

Principles of constructional change

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1. Introduction

A major challenge in linguistic analysis concerns the possibility of capturing the inherently dynamic nature of linguistic structure and the gradualness of grammatical change, while satisfying the general requirement of systematicity and descriptive and explanatory adequacy. Part of the challenge is rooted in the basic, obvious, but analytically non-trivial fact that language is always situated in context, which also implies a connection between linguistic change and language use. Awareness of this interdependence goes hand in hand with a marked shift in the orientation of present-day diachronic (and, more broadly, variationist) research: instead of focusing on describing instances of (inherent) change, seen as affecting merely discrete units of a context-independent grammatical system, greater emphasis is now put on searching for generalizations over those instances so that we can begin to explore and explain recurrent types of change. This shifting interest highlights at least two mutually dependent points: (i) the need for establishing a workable and plausible explanatory model that can accommodate the gradient nature of language change, but also (ii) to acknowledge the relevance of diachronic analyses and diachronic evidence for developing an adequate theory of language in general.

An intersection of all these perspectives and research agendas is most prominently associated with grammaticalization research, which, in turn, has been increasingly drawing attention to Construction Grammar as an approach that might be particularly well suited to the goal of analyzing and representing the contextually grounded development of new grammatical functions and patterns. Since systematic and sufficiently detailed explorations of the relationship between grammaticalization research and Construction Grammar (and how they can inform each other) are only in their beginning stages, there is a rich inventory of issues to be worked out, with new ones still likely to emerge as our appreciation of the challenges deepens. At present, the following subset of interrelated questions tends to attract the most focused attention: the role of context in grammaticalization accounts; the integration of semantic and pragmatic triggers in constructional representations; the sense in which it might be true that constructions are the locus of change; the status of analogy in constructional analyses; addressing the gradualness of change in all its complexity; and the problem of capturing polysemy relations, as an inevitable by-product of grammaticalization processes.

These issues also frame the discussion in this chapter. My purpose is not to survey the typology of linguistic changes vis-à-vis constructions, nor to review metaphor-based accounts of grammaticalization, nor to address argument-structure related changes (which, so far, have motivated the bulk of constructional diachrony). Instead, the goal is to focus on articulating the structure and mechanics of analogy-based processes, which is where the concept of (relatively)

schematic grammatical constructions becomes particularly salient. I believe that this is also a direction in which future grammaticalization research is likely to grow and a direction that will contribute toward developing Construction Grammar into a reliable tool for diachronic analysis, including its potential usefulness for integrating the concerns of evolutionary approaches to culturally grounded linguistic change, as laid out persuasively in Steels (To appear-a); cf. also Steels 2007.

The grammaticalization framework traces its conceptual origins to certain observations about the role of collocational patterns in grammatical change (cf. Humboldt 1825), thus suggesting quite early on the importance of syntagmatic relations in language change. This idea was eventually explicitly articulated by Lehmann (1995[1982]: 406), who states that “grammaticalization does not merely seize a word or morpheme [...] but the whole construction formed by the syntagmatic relations of the element in question”.¹ This conception forms the foundation of the functionally oriented approach to grammaticalization, namely, one that brings the principles of language *use* into the study of meaning changes that accompany grammaticalization (e.g. Bisang 1998, Hopper 1998, Traugott 1982, 1988, 2003, Harris 2003, Wiemer & Bisang 2004). Such a line of thinking, which rejects the idea that a meaningful investigation of grammatical change could be reduced to describing individual, context-free grammatical items, seems naturally compatible with the notion ‘construction’ as defined in Construction Grammar.

From the historical linguist’s perspective, the potential of a systematically applied constructional analysis in the context of grammatical changes has been actively explored especially in Traugott’s work (Traugott 2003, 2008a, 2008b, 2008c), first inspired by Croft’s (2001) constructional approach. Conversely, Fried (2008, 2009a, 2009b, 2010) examines the same question with the goal to test the model’s potential for representing as precisely as possible the gradual nature of grammaticalization and the resulting layering effects, all of which requires a sufficient level of detail. But the potential of a broadly understood constructional approach for addressing a good range of diachronic issues has been explored also by many other scholars, as evidenced in the papers in Bergs & Diewald (2008, 2009), Leino (2008), Trousdale & Gisborne (2008), or Barðdal & Shobhana (2009), as well as numerous individual studies (Noël 2007a, 2007b, 2008, Trousdale 2008a, 2008b, Noël & van der Auwera 2009, Noël & Coleman 2009, Bisang 2010, Nir & Berman 2010, Barðdal 2011, etc.), including diachronic collostructional work (e.g. Hilpert 2008, Gries & Hilpert 2008, Hoffmann 2008).

The constructional approach is also proving itself fruitful in grappling with various broader analytic challenges, such as accounting for seemingly unmotivated syntactic patterns that do not easily fit in a synchronically attested grammatical network for a given language, or that present a typologically odd and inexplicable pattern. It has been shown that with the help of conceptualizing the puzzling patterns in terms of constructional change, we can arrive at inspiring and penetrating analyses, for example in cases of constructional borrowing (cf. Mithun’s 2008 account of a borrowed rhetorical strategy that grammaticalized into an unusual way of marking grammatical relations in the Wakashan and Thimshianic families) or “constructional disharmony” involving an isolated

¹ It bears stressing that Lehmann’s use of the word *construction* reflects the traditional, non-theoretical sense of ‘syntagmatic string’. It is not meant in the technical sense of ‘form-meaning pairing’ as it is understood and defined in Construction Grammar.

remnant of an older syntactic network (cf. Ross' 2008 study of the Puyuma system of verbal negation). A rather unique perspective in exploring the dynamic nature of linguistic structure is contributed by a project known as Fluid Construction Grammar (e.g. Steels 1998, 2004, To appear-b, and this volume), which extends the challenge of modeling the gradual and interaction-based emergence of linguistic structure into the domain of artificial intelligence and robotic simulations.

