From grammaticalization to Diachronic Construction Grammar

A natural evolution of the paradigm

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The term grammaticalization originally denoted a particular outcome of language change (lexis > morphology), then got expanded to practically all studies involving language change, the processes that create such changes, and a theory modeling these. These expansions have been challenged in the literature as conceptually flawed. A usage-based analysis of the evolution of the concept culminates in the use of the term grammaticalization as a "flag" of a particular approach to linguistics. However, the theoretical premises of grammaticalization studies are entirely compatible with the premises of Diachronic Construction Grammar (DCxG). All studies within the "expanded" concept of grammaticalization can be explicitly modeled within DCxG, which provides formalism of sufficient detail to map the gradual nature of language change in cases of grammaticalization and beyond. Consequently, the most vigorous attacks on grammaticalization lose power when grammaticalization is seen as part of a larger, more complete theory of language and language change.

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1. Introduction

The term **grammaticalization** began its life with a fairly narrow technical definition, primarily focused on the observable fact that independent lexical items become bound grammatical morphology (Meillet 1912). However, with the explosion of grammaticalization studies beginning in the 1970s, many scholars have taken the term far beyond that original definition, expanding and shifting the meaning of the term to label a broader range of grammatical change and also to

label the process by which such changes take place. A similar expansion came via the natural scholarly instinct to ask "Why?". From the early stages of the surge of interest in grammaticalization, scholars have sought to explain apparently consistent patterns that emerged from the many case studies, as well as to use these historical patterns to explain synchronic grammatical patterns. Since grammaticalization studies were, and still remain, anchored in a loose community of functional and typological linguists,[1] a group that has largely rejected formalist models of linguistics, informal collocations such as "theory of grammaticalization" and work situated "within the framework of grammaticalization theory" gradually became more and more common.

Not surprisingly, other scholars have found fault with these expansive uses of the term (e.g., Campbell 2001, inter alia). Some historical linguists fear that "grammaticalization" has become so broad as to encompass virtually any kind of historical change in (morpho)-syntax (e.g., Joseph 2004, 2011), or so as to potentially obscure important distinctions between types of morphosyntactic change (e.g., Wiemer & Bisang 2004). Other historical linguists have rejected the claim that "grammaticalization" describes a unique diachronic process at all, and by extension, they see no justification for an independent theory of this non-process (in addition to the scholars cited above, cf. also Anderson 2015: 17–19). While heated, debates about these topics have not been particularly productive, resulting mostly in repetition of entrenched positions (cf. Joseph's 2021 reiteration of what grammaticalization "is not").

In this article, we offer a new, completely different assessment of the growth of the term, then we propose that positioning grammaticalization within the model of Diachronic Construction Grammar (DCxG) would actually resolve most of these disputes. We do not propose to contrast Grammaticalization and DCxG in terms of metrics like predictive power, but rather in terms of their scope and theoretical sophistication. As the critics have pointed out, Grammaticalization does not have a well-elaborated agreed-upon theory, and it is limited in focus to the genesis of grammatical morphemes (and, for some, innovative collocations). Here, we suggest that the entire enterprise of grammaticalization can be subsumed within the model of DCxG, to the ultimate benefit of both communities of researchers.

We recognize that we are not the first to examine the confluence of grammaticalization and DCxG: Noël (2007); Gisborne & Patten (2011), Hilpert (2013, 2018), and Coussé et al. (2018) all argue that, although there are extensive overlaps between the two, neither can be contained wholly within the other. While

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1. Of course, some generative linguists have also published on the phenomenon of grammaticalization, as we discuss briefly in Section 2.

Traugott & Trousdale (2013) focus on how some traditional problems of grammaticalization can be insightfully modeled within their approach to "grammatical constructionalization" (particularly the apparent incongruity of "grammaticalization as reduction" and "grammaticalization as expansion"), they do not take an explicit stand on whether any part of grammaticalization is beyond their model.

We offer five reasons for our position that grammaticalization can be subsumed within DCxG:

- Compatible theoretical assumptions
- DCxG mechanisms provide a framework
- Compatible explanatory parameters
- Increased rigor of syntactic reconstruction
- Alleviates the need for a separate **theory** of grammaticalization

We now discuss each of these in turn. First, the theoretical postulates of Construction Grammar (CxG) are largely compatible with, and indeed grew out of, the usage-based functionalist perspective characteristic of most work in grammaticalization. This is especially relevant given the increasing prominence in the grammaticalization literature of the importance of constructions as the locus of grammaticalization.

Second, the specific mechanisms of historical change, outlined in recent work in Diachronic Construction Grammar (e.g. Hilpert 2013; Traugott & Trousdale 2013; Barðdal et al. 2015; Sommerer & Smirnova 2020; inter alia), provide a framework within which to articulate what is shared and what is distinct about the heterogeneous phenomena that have been lumped into the most expanded uses of the term "grammaticalization". In particular, the same mechanisms that model the creation of and subsequent change within schematic constructions, often considered outside of the scope, or at best at the margins of grammaticalization, are also sufficient to model all of the changes that are found in the prototypical grammaticalization examples (i.e., lexis > morphology).

Third, DCxG can invoke the same kinds of explanatory parameters, e.g., frequency, exaggeration, as those found in the grammaticalization literature. What is more, DCxG offers a more explicit model that not only lays out the finer details of the analysis, but also better facilitates the testing of these as synchronic hypotheses.

Fourth, by recognizing the relevance of the larger construction as the critical "cognate" unit and by distinguishing the distinctive synchronic outcomes characteristic of different mechanisms of change, DCxG makes it possible to increase the rigor of syntactic reconstruction, even in languages with little depth of attested history (cf. Barðdal & Eythórsson 2012a and the contributions to Barðdal et al. 2020). This, in turn, can increase the confidence with which we assert cognacy

between lexical sources and grammatical morphology and identify pathways of evolution between them.

Fifth and finally, viewing grammaticalization through the lens of Construction Grammar obviates the need for a separate **theory** of grammaticalization, allowing us to seek unified explanations for both synchronic and diachronic patterns of language inside a larger theory of language, a theory which is already tied to human cognition and social behavior.

In Section 2 below, we use selected quotes to illustrate the semantic expansion of the term "grammaticalization", culminating with special attention to citations that give prominence to the importance of constructional context. This revisits some quotes from the rigorous overview presented by Campbell & Janda (2001), but presents them in quite a different light. Then in Section 3, we offer a brief introduction to Diachronic Construction Grammar, pointing out both the obvious independence from classical grammaticalization studies, but also noting relevant overlaps. In Section 4, we argue that typical grammaticalization phenomena are readily modeled in DCxG, including possible explanations for the statistical asymmetries in syntactic change (i.e. unidirectionality) and gradience of categories that have most often been invoked as justifying the need for a distinct "theory of grammaticalization". In Section 5 we discuss a more schematic kind of syntactic change that creates innovative grammar, but that, by some definitions, falls outside the domain of grammaticalization and, if included, makes it clear that there is definitely more than one "process of grammaticalization" at work. In Section 6 we present our conclusions and outline a forward look at how the CxG framework could contribute to enriching the research goals of grammaticalization studies, not only in the domain of reconstructing syntax, but also more generally.

2. Grammaticalization: A usage-based analysis

In this section, we review both explicit definitions of grammaticalization and the more implicit notions embedded in uses of the term in the literature. There has already been ample discussion – and critique – of both the original and the expanded definitions of the term "grammaticalization" (cf. especially Campbell 2001; Janda & Joseph 2003; Joseph 2004). Similarly, there is abundant literature discussing what does and does not constitute a unit of "grammar" in the sense that might motivate the term "grammaticalization". In this section, we do not address the substance of such debates and by the end of the paper we will assert that they are much less meaningful (and fraught) when we analyze the relevant phenomena within the framework of DCxG. Our goal is to explore the definitions of "grammaticalization", and especially the expansion of the scope of the term, in support

of a different narrative: rather than attacking the expanded usage as leading to incoherence and vacuousness, we suggest viewing it as a reflection of the tremendous growth in the scope of studies in historical syntax. Even as scholars' interests extend well beyond the domain originally denoted by the term, its continued use reflects a desire to maintain solidarity with the intellectual community that identifies as studying "grammaticalization".

From our perspective, the expansion of the usage of the term grammaticalization comes in two flavors, one denoting the category of phenomena under study, the other seeking explanation for synchronic grammatical patterns in evolutionary terms. We begin with the denotational expansion, departing from some of the earliest uses and definitions of grammaticalization, before tracking examples of its semantic expansion to describe broader phenomena. We then outline the processes that resulted in those phenomena and ultimately we characterize an explanatory theoretical perspective in linguistics. Although the organization of this list might suggest an orderly linear progression, in fact, these expansions come intertwined almost from the outset and are apparently ongoing.

The first published use of the term "grammaticalization" was by Meillet (1912: 133), who introduces grammaticalization as a process of innovation in contrast to the well-established concept of analogy:

> … the other process of innovation, the passage from autonomous words to the role of grammatical agents, has been much less studied … The importance is indeed decisive. While analogy may renew the details of forms, but usually leaves intact the overall plan of the existing system, the 'grammaticalization' of certain words creates new forms, introduces categories which did not have linguistic expression, and transforms the whole of the system.[2] (all translations SG & JB)

In the body of his paper, Meillet gives multiple examples of the change from independent lexical word to grammatical morpheme, sometimes as affix but also as auxiliary. Meillet (1912: 147) denies the cognitive importance of that difference, asserting that speakers do not "do analysis" with auxiliaries nor do they "do synthesis" with affixes. He (1912: 147) concludes with a statement that could be interpreted as foreshadowing a claim for unidirectionality, namely that "'[s]ynthesis' is

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2. Sans avoir jamais été perdu de vue, l'autre procédé d'innovation, le passage de mots autonomes au rôle d'agents grammaticaux, a été beaucoup moins étudié durant les quarante dernières années. On commence maintenant à s'y attacher de nouveau. L'importance en est en effet décisive. Tandis que l'analogie peut renouveler le détail des formes, mais laisse le plus souvent intact le plan d'ensemble du système existant, la« grammaticalisation » de certains mots crée des formes neuves, introduit des catégories qui n'avaient pas d'expression linguistique, transforme l'ensemble du système.

a necessary and natural consequence of the use that is made of groups of words".[3] At the very end of the article, Meillet (1912: 147–148) mentions, almost in passing, that:

> … words are not alone in being subject to becoming grammatical elements; the way of grouping words can also become a process of grammatical expression … The phenomenon is of the same order as 'grammaticalization' of this or that word; instead of a word used in a group with others that assumes the character of 'morpheme' by an effect of habit, it is a way of grouping words together.[4]

This final quote refers to the use of constituent order in French, rather than the case marking of its ancestor, Latin, to indicate subject and object; while Meillet does not directly call this type of innovation 'grammaticalization', in noting the close relationship ("of the same order"), he still forebodes the more exuberant future use of the term.

