Special issue of Cognitive Linguistics:

Variation, change and constructions in English

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Abstract

All human languages are characterised by inherent synchronic variability (Hudson 1997, 2007a) and are subject to change over time. Consequently, due to this central role of variation and change, any explanatorily adequate cognitive theory of language should aim to account for both of these phenomena. The present special issue explores how usage-based Construction Grammars can address issues of linguistic variation and change. In particular, focusing on English, we will show how constructionist approaches provide new insights for the study of variation and change in the English language as well as how data from English can help to refine construction grammar theories. This introduction will give a short overview of aspects of constructionist approaches to language which are of relevance to the modelling of linguistic variation and change. In addition to our discussion of the modelling of synchronic and diachronic variation in construction grammar, we provide an overview of the topics addressed by the seven articles in this special issue.

Keywords: *Construction Grammar, constructionalization, grammaticalization, inherent variability, quantitative variation, usage-based approaches*

1. Introduction

For more than twenty years now, there has been increasing interest in construction-based approaches to grammar (for example, Lakoff 1987;

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Langacker 1987, 2005; Goldberg 1995, 2006; Fillmore and Kay 1996; Sag 1997; Ginzburg and Sag 2000; and Croft 2001). In tandem with various refinements of the theoretical machinery, applications of the model to, among other topics, issues of language variation and change have been developing (for example, Hollmann 2003; Östman and Leino 2005; Hollmann and Siewierska 2007; Hilpert 2008; and the various papers in Bergs and Diewald 2008a). The articles in the present special issue seek to further our understanding of the nature of constructional variation and change in a particular language, namely English.

Construction grammars propose that all levels of grammatical description involve constructions, that is, conventionalised form-meaning pairings. Consequently, instead of assuming a clear-cut division of lexicon and syntax, construction grammarians assume that all constructions can be placed on a lexicon-syntax continuum (a 'construct-i-con', Fillmore 1988; see also Jurafsky 1992 and Goldberg 2003: 223). Given this continuum, and the potential for gradual change to 'more lexical' or 'more grammatical' constructions, we would predict that constructional approaches to grammar should be able to account particularly well for synchronic and diachronic morphosyntactic variation within a particular language (and see, for example, Croft 2001 for a discussion of such issues in relation to language typology).

Moreover, all versions of construction grammars agree that the construct-i-con is not simply a list of unrelated constructions. Instead, the constructions of a language form a structured inventory, which can be represented by multiple inheritance taxonomic networks (Croft and Cruse 2004: 262–265). An actual attested expression ('construct') such as *Brad baked his wife a cake* is, for example, licensed by a combination of the abstract ditransitive construction as well as the constructions *Brad*, *wife*, *his*, *baked*, *a* and *cake* (as well as various other constructions; see Goldberg 2003: 220–221, 2006: 9–10). Inheritance networks thus allow constructs to be freely formed—specifically,

> "[c]onstructional approaches share with mainstream generative grammar the goal of accounting for the creative potential of language (Chomsky 1957, 1965). That is, it is clear that language is not a set of sentences that can be fixed in advance. Allowing constructions to combine freely as long as there are no conflicts[1], allows for the infinitely creative potential of language." (Goldberg 2006: 22)

More generally, adopting a general notion from cognitive linguistics, namely that "knowledge of language is knowledge" (Goldberg 1995: 5), constructional

1. The notion of coercion is relevant here (see Michaelis 2004, and also Traugott 2007 and Ziegler 2007) because it is clear that the creation and resolution of coercion are important factors in the persistence of variation and paths of grammatical change.

approaches to variation and change are able to account for the inherent variability (Hudson 1997, 2007a) that characterises human languages. Hudson (2007a: 383–384) notes that inherent variability is a good test for the functionality of any linguistic theory, because it requires the analyst to consider three different properties associated with variation: patterns of structural variation; the context in which the variation occurs; and the statistical correlates of frequency of use. Usage-based construction grammars are therefore well placed to handle inherent variability, equipped as they are to deal with all three properties.

Focussing on diverse syntactic phenomena such as definite article reduction (for example, the use of *farm* as an alternative to *the farm*; Hollmann and Siewierska), locative inversion (for example, *beside Brad sat his wife*; Webelhuth), the ditransitive construction (Colleman and De Clerck, Stefanowitsch, and Goldberg), NP questions (for example, *Coffee?*; Heine) or modals, impersonal and raising constructions (for example, Old English clauses of the kind *him ofhreow þæs mannes*, 'to-him was-pity because-of-the-man' or 'he pitied the man'; Gisborne), the present special issue explores how different perspectives on diachronic and synchronic variation in English can shed new light on the cognitive architecture of the constructional network. It thus provides new insights for the study of variation and change in the English language as well as how data from English can help to refine construction grammar theories.

The aim of this article is to give a short introduction to some of the theoretical assumptions underlying aspects of the following papers, thereby addressing general issues in constructional approaches to variation and change. The structure of this introductory article is as follows. In Section 2, we present some features of constructionist approaches to language which are of relevance to the modelling of linguistic variation and change. Sections 3 and 4 deal with synchronic and diachronic variation in construction grammar, respectively, including an overview of the topics addressed by the six articles of the special issue.

