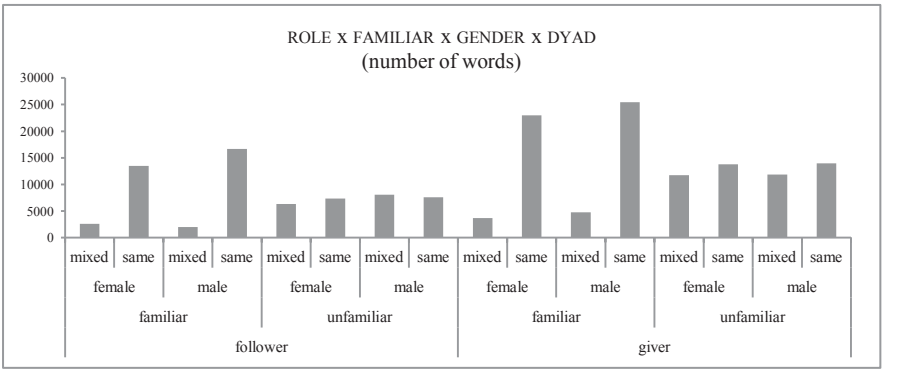

Fig. 2: Distribution of words in the dataset across target predictors (GENDER and DYAD) and the co-predictors ROLE and FAMILIARITY (absolute numbers)

The choice of these linguistic target features was complicated by the fact that the language used in the Map Task Corpus is highly functional and, as a consequence, extremely reduced regarding its lexical and grammatical complexity. This is the price that had to be paid for obtaining the thematic homogeneity which was the reason for choosing this corpus in the first place. Many linguistic target variables that have proved interesting from the point of view of gender differences such as the use of personal pronouns, past tense verbs or verbs of thinking and speaking hardly occur in the Map Task Corpus. Therefore the selection of linguistic target variables had to strike a balance between the need to collect the amount of data required for sound statistical analyses, on the one hand, and a choice of linguistic features which promised to show gender-related differences, on the other. On the basis of these inclusion criteria, the seven target variables mentioned in the null-hypothesis above were selected:

– the high-frequency grammatical items *the*, *of* and *and*;
– the deictic pronouns *I* and *you*;
– the discourse-related elements *okay* and *mmhmm*.

2 Laurence Anthony's tool *antwordprofiler* was used for this procedure (version 1200.w; see http://www.laurenceanthony.net/software/antwordprofiler/). Manual post-hoc checks were carried out using his tool *antconc*.

4 Descriptive statistics

The boxplots in Figure 3 summarize the distribution of the relative frequencies of usage of the linguistic variables in the target condition GENDER x DYAD.

The visual inspection of the boxplots in Figure 3 does not reveal any big differences with regard to the variables GENDER and DYAD and their combination. The lines indicating the medians generally do not differ much, and most of the boxes show considerable overlap. This does not give rise to the expectation that we will be seeing significant effects of the two target predictors GENDER and DYAD. The only linguistic items whose distribution could promise to yield significant gender-related differences are the discourse-related items *okay* and *mmhmm*. The dispersion of the data is generally quite high, and especially for *mmhmm* and *okay*, zero occurrences per speaker are not uncommon.

5 Inferential statistical analysis

Given the observed structure of the data, it seemed advisable to consider three different types of regression models in order to test for significant effects of the two target predictors GENDER and DYAD and the three co-predictors ROLE, EYE-CONTACT and FAMILIARITY:

- generalized linear regression models for count data which are capable of handling overdispersion, i.e. negative binomial regressions (Hilbe 2011);
- zero-inflated negative binomial regression models for count data with a large number of zero occurrences (Hilbe 2011: 370–382);
- generalized linear mixed-effect regression models taking speaker-based variation into account as random effects (Fahrmeier et al. 2013)[3].

Negative binomial models were used instead of quasi-Poisson models, since it was necessary to compare the generalized linear models to the corresponding zero-inflated models. In order to do this, the Vuong test (Hilbe 2011: 377–380) was applied. This test uses the two likelihood functions to compare negative

3 All calculations were carried out with the help of the software *R* (version 3.1.2). The negative binomial regression models were fitted using the `glm.nb` command from the library `MASS`, the zero-inflated models with the `zeroinfl` function from the `pscl` package, and the mixed-effects models with the `glmer` command from the package `lme4`.

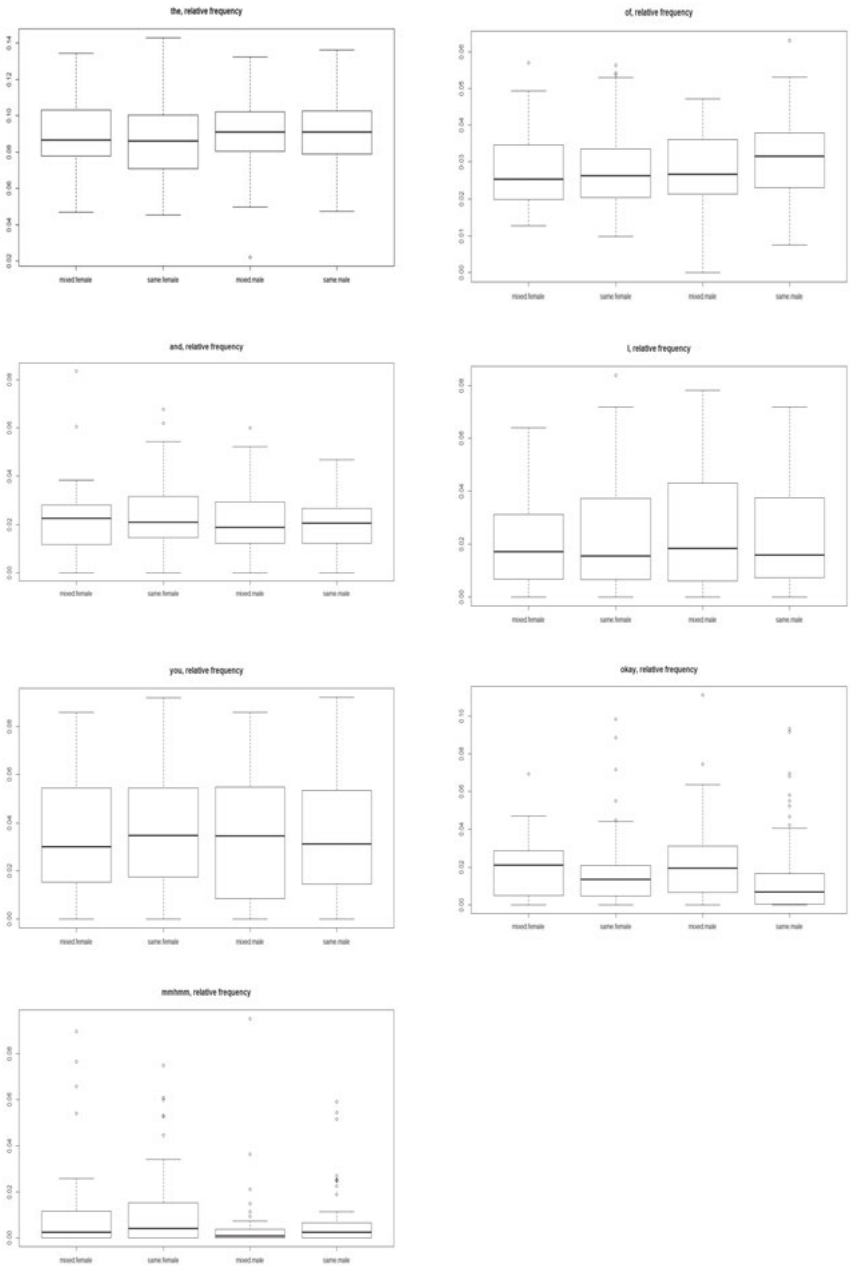

Fig. 3: Boxplots of relative frequencies of occurrence of the seven target items in the condition GENDER x DYAD

binomial models to their corresponding zero-inflated models. Since quasi-Poisson models do not have a likelihood function, they are inadequate in this situation. As negative binomial models are only capable of modeling overdispersion but not underdispersion, quasi-Poisson models were fitted first to check for overdispersion, which was confirmed by dispersion parameters well over 1 in all cases.

Tab. 1: List of predictors with significant effects on the target variables in the regression models (all effect sizes are rendered as exp(β); arrows indicate increasing/decreasing tendencies; details of all models can be found in the appendix)

predictor **linguistic variable** **n (type of model)**	**GENDER**	**DYAD**	**ROLE**	**FAMILIARITY**	**EYE-CONTACT**
the n = 15045 (glm.nb)					no ⇩ (p<0.1)
of n = 4891 (glm.nb)				unfamiliar 1.12 (p<0.05)	
and n = 3914 (glm.nb)	male 0.87 (p<0.01)		giver 1.70 (p<0.001)		no 0.89 (p<0.01)
I n = 3793 (glm.nb)			giver 0.23 (p<0.001)	unfamiliar 0.80 (p<0.01)	
you n = 7230 (glm.nb)			giver 3.11 (p<0.001)		
okay n = 2449 (glmer)		same ⇩ (p<0.1)	giver 0.38 (p<0.001)		no ⇧ (p<0.1)
mmhmm n = 911 (glmer)	male 0.47 (p<0.05)		giver 0.10 (p<0.001)		

The three types of models were fitted for all linguistic target variables with the aim of selecting the model suited best for the specific structure of each of them. It turned out that for the more frequent and more "grammatical" target items *the, of, and, I* and *you*, the random speaker effects included in the mixed-

effects models did not account for any of the variance in the data. In contrast, these random effects contributed substantially to capturing variance in the models fitted for the data on *okay* and *mmhmm*. Zero-inflated models did not outperform the generalized negative binomial models for any of the linguistic target variables. It was therefore decided to accept and report the negative binomial regression models for the first five items, and the mixed-effects ones for *okay* and *mmhmm*. While interactions were generally taken into consideration, the target interaction GENDER X DYAD failed to be significant for all linguistic target variables.

The remainder of this section will provide a summary of the significant effects predicted by the models fitted for the seven target variables. This will be followed by a discussion of the findings (Section 6) and a general discussion of the results and their implications for the research question (Section 7).

Table 1 summarizes the significant effects rendered in the regression models. Effect sizes (calculated as exp(β)) and significance levels are reported. Tendencies significant at the 0.1-level are reported as well, but the effects are only indicated by arrows pointing upwards or downwards to indicate increase or decrease. More details can be gleaned from the *R* output for all models provided in the appendix.

6 Discussion

the

The negative binomial model for the definite article yields only a decreasing tendency for the NO.EYE-CONTACT condition. In contrast to the findings of previous studies (Schmid 2003;, Newman et al. 2008: 219), neither the GENDER OF THE SPEAKER nor the GENDER OF THE ADDRESSEE seem to affect the frequency of use of the definite determiner *the*. This could suggest that a considerable part of the gender-related variation found in these previous studies was at least influenced by the choices of topic and by the concomitant greater diversity of functions of the definite article. The present results indicate that if topic is held constant, the gender-related differences regarding the frequency of *the* largely disappear.

of

On the surface, the situation for the preposition *of* is quite similar. While UNFAMILIAR speakers are predicted to use *of* significantly more frequently than FAMILIAR speakers (1.12, $p < 0.05$), neither GENDER nor DYAD are listed as having significant effects. In contrast to the case of *the*, however, it is rewarding to have a

closer look at the data for *of* from a gender-related perspective. Overall, the speakers in the corpus use the preposition *of* 4891 times. The very specific type of communication situation represented in the Map Task Corpus has the effect that two functions of the use of *of* strongly prevail: 3162 occurrences of the preposition occur as parts of spatial references containing the words *side, bottom, top, left, edge, right, middle, end, corner, level, site, outside, centre, point* and *tip*. Another 903 occurrences are parts of hedges or vague complex quantifiers using the nouns *sort* and *kind*, and *couple* and *bit* respectively. What is remarkable about this functional distinction is that the predictor GENDER affects these two usage-types in fundamentally different ways. This is demonstrated by regression models that were fitted separately for the different portions of the data[4]. As shown in Table 2, the predictions made by these models differ substantially.