Half a century later, Kuryłowicz (1965: 69) reiterated Meillet's definition, but expanded it slightly to include in the category the change of an existing grammatical morpheme from derivational to inflectional:

> Grammaticalization consists in the increase of the range of a morpheme advancing from a lexical to a grammatical or from a less grammatical to a more grammatical status, e.g. from a derivative formant to an inflectional one.

This definition makes the explicit claim that derivational morphology is "less grammatical" than inflectional morphology, but does not address whether the genesis of derivational morphology itself would constitute an example (even if not prototypical) of grammaticalization (see, however, Spencer 2013, among others, on the lack of viability of the distinction between inflectional vs. derivational morphology). Continuing this more restrictive use of the term, Lehmann (1982/1995) composed the monograph *Thoughts on grammaticalization*, in which he sought to create a rigorous, explicit definition of grammaticalization by offering a set of parameters which could measure the degree to which a given morpheme could be said to have grammaticalized.[5]

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3. La « synthèse » est une conséquence nécessaire et naturelle de l'usage qui est fait de groupes de mots.

4. Les mots ne sont du reste pas seuls à être sujets à devenir des éléments grammaticaux; la façon de grouper les mots peut aussi devenir un procédé d'expression grammaticale … Le phénomène est de même ordre que la « grammaticalisation » de tel ou tel mot; au lieu que ce soit un mot employé en groupe avec d'autres qui prenne le caractère de « morphème » par un effet de l'habitude, c'est une manière de grouper les mots.

5. Lehmann certainly incorporated important elements of Givón's work into his criteria, so the contrast between Lehmann in this paragraph and the "West Coast Functionalists" in the next

In contrast, the term "grammaticalization" enjoyed a more expansive use in the community that we may loosely characterize as "West Coast Functionalists". Only six years after Kuryłowicz' revived interest in the term, Givón (1971: 413) famously declared that "Today's morphology is yesterday's syntax". While this formulation is clearly within the bounds of the original uses of Meillet and Kuryłowicz, Givón soon went well beyond the original concept when coining the term "grammaticalization path", explicitly including the kinds of changes that are both larger and smaller than lexis to morphology:

> discourse > syntax > morphology > morphophonemics > zero (Givón 1979: 209)

In the same vein, in Burling's (1992) introductory linguistics textbook, first year linguistics students learn that:

> [w]ith the passage of time, loosely joined words may be drawn into more tightly defined syntactic constructions … The process by which words are drawn into increasingly rigid syntactic constructions is called grammaticalization.
>
> (Burling 1992: 300)

In the more recent literature, the term grammaticalization is often used to refer to the formation of larger units than the morpheme, as in the following quote from Lehmann (2002: 7): "It seems appropriate to say … that the collocation of a *verbum dicendi* and a sentence specifying the content of the communication … has been grammaticalized into a complex sentence". This expanded use of the term "grammaticalization" is also implicit in the title of Heltoft's (2011) article: *Word order change as grammaticalisation*. The term has even been applied to abstract syntactic categories like subject and object, as is evident from the following quote by Faarlund (2001: 12): "If the grammaticalization of subjecthood is not accompanied by a loss of case marking, a conflict may arise between case and position".

In addition to the strand of grammaticalization studies that has focused on the process as one in which a lexical item becomes more abstract and limited in scope, until it is reduced to a bound morpheme, another strand of research has studied the genesis of morphemes like discourse markers or particles. We agree that discourse markers seem to be grammatical in nature, yet, in their creation, they appear to gain new meanings and expand in scope, for instance from modifiers of phrases to modifiers of entire clauses. As discussed by Narrog & Heine (2011: 5), some researchers consider these to be different subtypes of grammaticalization, the traditional process operating at the 'propositional level', the other one at the 'text-discourse level'.

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paragraph is more one of rigor and constraints of the subject matter than it is to the compatibility of their views.

Another subset of scholars prefers to distinguish the creation of discourse morphemes as a paraphernalia belonging outside of grammaticalization, a process better labeled as **pragmaticalization**. Traugott & Trousdale (2013: 105–112) discuss this distinction at some length, giving a detailed exposition of the similarities and differences and concluding that "Grammaticalization as Reduction" (traditional grammaticalization) can largely be subsumed within the other, which they label "Grammaticalization as Expansion" (not to be confused with Himmelmann's 2004 notion of "host class expansion", discussed below). Traugott and Trousdale make a convincing case that both kinds of grammaticalization share significant properties; in Section 4, we argue that both are insightfully modeled within the perspective of Diachronic Construction Grammar.

In addition to the expansion of both the outcomes and the processes referred to by grammaticalization, in the 1990s collocations of the terms **grammaticalization** and **theory** began to appear with increasing frequency. Two examples are the following:

> We then focus on a few examples of the development of clause combining across time where the theory of grammaticalization may either help us understand the facts of complex sentence structure, or may suggest a different way of thinking about it than has been customary. (Hopper & Traugott 1993: 176)

> Grammaticalization theory is neither a theory of language nor of language change; its goal is to describe grammaticalization, that is, the way grammatical forms arise and develop through space and time, and to explain why they are structured the way they are. (Heine 2003: 575)

Among other things, grammaticalization as theory has been invoked to explain the existence of non-discrete categories:

> The study of grammaticalization therefore highlights the tension between relatively unconstrained lexical expression and more constrained morphosyntactic coding, and points to relative indeterminacy in language and to the basic non-discreteness of categories. (Traugott & Heine 1991: 1)

At roughly the same time, three major monographs appeared in print, Heine et al. (1991), Hopper & Traugott (1993), and Bybee et al. (1994), all of which embraced the larger conception of grammaticalization as a way to explain synchronic morphosyntactic patterns (cf. also Heine 1994 for a more explicit statement of this position).

These expansions of the original denotation of grammaticalization have not passed without criticism: some scholars have debated the proper boundaries of the phenomenon, others have questioned the existence of a distinct process of

historical change that could be called "grammaticalization", still others have challenged the assertion of any independent theoretical status to the phenomenon.

Observe, also, that Harris & Campbell's (1995) monograph on diachronic syntax proposes only three mechanisms of syntactic change, namely, (i) reanalysis, (ii) extension, and (iii) contact-induced change. Harris & Campbell argue that these three mechanisms can account for all syntactic changes, including those that result in grammaticalization (defined both narrowly and broadly). This critique was amplified in a special issue of the journal *Language Sciences*, whose introduction conveniently offers a single quote to represent all the conclusions:

> 'Grammaticalization theory' is seriously flawed and misleading, as well as, arguably, totally superfluous, since existing mechanisms already suffice to account for the phenomena at issue; what we need, instead, is a deepening and broadening of knowledge, not the inappropriate and erroneous claims surrounding this putatively new and qualitatively unique conceptual apparatus.
>
> (Campbell & Janda 2001: 108)

The tone of Janda & Joseph's (2003) introductory chapter to the *Handbook of historical linguistics* is similarly hostile. For example, following a lengthy discursus on the debates within biology over gradual change versus punctuated equilibrium, Janda & Joseph (2003: 58) develop a straw man position created by Dawkins to show that no serious scholar would believe in consistent, gradual change. They then suggest that this straw man position is essentially the one advocated by scholars in the grammaticalization literature. Moreover, within the generative tradition (e.g. Roberts 1993; Kiparsky 2012; Anderson 2015), the creation of innovative grammar is simply a function of reanalysis or analogy, denying any unique historical or theoretical status to grammaticalization.

One of the more interesting defenses of grammaticalization as a theory came from Hopper & Traugott (2003: 131ff), who assert the following:

> While such criticisms need to be taken very seriously, several important characteristics of the study of grammaticalization usually get lost in the discussion. One is that grammaticalization is a functionalist theory – a theory about the interaction of language and use … Functionalists theorists seek to account for the relationship between language and use, and for local, gradient phenomena in language … From the diachronic perspective, … it is a theory of the relationship between structure and use, not of change in grammar … From the synchronic perspective, too, it is a theory of the relationship between structure and use, and of the emergent properties of language. Therefore, characterizing grammaticalization exclusively as an epiphenomenon of reanalysis, or of other factors in change fails to address a large subset of the phenomena under consideration in studies of grammaticalization. (Hopper & Traugott 2003: 132)

This last quote indeed captures essential facts about this debate: irrespective of where one falls on the spectrum of definitions regarding the scope of "grammaticalization", most practitioners see the phenomenon as a component of a usage-based approach to grammatical theory. However, these practitioners are not primarily in the business of elaborating the details of a larger usage-based theory, so to the ears of those who **are** concerned with issues of theory, "grammaticalization theory" sounds at best inchoate and at worst vacuous. To the extent that what is missing in this equation is a well-articulated, general, usage-based theory of language, it seems natural to consider Construction Grammar, which is precisely such a theory.