The chapter is structured as follows. After establishing the connection between Construction Grammar and grammaticalization (section 2) and explicating the notion of constructionalization (section 3), I will present a practical example of representing these processes in the Construction Grammar notation (section 4), and conclude by suggesting areas for further research (section 5).

2. Construction Grammar in the service of grammaticalization theory

The affinity between grammaticalization research and the constructional approach is not coincidental. The development of Construction Grammar was motivated, among other things, by the realization that true understanding of speakers' linguistic knowledge cannot be reduced to tracking down merely the structural properties of linguistic expressions and the meaning of words, but must incorporate also principles that govern the ways in which linguistic units are used and interpreted in actual communication (Fillmore 1974/1981). Construction Grammar does not divorce linguistic form from its meaning, function, and principles of usage but, instead, takes these dimensions to form an integrated whole – a grammatical construction, i.e. a conventional pattern of speakers' *understanding*. Grammaticalization, in turn, as an inherently syntagmatic and context-sensitive phenomenon, is concerned with identifying changes in the relationship between form and function within a particular linguistic *pattern*. In this respect, the idea of a construction as an internally complex, multidimensional sign suggests itself quite naturally as a useful descriptive and explanatory concept. Moreover, the idea that in tracing a meaning change of a concrete element we must refer to the entire syntagmatic sequence in which the element occurs, is compatible with the constructionists' claim that constructions themselves have meanings.

These are rather general contours of what may be bringing the two research agendas together; they do not answer the more specific (and practical) questions of how the constructional model helps address the concerns of diachronic research in actual analyses. In order to examine the model's viability for diachronic purposes we have to bring forward several specific features that are central to Construction Grammar and that appear particularly relevant in grammaticalization research. These features are summarized below, drawing mostly on the exposition of Construction Grammar (CxG) in Fried & Östman (2004) and Fried (To appear), which is closely associated with Fillmore's original conception of the framework (Fillmore 1988, 1989, and this volume, where it is labeled BCG); Fillmore, Kay & O'Connor 1988; Lambrecht 2004) and further enriched by certain insights of Croft's (2001) Radical Construction Grammar, particularly by incorporating explicitly the notion of functional prototype.

First of all, by describing conventional associations between form and meaning/function, constructions provide general blueprints, understood as functional prototypes, for licensing well-formed linguistic expressions, applying to units of any size or internal complexity (morphological units, words, phrases, clauses, turns, etc.). Constructions are meant to capture generalizations about speakers' linguistic knowledge, by indentifying clusters of co-occurring features that facilitate the production and uptake in actual communication. The multidimensional character of constructions reflects the model's original interest in identifying the combinatorial properties of words, thus conceptualizing grammarians' work primarily as the study of words in context. This also provides for a principled and systematic inclusion of recurring, conventionally expected semantic and pragmatic properties of linguistic expressions, whether they manifest themselves as (relatively) stable features of a grammatical pattern, or as triggers of novel interpretations.

A crucial feature of constructional representations follows from the fact that CxG makes a theoretical distinction between what conventionally identifies a construction as a whole and what is characteristic of its constituents. The former is referred to as the *external* (or 'constructional') properties, which is a set of constraints on how a given expression fits in and interacts with larger grammatical patterns. The latter represents the *internal* (or 'constituent-level') properties, which are the requirements placed on the construction's constituents. This distinction allows us to articulate systematic generalizations about syntagmatic constraints, while also providing a principled account of the internal structure of linguistic signs in whatever detail may be necessary. In diachronic analyses, this distinction is particularly useful: grammaticalization typically consists of a series of small-scale, feature-based adjustments, which may, collectively, lead to a perceptible change in the shape and grammatical status of the whole pattern in which a given unit occurs. CxG gives us a way to capture the incremental nature, including the potential mismatches between grammatical patterns and the items (words, morphemes) that fill them and whose meaning or grammatical status changes over time.

The external/internal contrast is related to another constitutive feature of constructions, namely, their non-compositional character: a construction has its own function (or meaning), unpredictable from simply adding the properties of its constituents. As explicated in one of the earliest definitions, constructions are representational objects that "are assigned one or more *conventional functions*...together with whatever is conventionalized about its contribution to the meaning or the use of structure containing it" (Fillmore 1988: 36, emphasis mine).² In a diachronic context, this means that a constructional analysis provides a way of capturing the transitions between compositional and non-compositional patterns, as the inevitable effect of the constant tension between creating new combinations of units (with a fully transparent meaning or function) and conventionalizing existing combinations in new interpretations (leading to loss of transparent internal structure). It is crucial to emphasize, though, that non-compositionality at the constructional level does not mean that we cannot 'look inside' and analyze the construction's internal structure or the properties of

² This is later echoed also in Croft's (2001: 18-19) formulation that constructions have "(conventional) meaning", where *meaning* is described as "all of the conventional aspects of a construction's function". Stressing the functional dimensions is important especially for dealing with highly schematic grammatical constructions, where the term 'meaning' can be misleading.

individual pieces. The point of non-compositionality as understood in CxG is merely this: when we add the pieces together (i.e. their inherent meanings, functions, or categorial status), we do not get the holistic, constructional meaning/function that is conventionally associated with the pattern as a whole (for specific examples and an explication of various less ‘direct’ manifestations of functional non-compositionality in CxG, cf. Fried To appear).