Tab. 2: List of predictors credited with significant effects on different uses of the preposition *of*

Predictor **linguistic variable** **n (type of model)**	**GENDER**	**DYAD**	**ROLE**	**FAMILIARITY**	**EYE-CONTACT**
of used in frequent spatial references n = 3162 (glm.nb)	male ⇧ (p<0.1)			unfamiliar 1.13 (p<0.05)	
of used in hedges and vague quantifiers n = 903 (glmer)	male 0.68 (p<0.05)		giver 1.38 (p<0.05)		no ⇧ (<0.1)
other uses of *of* n = 826 (glm.nb)	male 1.46 (p<0.001)	same 1.27 (p<0.05)	giver 0.80 (p<0.05)		no 0.81 (p<0.05)

The negative binomial model for the general spatial-reference uses of *of* yields a significant increasing effect for dialogues between UNFAMILIAR participants (1.13, p<0.05). There is only a tendency for *of* to be used more frequently by men. In contrast, MALE GENDER turns out to be a significant predictor with a decreasing, rather than increasing effect on the frequency of *of* used in hedges and vague

4 For the spatial references, a mixed-effects model was not required because the random speaker effect did not capture any of the variation, while for the hedging use of *sort of* etc., the opposite was the case.

quantifiers (0.68, p<0.05), alongside the increasing effect of the role of GIVER (1.38, p<0.05). The strongest gender-linked effects are found in the negative binomial regression for the remaining 826 attestations in the corpus, which predicts a strong increase for MALE GENDER speakers (1.46, p<0.001) and SAME-GENDER DYADS (1.27, p<0.05). In addition, the model yields a decreasing effect for GIVERS (0.80, p<0.05) and for NO EYE-CONTACT situations (0.81, p<0.05). The manual inspection of this portion of the data reveals that the strongest gender difference is found for very precise spatial references using fractions (*three quarters of, a third of, two thirds of* and *half of*) and cardinal or intermediate directions (*west of, east of, northwest of* etc.). The men in the corpus use these types of references more than 3.5 times more often than the women, which confirms earlier findings on the overuse of spatial references by men (Mulac and Lundell 1986: 89). In addition, the present results corroborate a number of stereotypes frequently voiced especially in the older language-and-gender literature (cf. e.g. Lakoff 1975): Women are likely to use hedges and vague language more frequently than men, while men are more likely to produce very precise spatial references, especially when talking to other men.

and

For the target variable *and*, the negative binomial model reveals significant effects for the predictors ROLE, EYE-CONTACT and also GENDER (cf. Table 1). The frequency of *and* is predicted to rise by a factor of 1.70 (p<0.001) for the role of GIVERS as opposed to FOLLOWERS, and to drop in the NO EYE-CONTACT condition (0.89, p<0.05). In addition, the model predicts a drop by a factor of 0.87 for MALE as opposed to FEMALE speakers. While it seems rather difficult to interpret these findings, a closer inspection of the data indicates that the effect of GENDER can be attributed at least partly to two frequent and functionally similar types of sequences used by GIVERS while instructing FOLLOWERS where to go on the map: the complex continuative *and then* (e.g. *down towards the east and then back up again*) and sequences of spatial adverbs and the conjunction *and*, most frequently *right/left/up/down and* (e.g. *you turn right and go straight across*). These usage types account for 1133 and 447 occurrences respectively and thus for about 40% of the total of 3914 uses of *and*. A negative binomial model for this part of the data, which is also reported in the appendix, predicts a strong and significant decreasing effect for MALE GENDER (0.69, p<0.001). The corresponding model for the remaining 2440 uses of *and* does not include a significant effect for GENDER. This means that it seems legitimate to conclude that it is first and foremost the targeted subset which accounts for the effects of GENDER on the variable *and*. This specific usage of *and* as a general-purpose continuative typi-

cal of spontaneous speech (cf. Biber et al. 1999: 81–83) can be related to other features claimed to be overrepresented in the speech of women which signal high speaker involvement and conversational commitment (Tannen 1990).

I

A considerable part of the variation of the variable *I* is explained by the dominant variable ROLE, with GIVERS being predicted to be significantly less likely to use this pronoun than FOLLOWERS (0.23, $p<0.001$). A second predictor with significant effect is FAMILIARITY (0.80, $p<0.01$). While findings by Schmid (2003) and Newman et al. (2008: 219) suggest that women use the first-person singular pronoun more frequently than men, this does not seem to be the case in conversations of this functionally restricted type and when topic is controlled.

you

The use of the target variable *you* is dominated by a single equally strong and predictable variable: a massive increase by a factor of 3.11 ($p<0.001$) associated with the ROLE of GIVER. None of the other predictors comes close to achieving significant effects on the distribution of *you*. And, just for the record, for *you*, Newman et al. (2008: 220) observe a significant increasing effect for males, while Schmid (2003) observed a preponderance of *you* in female talk. This contradiction is not resolved by the analysis of the special dataset investigated in the present study.

okay

The mixed-effects model for the discourse marker *okay* also reveals a very strong effect of the predictor ROLE, viz. a decrease by a factor of 0.38 ($p<0.001$) for GIVERS. This is not surprising, since FOLLOWERS are much more likely to signal uptake than GIVERS. In addition, the model predicts tendencies for the variables EYE-CONTACT and DYAD. A preponderance of the use of *okay* in the speech of men, which is suggested by the analysis of the British National Corpus (BNC) reported in Schmid (2003), is not confirmed.

mmhmm

The mixed-effects model for the backchannel item transcribed as *mmhmm* in the corpus predicts a significant effect of GENDER. According to this model, MALES are significantly less likely (0.47, $p<0.05$) to produce this signal of active listenership than FEMALES. This result concurs with existing findings that men are more reluctant to show involvement and to contribute actively to the smooth flow of

conversation (e.g. Zimmermann and West 1975). In addition, ROLE is again included in the model as a very strong predictor (0.10, $p<0.001$).

To summarize, the GENDER of the speaker is predicted to have significant effects on the frequencies of usage of the backchannel item *mmhmm*, on continuative uses of the conjunction *and* and on uses of the preposition *of* in the hedging constructions *sort of* and *kind of*, in the vague complex quantifiers *couple of* and *bit of* and in precise spatial references using fractions (*a third of* etc.) and cardinal and intermediate directions (*north of* etc.). The gender of addressees vis-à-vis the gender of the speaker, i.e. the variable DYAD, was shown to have significant effects on the frequencies of occurrence of the remaining varied uses of the preposition *of*. Limited as these results are, they still mean that the zero-hypothesis formulated in Section 2 must be rejected. Gender-related differences in frequencies of usage can indeed be observed for certain linguistic elements even if the variable TOPIC is kept constant.

The nature of the findings generally indicates that gender-specific language use seems to be dominant in the field of discourse-related elements: The variables *mmhmm*, continuative *and* as well as hedges and vague quantifiers including the preposition *of* turned out to be affected by GENDER and/or DYAD, while the frequency of items such as *the, I* and *you*, whose use is more strongly determined by grammatical and immediate pragmatic needs, seems to be immune to the influence of these factors, at least if TOPIC is as strictly controlled as in the present dataset. It is possible that the use of the discourse-related elements leaves more room for individual speaker habits and routines. This assumption would also be supported by the finding that the random speaker effects were mainly relevant for modelling these types of target variables.

7 General discussion and conclusion

The language use and the choices of linguistic variants by given speakers in given situations are known to be subject to a wide range of factors: user-related variables such as the REGIONAL and SOCIAL BACKGROUND, EDUCATION, GENDER, AGE and ETHNICITY of the speaker, on the one hand, and use-related variables such as SETTING, PLACE, TIME, MEDIUM, PARTICIPANTS (and their user-related traits) as well as SUBJECT-MATTER and TOPIC, on the other. The user-related variable GENDER OF SPEAKER, the use-related variable GENDER OF ADDRESSEE and possible interactions between them served as target predictors of the present study. What was special about it is that an extraordinarily large number of potential confounds was

controlled: The medium was spontaneous spoken speech throughout; all speakers were students of approximately the same age; almost all of them were native Scots and spoke Scottish English; all conversations were dialogues taking place under controlled conditions regarding the roles of the two participants and the familiarity and eye-contact between them. Plus, all conversations shared the same topic. The merit for all this of course goes to the compilers of the HCRC Map Task Corpus.

The regression models presented above indicate that the variables GENDER OF SPEAKER and GENDER OF ADDRESSEE have significant effects on the frequencies of occurrence of four of the seven target items. The research question posed in the title of this paper can therefore be answered with a cautious "yes, to some extent gender-related variation continues to have an effect on language use, even when topic and virtually everything else is controlled". It is hoped that this insight is of use in further studies on language and gender and sparks off further investigations.

Three pre-final caveats are called for: As pointed out above, the language used in the course of solving the map task is very special in terms of its limited functional diversity and reduced linguistic complexity. It is not unlikely that a greater degree of gender-related variation would be observed if TOPIC was controlled in a less strict way, so that speakers remained free to exploit the full lexical and grammatical resources of the spoken medium. Second, the material making up the HCRC Map Task Corpus was collected in the early 1980s when gender roles and identities, both linguistic and otherwise, were different from what they are today. One would hope that a replication of this study with material elicited under identical conditions today would yield different results. And third, while the present findings could possibly have far-reaching implications for studies of language and gender, to go into these implications was beyond the scope of the present contribution.

This leaves me with one final question I want to address to the dedicatee of this volume: What on earth, in the context of the present paper, could be "the meaning of variation" (Geeraerts and Kristiansen 2014)?

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Appendix

Tab. 3: Negative binomial regression for the target variable *the*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	−2.4289195	0.0390445	−62.209	<2e-16	***
gendermale	0.0364854	0.0260763	1.399	0.1618	
dyadsame	0.0004823	0.0283781	0.017	0.9864	
rolegiver	−0.0197464	0.0248840	−0.794	0.4275	
eyeno	−0.0465606	0.0260839	−1.785	0.0743	.
familiarunfamiliar	0.0382661	0.0259835	1.473	0.1408	

Tab. 4: Negative binomial regression for the target variable *of*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	−3.740793	0.071983	−51.968	<2e-16	***
gendermale	0.078108	0.047544	1.643	0.1004	
dyadsame	0.083790	0.05185	1.616	0.1061	
rolegiver	0.005032	0.045278	0.111	0.9115	
eyeno	0.062443	0.047582	1.312	0.1894	
familiarunfamiliar	0.117902	0.047208	1.473	0.0125	*

Tab. 5: Negative binomial regression for the target variable *and*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	−4.03461	0.08652	−46.63	<2e-16	***
gendermale	−0.13964	0.0575	−2.428	0.0152	*
dyadsame	0.01205	0.06249	0.193	0.8471	
rolegiver	0.53262	0.05601	9.51	<2e-16	***

	Estimate	Std. Error	z value	Pr(>|z|)	
eyeno	−0.11715	0.05756	−2.035	0.0418	*
familiarunfamiliar	0.07602	0.05725	1.328	0.1842	

Tab. 6: Negative binomial regression for the target variable *I*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	−3.17289	0.11122	−28.527	< 2e-16	***
gendermale	0.11893	0.07722	1.54	0.12354	
dyadsame	−0.12504	0.08337	−1.5	0.13368	
rolegiver	−1.48285	0.07353	−20.165	< 2e-16	***
eyeno	0.105	0.07727	1.359	0.17418	
familiarunfamiliar	−0.21924	0.07672	−2.858	0.00426	**

Tab. 7: Negative binomial regression for the target variable *you*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	−4.01174	0.077743	−51.602	<2e-16	***
gendermale	−0.0614	0.050535	−1.215	0.224	
dyadsame	0.026062	0.054983	0.474	0.636	
rolegiver	1.135047	0.050558	22.45	<2e-16	***
eyeno	0.003375	0.050595	0.067	0.947	
familiarunfamiliar	−0.00762	0.050275	−0.152	0.879	

Tab. 8: Mixed-effects regression for the target variable *okay*

Random effects:			
Groups	**Name**	**Variance**	**Std.Dev.**
id.sp	**(Intercept)**	0.3409	0.5839
Residual		0.5142	0.7171
Number of obs: 256, groups: id.sp, 64			

Fixed effects:				
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−3.8538	0.3163	−12.186	< 2e-16	***
gendermale	−0.2026	0.2576	−0.787	0.4315	
dyadsame	−0.3621	0.1992	−1.818	0.0691	.
rolegiver	−0.9647	0.1407	−6.859	6.95E-12	***
eyeno	0.4554	0.2611	1.745	0.0811	.
familiarunfamiliar	−0.1313	0.1505	−0.873	0.3829	

Tab. 9: Mixed-effects regression for the target variable *mmhmm*

Random effects:

Groups	Name	Variance	Std.Dev.
id.sp	**(Intercept)**	0.6832	0.8265
Residual		0.6965	0.8345

Number of obs: 256, groups: id.sp, 64

Fixed effects:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−4.22432	0.36821	−11.473	<2e-16	***
gendermale	−0.75671	0.32106	−2.357	0.0184	*
dyadsame	0.15061	0.23381	0.644	0.5195	
rolegiver	−2.28771	0.17111	−13.37	<2e-16	***
eyeno	−0.32986	0.32195	−1.025	0.3056	
familiarunfamiliar	−0.08016	0.17105	−0.469	0.6393	