Interestingly, many studies on grammaticalization now emphasize the centrality of the construction (albeit in a somewhat pre-theoretical way). Consider first the formulation by Himmelmann (2004: 38):[6]

> In the view developed here, grammaticization and lexicalization both are processes of conventionalization. They start out from a common point of origin, namely, the spontaneous and productive combination of lexical items in discourse, and lead to conventionalized expression types … In this sense, lexemes, idioms, speech formulas and grammatical constructions are all similar in that they are products of conventionalization … The essential difference between grammaticization and lexicalization pertains to lexical generality. In lexicalization a specific string of items is conventionalized. In grammaticization the process of conventionalization applies to an expression pattern consisting of at least one fixed item (the grammaticizing element which becomes the increasingly general construction marker) and a growing class of items which enter into this construction.

From the perspective espoused by Himmelmann, the concept of grammaticalization is not unique, but can rather be reduced to any non-lexical constructional change that contains a fixed item to serve as its locus. Were one to step away from the requirement that there necessarily be a "grammaticizing element" as locus, this would serve as a definition of any constructional change that produces innovative grammar.

Already in 2004, at least two scholars seem quite willing to take the step of not requiring any grammatical element as being the locus of "grammaticalization". First, DeLancey (2004) characterizes both the start and the end of grammaticalization only in terms of constructions: "The starting point for the process is a productive syntactic construction …" (2004: 1593) and:

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6. The term **grammaticization** in Himmelmann's quote is synonymous with "grammaticalization".

> For the purposes of grammaticalization theory the most useful criterion for identifying grammaticalization is the degree to which the output of the process is a new productive construction, i.e. a new element of grammatical structure, as opposed to simply a new set of (one or more) lexical forms.
>
> (DeLancey 2004: 1598)

Second, Haspelmath (2004: 26) takes this step still farther: "A grammaticalization is a diachronic change by which the parts of a constructional schema come to have stronger internal dependencies". To complete the equation of grammaticalization with one subtype of constructional change, it seems that one would merely need to demonstrate that the same historical mechanisms of change that operate to produce a grammatical morpheme also operate in creating new grammatical constructions, even when they do not produce such a grammaticalized element. In fact, this appears to be the view adopted by the editors of the very volume in which Himmelmann's essay was published:

> The contributions to this volume share the common endeavor to look at grammaticalization from a broader perspective which goes beyond changes along grammaticalization "clines" ("channels", "paths") from morphosyntactically more complex to more reduced expression formats or from semantically more concrete to more abstract notions … If grammar is understood as a system of more or less stable, regular and productive form-function mappings, the field of grammaticalization in the above sense of a broader perspective is to be extended to all the processes involved in the diachronic change and in the emergence of such systems.[7]
>
> (Wiemer & Bisang 2004: 4)

The conclusion we draw from these extensions of the usage of the term "grammaticalization" is that scholars working in functional approaches to language have been using the label "grammaticalization" to draw attention to the reality that diachronic forces indeed shape synchronic grammar. Consequently, embracing this reality has interesting theoretical implications that are congenial to functionalist, usage-based approaches to linguistics. From its first invocation, the notion of

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7. Note that later in the same article, Wiemer & Bisang (2004: 13) do express reservations about their formulation:

> Ought we to widen grammaticalization theory in a way that would allow the inclusion of types of structural change which can hardly be described by (or even contradict) prevalent parameters of grammaticalization, first of all those established by C. Lehmann ([1982/]1995)? In other words, is it reasonable and viable to aim at a more comprehensive grammaticalization theory, or should we rather not "sacrifice" its mainly morpheme-based tenets?

Of course, the title and contents of the volume provide an affirmative answer to this question.

grammaticalization has partially fulfilled these larger functions – in the absence of a well-articulated theory that addresses the kinds of grammatical change that do not obviously belong to the story of lexis > grammar, the term "grammaticalization" has been pressed into service in ways that have stretched its meaning and freighted it with ever more social significance, ultimately making it a badge that identifies its users as different from the users of purely synchronic, as well as formal, theories of grammar.

The original formulation of the concept of grammaticalization was certainly a timely enterprise, providing a launching point that inspired the research community to recognize that synchronic grammar is the outcome of a process (or processes) of grammatical change. Obviously, there are more historical changes of interest than were captured in the original formulation, and just as obviously, some scholars who studied the types of morphological changes that were captured by the original formulation have had broader interests, both in the phenomena that they have studied and in their desire to use their understanding of diachrony to explain synchronic patterns. By expanding the scope of their studies without adding new terms to distinguish phenomena excluded by the original definition, these scholars have expanded the denotation of grammaticalization. The success of this usage-based process of expansion of the term "grammaticalization" further invites us to make explicit the implicit connections that the community of users seems to have found appropriate.

We conclude this section with the illustrative formulation found in DeLancey (2011:365), which combines the maximum expansion of phenomena within the category and the central theoretical importance of addressing these phenomena from a diachronic perspective:

> In the functionalist view, essentially shared with the Cognitive Linguistics school, all linguistic form above the level of morpheme, from word classes and affix categories to long-distance anaphora and control phenomena, originates in constructions and categories with transparent motivation. The role of grammaticalization theory is to explain how fixed, recurrent constructions develop from transparent, motivated concatenations of words.

We believe that this statement would be enthusiastically endorsed by most practitioners of (Diachronic) Construction Grammar, and more, that there would be no loss of content or social value were we to swap out the label "grammaticalization theory" for "Diachronic Construction Grammar". However, there would be substantial gain: Construction Grammar is explicitly designed to model all kinds of language structure, from the smallest lexical or grammatical morpheme to the largest concatenation of words in discourse, and it is also well-suited to model-

ing the mechanisms and processes that give rise to new language structures of all sizes.

In the remainder of this article, we argue that DeLancey's vision is wholly shared by those who work in DCxG and that by embracing the model of DCxG as a natural theoretical home for grammaticalization, we can build on, and even enhance, the theoretical claims associated with grammaticalization, while stepping away from the least-productive of the terminological debates. We begin this argument by presenting a (very) condensed version of Diachronic Construction Grammar.

3. Brief introduction to Diachronic Construction Grammar

Construction Grammar has by now become an established alternative to other mainstream linguistic theories and it is growing exponentially within the realm of historical linguistics. More and more historical linguists embed their studies in and use the conceptual machinery and analytical tools provided by Construction Grammar. Thus, the extension of Diachronic Construction Grammar to the earlier community of scholars working on grammaticalization (cf. Bybee 2013; Traugott & Trousdale 2013; Trousdale & Norde 2013; Diewald 2020) has begun to make a major addition to this field of research.

In this section we start by briefly summarizing the basic concepts and assumptions of Construction Grammar (Section 3.1), before laying out some of the predictions on language change entailed by these basic concepts and assumptions (Section 3.2). At various points, we elaborate the relevance of these formulations to (those who) work in grammaticalization. For a sample of compatible (and similarly condensed) introductions with somewhat different foci, see also Hilpert (2013, Chapter 1), Traugott (2015); Smirnova (2015), and Coussé et al. (2018).

3.1 Construction Grammar

Construction Grammar is an explicitly usage-based model that emerged as a response to the generative framework and its lack of attentiveness towards extragrammatical data, i.e. data that cannot be parsed with general syntactic rules, like set phrases, collocations, and idioms. This also includes linguistic material exhibiting non-compositional meaning, i.e., meaning which is not derivable from the meanings of the individual parts (cf. Lakoff 1987, Fillmore et al. 1988, Nunberg et al. 1994). Having recognized the need for a notion like "construction" to model these kinds of data, Construction Grammar extended the notion to regular linguistic expressions (where the meaning of the whole can, in many cases, be

derived from the meaning of the parts), like the ditransitive construction, the passive construction, the resultative construction, etc. (Croft & Cruse 2004: Chapter 9; Goldberg 1995; Fillmore 2013).

This extension of the constructional machinery to account for regular linguistic units follows from a foundational postulate of Construction Grammar: the construction, a form–meaning pairing, is the basic unit of language. In other words, the same larger form–meaning unit that is needed to describe semantically non-compositional constructions can also be used to capture semantically compositional, or regular, expressions (cf. Croft 2001: 180–184, Croft & Cruse 2004: 255). This, in turn, has resulted in a uniform representation of constructions within Construction Grammar, as form–meaning correspondences that exist at different levels of language, ranging from bound morphemes to fully schematic constructions like the transitive construction.

Constructions may also be distinguished along different dimensions, like the scale from bound to free, the scale from lexically concrete to schematic, as well as the scale from atomic to complex (cf. Croft 2001: 17, Croft & Cruse 2004: 291, Goldberg 2006, 2013). A sample of construction types is illustrated in Table 1, ranging from atomic and substantive constructions, like words, to complex and schematic constructions, like the passive.

Table 1. The syntax–lexicon continuum (Croft & Cruse 2004: 255)

Construction Type	Traditional Name	Examples
Complex and (mostly) schematic	**syntax**	[SBJ *be*-TNS V-*en by* OBL]
Complex, substantive verb	**subcategorization frame**	[SBJ *consume* OBJ]
Complex and (mostly) substantive	**idiom**	[*kick*-TNS *the bucket*]
Complex but bound	**morphology**	[NOUN-*s*], [VERB-TNS]
Atomic and schematic	**syntactic category**	[DEM], [ADJ]
Atomic and substantive	**word/lexicon**	[*this*], [*green*]

Like with all research paradigms, Construction Grammar has developed in various directions, driven by the focus of each researcher: (i) Cognitive Construction Grammar (Lakoff 1987; Goldberg 1995, 2006, 2019) focuses on cognitive aspects of syntax and grammar, (ii) Radical Construction Grammar (Croft 2001, 2012; Barðdal 2006) focuses on typology and the language-specific status of grammatical categories, (iii) Embodied Construction Grammar (Bergen & Chang 2013) emphasizes the role of motor and perceptual schemas, (iv) Sign-Based Construction Grammar (Boas & Sag 2012; Sag 2012; Michaelis 2013), which developed through the amalgamation of Berkeley Construction Grammar and HPSG,

provides the community with a rigorous formalism in which to couch individual studies, and (v) Fluid Construction Grammar (Steels 2011, 2012) aims at creating the flexibility needed to account for language acquisition and language evolution. While not explicitly a part of this research paradigm, Langacker's Cognitive Grammar (Langacker 1987, 1991, 2008) is an entirely compatible framework.