It is also important to stress that CxG makes a distinction between constructions and constructs. Constructions are “pieces of grammar” (Kay & Fillmore 1999: 2), while constructs are actual physical realizations of constructions, i.e. utterance-tokens (words, phrases, sentences) that instantiate constructions in discourse. A construction is thus a generalization over constructs. Maintaining this distinction is particularly relevant in establishing the role of constructions in diachronic shifts: a series of partial changes in an expression may give rise to a new construction or lead to a reorganization of an existing one, but the changes themselves originate in actual utterances, not in constructions themselves.

Finally, diachronic analysis draws attention to the issue of categoriality. Since CxG does not assume a categorial distinction between lexicon and grammar it offers the necessary flexibility in accommodating the pervasive gradience in linguistic categorization (cf. Aarts 2007). This matters, among other things, in the context of determining the boundaries between grammaticalization and lexicalization, if we wish to move beyond the overly reductionist approach which assumes that changes resulting in new grammatical entities can be traced to something distinctly non-grammatical, and vice versa. The conceptual basis and the architecture of CxG does not require us to impose any arbitrary boundaries and can easily accommodate categorial underspecification or indeterminacy.

3. The notion of constructionalization

The interaction between a constructional analysis and certain concrete observations and hypotheses made about various aspects of grammaticalization processes all bring up serious theoretical issues that require some explication: the hypothesis that constructions are the domain of change; the gradual nature of grammaticalization; the emergence of functional polysemies; and the question of context in grammaticalization. Taking all this into account, the discussion in this section will be based on the general thesis that grammaticalization processes are most accurately conceptualized as instances of ‘constructionalization’: a process that leads to (i) the emergence of a new grammatical pattern (construction) out of previously independent material or (ii) a reorganization of an existing construction, leading to an increasingly more opaque meaning of the pattern. The catalyst for change in such a process is always a particular local context, which is characterized by a confluence of factors (semantic, pragmatic, syntagmatic, etc.) that together facilitate a meaning shift and its subsequent conventionalization.

The contribution of a constructional approach toward capturing the true nature of grammaticalization can be assessed from two different perspectives, ultimately related to the external/internal contrast described above. The readily obvious advantage of a constructional analysis has to do with the ‘holistic’ dimension of change, i.e. the focus on the pattern as a whole. The holistic bias is particularly prominent in Radical Construction Grammar (RCG; Croft 2001),

which was originally motivated, at least in part, by the need to account for grammaticalization. RCG-based analyses are primarily informed by the claim that “the construction as a whole changes meaning” (Croft 2001: 261); this highlights the syntagmatic nature of grammaticalization, as well as the erosion of compositionality, which is a necessary by-product of these processes and a definitional feature of constructions.

We can illustrate this perspective on the well-known, by now classic example of grammaticalization: the development of *be going to* in English as a future marker. The holistic approach draws our attention to the fact that a verb of motion developed a particular grammatical meaning that is, in the final stage, associated with the syntactically complex form [*BE going to* V_{inf}].³ This bracketed sequence has to count as a grammatical construction (in the technical sense) in that it is a conventional combination of several elements and it is the entire combination that serves to express a particular meaning; the meaning is not predictable from simply adding up the inherent meanings/functions of those elements. This construction falls somewhere in the middle of the continuum of constructional schematicity: it is partially lexically filled (the verb *BE*, the form *going*, and the word *to* are all fixed) but its open slots (the person/tense/aspect form of the verb *BE* and the verb in the infinitival complement) provide for full productivity of the construction otherwise. The crucial point is that it is not enough to say that the verb of motion *GO* (in its *-ing* form) has developed a grammatical function marking future tense. Instead, the verb(-form) developed this function in a specific structural environment used in a particular semantic and pragmatic context. The ability to incorporate this important insight is unique to the constructional approach, since no other syntactic theory can coherently integrate the contextual prerequisites of such changes.

The purely holistic focus has also led to the hypothesis that constructions are the domain of change because it is the entire construction, not just one item, that changes meaning (e.g. Croft 2001, Bybee et al. 1994). It is not clear, however, what exactly this means. The formulation in the above quote that “the construction as a whole changes meaning” is potentially misleading and may obscure what it means for constructions to be the domain of change. This is a theoretical problem. The formulation implies that there is a construction with meaning X, which over time changes its meaning into Y; put differently, the change would always be a matter of reorganizing existing constructions, by remapping certain form-function associations. Leaving aside for the moment the problem that such an interpretation makes it difficult to conceptualize how new constructions come into existence to begin with or how an item changes a constructional affiliation, so to speak (shown in section 4.1), it is problematic even for understanding of what happened in the development of cases such as *be going to*, namely, what constitutes the original (non-future) construction.