Tab. 10: Negative binomial regression for the target variable *side/bottom/top* etc. *of*

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−4.10042	0.09244	−44.356	<2e-16	***
gendermale	0.10665	0.06154	1.733	0.0831	.
dyadsame	0.01863	0.06672	0.279	0.78	
rolegiver	−0.01571	0.05854	−0.268	0.7885	
eyeno	0.05444	0.06156	0.884	0.3766	
familiarunfamiliar	0.12661	0.06114	2.071	0.0384	*

Tab. 11: Mixed-effects regression for the target variable *sort/kind/couple/bit of*

Random effects:

Groups	Name	Variance	Std.Dev.
id.sp	(Intercept)	0.0760	0.2757
Residual		0.6533	0.8082

Number of obs: 256, groups: id.sp, 64

Fixed effects:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−5.81885	0.27043	−21.517	<2e-16	***
gendermale	−0.38501	0.18828	−2.045	0.0409	*
dyadsame	0.18588	0.18859	0.986	0.3243	
rolegiver	0.31925	0.15469	2.064	0.039	*
eyeno	0.34392	0.18746	1.835	0.0666	.
familiarunfamiliar	0.06137	0.16121	0.381	0.7035	

Tab. 12: Negative binomial regression for remaining 826 occurrences of *of*

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−5.54344	0.15213	−36.438	< 2e-16	***
gendermale	0.38152	0.09944	3.837	0.000125	***
dyadsame	0.24198	0.10976	2.205	0.027481	*
rolegiver	−0.22328	0.09283	−2.405	0.016165	*
eyeno	−0.20587	0.09823	−2.096	0.036099	*
familiarunfamiliar	0.05659	0.09735	0.581	0.561029	

Tab. 13: Negative binomial regression for *and then* and *right/left/up/down and*

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	−5.08935	0.143783	−35.396	< 2e-16	***
gendermale	−0.36419	0.0957	−3.806	0.000142	***
dyadsame	0.007006	0.103521	0.068	0.946046	
rolegiver	0.793976	0.094503	8.402	< 2e-16	***

	Estimate	Std. Error	z value	Pr(>|z|)	
eyeno	−0.19461	0.09573	−2.033	0.042057	*
familiarunfamiliar	0.198483	0.095154	2.086	0.036987	*

Tab. 14: Negative binomial regression for remaining uses of *and*

Coefficients:					
	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**	
(Intercept)	-4.48682	0.101574	-44.173	< 2e-16	***
gendermale	-0.05841	0.06702	-0.872	0.383	
dyadsame	0.002675	0.066984	0.04	0.968	
rolegiver	0.017901	0.073068	0.245	0.806	
eyeno	0.376237	0.065092	5.78	7.47E-09	***
familiarunfamiliar	0.000516	0.066748	0.008	0.994	

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Benedikt Szmrecsanyi

Recontextualizing language complexity

Abstract: There is currently much interest in language complexity, but the research community relies excessively on measures of system complexity, giving short shrift to usage. Against this backdrop I sketch three ways to measure usage complexity in actual text and speech: typological profiles (which explore the extent to which languages and lects use synthetic or analytic grammatical marking), Kolmogorov complexity (which is about the predictability of new text given knowledge about old text), and variational complexity (which is concerned with the complexities of choosing between linguistic variants). I argue in conclusion that the study of language and (dia)lect complexity in context would mesh well with the spirit of the cognitive sociolinguistics paradigm.

1 Introduction

One of the defining characteristics of the productive research program launched and directed by Dirk Geeraerts is its emphasis on the usefulness and, in fact, indispensability of usage data (see Geeraerts 1985: 29 for an early reference). In precisely this spirit, this contribution seeks to demonstrate how language and (dia)lect complexity may be operationalized as a usage-based concept.

My point of departure is that research on language complexity is currently booming. There is an emerging consensus that human languages, and dialects of the same language, may differ with regard to their complexity. The trouble is that the plethora of measures used in the literature to measure complexity are concerned with Saussurean *langue, or* "system complexity", in the parlance of Pallotti (2015). For example, analysts have counted the number of contrastive elements in a system (Nichols 2013), the number of rules in a grammar (McWhorter 2001), or have been interested in whether or not a language has

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grammatical gender (Trudgill 1999). These are all fine complexity indicators, but they do selectively restrict attention to LANGUAGE STRUCTURE and KNOWLEDGE[1].

Against this backdrop, this contribution presents ways to consider LANGUAGE USAGE in theoretically oriented complexity research. I will be specifically concerned with three complexity measures: (1) typological profiles – the extent to which languages use synthetic or analytic grammatical marking, (2) Kolmogorov complexity – the extent to which new text is predictable from old text, and (3) variational complexity – the extent to which choosing between linguistic variants is subject to restrictions.

This paper is structured as follows. In section 2, I briefly summarize the history of thought on language complexity. Section 3 presents the three usage-based complexity measures. Section 4 offers some concluding remarks.

2 A brief history of thought on language complexity

For most of the twentieth century, many linguists agreed that all languages are equally complex, an article of faith that has been dubbed the *linguistic equi-complexity dogma* (Kusters 2003: 5). This consensus has been eroding in recent years. One of the primers was a lead article in the journal *Linguistic Typology* in which John McWhorter suggested, a bit provocatively, that creole languages tend to have simpler grammars than older languages, "by virtue of the fact that they were born as pidgins, and thus stripped of almost all features unnecessary to communication" (McWhorter 2001: 125).

Most recent work on language complexity takes a functional-typological (e.g. Miestamo, Sinnemäki, and Karlsson 2008), contact linguistic (e.g. Kortmann and Szmrecsanyi 2012), and/or sociolinguistic (e.g. Trudgill 2011) perspective. A crucial theme in this literature concerns the question of how to

1 I hasten to add that by contrast to theoretical linguistics, applied linguists and SLA researchers have been in the business of measuring complexity for a long time. Customary complexitymeasures in this field include the length of syntactic units, density of subordination, and the frequency of occurrence of "complex forms". While there measures are certainly nicely amenable to operationalization in usage data, they do suffer from "concept reductionism" (Ortega 2012: 128) and will hence not be explored further in this contribution.

best measure complexity. Many analysts distinguish between measures of ABSOLUTE COMPLEXITY (theory-driven) and measures of RELATIVE COMPLEXITY (about "difficulty"; see Miestamo 2009 for discussion). Absolute complexity measures include ABSOLUTE-QUANTITATIVE COMPLEXITY (e.g. the length of the minimal description of a linguistic system; Dahl 2004), REDUNDANCY-INDUCED COMPLEXITY (a.k.a. "baroque accretion"; see McWhorter 2001: 126), or IRREGULARITY-INDUCED COMPLEXITY (see, e.g., Nichols 2013). As for relative complexity, analysts have primarily been interested in L2 ACQUISITION COMPLEXITY, defined by Kusters (2003: 6) as "the amount of effort an outsider has to make to become acquainted with the language in question" (see also Trudgill 2001: 371). Despite taking the language user as their reference point, I stress that relative complexity measures are not necessarily usage-based; they may very well – and indeed often are – interested in structural aspects that may make a language user-friendly.

The second major theme in the literature is the extent to which complexity variation is a function of social factors. Research in this vein typically assumes that languages are complex adaptive systems (Beckner et al. 2009) whose complexity profiles adapt to the communicative, cultural, and cognitive needs of their speakers (Bentz and Winter 2013: 19). Hence language structure and its complexity are a function of social and/or sociohistorical factors. For example, it has been argued that a history of language contact and concomitant simplificatory adult SLA triggers simplification (Trudgill 2001: 372; Lupyan and Dale 2010). Conversely, complexification is thought to occur in contact scenarios that involve childhood bilingualism (Trudgill 2011: 42) and in the absence of contact (Nichols 2013; Wray and Grace 2007). History aside, it is well known that complexity can be a function of the speech situation: registers differ in terms of the extent and type(s) of complexity that they exhibit (Biber, Gray, and Poonpon 2011).

3 How to measure complexity in usage data

The upshot is, then, that while linguists have become quite good at determining and interpreting system complexity on the level of *langue*, complexity of *parole* (i.e. usage complexity, or text complexity) has received comparatively short shrift. Part of the reason why this is the case is that system complexity can be determined by consulting reference grammars (the primary data source in typological research), while usage complexity can only be measured in corpora sampling actual text and speech (which are often not available, particularly not in the case of less well documented languages). But when corpora sampling

language usage are available, we can and should measure usage complexity. I what follows I will outline three ways to do just that.

3.1 Typological profiling

ANALYTICITY (the extent to which languages use free markers and word order to signal grammatical relationships) and SYNTHETICITY (the extent to which languages rely on bound markers, such as inflections) are two time-honored (see, e.g., Schlegel 1818) holistic typology notions. What is important here is that analyticity and syntheticity are often interpreted in terms of complexity: analytic marking is usually thought of as increasing explicitness and transparency (Humboldt 1836: 284–285), whereas synthetic marking is seen as difficult thanks to the allomorphies it creates (Braunmüller 1990: 627). It is also a known interlanguage universal that learners avoid inflectional marking and prefer analyticity (e.g. Klein and Perdue 1997). In short, analyticity counts as simple, syntheticity as complex. Crucially, Greenberg (1960) demonstrated that seemingly abstract typological notions such as analyticity and syntheticity are actually amenable to precise measurements on the basis of actual texts. Drawing inspiration from Greenberg's method, I will show in this section how we can calculate indices to profile the way in which grammatical information is coded in usage data.

Given a part-of-speech annotated corpus, we can use the annotation to group word tokens in corpus texts into three broad categories: (1) analytic word tokens, i.e. function words that are members of synchronically closed word classes (e.g. conjunctions, determiners, pronouns, prepositions, modal and auxiliary verbs, negators); (2) synthetic word tokens, which carry bound grammatical markers (e.g. inflectionally marked verbs and nouns); and (3) simultaneously analytic *and* synthetic word tokens (e.g. inflected auxiliary verbs). Once this categorization is in place, we can calculate two Greenberg-inspired indices: the Analyticity Index, which is calculated as the ratio of the number of free grammatical markers (i.e. function words) in a text to the total number of words in the text, normalized to a sample size of 1,000 words of running text; and the Syntheticity Index, which is calculated as the ratio of the number of words in a text that bear a bound grammatical marker to the total number of words in the sample text, normalized to a sample size of 1,000 words of running text. (For a more detailed description of the method, see Szmrecsanyi 2009.)

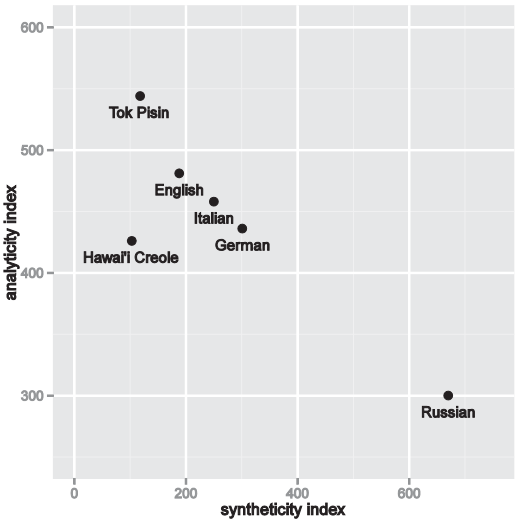

Fig. 1: Analyticity Index scores (*y*-axis) against Syntheticity Index scores (*x*-axis) in European languages and two English-based creole languages (adapted from Siegel, Szmrecsanyi, and Kortmann 2014, Figure 1).

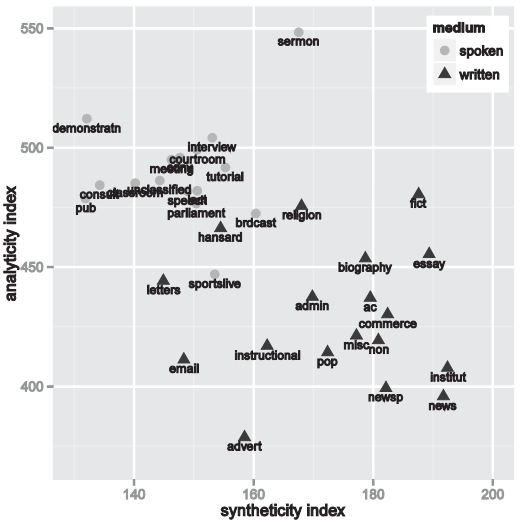

Fig. 2: Analyticity Index scores (*y*-axis) against Syntheticity Index scores (*x*-axis) of text types sampled in the British National Corpus (adapted from Szmrecsanyi 2009, Figure 2).