More generally, many if not all versions of Construction Grammar share the following basic assumptions (cf. Goldberg 2006: 213ff, Barðdal & Gildea 2015: 10–11):

- Constructions are pairings of form and meaning/function; as such they are the basic building blocks of language
- All grammatical units are represented in a uniform way, namely as form–meaning pairings
- Constructions are arranged in taxonomic dichotomies or hierarchies
- ConstructiCons are viewed as structured inventories of constructions
- The constructional framework is monostratal, positing no distinction between surface and deep structure
- No distinction is made between the "core" of language and what as often assumed to belong to the "periphery"

Some divergences also exist between different versions of Construction Grammar; these most notably include the following three concepts: (a) usage-based vs. non-usage-based approaches to grammar, (b) heavy vs. light emphasis on formalism, and (c) reductionist vs. non-reductionist approaches to linguistic structure. As an example, Sign-Based Construction Grammar does not necessarily adopt a usage-based approach to grammar, while at the same time it prioritizes a rigorous formalism. In contrast, Cognitive Construction Grammar downplays the role of formalism, whereas it places a major emphasis on usage-based aspects of grammar.

While also usage-based, Radical Construction Grammar insists on a non-reductionist approach to linguistic structure, which entails that the construction as a whole is taken as, not only the basic unit of language, but also as a theoretical primitive, with the parts being derived from this whole. While all constructional approaches view constructions as basic units of language, i.e. as form–meaning correspondences, not all versions of construction grammar are non-reductionist, as for instance Sign-Based Construction Grammar takes the parts to also exist independently of the constructions they instantiate. Also, no version of CxG, except for RCxG, views grammatical relations as construction specific; instead it is assumed within these approaches that grammatical relations exist as a general syntactic relation in the grammar, irrespective of constructions (cf. Barðdal & Gildea 2015: 30–31).

While most work in grammaticalization does not depart from precisely the same postulates as those found in Construction Grammar, numerous theoretical and/or explanatory claims in the grammaticalization literature are compatible with them. We single out especially the commitment to understand language and language change as requiring attention to both form and function/meaning, i.e., the construction, also the emphasis on usage, e.g., frequency, as an explanatory factor for change. We mention also the desirability of invoking general cognitive capacities, like metaphor, metonymy, etc., in explanation, as well as the core significance accorded to issues that have been viewed as "peripheral" phenomena in other approaches to grammar, such as how change in progress can create indeterminacy of category membership. Of course, the more important test of compatibility between the two approaches, the grammaticalization approach and Diachronic Construction Grammar, comes in the domain of diachrony, to which we now turn.

3.2 Diachronic Construction Grammar

As implied by the term, Diachronic Construction Grammar is the branch of Construction Grammar that deals with diachrony and language change (cf. Noël 2007; Traugott & Trousdale 2013; Barðdal & Gildea 2015; Sommerer & Smirnova 2020, inter alia). The main focus of such studies has been on the role of constructions in historical development, especially as seen in corpora representing historical stages of modern languages. This includes both observing changes in existing constructions and also the emergence of new constructions. Given that the analytical machinery of Construction Grammar was originally developed to model both semantically non-compositional and semantically compositional constructions, it is well suited to modeling the kinds of changes associated with grammaticalization, where what begins as a more compositional construction containing a substantive lexical item becomes increasingly difficult to process compositionally, until the lexical item is reinterpreted as a grammatical morpheme.

Given that constructions – i.e. form–meaning correspondences – are taken to be the basic units of language, the question arises as to how such a correspondence differs from that of the traditional Saussurean sign. In order to address this issue, we contrast the conception of meaning in more traditional approaches to grammar with the conception from within Construction Grammar. The traditional conception of meaning is modeled in Figure 1 (inspired by Croft's 2001 RCxG' box formalism) for the expression, *John reads*.

The expression *John reads* consists of two lexical units, *John* and *reads*. The lexical unit *John* is represented with a large box, containing within it two smaller boxes, with the upper smaller box representing the form via italic letters, *John*, and

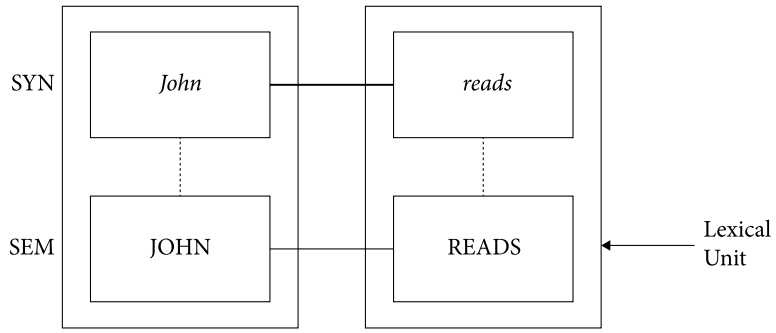

Figure 1. The traditional conception of meaning in grammar (adopted from Barðdal 2014: 349)

the lower smaller box representing the meaning via capitalized letters, JOHN. The dotted link between the two smaller boxes containing *John* and JOHN represents the symbolic relation holding between the form and the meaning. The same is true for the second lexical unit in Figure 1, *reads*. These are thus two Saussaurean signs.

In addition, for two-word expressions like *John reads*, which form a simple main clause, one also has to assume both syntactic and semantic relations *within the clause*. The semantic relation between the concepts JOHN and READS is given with a solid line between JOHN and READS in the SEM field, found in the lower part of each lexical unit. The nature of this semantic relation can vary, depending on various factors, which in Figure 1 involves a noun and a verb. The relation between this noun and this verb is thematic, as the verb *reads* selects for a noun phrase, *John*, referring to a person carrying out the event expressed by this verb.

In the same manner, the syntactic relation between the two forms *John* and *reads* is given with a solid thick line between the italicized *John* and *reads* in the SYN field which is found in the upper part of each lexical unit. This syntactic relation depicted in Figure 1 is simply the grammatical relation between a subject and a predicate (not assumed in RCxG, where the "subject" is instead assumed to have a construction-specific grammatical role in each construction).

The coupling of form with meaning in Construction Grammar begins from this same foundation, but has two crucial differences. First, it expands what is included in both form and meaning. The SYN field contains all variations in form, not limited to the collocations of words that make up traditional syntax, but also including details of phonetics, phonology, intonation contours, and word-internal morphology. In contrast, the SEM field includes both lexical and propositional semantics (in the sense of predicate-argument structure), but may also contain

conventionalized pragmatic notions like information structure. In addition, it is possible to include a PRAG field in the formalism, as in Figure 9 (in Section 5), where also conventionalized associations between lexico-grammatical structures and formality of speech context, or even information about social identity of speaker and listener may be stored (to the astonishment of some sociolinguistics colleagues).

Therefore, Construction Grammar invites the analyst to focus on additional layers of nested boxes and lines, as shown in Figure 2. First, the construction as a whole is represented via a large box around everything else. The construction has its own SYN field (represented as a box around the SYN fields of the two lexical items), its own SEM field (the box around the two lexical SEM fields), and a dotted line between the whole SYN and SEM fields to represent the symbolic relation between these two fields at the level of the entire construction.

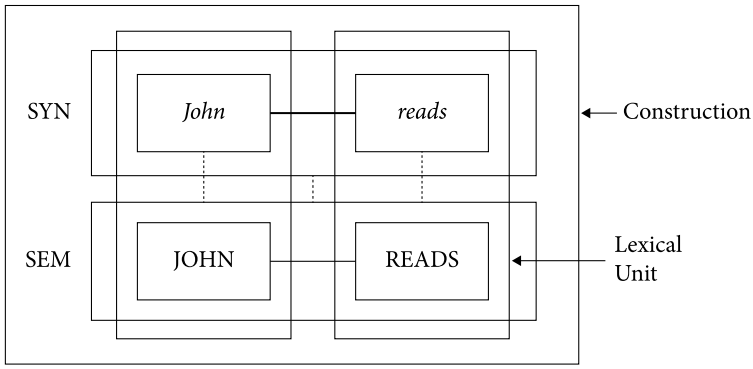

Figure 2. The constructional approach to grammar as form–meaning pairings

It is through this last layer of boxes, those around the entire SYN and SEM fields, together with the dotted line representing the symbolic relation between the two, that noncompositional meaning in a construction may be represented. Even though it is not so in the case of *John reads*, in some cases, the meaning of the whole is different from the meanings of the lexical units taken together. For example, in *John kicked the bucket*, there would only be two units in SEM, JOHN and a substantive meaning DIE. Hence, in addition to the symbolic relation between the form and the meaning of each lexical unit, there are also symbolic relations between larger components of either field, up to even the whole SYN and SEM fields.

In diachrony any changes in the representation of links between form and meaning are possible. This may involve changes in the meaning or form of individual lexical items, changes in meaning or form of combinations of lexical items

in specific constructions, and changes in the mapping between meaning and form at any level. This means that in tracking grammatical change, Construction Grammar directs our attention to the types of change that take place in the SEM field, in the SYN field, or in the mapping between those fields. Below, we briefly discuss each of these in turn.

Changes in the SEM field are basically of two types: (a) changes in the subunits of the SEM field and (b) changes in the SEM field as a whole. Since constructions are form–meaning correspondences like words, the types of changes expected to happen in the SEM field are the same types of semantic changes found with words, such as semantic shifts along the routes of metaphorical and metonymical extensions, extensions due to pragmatic inferences, bleaching, narrowing, widening, etc. (cf. Blank 1999; Hopper & Traugott 2003, inter alia). However, changes in the meaning of a word within a larger construction entails that only one sub-unit has changed its meaning, not necessarily affecting the meaning of the whole. Turning to the second type of semantic change mentioned above, i.e. changes in the SEM field as a whole, this may lead to the creation of non-compositional semantics, which is implicated in the emergence of a new construction.