2. Construction Grammar: Background

The central tenet of constructionist approaches is that there is "a **uniform representation of all grammatical knowledge** in the speaker's mind, in the form of . . . constructions" (Croft and Cruse 2004: 255, emphasis original). Moreover, construction grammarians subscribe to the idea that "[a]ny construction with unique idiosyncratic morphological, syntactic, lexical, semantic, pragmatic or discourse-functional properties must be represented as an independent node in the constructional network in order to capture a speaker's knowledge of their language" (Croft and Cruse 2004: 263).

An important parameter along which constructions vary is their degree of schematicity (Jackendoff 2002: 176; Goldberg 2003: 220; Croft and Cruse

2004: 255). An example of a construction which is fully specified with respect to its phonology, and so is phonologically substantive, is a word like *green*, which has a specified form /gɹiːn/. The ditransitive construction [Sbj Verb-TNS Obj_1 Obj_2], which only contains slots that can be filled by various elements (such as *Brad baked his wife a cake*), on the other hand, is said to be schematic. In-between fully substantive and fully schematic constructions lie phenomena such as the covariational conditional construction *the* X*er the* Y*er*, which consists of fixed substantive material (/ðə . . . ðə/) as well as schematic slots (X and Y; compare *the happier, the better* with *the older you get, the worse you're gonna be*).

Allowing for constructions of varying schematicity, Construction Grammar approaches can capture all kinds of idiosyncratic, 'peripheral' phenomena of a language (such as the covariational conditional construction); in addition to this, it is also possible to capture all of the compositional 'core' phenomena such as the ditransitive construction. Since constructions of a language are not taken to be stored mentally as a list of unrelated items, all versions of construction grammars agree that the constructions of a language form a structured inventory, which can be represented by (taxonomic) networks (cf. Croft and Cruse 2004: 262–265). These taxonomic networks allow specific constructions to inherit properties from more general, abstract constructions.

While virtually all constructionist approaches agree on the earlier points, it is recognised that at present there does not exist one single Construction Grammar theory. All constructionist approaches take all levels of grammatical description to involve a structured default[2] inheritance network of constructions (Goldberg 2006: 215). Yet, while they all agree that idiosyncratic properties lead to the postulation of an independent construction, there is disagreement as to the role of the frequency in determining the relationship between the structure and use of constructions, an issue which is clearly of significant relevance for studies of language variation and change: on the one hand, Cognitive Grammar (Langacker 1987, 2005), Radical Construction Grammar (Croft 2001) and Cognitive Construction Grammar (e.g. Lakoff 1987; Goldberg 2003, 2006) are 'usage-based models' (Kemmer and Barlow 2000), which advocate that the frequent use of a construction can lead to it being cognitively entrenched, even if its properties can be completely derived compositionally by the underlying subconstructions (Goldberg 2006). The relevance of this to language change is attested, for example, in Bybee's work on the role of frequency in grammaticalization (Bybee 2003, 2006).

2. Default means that a more general, schematic construction contributes all its information to a more specific one unless the latter construction contains specific information which overrides the more general one.

From a cognitive point of view, usage-based approaches are psychologically more plausible than complete inheritance models. As recent research has shown, all levels of linguistic form—phonology (Bybee 2000, 2001; Pierrehumbert 2001), morphology (Bybee 1985, 1995; Hay and Baayen 2005) and syntax (Saffran, 2001, 2002; Casenhiser and Goldberg 2005; Stefanowitsch and Gries 2005)—are heavily affected by input frequency effects. Cognitive entrenchment of lexical items is said to be a consequence of token frequency (Croft and Cruse 2004: 292–293; Langacker 1987: 59–60), but input frequency does not only affect the storage of words—it also plays a role in the entrenchment of abstract grammatical patterns. Structures with a high type frequency, that is, those that have been encountered with many different lexicalizations[3] (such as *John gave Bill a book*, *Peter send Mary a letter*, *She forwarded him the mail*, . . .), all of which share a common meaning ('A causes B to receive C by V-ing'), can lead to the entrenchment of abstract grammatical patterns (Goldberg 2006: 39, 98–101; see also Bybee 1985, 1995; Croft and Cruse 2004: 308–313).

Besides type and token frequency, another usage-based factor leading to the entrenchment of abstract schemata is ease of processing (Hawkins 2004): if the same content can be expressed by two competing structures and one of these is easier to process than the other, then the simpler structure will be preferred in performance. Consequently, it will be used more often with a greater range of lexicalizations, which increases its type frequency and ultimately leads to it being more cognitively entrenched than its alternative (Hawkins 2004: 6). Take, for example, the case of preposition placement, a variable feature of English syntax (Hoffmann 2010): in several syntactic contexts such as questions, a preposition can either can appear without an adjacent NP complement in front of the gap "$\_\__i$" ("preposition stranding", as in 1a), or it can precede the filler ("preposition pied-piping", as in [1b]):

(1) a. [*Which student*]$_i$ *did you ask* ($\_\__i$) *Mary about* $\_\__i$*?*
b. [*About which student*]$_i$ *did you ask Mary* $\_\__i$*?*
(examples taken from Hawkins 1999: 277)