In what follows I showcase the descriptive and interpretative benefits of this approach. Using the method, Siegel, Szmrecsanyi and Kortmann (2014) create typological profiles of a number of European languages (English, Italian, German, and Russian) as well as two English-based creole languages (Tok Pisin and Hawai'i Creole), tapping into a corpus of written texts. Figure 1 thus locates the data points in a two-dimensional analyticity-syntheticity plane. It turns out that Russian is the most synthetic and least analytic language in the sample, while Tok Pisin is the most analytic and least synthetic language (Hawai'i Creole is also fairly non-synthetic, but less analytic than Tok Pisin). Equating analyticity with simplicity and syntheticity with complexity – as is customary in the literature – this is another way of saying that Tok Pisin, Hawai'i Creole and English are the least complex languages in the sample while Russian is the most complex language. Figure 2 applies the method to the various spoken and written text types sampled in the British National Corpus (BNC). Here, we find a very clear split between spoken text types and written text types: spoken text types are more analytic and less synthetic than written text types. In terms of complexity, we would thus conclude that spoken text types are less complex than written text types – which makes sense, given that spoken language is subject to all kinds of online processing constraints in a way that written language is not.

3.2 Kolmogorov complexity

Typological profiles are informative, but they do restrict attention to aprioristically defined "interesting" dimensions of grammatical variability. The usage-based complexity measure that we will be discussing now, KOLMOGOROV COMPLEXITY, does no such thing. As a measure that brings in information theory (Shannon 1948), Kolmogorov complexity is unsupervised, holistic, and radically text-based: Kolmogorov complexity defines the complexity of a string or text as the length of the shortest possible description of that string or text.

To my knowledge Juola (1998, 2008) was the first to utilize Kolmogorov complexity in the realm of language complexity research. His idea was that text samples that can be compressed efficiently are linguistically simple, while texts that cannot be compressed efficiently are complex. This is another way of saying that according to the measure, texts are linguistically simple or complex to the extent that they can or cannot be predicted from previously seen texts. It is clear that Kolmogorov complexity is entirely agnostic about form-meaning relationships and such things; what is measured is text-based linguistic surface complexity/redundancy (see Ehret 2014; Ehret in preparation for extended dis-

cussion). But because it analyzes texts (and not, e.g., grammar books), Kolmogorov complexity is a usage-based measure.

A nice property of the Kolmogorov complexity is that it can be conveniently approximated using off-the-shelf file compression programs. These use adaptive entropy estimation, which approximates Kolmogorov complexity (Juola 1998). File compression programs compress text strings by describing new strings on the basis of previously seen and memorized (sub-)strings so that the amount of information and redundancy in a given string can be measured (Juola 2008: 93). We may measure the overall Kolmogorov complexity of a text using the following procedure: (1) feed corpus texts into a compression program such as *gzip* (the results to be reported below were obtained using *gzip* version 1.2.4), (2) note down file sizes before and after compression, (3) regress out the trivial correlation between the two measures, (4) interpret the regression residuals (in bytes) as adjusted complexity scores: bigger adjusted complexity scores indicate more Kolmogorov complexity[2].

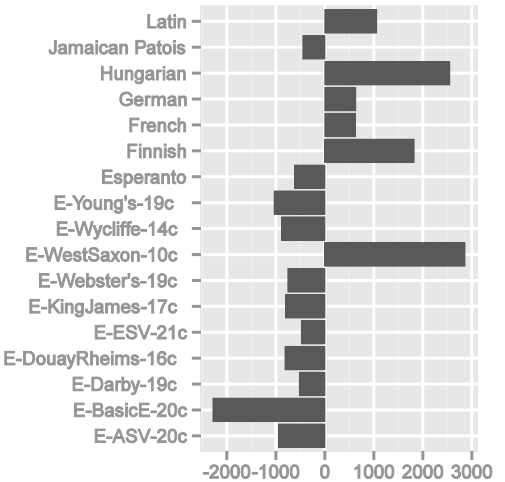

Fig. 3: Kolmogorov complexity of Bible texts: adjusted overall complexity scores by Bible translation. Negative adjusted complexity scores indicate below-average complexity; positive adjusted complexity scores indicate above-average complexity (adapted from Ehret and Szmrecsanyi in press, Figure 1).

2 In addition, the method may be combined with distortion techniques to address complexity at the morphological and syntactic tier (see Juola 2008; Ehret in preparation for details).

To demonstrate that the method works, Ehret and Szmrecsanyi (in press) measure Kolmogorov complexity in a parallel text database containing translations of the Gospel of Mark into a number of languages (Esperanto, Finnish, French, German, Hungarian, Jamaican Patois, and Classical Latin), including (mostly historical) translations into English (from a West Saxon translation over the King James Bible to the English Standard Version, published in 2001). Figure 3 shows that the Kolmogorov approach ranks the complexity of the Bible texts in a way that seems to be compatible with what we think we know about the languages covered in the sample. The three most complex translations are the West Saxon, Hungarian, and Finnish texts; Jamaican Patois and Esperanto are rather non-complex, and so are most translations into English (except for the West Saxon translation mentioned above). The least complex data point in the sample is the Basic English translation of the Bible. Basic English is a simplified variety of English designed by Charles Kay Ogden as, among other things, an aid to facilitate teaching of English as a foreign language (Ogden 1934). Figure 3 seems to suggest that Ogden did a fairly good job.

3.3 Variational complexity

In this section, I would like to offer some thoughts on how the analysis of linguistic variation can be made relevant to research on language complexity (and vice versa). Variation analysts are interested in the factors that constrain choices between "alternate ways of saying 'the same' thing" (Labov 1972: 188). Recent work on grammatical variation specifically has shown some interest in how variation patterns can be interpreted as being more or less complex.

I illustrate the state-of-the-art in variation analysts by summarizing Bresnan et al. (2007), who explore the alternation between the ditransitive dative pattern, as in (1a), and the prepositional dative variant, as in (1b).

(1) a. *The linguist sent [the President]*$_{\text{recipient}}$ *[a letter]*$_{\text{theme}}$
b. *The linguist sent [a letter]*$_{\text{theme}}$ *[to the President]*$_{\text{recipient}}$

Bresnan et al. extracted all variable dative occurrences from the Switchboard corpus, which samples spoken American English, and annotated the tokens for a large number of predictor variables. On the basis of this annotation, Bresnan et al. then fit regression models to predict speakers' syntactic choices. The models correctly predicted more than 90% of the actual dative choices and showed that the dative alternation in American English is constrained by at least 10

factors – e.g. animacy of the recipient, definiteness of the theme, length of the recipient and theme, and so on.

Bresnan et al. (2007) were not concerned with language complexity, but their findings may be interpreted against this backdrop. Is ten constraints on the dative alternation the last word, or are there simpler (dia)lects where the dative alternation is only constrained by, say, five constraints? Conversely, are there more complex (dia)lects where the dative alternation is constrained by more than ten factors? Taking as point of departure questions like these, a measure of VARIATIONAL COMPLEXITY would define language complexity as being a function of the quantity of constraints on variation. The rationale is that more constrained variational patterns require, on the one hand, more description; on the other hand, more constrained variational patterns presumably harder to acquire than less constrained patterns.

I illustrate this basic idea with the help of three concrete examples. Shin (2014) utilizes the variationist method to study variation in Spanish 3rd person singular subject pronoun expression (*ella canta* versus ___ *canta*). Looking at speakers in New York City, Shin finds that US-born Latinos have more constrained variation grammars than first-generation Latin American immigrants. Specifically, tense/mood/aspect issues constrain the variation between overt and non-overt subject expression in the speech of the second generation, but not the first. Shin argues that US-born Latinos have more constrained variation grammars: "[t]he loss of a linguistic factor that constrains linguistic choice is a type of simplification, while the emergence of a new factor is a type of complexification" (Shin 2014: 305).

Schneider (submitted) studies future marker choice (*I will sit down quietly* versus *I am going to sit down quietly*). She compares the constraint system of Ghanaian English – an indigenized L2 variety presumably subject to simplification pressures, thanks to adult SLA – and native British English. Using annotated corpus-derived datasets, Schneider fits regression models for each of the two varieties she studies. She finds that the minimal adequate model for British English needs five significant constraints (plus a number of interaction terms), while the minimal adequate model for Ghanaian English only has three constraints (clause type, sentence type, and presence of temporal adverbials). Using Shin's (2014) criterion, one would thus conclude that future marker choice in British English is more complex than in Ghanaian English, where it is less constrained.

Szmrecsanyi et al. (under review) study the probabilistic grammar of syntactic variation in four international varieties of English (British English, Canadian English, Indian English, and Singapore English). Among other things,

Szmrecsanyi et al. investigate the particle placement alternation (*Tom looked up the word* versus *Tom looked the word up*). A re-analysis of this particular alternation in terms of variational complexity shows that particle placement variation is subject to fewer constraints in Indian and Singapore English than in the other varieties, according to regression analysis. In addition, it turns out that the constraints also seem to interact less extensively in these varieties than in British and Canadian English. Like Ghanaian English, Indian and Singapore English are non-native varieties of English with a history of adult SLA, and so the observation that they seem to be less complex variationally than native varieties is predicted by theory.

In all, it appears that there are plenty of meaningful variational complexity differentials waiting to be explored. Of course, counting the sheer number of constraints (interpretation: more constraints are more complex) on variation and establishing the extent to which constraints interact (interpretation: interactions induce complexity) are but two ways to assess variational complexity. Other criteria would include determining the relative importance of social constraints (interpretation: social constraints induce complexity), and determining the relative importance of lexically conditioned constrains (interpretation: lexically conditioned constraints induce complexity).

More generally, variational complexity is an innovative concept for a number of reasons, including the following. First, the focus is not on the complexity of linguistic material per se (*substantive complexity*), but on the complexity of linguistic choice-making (*procedural complexity*). Second, the metric is interested not in the presence/absence of "complex" features (*categorical complexity*), but on usage patterns that can be described using the mathematics of uncertainty (*probabilistic complexity*). Third, because variation relates to both usage (*parole*) and knowledge about the system (*langue*) (see Bresnan 2007 for evidence), the approach goes some way towards bridging the gap between system and usage complexity. The drawback is that it is imperative to restrict attention to very well-researched phenomena, as one needs to be sure that whenever one observes complexity differentials, these are not trivially due to the fact that we do not fully understand what constrains the variation at hand.

4 Conclusion

This contribution has surveyed three ways to measure usage complexity: typological profiles (the extent to which languages use synthetic or analytic grammatical marking), Kolmogorov complexity (about the predictability of new text

given knowledge about old text), and variational complexity (about the complexities of choosing between linguistic variants). As I have argued, usage complexity has received short shrift in the previous literature. But my point is not that usage complexity is a "superior" concept vis-à-vis system complexity. Rather, I would like to offer that we need both perspectives to realistically assess language complexity.

Complexity differentials are very interesting from a theoretical point of view. This is because such differentials cannot have biological or communicative reasons: human beings – whatever their native language background – are endowed with the exact same linguistic capacities, and languages – wherever they are spoken – have, on the whole (and especially in "fundamental" registers such as face-to-face conversation), similarly complex or simple functions, such as talking about the weather, and so on. Many analysts thus conclude that complexity variation must have sociolinguistic motives (see, e.g., Trudgill 2011; Wray and Grace 2007). At the same time, language complexity seems advertise itself as a phenomenon to be analyzed in terms of conceptualization and the interplay between usage and knowledge about the system.

This being so, language complexity – and especially so the usage-based sort – is a notion that is, or should be, of interest to students of cognitive sociolinguistics, a framework advanced by Dirk Geeraerts (see, e.g., Geeraerts, Kristiansen, and Peirsman 2010). Cognitive sociolinguistics endeavors to align variational (socio)linguistics and cognitive linguistics, thus "recontextualizing" (Geeraerts 2010) grammar in its social context of use. I believe that there are plenty of exciting avenues for (re-)interpreting language complexity along cognitive sociolinguistics lines.

Acknowledgement

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Stefan Grondelaers and Dirk Speelman

A quantitative analysis of qualitative free response data

Paradox or new paradigm?