An illustration of this is reported in Michaelis & Ruppenhofer's (2001) volume on the applicative construction in German, which is characterized by *be-* prefixed to a verb, as in *beschmieren* 'smear X', with the prototype sense being 'to cover the surface of X'. Through various different metaphorical extensions and pragmatic implicatures, the semantics of the applicative *be*-V construction in German has been enriched with several new senses. One such is motivated by the travel metaphor, DISCOURSE IS TRAVELING THROUGH A TOPIC, resulting in verbs like *bedichten* 'write poetry on X' and *beklönen* 'chatter about X'. This study shows in a compelling fashion how new subconstructions arise as expansions of an older, more substantive construction; these additions, in their turn, combine with the older uses to form a more schematic "umbrella" construction (as modeled in Barðdal & Gildea 2015: 37–40).

Individual constructions may also be affected by changes in SYN, understood broadly as any change in form, encompassing phonetics, phonology, intonation, morphology, syntax, etc. A phonological change typical of grammaticalization would be contractions/reductions in the form of one persistent element in a construction, such as the quintessential example of the English future *BE going to* construction, in which the innovative future auxiliary reduces to *gonna* (or, in some contexts for some speakers, even to [aimə] in first person), without any concomitant changes in meaning. Of course, such changes generally take place during an entrenchment process of the string as a whole (cf. Bybee & Scheibman 1999; Bybee 2003), following the period during which the semantics changed (see below for a modeling of this change, using the formalism of Construction Grammar)

The mapping between form and meaning may also be subject to changes. This is how Construction Grammar models the mechanism of reanalysis, the postulated covert change of the (underlying) structure of an innovative utterance (Harris & Campbell 1995: 50, Gildea 1998: 35–37, Croft 2000: Chapter 5, inter alia). The standard view is that this happens when a new meaning has been coupled with an old form (cf. Israel 1996; Traugott 2008; Hilpert 2008; Bisang 2010; Traugott & Trousdale 2013), which then becomes distinct from its source form via steps discussed in more detail in Barðdal & Gildea (2015: 17–18) and iterated below:

1. A given collocation of forms with its own meaning, SEM$_1$ (whether compositional or non-compositional), begins to be used in certain contexts with an innovative (and not entirely predictable) meaning. Once this new meaning becomes conventionalized, the mapping from SYN is no longer to SEM$_1$ but rather to SEM$_2$.
2. The innovative (and non-collocational) meaning of SEM$_2$ then motivates a change in the analysis of the SYN$_1$ component of the construction, such that SEM$_2$ no longer maps to SYN$_1$, but rather to the innovated SYN$_2$. This is Harris & Campbell's REANALYSIS (Traugott & Trousdale's NEOANALYSIS). Unfortunately, this logically necessary step is not visible to the analyst, given that the surface string that instantiates the form of SYN$_2$ remains identical to the surface string of the source construction.
3. Following this reanalysis, SYN$_1$ and SEM$_1$ continue to combine to constitute the original construction, whereas SYN$_2$ and SEM$_2$ now combine to make a distinct construction, which is innovative in function and therefore a likely site for changes in form that reveal the existence of the new SYN$_2$. These changes, called ACTUALIZATION (originally by Timberlake 1977, cf. also discussions in Harris & Campbell 1995: 53, Andersen (ed.) 2001; Fanego 2004; De Smet 2012) are considered the first concrete evidence for the reanalysis posited in Step 2.

The development of modal verbs in general illustrate such changes: polysemy is created, with subsequent changes in the mapping between form and meaning. When SYN$_2$ contains a substantive lexical item that is reanalyzed as a grammatical morpheme, the actualization changes often coalesce around that morpheme, with reduced independence (i.e., cliticization) or nonstandard phonological reduction.

As an illustration of how a typical case of grammaticalization could be modeled within DCxG, we offer a coarse-grained look at the English *BE going to* future, which follows a well-accepted grammaticalization pathway from a matrix verb of motion 'go' to a grammatical morpheme indicating future (following Bybee

& Thompson 1997, for a somewhat different analysis, see Traugott 2015). This process involves a motion verb selecting an infinitive clause expressing the purpose of the motion, as shown in (1) below. Clearly the subject of the motion verb and the subject of the infinitive must be coreferential, such that the matrix 'goer' and the complement 'doer' denote the same animate referent. The separability of the two could be made manifest in the source construction by adding a directional phrase, such as *to the Court*, between *be going* and the infinitive *to*-clause, as in (1) below:

(1) *and now I* ***am going*** *to the Court* ***to*** *prefer my petition.*
'and now I'm going to the Court to promote my petition.'
(1594, *A Knack to Know a Knave*, from Traugott 2015: 66)

This original stage can be modelled using a constructional formalism of the type shown in Figure 3, which illustrates the schematic instantiation of motion + purpose. The leftmost box represents the subject of the construction, defined as a noun phrase. The middle box represents the finite motion verb *be going*. The rightmost box denotes the infinitive phrase, starting with the infinitive marker *to*. The function of the infinitive here is purposive, as specified in the SEM field. The FORM fields in the leftmost and the rightmost boxes are left empty, except for the infinitive marker, since it is the schematic construction that is being modeled here. Observe also that the subject of the lower verb, the infinitive, is left unexpressed on identity with the subject of *be going*, hence the co-indexing of the NP in the leftmost box and the unexpressed subject Ø of the infinitive in the rightmost box (cf. the formalism suggested in Barðdal & Eythórsson 2012a). The finite *be going* and the infinitive are not necessarily strictly adjacent to each other, as already discussed above and shown by the directional *to the Court* in (1). This is modeled with the ellipsis between the two boxes.

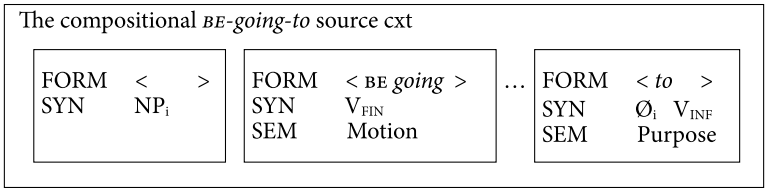

Figure 3. The compositional *BE-going-to* source construction

By the 17th century, examples such as in (2) are found, which are structurally similar to (1) but in which motion is not necessarily implied:

(2) *O my Dear, I* ***was just going to*** *pay my Devoirs to you.*
(1673, *Marriage a-la-Mode* ii. i. 23, from the OED)

Here context becomes crucial, as only the context reveals whether or not motion is implied; without that context, a reading involving intention or future is indeed available. Therefore, examples like (2) may be instances of the schematic construction given in Figure 3, or they may be instances of a reanalyzed construction expressing future, formalized in Figure 4.

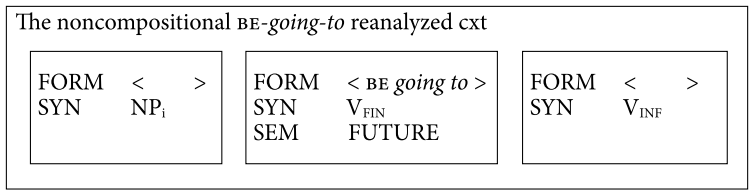

Figure 4. The reanalyzed noncompositional *BE-going-to* 'future' construction

The difference between Figures 3 and 4 is the following: first, after reanalysis there can be no linguistic material between *BE going* and *to*, shown both by the lack of ellipsis between the middle and the rightmost boxes in Figure 4 and also by the change in location of *to*, which in Figure 4 immediately follows *BE going* in the middle box, instead of preceding the nonfinite form in the purposive infinitive in Figure 3. Also, the semantics is not motion+purpose anymore but future, as is specified in the SEM field. Finally, the infinitive of the reanalyzed construction is no longer a control infinitive with its unexpressed subject co-indexed to the subject of 'go', but it is the main verb of the clause, and its subject takes on the subject properties of the finite verb. That is, this entails a development from biclausal structure to monoclausal, visible, for instance, when the subject is an inanimate argument, as in (3) below, where the subject *it* of *BE-going-to* clearly belongs to the lower verb *rain*. In other words, *BE-going-to* has become an auxiliary, i.e. a raising-to-subject verb.

(3) *It seems as if it* ***were going to*** *rain.*
(1890, *Chambers's Jrnl.* 14 June 370/2, from the OED)

For the example in (3) only the formalization in Figure 4 is valid, as opposed to Example (2), whose structure may be captured by the formalization in either of Figures 3 or 4.

After reanalysis, it is expected that the new auxiliary, *BE-going-to*, would be used with vastly greater frequency than its source. As argued by Bybee in multiple publications (Bybee & Scheibman 1997; Bybee & Thompson 1997; Bybee 2006, inter alia), this higher frequency alone would motivate the further kinds of reduction seen in so many cases of grammaticalization. Thus, we add a step in which

the auxiliary from Figure 4 (but not the motion verb from Figure 3) gets reduced to *BE gonna*, as shown in Figure 5:

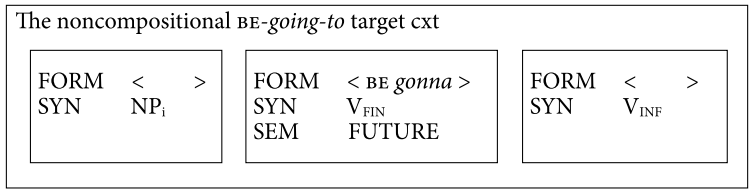

Figure 5. The phonologically reduced *BE-going-to* 'future' construction

We submit that any case of grammaticalization would benefit from being modeled more explicitly in this way, with the accumulated changes in the entire construction seen as an integral part of the change in the grammaticalizing morpheme. There are several examples of such a DCxG approach to phenomena formerly dealt with as simple grammaticalization, most comprehensively in Traugott & Trousdale's (2013) examples of grammatical constructionalization, but also in individual contributions to Bisang et al. (2004); Barðdal et al. (2015) or Coussé et al. (2018).

A different type of changes in the mapping between meaning and form involves the development of discourse particles like the Swedish *hör du* 'hear you' which functions as an interjection, involved in the turn-taking procedure of conversation among speakers (Lindström & Wide 2005: 213–214):

(4) *Hördu ja har beställt biljetter.*
listen.you I have booked tickets
'Listen, I've booked tickets.'