For now let us simply suggest that emphasis on the holistic dimension tends to draw attention primarily to the observable result of grammaticalization and is less concerned with examining the particulars of the diachronic process. Yet, understanding the particulars is necessary if we wish to answer the questions of how a given change may have developed and why it takes the shape it does. Consistent with the why and how questions, the primary focus of grammaticalization research has been the study of the internal mechanics of, and

³ The use of the capital letters represents lexemes and indicates that the processes in question apply to all morphological forms of a given lexeme.

motivations for, a given change; this perspective operates with small-scale, feature-based, and not immediately perceptible discrete changes that are part of the online production and uptake in the course of linguistic interaction and that may or may not lead to an observable change that becomes conventionalized as a new pattern; this has been argued in many diachronic accounts (e.g. Timberlake 1977; Andersen 1987, 2001; Lichtenberk 1991; Traugott 2003; Harris 2003; Fried 2008, 2009b, 2010). The purely holistic, construction-level analysis is much too general for capturing the partial and highly local transitions and, therefore, for addressing the gradualness issue.

In order to exemplify the concerns of the ‘process-oriented’ perspective, we can again consider the English *be going to* development. An informal schematization of the partial transitions would have to include at least the shifts identified in Table 1, which is a slight adaptation of Traugott’s 2010 presentation of the relevant details. The affected features are organized into two subsets, one concerning the context (i.e. external properties, which constrain the item’s relationship to its environment) and the other concerning the properties of the (form of the) verb *GO* itself (i.e. properties internal to the item in question). In Table 1, the pairs of empty brackets [] stand for ‘underspecified for that value’ and the dashed lines indicate the fluid nature of the transitions between identifiable stages.

		“ <i>GO</i> motion” (c. 1400)	ambiguous (c. 1475)	“ <i>be going to future</i> ” (c. 1640)
<i>External</i>	<i>syn</i>	biclausal	bi- ~ []	aux V
	<i>sem</i>	purposive imperfective	purp. ~ [] imperf. ~ []	
	<i>prag</i>	later-oriented	later-oriented ~ []	
<i>Internal</i>	<i>syn</i>	main V clause-final	main V clause-final ~ medial	complex aux V
	<i>sem</i>	motion	motion ~ future imminent ~ []	future imminent
	<i>morph</i>	-ing	-ing	
	<i>lex</i>	<i>GO</i>	<i>GO</i> ~ <i>be going to</i>	<i>be going to</i>

Table 1. Features involved in the rise of *be going to*.

What is important to add, though, is also the particular linearization pattern associated with the change (the verb *GO* must be immediately followed by the purposive *to V* complement) and the absence of a directional complement, which is otherwise possible with motion verbs. Both of these conditions have to do with specific usage in specific communicative contexts, and both are instrumental in facilitating the reanalysis that is necessary for the holistic change to become manifest. Even without discussing all the (mostly quite familiar) details of this development, the schematization in Table 1 helps us appreciate the relevance of greater granularity, in which we can see how certain features gradually departed from their original specification, thus opening the path toward the reorganization we observe at the end of the process. The overall change consists of a number of concrete small shifts that affect both the form itself (i.e. the verb *GO*) and its relationship to the immediate syntagmatic context. Note in particular the external-to-internal transition in modeling the motion > future change; the process starts at the contextual (external) level of a pragmatically conditioned “later-oriented” inference (left-most column) to the internally marked

futurity as a semantic feature of the *be going to* form itself (right-most column), with both of these possibilities present in the transitional stage in the middle.

It follows that if we wish to model the full complexity of the development and to explain the process, we cannot operate solely with the idea that one whole construction changes its meaning. Rather, it is the interplay of various subsets of features that happen to co-occur in actual utterance-tokens (i.e. constructs) and that give rise, through inferences that are made available and salient in those constructs, to a new pattern with its own meaning. To be more specific, it would be difficult to argue that utterances such as *I am going to take a nap*, which are potentially ambiguous between a purposive directional and future readings ('I'm on my way to a couch/bed/bedroom in order to sleep' vs. 'I'm about to fall asleep'), are instantiations of a grammatical construction, in the sense of a conventional piece of grammar, and distinct from a construction that would be instantiated by the construct *I am going home to take a nap*. Both utterances may be instantiations of the same semantic argument structure (contributed by the verb *GO*), which also determines the fact that the directional complement may or may not be expressed in syntax, and both can be taken as bi-clausal tokens containing a purposive clause. Moreover, it is not clear what constructional meaning we would plausibly attach to any construction that would serve as the initial stage of the motion > futurity shift. It is still the case that, strictly speaking, the only pieces that change their meaning/function are the form *going* and the marker *to*, but they do so in a specific combination with other linguistic elements in concrete communicative tokens. The tokens may form coherent clusters of syntagmatic, semantic, pragmatic, and morphological factors, which then allow the relevant inferences and subsequent reanalysis, but the truly constructional dimension comes in only at the stage when the new meaning of the item(s) in question is obligatorily associated with a particular sequence of elements which also represent a particular syntactic configuration, different from the configuration in the truly directional tokens. Put differently, only the last column in Table 1 has the status of a fully established, new construction, while the other two correspond to certain combinations of features and linguistic pieces found in certain kinds of constructs containing the verb *GO* not only in its full meaning of a motion verb but also in any tense/aspect form, not just the *-ing* form.⁴

The summary in Table 1 points to another important observation that justifies the process-oriented analysis. As is well known, the original meaning does not necessarily disappear when a new one starts emerging, or even when it becomes fully conventional. This leads to forming polyfunctional networks of coexisting meanings and this effect can be captured only through reference to subsets of features at the level of detail such as suggested in Table 1, not merely at the holistic level. The table is not intended as a fully worked out representation of the network of the relevant patterns, of course, but it would be the necessary starting point toward constructing such a network.