Abstract: In the toolbox of techniques which are customary in the field of language attitudes, free response approaches – in which evaluations of variety labels such as "Dutch with a Moroccan accent" are expressed in spontaneously produced keywords – rank lower than the speaker evaluation design, in which participants evaluate *unidentified* varieties represented by unlabeled clips of recorded speech. In this paper, we compare both techniques on the same varieties and variables to investigate the claim that speaker evaluation, but not free response data can penetrate the "deep" evaluations believed to co-determine language change. The paper is innovative in its use of distributional semantic analysis to cluster the adjectives returned in the free response tasks into 35 evaluative dimensions; on these dimensions, six regional and ethnic accent varieties and two emergent syntactic variables of Netherlandic Dutch were subsequently plotted. Analysis of the data suggests (1) that the second generation free response data and the speaker evaluation data access the same perceptual clusters, (2) that free response data are more informative than scaled speaker evaluations, but (3) somewhat less efficient in pinpointing the perceptual correlates of language change, unless these perceptions have percolated into the explicit evaluative repertoire of the speech community.

1 Introduction

It is a commonly accepted, but almost never explicitly articulated view that language attitudes and evaluations investigated with Lambert et al.'s (1960) speaker evaluation paradigm represent "deeper" and "better" perceptions than

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those collected with other techniques[1]. The main reason for this allegedly greater depth is the fact that in speaker evaluation (SE) experiments, "respondents have the attitude object (a language, a variety, or even a feature of a variety) presented to them *indirectly*, triggering subconscious evaluation of the linguistic element (the attitude object) under the guise of being asked for an evaluation of the speaker, not his or her linguistic production" (Preston 2009: 270, italics ours). In function of this indirect presentation, the variables or varieties whose perception is investigated are not labelled in an SE-experiment, but represented by clips of recorded speech.

Direct *techniques*, by contrast, elicit subjective responses to labelled varieties or variety labels. Label ranking tasks (Kristiansen 2009) extract perceptions via questions like "which of these varieties do you like best?". In free response tasks (FR; see Garrett, Williams, and Evans 2005 for an overview), perceptions are elicited in the form of subjective impressions participants produce in response to specific variety labels. It goes without saying that in both label ranking and FR, respondents are inevitably more aware of the attitudinal object, as a result of which they offer perceptions which may be more conscious, shallower, more explicit, and/or more stereotyped (see Garrett 2005 for an overview of attitude measurement techniques and their (dis)advantages).

The most far-reaching claims made with respect to the conscious/subconscious-, public/private-, shallow/deep-divide in language perception research is Tore Kristiansen's (2009) attitudinal work on present-day changes in Danish Standard Language Ideologies. Kristiansen explicitly postulates a "division of labour" between direct and indirect techniques, because the first return attitudes which are consciously offered, while the second return attitudes subconsciously offered. Whereas a direct label ranking task confirmed the public view of Standard Danish as the official, conservative standard, indirect SE-experiments revealed that young Danes award the highest prestige to modern Copenhagen speech, a former working class variety which is overtly downgraded in spite of its increasing covert support. This leads Kristiansen to propose that it is the *subconscious* evaluations elicited with indirect techniques which are the more dynamic structures which reflect language change.

1 The claim in Garrett, Williams, and Evans (2005) that FR-data are typically used as a preliminary for the construction of the scaled measures in a SE-experiment testifies to the same hierarchization.

In Kristiansen's view, the main prerequisite for harvesting subconscious evaluations is participant ignorance:

> The measurement instrument had to take care not to ask questions that directed subjects' attention to the evaluation task as a "dialect thing". Our choice of evaluative items in terms of *personality* traits, as well as the particular adjective pairs we chose to represent these traits, was based on experiences and results from our previous research in Denmark, which has allowed us to collect subconscious attitudes from a large number of audiences (Kristiansen 2009: 176, italics ours).

A consequence of this insistence on personality traits is that it leads to the exclusion of speech traits – which have been found to be equally important for the perceptual characterization of language varieties (see especially Grondelaers, Van Hout, and Steegs 2010) –, but also to the downgrading of direct techniques as an inefficient means of access into deep(er) change motivations.

In order to test the hypothesis that SE and FR produce similar results, Grondelaers and Van Hout (2010b) conducted an FR-experiment in which participants were asked to return the three adjectives which first came to mind when confronted with the labels for eight accent varieties of Netherlandic Standard Dutch. These varieties included "Standard Dutch with a Holland accent", spoken in the western provinces of North- and South Holland, which represent the political and socio-economic hub of The Netherlands. "Standard Dutch with a Groningen accent" is spoken in the north of the Netherlands, "Standard Dutch with a Limburg accent" in the south; both are peripheral areas which correspond with a stronger focus on agriculture, a continuing vitality of the local dialects (Van Hout et al. 1999), and a concomitantly lower speaker and speech prestige (the other accents for which perceptions were elicited are not relevant for the purposes of the present paper). The data from the FR-experiment were subsequently compared to the findings of the SE-experiment conducted in Grondelaers, Van Hout, and Steegs (2010) to investigate the perception of the same regional accents of Netherlandic Standard Dutch. In the SE-experiment, the regional accents were each represented by two unlabeled 20 second clips of spontaneous speech produced by speakers from the relevant areas; clips were evaluated on measures included in function of speaker and speech prestige and attractiveness. Crucially, the FR- and the SE-experiment returned more or less the same perceptual content, with the same underlying attitude architecture (see Experiment 1 for more detail).

Why bother with an SE-experiment when an (arguably much easier to implement) FR task seems to do the job just as well? In Grondelaers and Van Hout (2010b), two reasons were suggested for carrying out both types of perceptual data collection. A first is that the FR-task requires robust labels which unambi-

guously identify a speech variety and its speakers to linguistically naive native speakers, and such generally shared labels are not always available. The label "Hollands", for instance, is problematic in this respect. Although its logical denotatum of "Hollands" is the South- and North-Holland provinces, it is often used to refer to the *whole* of the Dutch territory, and it carries posh connotations which are by no means shared by all the inhabitants. As a result, the label invites contradictory associations. Second, a comparison of the FR and SE-data suggests that the latter can return evaluations to which respondents have no direct access (yet), because they are not articulated (yet) in the explicit evaluative repertoire of a speech community. A case in point is the increasing prestige of Limburg-accented speech, which was confirmed in the SE experiment, but not (or not yet) in the FR-task, which returned the low prestige stereotypes forever associated with the Limburg area.

While the latter data seem to confirm Kristiansen's (2009) claim that experimental techniques relying on spontaneous speech can tap "deeper" into underlying evaluative dimensions than techniques which build on naked labels, we do not believe that the evaluative structure revealed by spontaneous speech and language variety labels is radically different or functions on different consciousness levels (as Kristiansen does).

In this paper, we investigate whether the elicitation and analysis of FR-data can be improved to further approximate the quality of the SE-data, so as to be ultimately able to detect the deepest perceptual seeds of language change. A possible area for improvement in FR-designs is the quantitative processing of the subjective impressions (whether or not adjectives) returned. The bulk of FR-research relies on a kind of content analysis in which the absolute and relative frequency of the impressions produced is taken to reflect perceptual salience (Garrett, Williams, and Evans 2005). Even in such approaches, elicited adjectives and keywords are typically grouped into more meaningful dimensions[2]. In a FR-study with participants from the USA, the UK, Australia, and New Zealand, for instance, Garrett, Evans, and Williams (2006) found a more positive attitude towards the lexical concept "globalization" among the US informants, whose responses manifested markedly higher proportions of keywords grouped under such labels as "unity", "opportunity", or "co-operation". In Grondelaers and Van Hout (2010b) we followed a similar procedure by manually classifying the adjectives returned in the FR-task on the attitude architecture dimensions –

2 In two classic studies in the conceptual genre, Giles (1970) and its replication Bishop, Coupland, and Garrett (2005), evaluations were elicited on scaled prestige and attractiveness dimensions in response to the labels of regional and ethnic varieties of British English.

speaker prestige, speech prestige, speaker attractiveness, speech attractiveness – which were found in the SE-experiment to underlie regional accent perception.

While most of the adjectives could be straightforwardly categorized on these dimensions, the exercise inevitably involved "some amount of indeterminacy and ad hoc decision-making" (Grondelaers and Van Hout 2010b: fn. 1), which was partly due to the decontextualization of FR-items. Garrett, Coupland and Evans (2003: 196) propose that isolated keywords and adjectives represent a reduced form of evaluative discourse, or "discursive shorthand". Owing to this decontextualization, it is not always possible to determine their exact meaning or directionality – neutral, positive, negative –, and this hinders classification. A second problem of the categorization in Grondelaers and Van Hout (2010b) is that it underspecified the dimensionality in the FR-data: the speaker status adjectives, for instance, could be further sub-divided in Competence, Superiority, and Dynamism-adjectives. Even a cursory glance at the adjectives returned reveals a much finer-grained dimensionality than the four-way classification proposed.

In order to avoid classificatory subjectivity, and in order to detect a more accurate dimensional granularity, we introduce an unsupervised automatic procedure in this paper to group the adjectives produced in a series of FR-experiments into meaningful clusters/dimensions. The procedure builds on distributional information available in a large electronic corpus of Netherlandic Dutch: for each adjective produced in a FR-task, the frequency of 5000 keywords appearing in its immediate vicinity is calculated to extract a "semantic passport" for that adjective; on the basis of this passport, adjectives are subsequently classified into larger clusters.

In both experiments reported below, SE-data are available to calibrate the quality of the reclassified FR-data. In experiment 1, we address the following research questions:

- **RQ1.** To what extent do distributionally enriched free response data (henceforward "defr-data") replicate what we know about the perception of regional and ethnic accent varieties of Netherlandic Dutch?
- **RQ2.** Is there anything in the defr-data that we cannot learn from regular SE-experiments? Does distributionally enriched semantic classification reveal hitherto undiscovered dimensions which are essential for the perception and evaluation?
- **RQ3.** To what extent do defr-data reveal perceptions about the standard language status of linguistic varieties? According to Auer (2011: 490), "it is obvious that the idea of a standard language is not reflected in lay metalin-

guistic ideologies across Europe. The term itself is a technical term used by linguists, while non-linguistic private and public talk about language is dominated by more evaluative terms (such as *Hochsprache* or *bon usage*), by terms that foreground one specific aspect of the standard language (such as in Danish *Rigsmål*), or by terms that highlight its function (as in Russian *Literatyúrnj jazyk*)". In view of the latter, and the fact that measures which elicit linguistic perceptions are typically avoided in SE-experiments to guarantee participant ignorance, it would be worthwhile to investigate whether laymen spontaneously evaluate linguistic varieties in terms of (non-)standardness, and whether such evaluations cluster into identifiable dimensions.

2 Experiment 1. Evaluation of regional and ethnic accent varieties of Netherlandic Dutch

2.1 Background

In a series of SE-experiments, Grondelaers, Van Hout, and Steegs (2010), Grondelaers and Van Hout (2010a), and Grondelaers, Van Gent, and Van Hout (in press) investigated whether regional and ethnic accent variation is accepted in lay conceptualizations of Netherlandic Standard Dutch; the few data available from direct approaches (Smakman and Van Bezooijen 1997) cite "regional neutrality" as the main criterion for standardness in The Netherlands.

In Grondelaers, Van Hout, and Steegs (2010) and Grondelaers and Van Hout (2010a), respondents rated unlabelled speech clips representing the Randstad-, Groningen-, and Limburg-accents of Netherlandic Standard Dutch (the label "Randstad" denotes the urbanized region in the West of The Netherlands which includes the Holland-provinces and Utrecht). Randstad speech was found to be the most appropriate for formal interaction, and Randstad speakers were deemed prestigious, but socially unattractive (the inverse correlation between status and solidarity perceptions is well-documented, cf. Garrett 2005). The Groningen- and Limburg-accents elicited the expected low speaker prestige stereotypes, which were offset, in the case of the Limburg accent, by high speech and speaker attractiveness evaluations and – crucially – comparatively mild accent norm evaluations (Limburg speech does *not* seem to be downgraded for formal interaction, see Grondelaers, Van Hout, and Speelman 2011 for a

number of replications). All in all, we found no evidence for general downgrading of regional accentedness in Standard Dutch.

In Grondelaers, Van Gent, and Van Hout (in press), we investigated whether ethnic accents are also tolerated in private conceptualizations of the standard: is Moroccan-flavoured Dutch Netherlandic Standard Dutch? In a design which featured spontaneous speech produced by native and Moroccan Dutchmen from Amsterdam and Nijmegen, Amsterdam Moroccans were deemed the most attractive Dutchmen, but Moroccan Dutch was systematically downgraded on speaker prestige, and the Moroccan accent was found significantly less beautiful than the native accents. These data strongly suggest that a Moroccan accent is *not* acceptable in Standard Dutch.