Cross-linguistically preposition pied piping is far more common than stranding (Hawkins 1999: 277). Hawkins (1999, 2004) argues that this is due to the fact that from a processing perspective preposition stranding is far more complex than pied piping. First of all, preposition stranding can lead to garden path effects: in (1a) after encountering *ask* the human parser might erroneously try to

3. Lexicalization is to be understood here in a non-diachronic sense; for some discussion of the relationship between diachronic lexicalization and construction grammar, see section 4 and Trousdale 2008a.

integrate *which student* as the filler of an object gap (__$_i$), an incorrect parse that is not possible in the pied piped version (1b); see further Hawkins' (2004) 'Avoid Competing Subcategorizors' principle. Secondly, the pied piped alternative allows the filler to be interpreted after processing the main verb, which acts as the main subcategorizer of the clause, while the gap in the stranded construction is more deeply embedded within a PP that itself is embedded in the VP (a general processing principle which Hawkins [2004: 210–215] calls 'Valency completeness'). While these factors explain the typological rarity of preposition stranding, the situation is of course much more complex in (different varieties of) English, where prepositional verbs such as *rely on* exist, in which the preposition is obligatory and the complex lexical item has a single, noncompositional meaning. In these cases, preposition stranding does not result in a great increase in processing cost since the preposition *on* is already automatically expected by the processor after encountering *rely* (Hawkins 1999: 260, fn. 15). As we will argue, these orthogonal cognitive constraints on preposition placement help to explain the complex structural variation between preposition stranding and pied piping in English. Even more than that, they even afford an explanation for the different contextual and statistical preposition placement preferences of L1 and L2 speakers of English (see also Hoffmann 2010).

In addition to frequency and processing complexity, competition between structures also entails that preemption will play an important role (Goldberg 2006: 94–98; Tomasello 2003: 300; see also Goldberg this volume; Stefanowitsch this volume): if on a particular occasion one construction is used instead of a possible alternative, then the hearer will assume that this choice reflects a functional difference between the two structures. Ultimately, this will lead to the functional differentiation of the two alternatives (that is, the minimisation of constructional synonymy). A classic example for preemption comes from morphology: once the learner observes that the suppletive form *better* is used as the comparative of *good*, the irregular form will be stored and consequently block/preempt the regular constructs *gooder* or *more good* (cf. Goldberg 2006: 95). Besides such categorical blocking effects, preemption obviously also has important repercussions for Hudson's (2007a) parameters of inherent variation: if preemption leads to the functional diversification of two (or more) variants, then each single usage event can trigger or reinforce contextual associations, which in the long run will affect the statistical probabilities of each variant in particular social and linguistic contexts. In other words, preemption encourages originally synonymous constructions to be interpreted as contextually-determined variants. Preemption, then, is inherent in socially and linguistically governed variation, which in the long run can result in diachronic change. Finally, motivation plays a crucial role in usage-based construction grammar approaches (Goldberg 2006: 218): the more closely two

constructions are related semantically, the more related they will be formally (see also Webelhuth this volume). This, for example, explains why bipartite lower-trunk-wear in English normally carries grammatical plural marking (for example, *pants*, *shorts*, *knickers*, *briefs*, and *boxers*) while non-bipartite lower-trunk wear is encoded as singular nouns (for example *skirt* and *wrap*) (see further Langacker 1987: 47).

3. Construction Grammar and synchronic variation

Decades of sociolinguistic study have shown that languages exhibit both categorical and variable phenomena, with the latter being characterised by "orderly heterogeneity" (Weinreich et al. 1968: 99–100): whenever speakers can choose between alternative structures there are linguistic as well as social factors that systematically affect the choice of a particular variant. In quantitative language variation parlance, the choice of a particular variant of a dependent variable is influenced by independent factors such as its linguistic context, the stylistic level of the discourse and social characteristics of the speaker (see for example Preston 1996: 2; Sigley 1997: 19). Much like quantitative sociolinguistics, usage-based construction grammars emphasise and investigate the relationship between actual linguistic performance and the linguistic system which underpins language in use; furthermore, Construction Grammar is a framework that cannot only model variation, but also provides principled explanations for the statistical and contextual factors affecting variation.

By way of example, we can consider Hoffmann's investigation of the structural variation of preposition stranding and pied piping (cf. [1] earlier) in L1 British and L2 Kenyan English using corpus data (from the International Corpus of English ICE project; see Nelson et al. 2002 for ICE-GB, the British component, and Hudson-Ettle and Schmied 1999 for the ICE-Kenya corpus) as well as psycholinguistic experiments (Hoffmann 2010). He argues that such a comparative approach allows us to identify general cognitive principles affecting the stranding and pied piping alternation and to explore their interaction with input frequency effects. For while general processing principles should affect L1 and L2 speakers alike, input frequency in L2s might be limited due to a restriction of the variety in question to certain functional domains and the availability of local L1s other than English (cf. Schmied 2004: 923–924).