To be sure, this feature-based conceptualization of grammaticalization, which is motivated by the focus on partial transitions, does not reject the notion of

⁴ This account may differ from the way constructional status is treated and assigned in exemplar-based models of change, but such differences do not invalidate the basic claim that change originates in specific usage (constructs), not in constructions (abstract pieces of grammar). Sorting out the details of model-specific alternatives is not (and cannot be) the concern of this chapter, but I suspect the apparent differences may be more terminological than conceptual.

construction or the holistic dimension as relevant; on the contrary. But it calls for examining the internal make-up of constructions and for acknowledging the role of very local contexts and particular, lexically specific subtypes (“micro-constructions” in Traugott’s 2008a: 32 terminology), which may gradually acquire the status of more generalized collocational combinations, as a kind of intermediate stage of conventionalization.⁵ This elusive and so far not very systematically addressed stage is perhaps the motivation behind Traugott’s (2008a) idea of “meso-constructions” or the notion of “coining patterns” in other constructional accounts (e.g. Nir & Berman 2010, Fillmore 1997). In this view, emphasis is put on the details of usage as crucial sources of explanations for how new meanings (and yes, constructions) actually emerge in communication and what motivates the change. Consequently, it is more accurate to treat the diachronic process as a case of ‘constructionalization’, reflecting the fact that the result of the process is the formation of a construction as a new piece of grammar, rather than a new grammatical status of an individual item. Moreover, it affords an explicit account of the shift from a compositional to a non-compositional meaning of superficially identical-looking strings of words.

To summarize, diachronic processes that lead to forming new grammatical units can be most accurately captured and explained by making reference to both the external (holistic) and the internal dimensions of constructions, thereby ‘unpacking’ the primarily holistic approach and conceptualizing the process as a development in which meaning X of an item (lexical or grammatical) changes into meaning/function Y in a larger context C. This means treating the holistic and the process-oriented analyses not only as simply complementary in their perspective, but as equally crucial in the description and explanation of any grammatical change.

4. Constructions at (diachronic) work

The purpose of this section is to consider how CxG can be applied in analyzing a specific diachronic process, thereby demonstrating three things: (i) looking inside constructions in order to pin down the mechanics of change; (ii) the use of the schematic notation as a way to be more precise in articulating the gradualness of grammatical change and its analogical nature; and (iii) the way such an analysis can contribute toward establishing relationships across stages of grammatical development through the concept of ‘constructional map’ (borrowing the concept of functional maps used in typological research).

The illustrative example concerns the erosion of a compositional morphosemantic structure of an inflectional form, with the attendant loss of syntactic freedom and recategorialization, as it is pulled into an existing syntactic construction. The development in question (roughly, participle > adjective) is a lexico-grammatical change that straddles the derivation/inflection distinction and

⁵ It seems that micro-constructions might correspond roughly to what other accounts refer to as “substantive constructions” (cf. Hoffmann 2008) and what in frequency-based models is described as constructions that are fully lexically filled (e.g. Bybee 2006), i.e. repeatedly co-occurring sequences of words. However, there has not been much discussion concerning the terminological practices associated with different accounts (which also reflect theoretical differences across various schools of thought) and it is not my goal here to engage in comparing their content or in evaluating their relative merit and mutual compatibility.

may appear less transparent than the *be going to* case, because at issue is not just a change in the meaning of an item vis-à-vis its local environment. The item itself is a morphologically complex form and what changes is its internal structure together with its (external) categorial status and syntactic behavior. At the same time, this added complexity makes it an instructive case in showing the usefulness of constructions as the crucial concept, and the development can still be classified as an instance of constructionalization, i.e. emergence of a new construction out of specific configurations of features (syntactic, morphological, semantic) in concrete utterances.

4.1 Capturing a change in progress

The so-called ‘long’ participle in Slavic (with some parallels in German), here exemplified by Old Czech (OCz) material, is a schematic *morphological* construction (an exposition of constructional morphology can be found in Booij 2010 and this volume). Its constituents are morphemes, each of which contributes particular semantic content, as indicated in the template in (1); the abbreviation *PAP* stands for ‘present active participle’ and *CNG* stands for the case-number-gender portmanteau suffix that is added to the participle; the whole form is labeled ‘participial adjective’ (PA), in reference to its morphological shape:⁶

- (1) [[[Vroot – pres.stem] – ppl]_{PAP} – CNG]_{PA} ‘(the one) V-ing’
 e.g. [[[*chod* – *ie*] – *c*]_{PAP} – *í*]_{PA} ‘(the one) walking’

The *internal* structure of this categorial hybrid shows that it preserves its verbal origin by marking present tense and voice (active) as part of the present stem (as opposed to past or passive stems). The root also brings along valence properties that have both syntactic and semantic manifestations (expressing complete propositions, expecting the presence of a NP that in finite clauses would be the subject, and maintaining verbal government in marking non-subject arguments). *Externally*, the PA is categorially indeterminate: the CNG suffix is adjectival in form, but evidently variable in function, as the PA spanned the spectrum of expressing predication, modification, and actor-noun reference. Over time, though, the categorial status of the PAs became fixed by conventionalizing particular contextually motivated preferences. Here I consider only the predicate > attribute development, illustrated below; each example represents the most typical token of a given interpretation (i.e. a central member in its category): ‘event-profiling’ in (2) and more or less clearly ‘participant-profiling’ in (3)-(4). (For easier orientation, the PA and its translation equivalent are printed in bold and the noun it co-occurs with is underlined.)