2.2 Method

Free response task. A stratified sample (n = 172) of native speakers of Netherlandic Dutch (87 male vs. 85 female; young (n = 110, average age 26.5) vs. old (n = 62, average age 56.5); 78 from the South, 6 from the North, 22 from the Randstad, 66 from the Middle East) was asked to name the first three adjectives which came to mind when confronted with the labels of three regional accent varieties (Limburgs, Gronings, Randstad) and three ethnic accent varieties (Moroccan, Turkish, Surinamese) of Netherlandic Standard Dutch. Participants were encouraged to articulate their evaluations in terms of adjectives (in order to tap into evaluative dimensions), and to do so as quickly as possible (in order to access spontaneous perceptions).

Distributional analysis and dimension reduction. Since it would be cumbersome to gauge the evaluation of the six investigated varieties on hundreds of adjectives, we applied dimension reduction to extract a more workable set of parameters from the set of 710 adjective types collected in Experiment 1 and Experiment 2 below[3]. This was done automatically, on the basis of distributional information in the Twente News Corpus of Netherlandic Dutch, which totals 0.4 billion tokens, and which is part-of-speech tagged and syntactically parsed. Per adjective, the corpus frequency of 5000 high frequency lexical features occur-

3 Both experiments returned a grand total of 2994 tokens for 710 adjective types, 369 of which were hapaxes (51.79 %). The fact that we extracted a single cluster set from the adjectives returned in experiments with different attitudinal objects (regional and ethnic accent variation in Experiment 1, emergent syntactic variables in Experiment 2) poses no problem for the analysis of the data: clusters which are not relevant for the perceptual characterization of a specific variant will not correlate with it in the biplots.

ring in a window delimited by the four words preceding, and the four words following the adjective, was calculated. These frequencies were transformed into pointwise mutual information scores, and the resulting row vector of 5000 pointwise mutual information scores subsequently represented the "semantic passport" of each adjective.

In the next step, *k*-medoids cluster analysis was performed to extract clusters of semantically related adjectives. The value *k* is a researcher-determined parameter which determines the number of clusters to be extracted: in this investigation, *k* was set to 35, in order to obtain clusters which were sufficiently distinct (having a large number of adjectives with a positive silhouette width[4]), but also sufficiently interpretable.

Before we proceed to the next stage of the analysis, we focus on a number of "caveats" inherent in this unsupervised classification method. Observe, to begin with, that while our distributional method guarantees that the adjectives united in a cluster have highly similar usage profiles in terms of the "lexical neighbours they keep", this does not entail that all items in one cluster are (near-)synonyms. A case in point is antonyms, which occur in very similar usage contexts in view of the fact that things can both be positively and negatively evaluated. It is therefore pivotal that we regard the 35 clusters in Figure 1 as evaluative *dimensions* rather than as individual qualities: we have labelled the clusters accordingly in the diagrams below, and we will always specify in the discussion to which specific adjectives they pertain.

A more problematic consequence of our methodology is that adjectives with a negative silhouette width were eliminated in order to enhance cluster distinctness. In a small number of (isolated) cases, a practical consequence of this decision was that high frequency adjectives (such as *boers* "boorish", which is the most frequently returned perceptual characteristic of the Groningen accent), were excluded from the analysis because their negative silhouette width indicated a position in-between clusters (for this reason we will not go into the perceptual status of Gronings in what follows). It goes without saying that the semi-supervised follow-up to this research will accommodate both deficiencies, to the extent that clusters will be manually split into positive and negative subclusters, and refinements of the clustering step will be explored that give high frequency adjectives a more prominent role (by using them as "seeds" in the clustering procedure).

4 An estimate which shows "which objects lie well within their cluster, and which ones are merely somewhere in between clusters" (Rousseeuw 1987: 53).

2.3 Results

Figure 1 diagrams the output of a correspondence analysis with 35 clusters – which can be interpreted as perceptual dimensions – and six variety labels in a two-dimensional form; the distance between labels and clusters reveals their degree of correlation (and hence the perceptual relevance of a cluster for a variety). Since the two-dimensional representation of a high-dimensional structure distorts distances in Figure 1 to some extent, we also use Bertin-plots for a more robust representation of the data. In the Bertin-plot in Figure 2, the six varieties in Figure 1 are represented with a perceptual profile consisting of bar representations of the relative frequency of a cluster/dimension; bars which represent a value above the mean (within a specific variety) are highlighted in black – it goes without saying that these represent the most important perceptual correlates of a variety. Cases and variables in Figure 2 are ordered in terms of their relative position on the first, horizontal dimension in Figure 1.

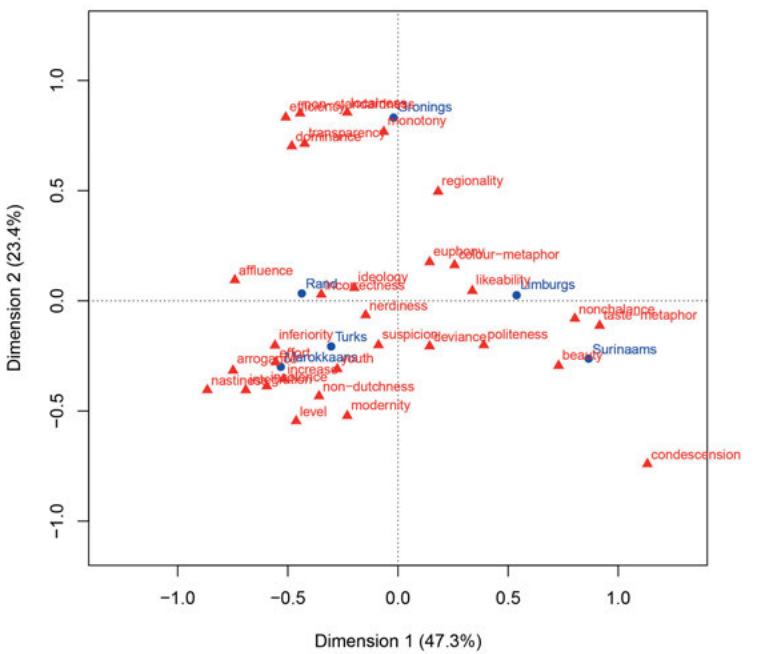

Fig. 1: Biplot of correspondence analysis with 6 cases (variety labels) and 35 variables (adjective clusters)

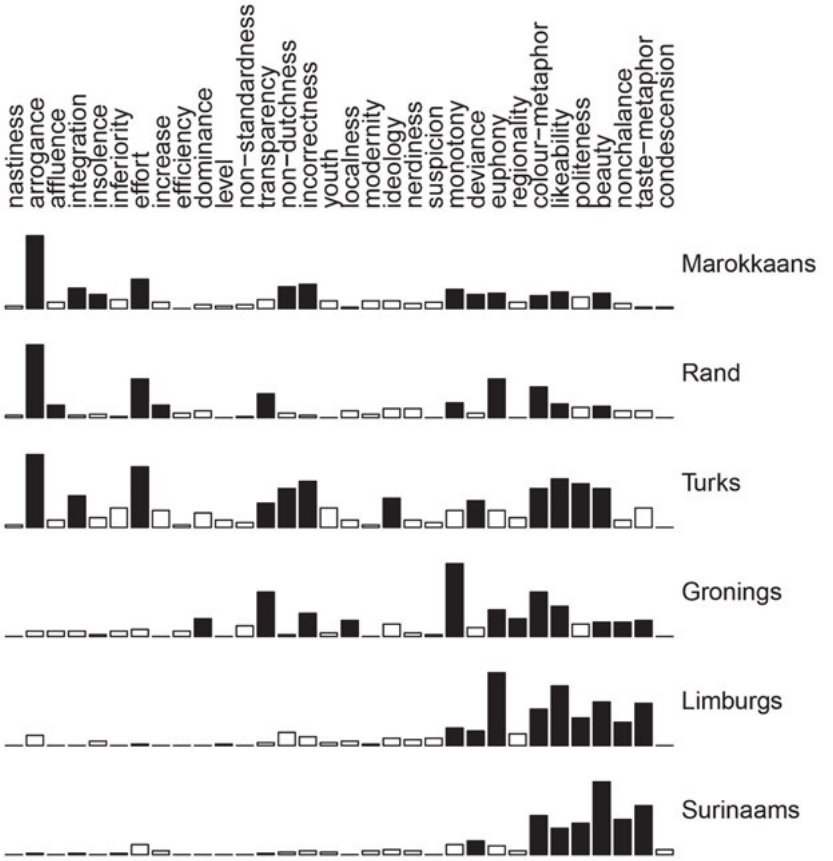

Fig. 2: Bertin plot of contingency table of variety labels by adjective clusters (with rows and columns ordered in function of their position on the first dimension of the correspondence analysis in Figure 1)

2.4 Discussion

Do the data in Figures 1 and 2 replicate what we know about the perception of regional and accent varieties of Netherlandic Dutch? If we look at the perceptual correlates of "Randstad" in Figures 1 and 2, the most influential clusters are ARROGANCE (instantiated in adjectives like *arrogant* (n = 24); *egocentrisch* (n = 5); *onbeschoft* "rude" (n = 3); *asociaal* (n = 19); *agressief* (n = 4)), EFFORT (*snel* "fast"

(n = 9), *direct* (n = 25)), EUPHONY, or rather non-euphony (*bekakt* "stuck-up" (n = 31)), TRANSPARENCY (*helder* "clear" (n = 2), *kernachtig* "concise" (n = 1), *scherp* "sharp" (n = 3), *duidelijk* "clear" (n = 6), *nuchter* "down-to-earth" (n = 2); *doelgericht* "goal-oriented" (n = 1), *begrijpelijk* "intelligible" (n = 1), *eerlijk* "honest" (n = 2)), and AFFLUENCE (*stads* "urban" (n = 11)).

While the transparency and urban perceptions of the Randstad accent index iconic standard language qualities, we cannot unequivocally infer the traditional prestige correlates of the Randstad accent from our data. There are a number of possible reasons for this. A general reason which may explain why the traditionally assumed prestige of Randstad speakers and speech is not in evidence here, is the fact that unsupervised evaluation naturally gravitates towards the negative: it is well-known from consumer research that when forming judgments about objects having multiple attributes, people tend to weigh the negative attributes more heavily than the positive (Kanouse 1984, and the multiple references cited there). If, as in this case, the attitudinal object is a linguistic variable which pertains to the competition between regional subgroups – a competition which will be somewhat charged in any conceivable country – it is even more plausible that prestige correlates are not spontaneously foregrounded (unless, as in the SE-design, there is a parameter which explicitly elicits them).

In addition, the "Randstad"-label we had chosen to avoid the robustness issue with "Hollands" – cf. section 1 – does not seem to function any better on that head, because it does not denotate an integrated social or linguistic unity either: while Gouda and especially Haarlem are associated with good Dutch and high prestige (Smakman 2006), the major cities of Amsterdam and Rotterdam are also linked to stereotypes of proletarian culture and soccer- and drug-related violence, as well as to a certain type of working class "cockiness" (this goes especially for the inhabitants of Amsterdam). The evaluations collected here reflect this mixed bag of perceptions, as well as some of the envy of the non-Randstad participants (which make up the absolute majority of our respondent sample) with respect to the Randstad-accent: the high frequency of *bekakt* "stuck-up" for the Randstad-flavour is a tell-tale indication that the labeller resents the assumed superiority of the labelled if not his/her own assumed inferiority.

If we make allowances for the asymmetrical participant sample, and for the inherent envy which springs from traditional language hierarchizations with one "best variety" and many bad varieties, and if we moreover take into account that "Randstad" is not the most adequate label to probe perceptions of the standard accent, then the defr-data on Randstad speakers and Randstad speech can

be said (with some amount of caution) to access the same perceptual complex as the SE-data, albeit it in much richer detail.

A somewhat disquieting observation in Figure 1 may be the perceptual similarity between the Randstad and the Moroccan accent, which is also reflected in (highly) similar profiles in Figure 2. For both the Randstad and the Moroccan accent, the main perceptual ingredient is ARROGANCE, though in the case of Moroccan, *aggressive* (n = 30 > n = 4) and *onaangepast* "unadapted" (n = 3) are much more important adjectives within that cluster. Closer scrutiny of the Randstad and Moroccan profiles reveals, moreover, that TRANSPARENCY (and its standard correlates) is important for the former, but absent for the latter. Instead, the Moroccan accent is associated with INCORRECTNESS and NON-DUTCHNESS perceptions which are absent for the Randstad (the main adjectives being, respectively, *onduidelijk* "unclear" (n = 9) and *buitenlands* "foreign" (n = 16)). The INTEGRATION dimension, which is also absent in the Randstad profile, characterizes Moroccan in terms of *laagopgeleid* "lowly educated" (n = 6), and *achtergesteld* "disadvantaged" (n = 3). As far as its perceived beauty is concerned, the Moroccan accent elicits perceptions of MONOTONY – *lomp* "awkward" and *irritant* – and (non-)EUPHONY, viz. nasal (n = 2) and *onverstaanbaar* "unintelligible".