An inspection of the earliest usages of *hördu* in both Old Swedish and (its correspondence in) Old Icelandic texts reveals that *hördu* developed from a directive usage of the imperative *hör* 'hear' and the 2nd singular pronoun *du* 'you' (Lindström & Wide 2005: 220–223), and is first and foremost used to seek the attention of the interlocutor in the present-day language. There is no doubt that most of the literal meaning 'hear you' is lost and that the string *hördu* 'listen' is now an exclamatory presegment, not belonging to the clause proper. Thus, irrespective of whether the grammaticalizing element reduces or expands its scope, it is straightforward to model via changes in the mapping between form and function of a construction.

For a fuller examination and a more comprehensive list of the kinds of changes that may be expected on the basis of some of the pivotal assumptions of Construction Grammar, we refer the reader to Barðdal & Gildea (2015), where

this topic is discussed extensively. Given that the changes typical of grammaticalization are readily modeled in Diachronic Construction Grammar, we turn now to our response to the question of whether there are any examples of grammaticalization that might not be well-modeled within the constructional framework.

4. Constructions: The locus of all grammaticalization

We begin this section with a reminder to the reader that the process of grammaticalization, as formulated by both Himmelmann (2004) and DeLancey (2004), exclusively takes place within specific constructions. As mentioned in Section 2 above, it is increasingly common for scholars of grammaticalization to invoke a pre-theoretical notion of construction, which we would interpret roughly as "string of morphemes and/or words, often in hierarchical relationships, that contains the grammaticalizing lexeme", as crucial to understanding individual instances of grammaticalization. In a non-technical sense, it is self-evident that every grammaticalizing morpheme occurs in some syntactic context, which may be captured in a detailed description of a specific construction. While it may be less self-evident, it should also be clear that the other elements of this construction either contribute to the change, are affected by the change, or both. As recognition of the centrality of the construction becomes increasingly common in studies of grammaticalization, it should be a natural next step to consider adopting a more explicit and theoretically grounded definition of construction.

This invites a question which has not been a particularly salient part of the literature within either grammaticalization or DCxG: Are there any examples of grammaticalization that do not take place in an innovative construction, and which would not, therefore, benefit from consideration of their constructional context?

Hilpert (2013: 11), for instance, offers a section, entitled "Where grammaticalization goes beyond constructional change" (Section 1.2.2). However, the section itself gives only three examples, the second of which actually treats constructional change that goes beyond grammaticalization, as evident in this quote:

> … frequency changes that have been discussed as concomitants of grammaticalization do not exhaust the spectrum of frequency changes that can be observed in the developments that constructions undergo … (Hilpert 2013: 13)

Hilpert's third example of grammaticalization going beyond constructional change is based on an alternative definition of grammaticalization as an outcome of specific theoretical principles that are in opposition to those of Construction Grammar, as evident in this quote:

> There are approaches that define grammaticalization in terms of higher-order syntactic principles and thus do not grant constructions a central theoretical status … (Hilpert 2013: 13)

As such, Hilpert's section offers but one category of phenomenon that has been called grammaticalization, but that is arguably unrelated to constructional change: the formation of paradigms (cf. Diewald 2009, 2015 and later work). Hilpert argues that since a paradigm is not transparently a conventionalized link between form and meaning, "the process of paradigm formation actually goes beyond what is considered here as constructional change".

However, we find this claim unconvincing, derived primarily by juxtaposing an expansive definition of grammaticalization to a restrictive version of constructional change. To begin with, the core type of change in paradigm formation would be the one in which individual lexical items become the component grammatical morphemes that make up that paradigm, as opposed to the genesis of the independent status of the paradigm as a grammatical construct. But more importantly, it is not clear why we would want to restrict the scope of CxG so as to exclude the notion of paradigm, thus leaving paradigm formation outside the domain of DCxG.

In the CxG literature there is a long tradition within which more abstract notions – into which paradigmatic organization may be included – are considered schematic constructions, which in turn license the existence of lower-level constructions. As examples, consider Langacker's (1987) assertion that any generalization is a schema, Kay & Fillmore's (1999) account of higher-level word order generalizations as schematic constructions, and Barðdal's (2008) claim that syntactic productivity can be reduced to each construction's highest level of schematicity. More specifically, Diewald (2020) considers paradigms to be "Hyper-Constructions" (which we interpret as highly schematic constructions) and Coussé et al. (2018: 8) explicitly include paradigms in CxG:

> Construction Grammar approaches paradigmatic issues no differently from syntagmatic matters, i.e. by making use of its basic building blocks, constructions. However, whereas syntagmatic parameters of grammaticalization are confined to a single construction, paradigmatic issues imply a relation between two or more constructions.

Beyond this one debatable suggestion, neither Noël (2007) nor Hilpert (2013) offers anything in the grammaticalization literature that could not be profitably transposed to the DCxG framework. They do point out legitimate questions of focus, i.e. profiling in the CG sense, and there is no doubt that the preponderance of grammaticalization studies focus on the fact that lexical sources become

bound grammatical morphemes, often tracking more coarse-grained patterns of the change to the lexical item in this domain without zooming in on the details of the incremental changes to the surrounding construction along the way.

However, once we recognize that all examples of grammaticalization take place in the context of a host construction, then it follows that every case of grammaticalization must also be accompanied by the creation of a new construction: the source construction and the construction within which the grammaticalization happens become distinct entities, first in meaning and later in form. This sort of constructional split has been given the label of "constructionalization" (Rostila 2004; Noël 2007; Traugott & Trousdale 2013; Smirnova 2015, inter alia). Already, somewhat familiar-sounding debates have begun over what constitutes a "different enough" construction to qualify as having "constructionalized," as opposed to simply being a modification of an already existing construction (e.g. becoming a "polysemous sub-construction"). For recent overviews, cf. Coussé et al. (2018); Hilpert (2018) and Flach (2020). Actually, we find it unfortunate that this debate shifts the focus from studying the mechanisms and processes of grammatical change to resuming the debate over when something has or has not arrived at the outcome necessary to be considered a case of "grammaticalization" or, in the new framing, "constructionalization".

The point of DCxG should not be to recreate the pseudo-debate over when something does or does not qualify as a case of "constructionalization", but it should rather be to understand how changes happen. We advocate attending instead to mechanisms, like re-/neo-analysis and analogical extension, and on processes, like constructional splits and constructional mergers (cf. De Smet et al. 2015). One might also explore whether conventionalization/schematization and expansion/increase in productivity are processes built on more basic mechanisms or whether they are themselves mechanisms of change. In this context, the concept of "constructionalization" (and debates about how to identify examples in data) need not assume so prominent a position.

In the interest of keeping our discussion as concrete as possible, we avoid using the term "constructionalization", instead merely asserting that a part of what happens when a lexical item becomes a grammatical item is that the source construction splits to become two constructions, one continuing to instantiate the etymologically prior form–meaning correspondence and the other becoming the innovating context in which some lexical item becomes a grammatical morpheme.

The most substantive distinction we discern between grammaticalization studies, on the one hand, and studies within diachronic construction grammar, on the other, is that, by zooming in on the incremental changes to constructions, the nascent body of literature in DCxG (especially Bergs & Diewald 2008; Barðdal

2009; Barðdal & Chelliah 2009; Fried 2009, 2013, 2015; Traugott & Trousdale 2013; Barðdal et al. 2015; Sommerer & Smirnova 2020, inter alia) breaks down the macro-process of grammaticalization into component step-by-step micro-changes, each reflecting more general mechanisms of change that are not unique to grammaticalization. These are, for instance, expansion of context of use/scope of a construction, which leads to increases in frequency of a new meaning in that construction, in turn leading to conventionalization of the new meaning as part of a new construction through reanalysis / neoanalysis. This is then followed by further cycles of expansion and, usually, frequency-driven phonological reductions inside the innovative construction. Essentially, these mechanisms are amenable to the same kinds of explanatory principles that appear in functional accounts of grammaticalization: frequency, iconicity, analogy, and metaphor.

To complete the theoretical picture, we briefly address the dispute over whether grammaticalization is, as claimed from the beginning by Meillet, a "process" of change in opposition to the process of analogy. We begin by separating two senses of the term **process** that have sometimes been confounded in grammaticalization debates. One sense of **process**, apparently the one intended by Meillet, is synonymous with what we prefer to call a **mechanism** of change, a sense still current, as in Joseph (2004: 47):

> Similarly, well-understood **processes** of analogy and reanalysis are often abandoned in favor of claims about grammaticalization as a **process** of change.
> [our emphases, SG & JB]

The other sense of process characterizes the typical sequence of steps observed in any gradual change of state, as illustrated by a quote from DeLancey (2004: 1590):

> The word *grammaticalization* implies a **process** of becoming "grammatical" … The shift of a lexical form to a grammatical function involves, first, some shift in its semantic and/or pragmatic function. This is a necessary precondition for a shift in syntactic category, a reanalysis of the syntactic construction …
> [our emphasis on **process**, SG & JB]

Here, the **process** of grammaticalization is broken down into smaller steps, which are themselves associated with well-understood **mechanisms** of change, like reanalysis. Seen in this light, we believe that by now it should be uncontroversial (Meillet's original claim notwithstanding) that grammaticalization is a process in the sense of a sequence of steps with an endpoint, but not in the sense of a mechanism of language change, placed in opposition to analogy and reanalysis. This is reminiscent of the term **evolution**, which is an important **process** of change in biological systems and gives its name also to a well-articulated, and richly debated, **theory** (of evolution), but without being seen as a **mechanism** of

biological change – it is an outcome produced by iterative interactions between lower-level mechanisms, such as variability in reproduction plus competition for opportunities to reproduce, each of which can be characterized and identified independently of evolution.

Understood in this way, the collocation "process of grammaticalization" is both valid and useful for describing the sequence of changes that typically takes place when a lexical item becomes a grammatical morpheme. Similarly, the collocation "theory of grammaticalization" is a reasonable label for the generalizations we derive from exploring the fundamental steps in this process, as well as for articulating the significance of these generalizations to our understanding of more general patterns of language.