- (2) *uslyšel žáčka dřeveřečený verš **zpievajcieho**_{PA.ACC.SG} [PovOl 255]
 ‘(and when he again secretly entered the church on Friday,) he heard a
 youth **sing** that aforementioned song’*
- (3) *počeli obětovati každý zlatý peniez **mající**_{PA.ACC.SG} na sobě obraz anjelský
 ‘[everyone] started offering a gold coin, **which had** on it a picture of an
 angel’ [PovOl 276b]*

⁶ The present discussion is based on several partial studies of the material (e.g. Fried 2007a, 2008, 2010); the interested reader is referred to these studies for full analysis and argumentation.

- (4) *žadajúcího*_{PA.GEN.SG.N} *vítězství* *trojzvuk šťastně přijal* [ŘádKor 42b]
 ‘he joyously accepted the sound of the **desirable/welcome** victory’

The token in (2) exemplifies a morphosemantically transparent member of the verbal paradigm, used as a depictive secondary predicate. The PA is true to the verbal nature of present active participles both semantically and structurally in that it expresses a full proposition concurrent with the main event and is syntactically relatively independent of its subject complement (‘youth’); the PA’s position in the sentence is not tied to any particular slot. Moreover, the root expresses an action and the subject argument is animate. The PA’s meaning is compositionally derivable from its morphological structure (1) and can be glossed as ‘[a person] who does something at the time of the main event’. In contrast, the meanings in (3) and (4) move progressively closer toward targeting a participant in the secondary proposition and ascribing a salient property to that participant. In (3), the PA can be glossed as ‘[one] who’s prone to V-ing’: it has a habitual flavor and highlights its temporal autonomy relative to the event of the main clause. This example also shows a departure from the original restriction on verb semantics (*mít* ‘have’ is not a verb of action) and an animate agent (*peniez* ‘coin’). The full cluster of features that participate in the shift can be represented schematically (Diagram 1), showing explicitly which of the verbal features become weakened (in gray). The inside boxes represent the verbal stem (on the left) and the CNG suffix (on the right): the stem shows its verbal properties (voice, tense, meaning of the root by reference to the semantically appropriate class of frames) and the suffix specifies only its intrinsic agreement features. The outer box specifies the PA’s external characteristics, i.e. how this form manifests itself relative to larger structures in which it is used: it requires a nominal that will instantiate the agent argument of the root.

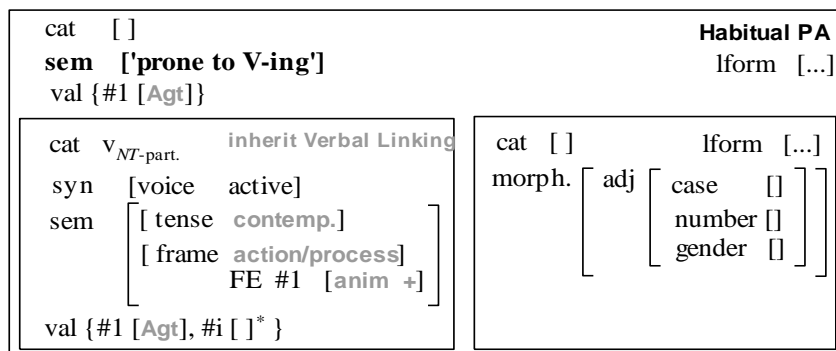


Diagram 1. PA in habitual usage.

Finally, in the reading exemplified in (4), the PA bears clear signs of a truly adjective-like status, both semantically and syntactically: the expected association between semantic arguments of the verbal root and their canonical expression in syntax is completely severed, leading to a non-compositional meaning (‘desired/desirable’ < lit. ‘desiring’), which comes in various flavors (passive, modal, resultative, purposive, augmentative, etc.). All that remains of the verbal origin is the root with its semantic frame, whose participant roles, however, are reconfigured in a new and otherwise unpredictable meaning of the construction as a whole.

We could not easily account for the functional and semantic differences between these three stages of development if we limited ourselves to a holistic observation that the construction (i.e. the PA) changed its function from being a predicate to being an attribute. This would be simply a restatement of the traditional (and inaccurate) sweeping claim that participles turn into adjectives. Such a generalization would not tell us anything about how and why this change takes place, let alone address another known fact, namely, that active participles actually tend to be relatively resistant to a full categorial shift (participle > adjective), in contrast to passive or past participles. Nor, however, can we motivate the development if we focus *only* on the internal structure of the PA itself (which is the traditional source of explanation in diachronic analyses of these forms), without considering the contexts in which it was used at the time when the form was still categorially fluid and the function and meaning depended on the local surroundings. In particular, the development toward attributiveness and even a full-fledged adjective can be traced to two crucial factors outside of the form itself: the animacy of the PA's subject and the linearization patterns in which the PA occurred.

The predicative usage typically and overwhelmingly involves animate and highly individuated entities (real agents), while the erosion in predicativeness correlates strongly with lower individuation of the agent and with accommodating inanimate and abstract entities. Word order as a factor consists in several subtle and interrelated modulations (analyzed in detail in Fried 2008), but two aspects are dominant: the adjacency of the PA and its subject, shown in (3-4) in contrast to (2), and also their relative position, i.e. the difference between the NP-PA order (3) and the PA-NP order (4). In an informal schematization, the clusters of features that correlate with these two linearizations are summarized in Diagram 2. Both sequences (NP-PA and PA-NP) represent regularly occurring combinations in actual texts and each is associated with an overwhelming preference for a certain cluster of features in the attested constructs. The gray color indicates the verbal features that tend to fade in each linearization pattern; the boldface is used for features that are newly associated with the PAs in each pattern.