One major statistically significant result of this study was that that preposition stranding was strongly favoured in questions (*Who did you talk to?*), while relative clauses exhibited a preference for pied piping (for example, *the man to whom you talked*) in both British and Kenyan English. While this effect of the clause type on preposition placement might at first appear somewhat random, it can in fact be explained as the effect of several cognitive constraints: first of all, as Trotta (2000: 55) points out, one reason why interrogative clauses

strongly favour preposition stranding is their discourse function: in interrogative clauses "the *wh*-word represents unspecified information which characteristically has not previously been introduced into the discourse. In the typical communicative function of interrogatives as questions, it is the *wh*-word which signals interrogation and should logically come early to successfully fulfill that purpose" (Trotta 2000: 55). With respect to preposition placement, the easiest way to achieve this effect is to strand the preposition. In bound relative clauses, on the other hand, "the *wh*-word does not represent unspecified information: the antecedent precedes the *wh*-XP and in effect 'signposts' that something else is coming, which, since something else is known, may be delayed over a longer stretch of language" (Trotta 2000: 55). Thus pied piping is a more viable option with relative clauses (an effect that is furthermore enforced by Hawkins' (2004) 'Avoid Competing Subcategorizors' and 'Valency completeness' principles, as discussed).

From a usage-based perspective, such processing effects will have a direct effect on the mental construction network of speakers: if the same content can be expressed by two competing structures and one of these is easier to process than the other, then the simpler structure will be preferred in performance. Consequently, it will be used more often with a greater range of lexicalisations, which increases its type frequency and ultimately leads to it being more cognitively entrenched than its alternative (cf. the 'Performance-Grammar Correspondence Hypothesis' [Hawkins 2004: 6]). Therefore, Hoffmann argued that an independent *stranded question* and *pied piped wh-relative clause* construction must be part of the constructional network of both British and Kenyan English. In contrast to this, a pied piped question such as *To whom did you talk?* has to be constructed online by combining the question construction with an independent pied piping construction (for details, see Hoffmann 2010). Due to the competing stranded alternative, which is much more deeply entrenched, however, this combinatorially constructed pied piped question construct occurs only very infrequently.

Another result that the analysis of the ICE data unearthed was that the effect of the level of formality is much more complicated than usually assumed. Normally, it is claimed that preposition stranding is associated with speech and informal written contexts, whereas pied piping is preferred in formal writing (see, for example, Biber et al. 1999: 107; Leech 1996: 375). Yet, as the statistical analysis unveiled, formality only affected relative clauses in British English: in both Kenyan and British English preposition stranding was favoured in questions, regardless of the level of formality of the text type (which ranged from private dialogues to published writings). Moreover, in Kenyan English relatives exhibited a preference for pied piping across all text types. It was only in British English that relative clauses favoured pied piping in more formal texts and stranding in more informal texts. This leads Hoffmann to claim that

in British English the *pied piped wh-relative clause* construction is marked as [formal] and competes with an entrenched [informal] *stranded wh-relative clause* construction. In contrast to this, in Kenyan English the latter construction is not part of the construct-i-con and instead has to be assembled combinatorially.

Note that the fact that L1 speakers possess more entrenched constructions than L2 speakers is actually something that is predicted by usage-based approaches: since L2 speakers normally receive less input of the target language than a native speaker, they will also develop fewer and less deeply entrenched substantive and schematic constructions. With respect to the repertoire of partly substantive constructions, Hoffmann, drawing on Stefanowitsch and Gries' covarying-collexeme analysis (2005: 9–11), found that British English had three significant antecedent + $P_{\text{pied piped}}$ manner adjunct relative clause lexicalisations (i.e. *the way in which he killed the cat*; *the ease with which he won*; *the speed with which he did it*), while no significant lexicalisation in the same context could be found in Kenyan English.

As these results show, there are many usage-based factors that influence and shape inherent linguistic variation. In the present special issue we aim to demonstrate that modelling linguistic variation is central to all construction grammar approaches. Moreover, looking at various phenomena of the English language, the articles in the present special volume will demonstrate how a focus on variation provides new insights for the study of variation and change in the English language as well as how data from English can help to refine construction grammar theories.

The first contribution by **Willem Hollmann and Anna Siewierska** ('The status of frequency, schemas, and identity in Cognitive Sociolinguistics: A case study on definite article reduction') investigates the distribution of forms of the definite article in a Lancashire dialect of English (the variable realisation of *the* as [ði], [ðə], [ð], [t], [ʔ] or *ø*). In their analysis, they take into consideration classical (socio)linguistic factors such as phonological context and the local social value of the variable as well as usage-based phenomena such as information structure and token frequency. As Hollmann and Siewierska point out, frequency does play a role in the reduction of the article, but that this usage-based effect can be overridden by social factors. Consequently, they argue that usage-based explanations offer new insights into social variation but that future construction grammar research also has to pay closer attention to non-standard dialect variation.