At the same time, there are tremendous benefits in viewing grammaticalization, both narrowly and broadly defined, through the lens of these more general mechanisms of language change as they operate in specific constructional contexts, not least being the possibility of linking each to specific cognitive processes that operate, in a non-teleological fashion, at each synchronic stage. Questions about the larger arcs of grammaticalization become questions about how and why these discrete mechanisms work in the order they do, combining into a chain that leads so frequently in a single direction, but with limited changes also in the opposite direction (that is, in putative cases of "degrammaticalization", cf. Heine 2003; Norde 2009). This allows us to examine "unidirectionality" not as a central theoretical postulate, nor as a crucial criterion for definitions of the process, but instead as a secondary phenomenon that follows from constructional context and a more general theory of diachronic change, applicable to both morphosyntax and the lexicon (cf. Traugott & Trousdale 2013: 127–132 for promising initial proposals).

The final benefit we consider here of transposing grammaticalization work into DCxG is that it could defuse multiple arguments over the meaning or use of the term "grammaticalization". The term is not necessary as a badge of identity for a functional-historical, non-formal, non-generative approach to linguistics, in that DCxG also takes meaning seriously, is usage-based, and recognizes gradience in language change. If all grammaticalization phenomena can be modeled within DCxG, then there is much less significance in debates over what does, and does not, count as an instance of "grammaticalization", and thus of whether a given analysis is "in" or "out" of the community. By exploring all kinds of constructional change, including those that produce new grammatical morphology and those that do not, we can identify sub-categories of change based on similarities in outcome, pathway, sequences of micro-changes, etc., allowing us to create a more nuanced typology of constructional change without having to justify precisely which changes qualify as "grammaticalization" and which not.

Having made the strong case that all of grammaticalization can be modeled within constructional approaches to change, we turn now to some examples of grammatical and constructional change that are not well-accommodated within the scope of a traditional grammaticalization approach.

5. Constructions beyond the margins of grammaticalization

We begin this section with Bybee's (2010:30) observation: "In grammaticalization, not only do new constructions arise out of existing constructions, but also a further step is taken in that a lexical item within this construction takes on grammatical status". In our minds, this raises the question of whether one should distinguish the grammaticalization process from the relatively common situation in which a new grammatical construction arises out of a prior construction, but with no lexical item in the source construction taking on any new grammatical status in the resultant construction. While most of the examples in the grammaticalization literature do instantiate cases of lexis > grammar, there is no shortage of situations in which an entire construction is reanalyzed with a new function, such that in the resultant construction, each component morpheme in the source construction seems to have a new grammatical meaning. These cases are problematic in that the innovative grammatical meaning is associated with a combination of prior grammatical morphemes, i.e. a construction, rather than with only one grammaticalizing lexical item.

As an illustrative example, consider the phenomenon of "insubordination" (Evans 2007; Evans & Watanabe 2016, cf. also Mithun 2008 for an alternative perspective on a similar phenomenon), where a subordinate clause begins to function as a main clause without the intervention of a necessary matrix verb cum auxiliary. Most of the examples of innovative main clauses documented by Gildea over the last 20 years are of exactly this type: in the Cariban family (Gildea 1998, 2012), the Jê family (Gildea 2008; Gildea & Castro Alves 2020), and the isolates Trumai (Guirardello & Gildea 2011) and Movima (Gildea & Haude 2011). To illustrate the issue, we take one representative example: the Cariban action nominalization in **-rï*, with its nominal arguments, becoming a main clause (Gildea 1998: Chapters 7 and 9).

In the Cariban family, the primary means of expressing subordinate clauses is via grammatical nominalizations, such that action nominalizations serve the role of complement and adverbial clauses, while participant nominalizations serve the role of relative clauses. Across the family, there are many examples of the cognate action nominalization in **-rï*, all characterized by specific details of form and meaning. In terms of form, the verb bears a modern reflex of the suffix **-rï*,

making it a lexical noun. The notional arguments of the nominalized verb are expressed via nominal grammar; to keep this illustration to a reasonable length, we restrict our discussion to nominalizations of intransitive verbs. The notional S obligatorily possesses the nominalized verb, forming a tight constituent with it, the NP. The possessor is not marked for case, immediately precedes the nominalized verb, and if it is a personal pronoun, it generally reduces to a possessive proclitic. In terms of meaning, the event described by the clause is not grounded in time, but receives its temporal reading from the main clause. These formal and meaning properties are illustrated in the Apalaí example in (5), with the details of the analysis fleshed out in Figure 6:

(5) *[y-oepï-rï] eraxima-ko*
1-come-NZR wait-IMPER
'Wait for me to come (lit. 'Await [my coming].') (Koehn & Koehn 1986: 89)

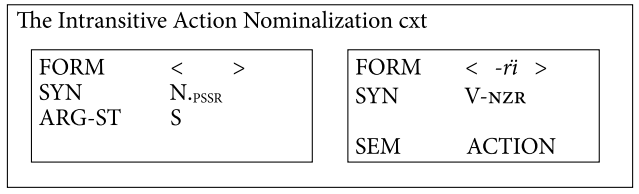

Figure 6. The intransitive action nominalization construction

In some nine Cariban languages, nominalized subordinate clauses of this type have become used as main clauses, in five of them completely replacing the etymologically prior main clause grammar (Gildea 2012: 477). In modern Makushi, except for the imperative, the prior system of finite verbs is lost entirely (Gildea 1998: 77). In its place, Makushi speakers now communicate using almost exclusively three etymologically nominalized verb forms, each of which has been reanalyzed as a main verb inflection with a different tense-aspect value. The action nominalizer *-Ø* (< **-rï*) now indicates the nonpast (which Abbott 1991 calls 'universal tense'), the past tense action nominalizer *-'pî* now indicates past tense, and the resultative absolutive nominalizer *-sa'* now indicates completive aspect.

Among the different source constructions in which these nominalizations were reanalyzed, we illustrate the "pleonastic pivot" from Gildea (1998: 163–168). Before considering the full biclausal source construction, we first offer a simple example of the matrix construction, a nonverbal predication consisting of a predicate noun followed by a pronominal subject (cf. Gildea 2018: 367–368), along the lines of (6) from Makushi (modeled in Figure 7).

(6) **pred** **subj**
u=nmu mîîkîrî
1-son 3.PRO
'He's my son.' (Abbott 1991: 110)

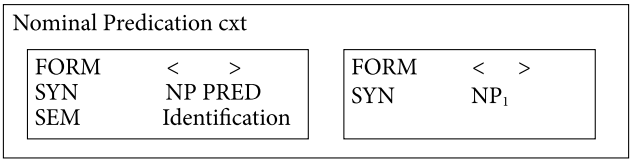

Figure 7. Nominal predication construction

As modeled in Figure 7, this is a highly schematic construction, simply the juxtaposition of any two nouns in an identity relation, with the first noun as the predicate and the second noun as the subject.

To get the biclausal source construction, one can now substitute a nominalized verb and its arguments for the predicate noun (cf. Gildea 1998: 163–168, developed more fully in Gildea 2011; Gildea & Walther 2015). Since the predicate noun is an abstract representation of an event, the subject of this identity construction can only be an inanimate pronoun, like *mîrîrî* 'that' or *sîrîrî* 'this'. Focusing in on the form of the predicate NP, recall from (5) that the nominalized verb is obligatorily possessed by its notional subject – in (7), the pronominal clitic *u* = '1' represents the first person possessor and the remainder of the predicate, *utî-Ø* represents the possessed action nominalization of an intransitive verb like 'go' (Makushi *-Ø* is the modern reflex of Proto-Cariban **-ri*). This biclausal construction is modeled in Figure 8.

(7) **pred** **subj**
u=utî-Ø *sîrîrî*
1-go-UNIV this
'I'm going.' (etymologically, lit. 'This is my going') (Abbott 1991: 106)

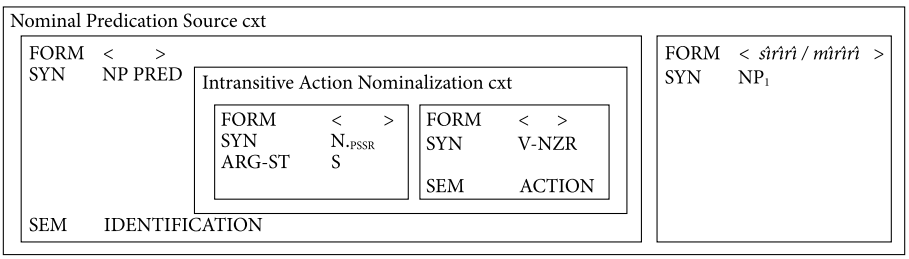

Figure 8. Nominal predication construction with a nominalization as the predicate

The matrix clause in Figure 8 is the same structure as in Figure 7, however the nominal predicate itself is no longer a simple noun, but rather the verbal nominalization from Figure 6, possessed by its notional subject. The form *u*=in (7) is the possessor of the nominalization, hence interpreted as the one carrying out the event denoted, in this case the event of going.