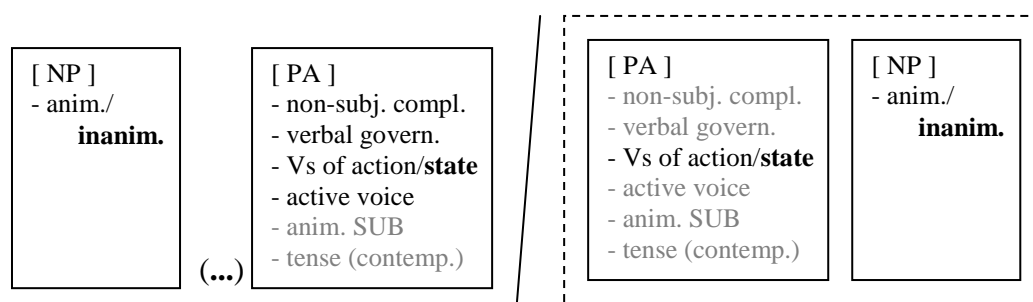


Diagram 2. Contextual factors in PA interpretation.

It is striking that a complete loss of the PA's verbal properties is so strongly associated with the immediately prenominal position, which, in turn, is also the neutral order in other modificational structures in OCz, [Modifier-Head]. The textual material shows that the NP-PA order is still a relatively loose configuration and the adjacency is much less of a requirement, as compared to the prenominal placement; the three dots in the parentheses in the diagram indicate that intervening material is still possible (and not that uncommon) in the

postnominal placement of the PA. It is cognitively plausible to hypothesize that the almost exclusive adjacency in the prenominal linearization facilitates the emergence of a tighter conceptual unit in the mind of the speakers (indicated by the dashed-line enclosure in Diagram 2) and the structural similarity with a regular modification construction can only reinforce such a conceptualization. However, the attraction between the PA and the inherently PA-independent schematic Prenominal Modification construction comes at a price, as the (more restricted) PA adjusts to the (more general) requirements of the modification construction. Crucially, the modification pattern imposes an attributive interpretation, favoring atemporally ascribed properties that simply restrict reference for the head noun, and the noun is also devoid of semantic constraints as to animacy or degree of individuation. Put differently, there is a potential match between the PA and the modifier slot in this construction, and pulling the PA into the slot results in minimizing the PA's predicative potential in favor of attribution, analogically to other modifiers.

The relevant properties and their reorganization in different functional and categorial clusters are summarized in Table 2; the downplaying or loss of features is in gray, newly developed features are in bold, and the dashed line represents a fluid transition between two interpretations. The table reveals a general pattern of development: the gradual erosion and loss of the transparent morphosemantic structure of the PA as a member of the inflectional verbal paradigm starts with the semantics, both internal but particularly external (subject) to the PA itself, while the syntactic manifestations of the change and a full categorial shift (if it occurs at all) become conventionalized more slowly. In present-day Czech, the PA's placement immediately next to its subject is obligatory, regardless of its interpretation (predicative or attributive) and its original syntactic autonomy in relation to other parts of the sentence is thus completely obliterated.

		Secondary Pred.	Habitual	Passive, Modal, etc.
<i>External</i>	<i>cat</i>	[]	[]	A
	<i>sem</i>	anim. subj. (Agt)	anim. subj.(Agt}	functionally & semant. unrestricted 'head N'
	<i>prag</i>	contrastive focus		
<i>Internal</i>	<i>cat</i>	V	V	V
	<i>syn</i>	non-subj. compl. verbal govern. active voice	non-subj. compl. verbal govern. active voice	
	<i>sem</i>	Vs of action tense (contemp.)	Vs of action/ states tense (contemp.)/ habit.	Vs of action/ states atemporal

Table 2. Capturing change in progress: partial shifts in the PA's development

The contextual conditions that facilitated the reinterpretations reside in several domains and are at least partly reinforced by an analogy to the Prenominal Modification construction. The properties of the transitional contexts are listed in (6); any subset of the conditions in (6a-d) had a significant potential to trigger a novel interpretation and conceptualization.

- (6)
- a. structural: adjacency of PA and its subject
 - b. semantic: generalizations, classifications
 - c. pragmatic: lower referential strength of the animate subject NP
 - d. textual: descriptive and narrative texts

The development can be classified as a case of constructionalization both at the level of the PA itself (a morphological construction changed its meaning/function through reorganization of its defining properties) and at the level of its syntactic behavior (attraction into a particular slot in a modification construction). Taken together, the process, which applies to all eligible members of the category, resulted in establishing a syntactically restricted and semantically generalized category out of a syntactically relatively autonomous, semantically constrained, and functionally fluid, context-dependent word-form.

The details of the constructional analysis can be arranged in a non-linear fashion as well, in a network of relationships across the different stages. The result is a constructional map (Diagram 3), which is based on the features (in bold) used in the constructional representations. Each construction is enclosed in a rectangle in such a way that we see exactly which of the features are shared across which members of the network. The features that appear to be the most prominent triggers of the overall change are enclosed in the gray area and we note that, significantly, they are all external to the PA form. The conflicting pressures of the construction-internal and the construction-external properties evidently form a hierarchy such that the internal properties have the effect of a “backward pull” (Traugott 2008a: 34), against the externally motivated analogical adjustment. Note also that the transitions can be only treated as tendencies, not as absolute values (the direction and relative strength of preference is indicated by the symbols ‘</<<’ and ‘>/>>’). Finally, the dashed-line rectangle indicates that the fully adjectival constructions did not survive into the modern language.