Present-day English, like all languages, does not only display regional and social, but also stylistic and, of course, idiolectal variation. At any particular point in time, this variation allows speakers to make (subconscious) choices from the expressive means available to them (Coulmas 2005: 8–14). From a usage-based construction grammar perspective it is their mental construction network that allows speakers to make these choices: as emphasised previously,

a speaker's mental linguistic knowledge is not simply a list of independent constructions. Instead, all constructions are part of a constructional network in which they mutually influence each other: the closer the formal and semantic similarities between constructions, the more closely these constructions are going to be related in the mental network (Croft 2001: 92–98; Goldberg 1995: 72; see also Hudson 2007b). If the construction network is interpreted as a cognitive connectionist / interaction activation model (see, for example, Rumelhart et al. 1986; Bates and MacWhinney 1989) then this obviously implies that constructions with similar semantic and pragmatic meanings will be activated simultaneously during online processing. At the same time, as mentioned, preemption effects lead to a functional diversification of related constructions, thus minimising constructional synonymy (Goldberg 1995: 67). As a result competing constructions will hardly ever be equally activated, with one alternative being more or less preferred over its competitors.

This view obviously has direct repercussions for syntactic research: instead of looking at constructions in isolation, it becomes necessary to investigate syntactic phenomena in the context of possible alternative variants. In order to fully understand the meaning of a construction, one needs to delimit its formal and functional properties from those of partially synonymous constructions. In 'Non-coordination-based ellipsis from a Construction Grammar perspective: The case of the *coffee* construction', **Lena Heine** looks at standard questions such as *Do you want some coffee?* and contrasts and delimits these from reduced alternatives such as *You want some coffee?*, *Want some coffee?*, *Some coffee?* or *Coffee?*. Drawing on data from the British National Corpus, she investigates whether the shorter forms can be analysed as purely phonetic reductions or whether there is a difference between the various alternatives with respect to their use, pragmatic function or register. She concludes that in contrast to the other alternatives, the simple noun phrase questions (*Some coffee? / Coffee?*) do not exhibit phonological reduction, while at the same time displaying a much narrower range of possible meanings (being limited to offers of food and drink) than the other types. As a result, Heine postulates that these simple noun phrase questions constitute an independent schematic construction in the constructional network of English interrogatives.

In the same vein, **Gert Webelhuth** ('Motivating non-canonicality in Construction Grammar: The case of locative inversion') compares the formal and functional properties of the locative inversion construction (*Beside Brad sat his wife*) with the related deictic inversion construction (*There sits Brad*). He points out that many of the shared important properties of the two constructions (such as their unusual word order, the requirements that the main verb must be intransitive, that the sentence must not be negated and that the logical subject must not be an anaphoric pronoun as well as similar topic-comment restrictions) can be explained by their shared discourse function. On top of

this, however, the locative inversion construction extends the discourse purpose of the deictic inversion construction to new circumstances in which the speaker talks about objects and events not present in the region visually observable by the hearer (that is, displaced events and objects). Webelhuth's paper is thus a prime example of how functional relatedness results in constructions with similar formal properties but also how such near synonymous constructions can still be functionally distinct.

Even if two constructions can generally be considered competing alternatives, however, they may at times exhibit idiosyncratic categorical effects. Take, for example, the ditransitive construction (*He gave Bill the book*), which normally competes with a prepositional alternative (*He gave the book to Bill*). This alternation is well studied (for an overview, see Bresnan et al. 2007) and many factors favouring either of the two variants have been discussed in the literature (such that short, animate, highly accessible or pronominal recipients strongly favour the ditransitive construction). At the same time there are idiosyncratic effects of particular verbs whose meaning is compatible with both constructions but which categorically can only occur in one of the alternative structures:

(2) a. *John donated the painting to the museum*.
b. **John donated the museum the painting*.

Examples like (2) raise the question of how speakers learn that verbs such as *donate* can only appear in the prepositional dative construction but not the ditransitive construction. After all, speakers might often encounter a new verb in only one of the two constructions (*she emailed John the answer*), but can still generalize that the other alternative is also a viable option (s*he emailed the answer to John*), even if they so far have not encountered it. As **Anatol Stefanowitsch** in his contribution 'Constructional Preemption by Contextual Mismatch: A Corpus-Linguistic Investigation' points out, the answer to this problem requires a closer look at how preemption actually works. He therefore empirically tests Goldberg's notion that preemption operates via contextual clues—that is, that it occurs when "discourse context matches a certain form but the speaker nevertheless uses a less felicitous form" (Goldberg 1995: 124). Using corpus data, he compares the givenness, syntactic weight and animacy of the post-verbal constituents of verbs that can appear in both constructions and those which categorically only surface in one of the alternatives. His statistical results show that both types of verbs occur in similar discourse contexts, which implies that preemption by contextual clues does not seem to play a major role. Instead, Stefanowitsch argues that negative evidence is an important factor leading to preemption: under this view, speakers possess subconscious probabilistic knowledge about the likelihood of constructions, with repeated non-occurrence of an expected pattern leading to negative entrenchment.

In her response to Stefanowitsch's paper ('Corpus evidence of the viability of statistical preemption'), **Adele Goldberg** presents corpus evidence in support of statistical preemption as a mechanism enabling learners to overcome the negative data problem associated with certain ungrammatical ditransitive structures. Critiquing some of the proposals that entrenchment may explain the restriction of particular verbs to particular constructions, Goldberg suggests that statistical pre-emption provides a principled reason for the rarity (and for the vast majority of native speakers of English, the ill-formedness) of constructions such as ??*She explained her the news* and ??*She saw the afraid boy*. A precise understanding of appropriate context is central for the modelling of statistical pre-emption: "only the contexts in which the semantic and information structure properties satisfy the potentially preempted construction are relevant" (cf. Goldberg this volume). Both corpus and experimental evidence are adduced in support of statistical preemption, though there is recognition that factors other than statistical pre-emption must be of relevance to the distribution of particular verbs in particular constructions in some cases (for example, where the target construction is of low frequency). The paper concludes with some discussion of the behaviour of verbs which do not alternate between ditransitive and dative constructions (which are addressed in detail in both Stefanowitsch's paper and Goldberg's response).