In sum, the defr-data corroborate what we know about the perception of Moroccan Dutch from the SE-experiment (Grondelaers, Van Gent, and Van Hout: in press), but they add substance and extra dimensionality. Whereas evaluation in the speaker evaluation experiment is ultimately based on two dimensions after factor analysis – status and attractiveness – the perceptual difference between the Randstad and the Moroccan accent in the defr-data revolves around no less than 14 dimensions (building on the distribution and height of the black bars in Figure 2). The "low prestige" verdict found in the SEE seems to be a proxy for, and a consequence of a number of dimensions – such as foreignness and the reluctance or impotence to adapt – which are more appropriate parameters to gauge the perceptual essence, and concomitant rejection of the Moroccan accent.

Both Figures 1 and 2 suggest that Dutch with a Limburg and Dutch with a Surinamese accent are also perceived highly similarly, although the most important perceptual determinant for the Limburg accent – EUPHONY – is completely absent in the Surinamese profile (the euphonic qualities of the Limburg flavour materialize especially on the adjective *zangerig* "melodious" (n = 38)). The proverbial LIKEABILITY of the Limburgers is the second-most important determinant. The most important perceptual determinant of the Surinamese accent is BEAUTY, loading on both qualities of the speakers and their speech, viz. *mooi* "beautiful" (n = 3), *kleurrijk* "colourful" (n = 3), *swingend* "swinging" (n =

3), *feestelijk* "festive" (n = 4), *melodieus* (n = 2), and especially *vrolijk* "cheerful" (n = 29). It is interesting to notice that whereas both the Limburgers and Surinamese are known to elicit perceptions of cheerfulness and joie-de-vivre, adjectives like *colourful* and *swinging* appropriately distinguish the more outgoing Surinamese Dutch from the somewhat more straight-backed Limburg Dutch.

Let us summarize these findings in terms of the research questions outlined above. As far as RQ1 and RQ2 is concerned, it is obvious that even in this primitive, unsupervised first version, defr-data are (comparably) accurate and highly informative, and in cases where they do *not* rival the SEE-data we know why that is the case. The answer to RQ3 – do defr-data return standardness perceptions – is somewhat more nuanced. While the cluster/dimension NON-STANDARDNESS does not play a distinctive role in the perceptual profile of any of the six varieties, its negative proxies NON-DUTCHNESS and INCORRECTNESS clearly do (which is to be expected in view of the fact that spontaneous evaluation naturally gravitates towards the negative); in addition, the TRANSPARENCY-perceptions of the Randstad accent undoubtedly pertain to its status as the "best" accent.

A possible reason for the fact that standardness is not a parameter which elicits great comparative zeal could be the fact that the standard status of the Randstad accent among the accents investigated is undisputed for our lay observers (both our SE- and defr-data corroborate this). But what happens when we move to variables whose unstoppable vitality (in spite of their public stigma) excites great controversy among the general public?

3 Experiment 2. Evaluation of two syntactic innovations in Netherlandic Dutch

3.1 Background

All European standard languages are currently affected by a noticeably increasing vitality of "stereotyped counter-standardness" markers (Eckert 2008: 460). The most notorious case in point for Netherlandic Dutch is the proliferation of the object pronoun *hun* 'them' in subject position (as in *Als je zo speelt krijgen hun natuurlijk altijd kansen* "If you play like that them will always get chances"). This subject use of *hun* (henceforward 'subject-*hun*') is publicly downgraded as ungrammatical and stupid, and it excites social controversy as well as irritation and concern on the part of the cultural and educational establishment (Van

Hout 2003, 2006; Grondelaers and Van Hout 2011). In spite of the fact that most speakers, moreover, are consciously aware of the low prestige of the form (Van Bergen, Stoop, Vogel, and De Hoop 2011), subject-*hun* is increasingly and unstoppably vital in Netherlandic Standard Dutch.

We have argued that the vitality of subject-*hun* is determined by a mixture of production and perception determinants. In research provisionally reported as Grondelaers (2013) and Grondelaers and Van Hout (accepted), it was shown that the introduction of *hun* in the subject pronoun paradigm was functionally motivated, because *hun* is used significantly more often to encode "involved (negative) contrast" of the type *Wij zijn Ajax, hun moeten opdonderen*! "We are Ajax, them have to bugger off" (from a soccer fansite). While this production factor accounts for the functional suitability of subject-*hun* as a competitor to subject-*zij*, it does not explain why *hun*'s dissemination has advanced at such speed the last decades, and why it is increasingly challenging the standard pronoun *zij* "they" in situations and registers which call for standard Dutch (subject-*hun* has been slumbering in the Dutch grammar at least since the beginning of the 20th century). As a consequence, we have argued that *hun*'s dissemination was perceptually boosted (or at least licensed) by the dynamism of *media* personalities such as game show leaders and DJs on radio and TV channels geared towards a younger audience (Grondelaers and Kristiansen 2013; Grondelaers and Van Hout: accepted). More generally, we have collected SE-evidence in support of the claim that in many European languages (at least in Danish, Belgian Dutch, Irish, and German), counter-standardness markers are motored by the new prestige of personalities for whom it is more important to project a cool and street-wise image than the traditional superiority of educated, competent, and socially successful persons which determines traditional standard norms (Kristiansen and Grondelaers 2013).

In view of the previous, we posit two new research questions:

- **RQ4.** Do the defr-data return direct (non-)standardness perceptions for subject-*hun*, a variable whose standard status is controversial and highly mediatized?
- **RQ5.** Do the defr-data return perceptions which reveal the emergence of the dynamic prestige which has been shown in SE-experiments to co-determine the vitality of subject-*hun* in Netherlandic Standard Dutch? In order to calibrate our findings, we compare the perception of subject-*hun* with the perception of another conspicuous, but far less controversial and mediatized change, the emergence of periphrastic *doen* "to do" in constructions like *Doe jij de vaatwasser uitruimen*, lit. 'Do you clean out the dishwasher',

meaning 'You clean out the dishwasher'. Like subject-*hun*, periphrastic *doen* (henceforward 'per-*doen*') is categorically absent in Belgian Dutch.

3.2 Method

Free response experiment. The defr-data reported below are based on FR-tasks with a procedure comparable to the one in Experiment 1. They were conducted in 2012, 2013, 2014, and 2015 with participant samples with a demographic stratification comparable to the participant pool in Experiment 1. Evaluative reactions to subject-*hun* were recorded in all four years from 2012 to 2015, to per-*doen* in 2013, 2014, and 2015. In 2014 and 2015, we also elicited perceptions of "Dutch anglophilia", the noticeable Dutch preference for lexemes and idioms of English origin (the variables elicited in the other FR-tasks are of no interest to the present paper).

The fact that we have collected data in different years allows us to check the stability and the validity of the defr-data:

– **RQ6.** Do identical tasks elicit identical defr-data in a time frame (four years) which is too short for change?

Dimension reduction and verb clustering. The 35 clusters used in Experiment 1 (which are based on the adjectives produced in the FR-tasks conducted in Experiments 1 and 2) were re-used in Experiment 2.

3.3 Results

As before, we diagram the defr-data in biplots emanating from correspondence analysis, and in Bertin-plots. Figures 3 and 4 report the 2012-, 2013-, 2014-, and 2015-data for subject-*hun*, and the per-*doen* data for 2013, 2014 and 2015.

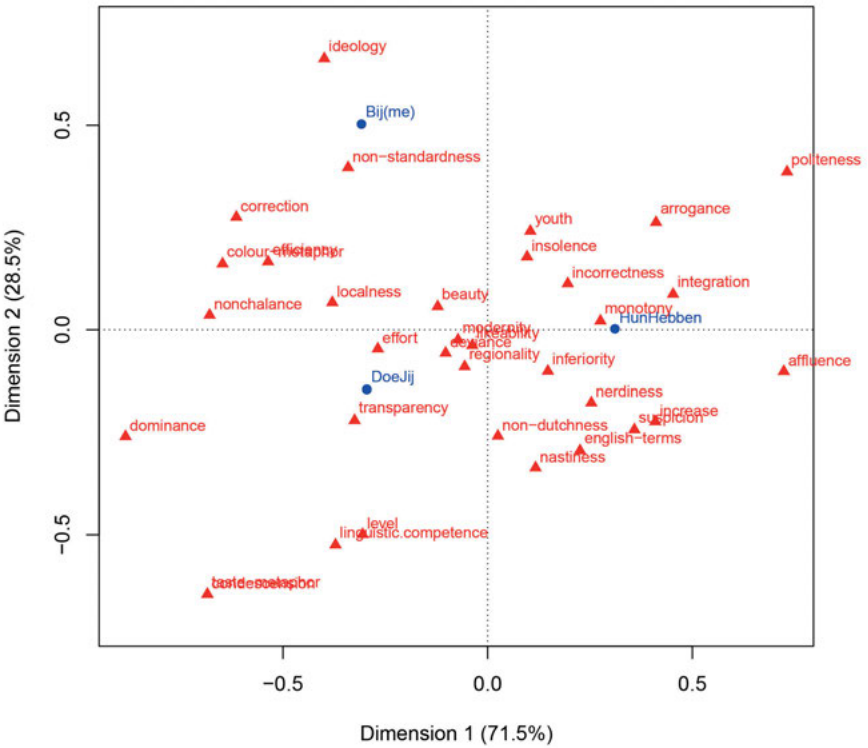

Fig. 3: Biplot of correspondence analysis with 3 cases (variable labels[5]) and 35 variables (adjective clusters)

5 We shall not go into the variable *bij-2012*.

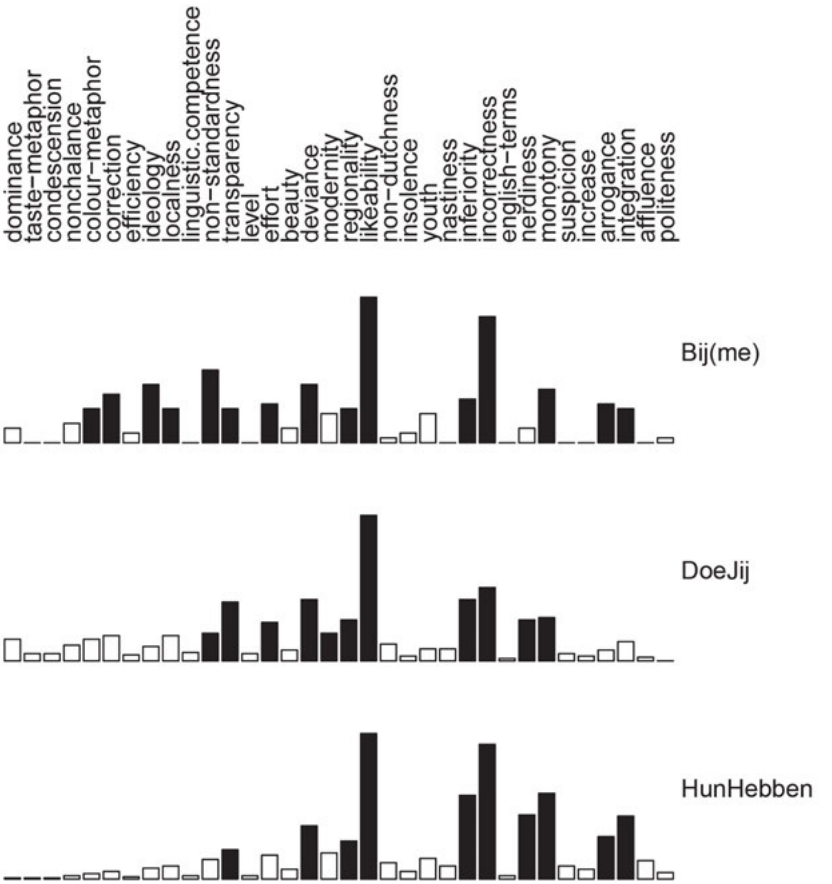

Fig. 4: Bertin plot of contingency table of variable labels by adjective clusters (with rows and columns ordered in function of their position on the first dimension of the correspondence analysis in Figure 3)

3.4 Discussion

The presence of a tight cluster containing the three collection moments for the subject-*hun* data (except 2015), and a tight cluster containing the two collection moments for per-*doen* data (except 2015) provides convincing evidence for the stability and the validity of these data. At the bottom of this section we will forward a tentative explanation for the exceptional position of the 2015-data for subject-*hun* and per-*doen*.