As shown in Figure 9, this biclausal construction has by now become the simple main clause: the erstwhile nominalization is now the main verb, the nominalizing suffix has become an inflexion expressing tense and aspect, the erstwhile possessor is now the intransitive subject, and the sentence-final demonstrative pronoun (the erstwhile subject of the matrix predicate nominal construction) is now an optional sentence-final particle indicating speaker stance: without the particle, the clause is neutral with regard to stance (8), *mîrîrî* 'that' now indicates 'Addressee Interest' (9), and *sîrîrî* 'this' now indicates 'Speaker Interest' (10).[8]

(8) *aa-ko'man-pî'-sa'*
3-remain-ITER-CMPL
'He has remained (repeatedly)' (Abbott 1991: 118)

(9) *aa-ko'man-pîtî-Ø mîrîrî*
3-remain-ITER-UNIV A.I.
'He is still living (there)' (Abbott 1991: 118)

(10) *mîîkîrî ekomi'ma-sa' sîrîrî*
3.PRO have.fever-CMPL S.I.
'He has fever now (he has become with fever)' (Abbott 1991: 119)

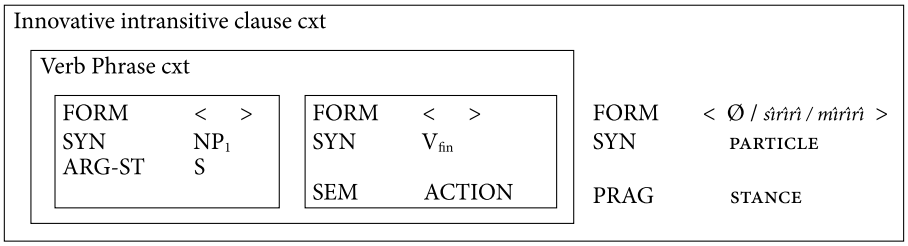

Figure 9. The innovative verbal clause with optional stance marker

8. As Scott DeLancey observed (personal communication), demonstrative pronouns in English can have similar stance effects. To illustrate, he suggests the scenario in which a student comes to the office of a professor and explains a difficult situation, after which the professor says either "This is a problem" (implication: it is close to me and I will join you in seeking a solution) vs. "That is a problem" (implication: it is distant from me and I am not inclined to make it my problem).

It may perhaps be possible to argue that each of these changes is individually an example of grammaticalization: the phrase-internal relation of possession becomes the clause-level relation of subject, the (derivational) nominalizers become finite (inflectional) markers of tense-aspect, and two members of the closed class of six demonstrative pronouns become the only two overt members of the new class of right-edge discourse particles that mark speaker stance (an example of Traugott & Trousdale's "grammaticalization as expansion").

In traditional studies of grammaticalization, with their focus on the sources of innovative grammatical morphology, this example could provide case studies of three different "pathways of grammaticalization": from possessor to subject, from a set of nominalizers to a set of tense-aspect inflections, and from demonstrative pronouns to discourse markers of stance. However, it is not something inherent about inanimate demonstratives that predisposes them to become markers of stance, nor something about the possession relation that predisposes it to become the subject relation – it is their occurrence in this specific construction that establishes the conditions for their reanalysis as innovative grammatical elements.

Therefore, in our view, these are not three independent instances of grammaticalization, but rather a single constructional change that contains three loci of semantic and categorical change. In addition, there is no story where this is the same *process* by which, for instance, an allative marker becomes a dative marker, or the English *BE-going-to* matrix verb becomes a future auxiliary. This example, indeed, forces us to recognize that there are different processes that create innovative grammar, and that it is the constructional context that fits best for characterizing these different processes.

Within a DCxG account, this can be described in a straightforward way as a constructional split, in which a single source construction becomes two resultant constructions, one retaining the form(s) and function(s) of the source, the other utilizing virtually the same grammatical forms, but with quite innovative functions and relations. While some of the more exuberant uses of the term "grammaticalization" are sufficiently flexible to encompass this example, we are concerned that this might result in collapsing a distinction that makes a difference.

We are by no means the first scholars to observe that changes in the grammatical marking of core arguments may have their origins in the reanalysis of larger constructions rather than in the grammaticalization of, e.g., case markers. Harris & Campbell (1995) devote a major part of their Chapter 9 to how reanalysis of constructions leads to alignment change and Gildea (2004) has argued that this is the only means by which ergative case marking is originally introduced into main clauses. More recently, in his survey of directionality in the grammaticalization of case functions, Narrog (2014) observes that semantically motivated extensions, e.g. extending markers of 'instrument' to 'agent', lead to different typological out-

comes from constructional change, e.g. reanalysis of passives or antipassives as active clause types. Even so, in the end, Narrog (2014: 88) still chooses to combine these two mechanisms "because both result in grammaticalization". From a constructional perspective, this difference is more substantive: the different mechanisms of change in different sorts of host constructions drive substantively different processes of grammatical innovation. Within grammaticalization studies, the primary focus has been on starting points and ending points, whereas DCxG brings into focus the actual mechanisms of change in their more concrete constructional contexts.

6. Conclusions: The benefits of a constructional framework

In the last two sections, we have demonstrated that the theoretical apparatus of CxG is equally well equipped to model changes traditionally labeled as grammaticalization, like English *BE-going-to* > FUTURE, and changes not involving a development from lexis to grammar or less grammar to more grammar, like the Cariban action nominalizations that develop into main verbs. The reason is simply that all these changes take place within a larger context, the construction.

As should be clear by now, we believe that the study of grammaticalization – both as a process and as an outcome of language change – is best modeled within a more general theory of language change, which, in turn, should take its structures from a larger theory of language, one with the capacity to model synchronic language structures in all their variation, and to viably map these structures to corresponding conceptual/cognitive structures. We now specifically propose Construction Grammar (CxG) for the larger theory of language and Diachronic Construction Grammar (DCxG) for the more general theory of language change.

We recognize that not everyone who has published on grammaticalization would agree with all of the specific postulates of Construction Grammar. However, even for those who already work within a functional approach to syntax, adopting a constructional framework imposes a real difference in focus. We submit that the benefits of doing historical work on morphosyntax within a constructional framework would make it worthwhile for more researchers to reframe their grammaticalization work in this way, with substantial social and intellectual advantages.

Since its introduction, the concept of "grammaticalization" has undergone substantial growth both in scope of what falls within the concept and in its importance as a means to explain why synchronic grammar looks the way it does. In this latter use, grammaticalization studies have evolved from focusing on the change of lexis to grammar (or from "less grammatical" to "more grammatical") to the

presumed basis of a coherent theory of language change. This has stimulated debate about whether grammaticalization should be viewed as a process in its own right or simply as the (by)product of other mechanisms of language change.

In this paper we argue that the polysemy of the term "process" has led to a major conceptual misunderstanding. On the one hand, it is now clear that grammaticalization is not a process in the sense of a mechanism of change, and so despite Meillet's original formulation, it does not belong in the same category as reanalysis and analogy, which are actual mechanisms of historical change in language, both within and beyond grammar. On the other hand, grammaticalization clearly is a process in the same sense that evolution is a process: it characterizes a sequence of steps or stages between different synchronic states. In the study of the sequencing of stages and the interactions between the mechanisms that drive these changes, there is unquestionably an intellectual basis for a rigorous theory of grammaticalization.

We have mentioned that grammaticalization practitioners come primarily from a loose community of functionalists, who largely take a usage-based, cognitively plausible, non-derivational approach to linguistic analysis, and typologists, who often bring this perspective to low-resource minority languages. The community of Construction Grammar practitioners shares these postulates, but has until now focused more on modeling well-known national languages, both synchronically and diachronically. This is a natural match, blending shared first principles while providing mostly complementary coverage of geographical and typological phenomena. Construction Grammar, both synchronic and diachronic, would benefit from greater engagement with typological diversity (cf. Croft 2001).

In turn, studies of grammaticalization would benefit from exploring a compatible theoretical framework that offers a more explicit formalism within which to model the intricate details of gradual change. This could also greatly reduce the seeming importance of internal debates about unidirectionality, what counts as "more" vs. "less" grammatical, whether "grammaticalization as reduction of scope" and "grammaticalization as expansion of scope" are (in some sense) the same thing, etc. Further, it would invite grammaticalization studies to more explicitly consider concomitant changes to the construction within which an element grammaticalizes, as well as to recognize the fundamental differences between reanalysis and analogy, the mechanisms that create the incremental changes that lead to innovative grammar.

A final benefit, which has not been discussed in detail but which provides a substantial additional bonus, is that a constructional perspective supports a more rigorous approach to the reconstruction of syntax, as argued in multiple studies by the current authors: Gildea and colleagues primarily for languages of

the Americas (Gildea 1993a, 1993b, 1997, 1998, 2000, 2018; Gildea & Jansen 2018; Guillaume & Gildea 2018; Gildea & Castro Alves 2020) and Barðdal and colleagues primarily for Indo-European (Barðdal & Eythórsson 2012a, 2012b, 2020; Barðdal 2013, 2014; Barðdal et al. 2012; Barðdal et al. 2013; Barðdal & Smitherman 2013; Dunn et al. 2017; Eythórsson & Barðdal 2016; Danesi et al. 2017; Johnson et al. 2019; Vázquez-González & Barðdal 2019; Frotscher et al. 2022). Ongoing work by Daniels (2014, 2017, 2019, 2020) provides additional examples from Papuan languages.

Gildea et al. (2020) offer the most recent theoretical exposition of the argument that the analytical tools of Construction Grammar naturally facilitate identification of cognate constructions across related languages, after which consideration of the mechanisms of change makes it possible to deduce directionality of change such that the process of reconstructing syntax becomes a part of the Comparative Method. In brief, in Construction Grammar, syntactic objects are, like lexical items, combinations of form and meaning. As such, formal elements of constructions can serve as correspondences for the purposes of identifying cognates. After the setup of correspondence sets, knowledge of the directionality of attested changes makes it possible to more reliably reconstruct earlier sources for modern grammar. On a constructional account, extrapolating from synchronic form–meaning correspondences to historical form–meaning correspondences is less of a leap, thus aiding in the general enterprise of reconstructing syntax.

In sum, it is not clear how a theory of grammaticalization benefits by continuing to stand alone as a badge for a social and intellectual community that chooses to work outside of generative and other formal models of linguistics. It is time to capitalize on the growing recognition in grammaticalization studies of the importance of the construction as the locus of grammaticalization changes. It is time to realize the benefits of modeling grammaticalization with the framework of Construction Grammar. It is time to unify grammaticalization studies and (Diachronic) Construction Grammar, to the benefit of both communities of scholars and of the work being done in both frameworks.

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Abbreviations

NZR	nominalizer
PSSR	possessor
IMPER	imperative
1, 3	first, third person
PRO	pronoun
UNIV	universal tense
ITER	iterative
CMPL	completive
A.I.	Addressee Interest
S.I.	Speaker Interest

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