4. Construction Grammar and diachrony

The intersection of variation and change, specifically that while not all instances of variation induce change, all instances of change are preceded by a period of variation, has long been a focus of work in historical linguistics. As Andersen (2001: 228) has noted, "changes are always manifested in synchronic variation, and past changes can commonly be found to be reflected in synchronic alternations, or attested in written records". In the final part of this introduction, we focus on some of the ways in which ambient linguistic patterns may give rise to the emergence of new constructions of different degrees of schematicity and substantivity (Boas 2008). This is a process we can refer to as constructionalization (Rostila 2006). Patterns of constructionalization have been explored particularly in relation to instances of grammaticalization in the history of English, but are of course also relevant to more general kinds of grammatical change (Croft 2000).

Constructionalization is in many ways a natural descendant of earlier thinking on the place of constructions in language change. Lehmann (1992: 406), for instance, describes grammaticalization as operating not on a word or morpheme "but the whole construction formed by the syntagmatic relations of the elements in question". In such a definition, the 'construction' is the context within which a particular morpheme is located (see also Bergs and Diewald

2008b: 3–4; Bergs and Diewald 2009); while context is clearly important in grammaticalization, Lehmann does not appear to be referring to a symbolic form-function pairing when he uses the term 'construction'. By contrast, Bybee et al. (1994: 11) seem to be describing something close to constructionalization when they write: "It is the entire construction, and not simply the lexical meaning of the stem, which is the precursor, and hence the source, of grammatical meaning". As will be shown in section 4.2, we can extend this discussion to other kinds of constructional change. If constructions are dynamic, involving changes in both form and meaning (Bybee et al. 1994: 20), it is not the case that the output construction will necessarily be 'more grammatical' than the input; the key factor is the evolution of different kinds of meaning—for instance, an increase in procedural/indexical meaning in the case of grammatical constructionalization. Although we make reference to other kinds of change in section 4.2, we focus primarily on the place of constructions in grammaticalization in section 4.1.

4.1. *Grammaticalization*

Work on the intersection of construction grammar and grammaticalization processes in the history of English has been concerned in part with establishing some of the ways in which speakers conventionalise new constructions to fulfil particular procedural functions. Such conventionalization may involve the creation of something genuinely new to the system, through the reconfiguration of existing constructions. Grammatical constructionalization is about new ways of coding based on alternative construals, involving incremental adjustments at all levels of the architecture of a construction as posited by Croft (2001): discourse, pragmatics, semantics, syntax, morphology and phonology. Particularly, constructional approaches to grammaticalization have shed new light on critical issues such as reanalysis, analogy and gradience.

Recent work on grammaticalization has invoked a taxonomy of constructional levels of different degrees of schematicity: macro, meso, and micro-constructions, as well as constructs, those individual, attested, instances of use that form the loci of all grammatical innovations: see especially work by Traugott (2007, 2008a, 2008b) on English, and Fried (2008) on Czech. Micro-constructions represent a type (whereas constructs are tokens); meso-constructions are groups of similarly structured micro-constructions, while macro-constructions operate at the greatest level of schematicity for the process of change being explored. Work on composite predicates in the history of English (Trousdale 2008a) has suggested that these constructional levels operate as a network involving multiple default inheritance and intersection, but the role of default inheritance in a constructional model of variation and change is clearly one which remains to be fully explored.

A good example of grammatical constructionalization involves the development of the degree modifier construction in the history of English (see Denison 2002; Traugott 2007, 2008a, b; Trousdale 2008b; also Aarts 1998; Brems 2007 for related developments). Some Modern English compromisers (Quirk et al. 1985: 598) or moderators (Paradis 1997: 27) (e.g. *pretty*, *quite*, *rather*, *somewhat*) have arisen from what appears to be a 'standard' grammaticalization route, in which a particular lexical item acquires a more grammatical function in particular linguistic environments (e.g. for *pretty*, in prehead, attributive position); these forms share some properties with other other downtoners like *a bit* (e.g. they involve the imposition of some scalar quality on the head, which in turn involves some degree of subjectification, on which see further Nevalainen and Rissanen [2002: 360]); but the evolution of *a bit* as a degree modifier in the history of English shows parallels with a different set of forms, which Traugott (2008b) describes as *NP of NP* patterns. Although each member of the set derives ultimately from some *NP of NP* pattern, the set shows significant internal differences in a number of ways:

– degree and nature of phonological attrition (compare *a bit* [əbɪt] vs. *kinda* [kaɪnə] vs. *helluva* [hɛləvə])
– morphosyntactic distribution (e.g. the stereotyped northern California form *hella* has a wider distribution than *a bit*: while degree modifier *a bit* modfies adjectives (*a bit silly*), adverbs (*a bit quickly*), or appears as a free adjunct (*A: Did you like it? B: A bit*), *hella* can appear in all of these positions (see 3a to 3c), but additionally as modifier verbs (as discussed in Wood 2007 and Trousdale 2008b, and exemplified by 3d and 3e):

(3) a. *the new game lets you rock two weapons simultaneously, John Woo-style, which is not actually that useful but hella fun*. (Lev Grossman, The Art of the Visual, *Time* Magazine, 18 November 2004)
b. *passports were done hella quickly too* [http://www.yelp.com/biz/union-post-san-francisco-3; posted 8 December 2009, accessed 15 July 2010]
c. *Do you know how bad the wind and the rain need to be to make the rain go up your nose even when you're holding an umbrella? Hella.* [http://thatschurch.com/2008/06/13/never-say-never/; posted 13 June 2008; accessed 12 July 2008]
d. *A bunch of my friends reflected on a party where I'd convinced everyone to chase with slices of watermelon and made fun of me because it hella didn't work*. [http://jasmine1113.wordpress.com/2010/04/18/; posted 18 April 2010; accessed 16 July 2010]
e. *i need to hella try dis upcoming year* [http://www.juarol.com/viewtopic.php?f=107&t=6677&view=previous; posted 10 June 2008; accessed 16 July 2010]

– pragmatic function (e.g. *hella* and *loads* are boosters; *sorta* and *a bit* are downtoners)
– semantics of the noun in the source constructions (e.g. examples like *a hell of a problem* involves a predication relation between NP1 and NP2; *kind* and *sort* involve types, while *lot* and *bit* involve units or parts)

The similarities across the set are clear, but so are the differences. And a constructional approach to the evolution of such forms illustrates the complex intersection of changes in different aspects of form and different aspects of meaning which characterise the process known as grammaticalization.

An important issue here concerns the effect of grammaticalization on the structure of the network as a whole. Undoubtedly it is the case that context is relevant in grammaticalization (see, for example, Diewald 2002; Bergs and Diewald 2009; Fried 2009 and Traugott 2010 for discussions of the context and constructional change); but we must go further than Lehmann's (1992: 406) observation, quoted previously, regarding the relationship between a grammaticalizing morpheme and the 'constructional' context in which that morpheme occurs: grammaticalization systematically changes the configuration of part of the constructional network. Indeed, the various crystallizations which characterise the evolution of the degree modifier construction provide evidence for this: as a set of micro-constructions grammaticalize, the entrenchment of the more abstract meso-construction sanctions new instances (or extensions), manifest in an increase in type frequency; this entrenchment also strengthens the mental representation of the type. As the more abstract type grammaticalizes, it sanctions newer, more diverse instances, observable first, as is so often the case, in non-standard varieties (such as *grippa* and *ganga* in Californian English, which have emerged alongside *hella* and *hecka*: see Trousdale 2008b). Such a pattern is entirely predictable in a model of language structure which sees linguistic knowledge as organised in a constructional network. It is further strengthened by collostructional accounts of variation (for example, Stefanowitsch and Gries 2003) and change (for example, Hilpert 2008). Furthermore, while frequency changes are undoubtedly an important factor in grammatical constructionalization (Bybee 2003), it is important to stress that grammaticalizing elements do not necessarily change at same rate (*pace* Kroch 2001): the gradual emergence of a meso-construction is the consequence of crystallisations of micro-constructions which develop at different stages and with varying degrees of rapidity/frequency.

Patterns such as these are gradual, in that "[e]ach intermediate step in the process represents an intermediate construction type in structural terms" (Croft 2001: 313), and are characterised by the kind of expansions noted by Himmelmann (2004). Such gradual emergence is also relevant for our understanding of the role played by reanalysis and analogy in grammaticalization. Bergs and

Diewald (2008b: 9) defined constructional reanalysis as "the very concrete dissolution and creation of new constructions in the inventory", while Kiparsky (2005) and Fischer (2007) have argued strongly for the importance of analogy in processes of grammaticalization. From a constructional perspective, Traugott and Trousdale (2010) distinguish analogical thinking as a motivation for change from analogization as a process. Analogization induces realignment which produces new uses/forms for extant strings, and which will modify a higher-level construction of which they are or become part, but by hypothesis will not always result in a new structure for the system. As micro-analogizations accumulate, these can lead to what looks like a major shift, such as loss of OV or V2 in English, and even on occasion the development of a new category, for example the development of CP in Germanic (Kiparsky 1995), but change may be less dramatic than conceptualized by, for example, Lightfoot (1979). These micro-analogizations can be very small, and occur in only part of a construction, as illustrated earlier with the degree modifiers.