The public stigma on subject-*hun* manifests itself mostly on (negative) LIKEABILITY. While the latter is the prime perceptual determinant of both subject-*hun* and per-*doen*, it is interesting to notice that positive likeability (*aardig* "nice", *leuk* "nice", *schattig* "cute") attributes are much more often attested for per-*doen* whereas negative likeability attributes (*stom* "stupid", *vreselijk* "horrible") are far more frequent for subject-*hun*. An exception to this asymmetry is *raar* "weird", which features prominently in both profiles (n = 37 vs. n = 38).

Much the same picture obtains on the second-most important perceptual dimension, the INCORRECTNESS dimension, on which adjectives like *onjuist*, *foutief*, and *incorrect* "incorrect" are more frequent for subject-*hun* than for per-*doen*. A sub-dimension which is not picked up by the distributional analysis, but which transpires from the analysis of the individual adjectives, is "ethical disapproval" (a well-known correlate of non-standardness, Hagen 1999): qualities like *ongepast* "improper" or *schuldig* "guilty" figure prominently in the incorrectness-perceptions for subject-*hun* but they are almost absent for per-*doen*.

In addition to being unattractive, incorrect and unethical, subject-*hun* also excites more active resistance than per-*doen*: the MONOTONY dimension specifically reveals that subject-*hun* is deemed much more irritant and disturbing than per-*doen*. While these findings corroborate the overt inferiority and the ongoing negative stigma attached to subject-*hun*, they need not exclude that subject-*hun* may have covert prestige in the form of media cool and trendiness. The MODERNITY and YOUTH determinants in the subject-*hun*-profiles in Figure 4 seem to point in that direction, but analysis of the individual adjectives reveals that it is especially per-*doen* which is deemed more modern, contemporary, and popular, while subject-*hun* is found *gangbaar* "current", but also more *volks* "folky", which is the least dynamic perception imaginable.

Subject-*hun* excites younger and more youthful perceptions than per-*doen* on the YOUTH-dimension, but the dominant adjectives on the ARROGANCE-dimension indicate that this youthfulness pertains especially to asociality and indifference, whereas the high frequency of *allochtoon* "foreign" and especially *laagopgeleid* "lowly educated" on the INTEGRATION-dimension reflect the persistent though incorrect stereotype that subject-*hun* entered Dutch via the L2 efforts of migrant workers. As a consequence, subject-*hun* is clearly *not* associated with trendiness, modernity, or dynamism in the present data, but with low education and migrant descent.

Should we infer from this that defr-data cannot probe into the deepest perceptual germs of language change (which SE clearly can)? Let us first investigate whether there is apparent change in the subject-*hun*-perceptions by com-

paring the Bertin-plots of the older (> 40, Figure 5) and the younger perceptions (40 or below, Figure 6).

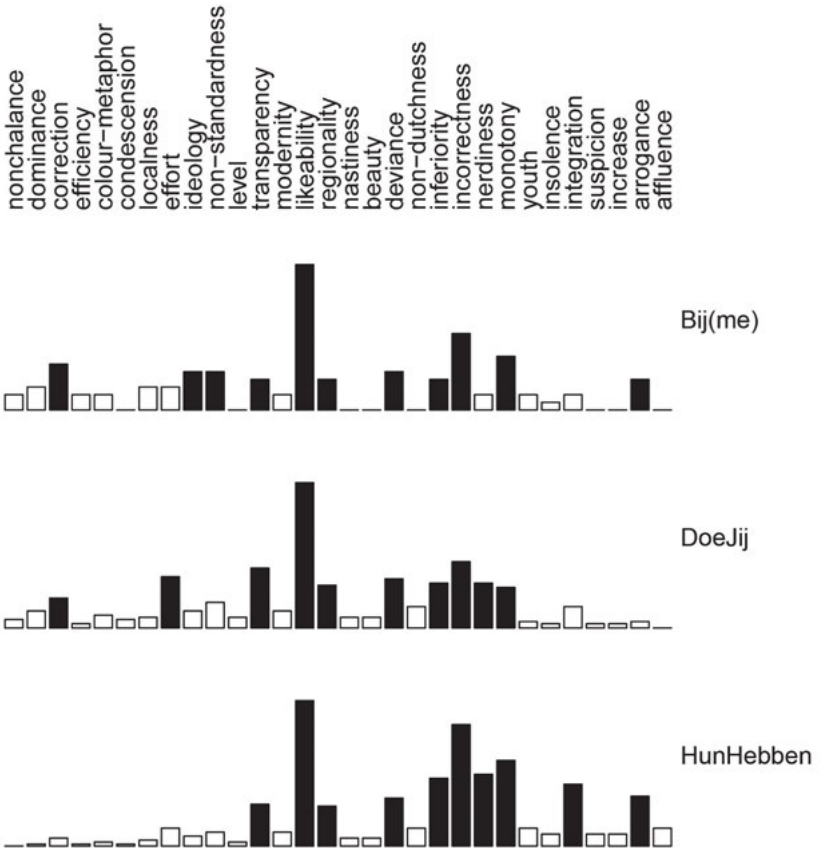

Fig. 5: Bertin plot of contingency table of variable labels by clusters of adjectives produced by the older informants

While time and space limitations preclude the detailed analysis this issue merits, a comparison of figures 5 and 6 does not seem to reveal any dramatic reversal of opinion. The fact that older respondents in 2013 and 2014 award higher MODERNITY to subject-*hun* (modernity plays no role for any of the variables in the younger perceptions) may reveal perceptual change, but the observation that it is the *younger* respondents who systematically attribute higher ARROGANCE-

perceptions over the four years (the older only do so in 2013) does not indicate any great appreciation for subject-*hun*; neither do the persistent correlations between subject-*hun* and non-INTEGRATION (which are more frequent and persistent for the younger respondents). In short, the covert prestige which has been shown to co-determine the vitality of subject-*hun* pertains to anti-normative and anti-social attitudes rather than to the emergence of a new sort of dynamic prestige (at least in these data).

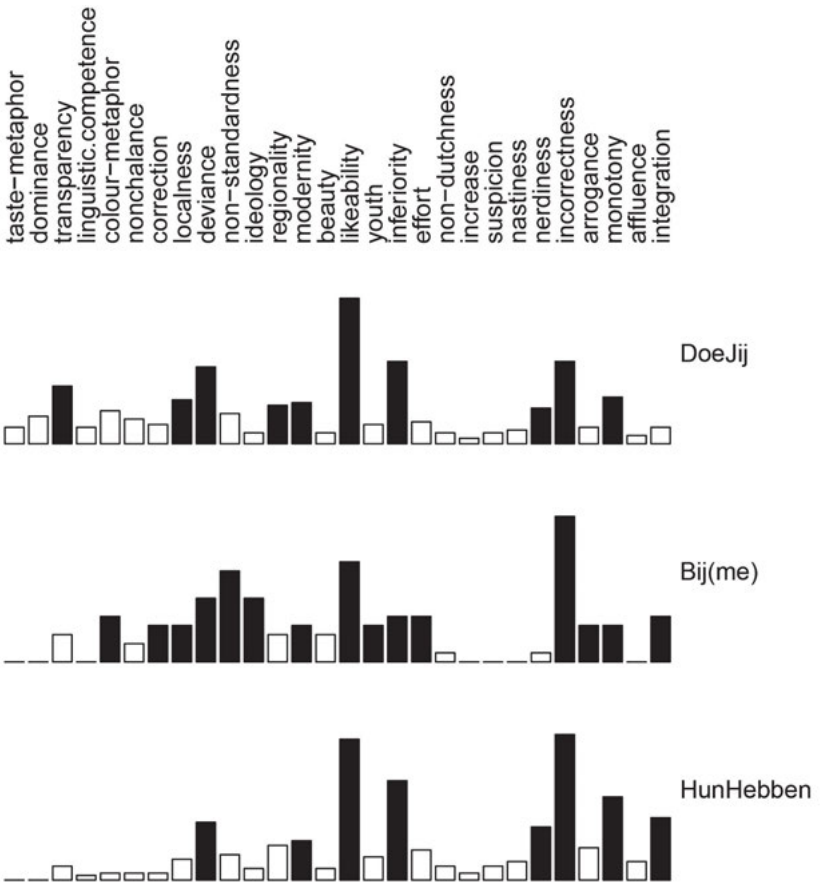

Fig. 6: Bertin plot of contingency table of variable labels by clusters of adjectives produced by the younger informants

An important question in this respect is whether defr-data *ever* return dynamism perceptions? Does the natural inclination towards the negative in these evaluations ever produce positive perceptions of non-standard phenomena? A closer look at the defr-perceptions of the "Dutch anglophilia"-variable which was included in 2014 and 2015 reveals that MODERNITY is the *main* perceptual determinant of Dutch "anglophilia" (across both age groups). Hence, it is at least technically possible to elicit dynamism with defr-data, though the level of controversy and stigma – English loans are much less contentious than subject-*hun* in Dutch society – is bound to have an effect on the penetration potential of any technique.

A second crucial question is whether the experimental choice to ask respondents to produce three adjectives affects our findings in any (negative) way; we have observed over and over again that respondents find it difficult and cumbersome to produce a second and especially a third adjective on some variables. This tendency is reflected in a noticeable increase of adjective types from adjective1 to adjective3 in all of the FR-tasks reported here. Although respondents are encouraged to react as promptly as possible, it goes without saying that the relatively greater effort to produce a third and second adjective engenders a (more) conscious mediation of adjective choice, and hence a greater risk of reliance on available stereotypes and folklore (which are typically conservative and anti-change) rather than on deeper correlates. It would be worthwhile to investigate whether designs in which respondents report only one adjective or settings with time constraints on the responses would return the dynamic prestige motivations we failed to find in this design.

To close of this section, let us focus on the exceptional position in Figure 3 of the 2015-data, which markedly diverge from the subject-*hun* and per-*doen* clusters which contain the other data collection moments. Scrutiny of the Bertin-plots informs us that it is the high frequencies of the NERDINESS-cluster – which does not determine the perception of any of the other variables in Figures 5 and 6 – which is responsible for the outlier positions of the 2015-data, and especially the adjective *dommig* "dumb" (n = 58 for subject-*hun*; n = 32 for per-*doen*) in that cluster (there are only 6 other occurrences of *dommig* across all the data). In addition, there is a marked increase in 2015 of other very negative adjectives (*incorrect*, *laagopgeleid* "lowly educated", *slecht* "bad"). While it could be theoretically possible that the downgrading of subject-*hun* is gaining new momentum this year, a more plausible explanation for the outlier status of the 2015-data is a minute change in the experimental procedure: data in 2011-2014 were recorded in the presence of the experimenter in a paper-and-pencil format, but in 2015 we administered the FR-task with electronic survey software, which

enabled participants to take the task at home. Could the physical absence of the experimenter have removed some of the respondents' inhibitions to return truly negative evaluations?

4 Conclusions

In this paper, we have compared experimental speaker evaluation data and a new type of distributionally enriched free response data to investigate whether the two techniques access the perceptual correlates of two types of variables (accent variation and emergent syntactic variation) equally successfully. While the answer to this question seems to be for the most part affirmative, the new free response technique is much more informative than scaled speaker evaluations (which are geared more towards replicating known attitude architecture dimensions), but it seems to be somewhat less efficient in pinpointing the perceptual correlates of emergent language change. Our failure to identify the prestige change which has been found to motor the production vitality of *Hun hebben* "them have" may be due to the fact that this perceptual change has not "percolated" yet into the explicit evaluative repertoire of the Dutch speech community (see Grondelaers and Van Hout 2010b for a largely similar conclusion). The fact that we *did* find dynamic perceptions for the "Dutch anglophilia"-variable may simply reflect the fact that this inclination to (over)use English in Dutch has been around for a longer time.

The most important methodological conclusion of this paper is that our distributionally enriched free response technique represents a valuable and informative source of perception data, at least when handled with (extreme) care to avoid confounds like skewed participant samples and changes in elicitation method – to which the free response data proved specifically sensitive in this paper. While the dimension reduction technique pioneered in this paper is no more than an unsupervised first reconnaissance into researcher-independent semantic classification of evaluative adjectives, there are two obvious improvements which will undoubtedly lead to better data. The first of these is the search for the optimum clustering technique which generates distinct but interpretable clusters without any loss of data. The second is some manual supervision to distinguish between negative and positive adjectives in each cluster; this second step will obviate the necessity (demonstrated in this paper) to go back from the clusters to individual adjectives and their frequencies.

In anticipation of these improvements, the provisional defects of distributionally enriched free response evaluation should be discussed with caution...

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