The paper by **Nikolas Gisborne** ('Constructions, Word Grammar, and grammaticalization') in this special issue illustrates some of the ways in which grammatical constructionalization may be represented in the architecture of Word Grammar (Hudson 2007b). Gisborne makes reference to two well-known changes in the history of English syntax—the development of English auxiliaries and the loss of impersonal constructions. His particular argument is that grammatical restructuring concerns facts of constructions, not simply facts of syntax; he presents an analysis, both of the development of the English auxiliary *will* and of loss of impersonal constructions involving Old English verbs such as *hreowan* 'rue' and *lician* 'please', which focuses on changes in the xcomp construction (particularly, changes in the semantic patterns with which the xcomp construction is associated). The x-comp in Gisborne's terminology is "the grammatical function of a predicative complement", a relation which holds between verbal elements in raising and control predications. Gisborne argues that xcomp relation involves constructional polysemy, and that changes in the semantics of the xcomp construction help to explain the processes of auxiliation and of the loss of non-nominative subjects in English.

4.2. *Other types of constructional change*

Grammaticalization is a particular kind of constructional change. The relationship between grammaticalization and diachronic constructional change more generally is discussed by Noël (2007), who suggests that some cases of constructional growth (for example, the development of the *way*-construction, Israel 1996) appear not to have the hallmarks of traditional grammaticalization. Furthermore, the development of lexical constructions (for example, Modern English *auger* 'tool with helical shaft typically used to bore holes' < Old

English *nafu* 'nave' + *gar* 'spear'), while sharing some processes of change associated with grammatical constructionalization, clearly does not involve the creation of grammar. A critical issue for research on constructional approaches to change, then, is to establish what is the set of outcomes of constructionalization. Relevant here is work on degrammaticalization (on which see Norde 2009, and for a constructional account, De Vogelaer 2008), and on collostructional variation and change (for example, Colleman and De Clerck 2008 this volume; Mukhergee and Gries 2009).

One thing that constructional approaches to language—and particularly, approaches to language variation and change—have shown is that idioms are not the only constructions, and while it is not the case that every phonetic sequence is a construction, it is the case that any phonetic sequence may become a construction if it is conventionalised via a symbolic link to a particular meaning or set of meanings. Additionally, more schematic constructions may emerge over time, again if a symbolic link is established. This conventionalization becomes manifest in instances of the orderly heterogeneity described by Weinreich et al. (1968), see also Bergs and Diewald (2008). As discussed above, Heine (cf. this volume) illustrates some of the ways in which variation might be accounted for within a constructional framework which focuses on frequency of use. Frequency has also regularly been seen as an important factor in exemplar-based accounts of morphosyntactic change (Bybee 2006), and the intersection of individual word frequencies and the constructions in which they appear (see, for example, Tottie 1991 on negation marking in English, which is amenable to a constructional analysis). The interplay between the semantics of individual words and the more schematic constructions in which they participate is also addressed in this issue, in **Timothy Colleman and Bernard de Clerck**'s paper on the recent history of the English ditransitive ('Constructional semantics on the move: On semantic specialization in the English double object construction'), which illustrates how semantic narrowing is manifest in constructional evolution. This paper is concerned with ways in which change in constructional semantics parallels change in lexical semantics. Using a corpus of Late Modern English texts (De Smet 2005), Colleman and De Clerck show that the subtypes of double object constructions attested in present-day English (on which see Goldberg 1995) were also attested in eighteenth-century British English; but they also show that some patterns were available to speakers of Late Modern English which are no longer possible for contemporary speakers. In some cases, one meaning of a particular lexical item has been lost (e.g. *bespeak* 'order' or 'arrange'); but more crucially, there are cases in which the lexical meaning has persisted, but appearance in double object constructions is no longer sanctioned (e.g. *banish*). Focusing on five sets of verbs (including verbs of communication and dispossession), the authors chart various stages of constructional change, and suggest that the constructional semantics has

undergone specialisation (see also Rohdenburg 1995), supporting not only the claim that constructional semantics may change in a way akin to lexical semantics, but also the claim that constructions are polysemous, with prototypical meanings which tend to be constant, and peripheral meanings which are more susceptible to change.

5. Conclusions

Constructional approaches to variation and change in English have suggested the following:

- that language is a network of knowledge, whereby speakers generalise across instances of use to create a flexible system. Nodes in the linguistic network are linked to other parts of the individual's cognitive system associated with, for instance, social categorization (Hudson 1996). Constructional variation and change in English takes place in a social context. That construction grammar and quantitative sociolinguistic theory should come together is perhaps unsurprising, given the usage-based nature of both frameworks. The article by Hollmann and Siewierska this volume, on definite article reduction in Lancashire English, shows how social conceptions of place and space—key issues in both traditional dialectology and increasingly in variationist sociolinguistics—relate to the frequency of particular variants of nominal constructions in a non-standard variety of British English.
- this network of knowledge is flexible and change in the network is gradual, a product of micro-steps (Traugott and Trousdale 2010). As constructions grammaticalize, we perceive a series of interconnected shifts at different linguistic levels. As a result, we witness reconfiguration of the network.
- social and linguistic context will by definition have a role to play, if a network model is adopted.
- different parts of this network undergo different degrees of entrenchment. Varying degrees of entrenchment may in turn lead to new constructions emerging, and old ones dying out.
- regional and non-standard varieties of English provide those interested in refining the theoretical model with a wealth of data, further evidence that linguistic theory is enriched and made more powerful by a shift away from the story of standard English.

We hope that the research presented in this special volume will encourage more work on the relationship between constructions and linguistic variation and change.

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