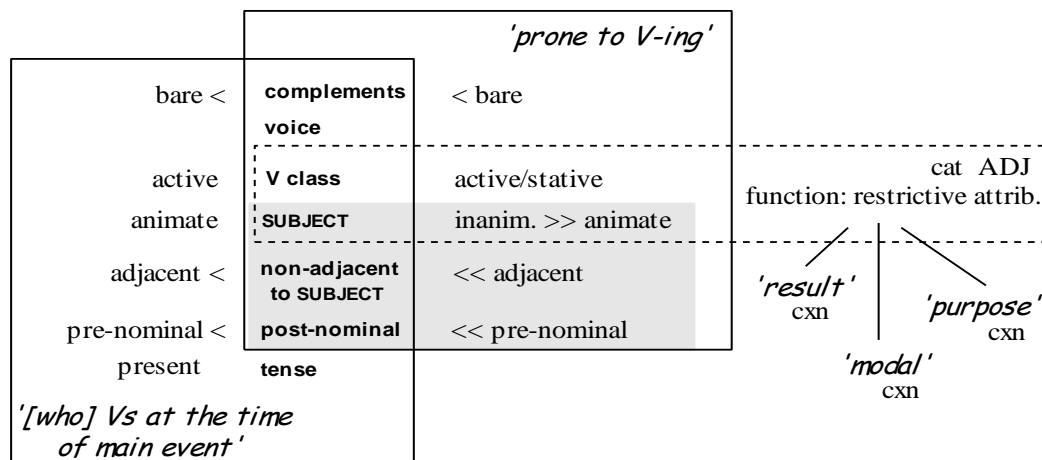


Diagram 3. Constructional map of the OCz PA development (Fried 2008: 73).

4.2 Constructions as the domain of change, revisited

The motivating factors and the overall process sketched above are quite comparable to those that have been laid out for the development of the *be going to* construction in English, even though at first blush it is a fairly different kind of change. We can thus generalize even further about the crucial ingredients of constructionalization, listed in (7):

- (7)
- a. the immediate neighborhood in which a form finds itself in discourse (i.e. the co-text);
 - b. attraction and partial adjustment to another, already existing pattern, through analogy;
 - c. backward pull exerted by the original meaning.

The property in (7b) is relevant in accounting for the availability of new inferences (cf. Traugott's 2008a: 33 idea of constructions serving as "attractor sets"). The factor (7c) not only contributes to forming a polysemy in which the old meaning maintains its presence, but may also limit the extent to which a potential change can actually progress to completion. Needless to say, the relative strength of the backward pull in different kinds of changes is one of the many issues that will require more focused attention and further research.

It follows that the idea of constructions being the domain of change should be formulated with somewhat greater precision, in order to properly understand what role grammatical constructions are expected to play. Constructions are the domain of change in so far as concrete constructs (C1, C2, C3...Cn) of a certain shape result in the establishment of a construction X, often with the help of the existence of another, inherently independent but in some ways similar, construction Y. Put differently, a particular combination of elements in an utterance may become a unit with its own, previously non-existent and not predictable meaning/function. The crucial point, though, is that the original ('triggering') combination can be a relatively free sequence of syntactically independent pieces (one of which is the form in question) and not necessarily an instance of an established construction (recall Diagram 2). Thus, with regard to the domain of change, we need the notion of construction in two senses: (i) as a source of analogical motivation and (ii) as the endpoint of the grammaticalization process. Whether or not we can also identify a specific construction as the starting point will depend on the nature of the form and change under study; the onset of a change is crucially connected only with constructs, not constructions.

We also need to keep in focus that constructions participate in the change at two levels simultaneously. Constructionally informed diachronic analyses can take advantage of the ability to analyze systematically the *internal* properties of constructions. At the same time, reference to the *external* properties of constructions cannot be limited to establishing constructional meaning, but provides also a way to track the changing relationship(s) between the form in question and its context of use. The context is understood in terms of a syntagmatic/structural organization as well as in terms of pragmatic preferences and constraints, whether these concern discourse organization, speech-act functions, interactional features, or other pragmatic issues. The latter has not been prominently addressed in this chapter but it will be particularly salient in tracing cases of pragmaticization, although pragmatic triggers are not limited to them, of course. A first attempt to map a change involving pragmatic relations in terms of constructional reorganization can be found in Fried (2009b) but a lot more research concerning this connection will be needed, on a variety of data.

Finally, the idea that different stages of development (or synchronic polysemies in case of co-existing variants) can be tied together in constructional maps (for other implementations see also Fried 2007b, 2009c) seems conceptually close to the concerns of culturally grounded evolutionary linguistics (e.g. Steels

2007, To appear-a), where the central issue is to understand the processes behind the evolution and constant (re)aligning of the grammatical systems shared, always imperfectly, across members of a speech community. The maps are a good vehicle not only for dealing with fluid boundaries of neighboring linguistic categories, but also for organizing the properties of related constructions in a way that shows possible constraints on developing new grammatical patterns, possibly illuminating processes of self-organization and selection in realigning grammatical systems. It is clear that the features participating in the partial transitions leading to a complex diachronic change are not all involved equally: some are more resistant to change, others are readily shifted, and still others are instrumental in initiating and/or facilitating the process in the first place. It is thus possible to draw at least partial hypotheses about which variants in a network are more likely to survive and become dominant, and which are more likely to be short-lived, and why. The maps can thus be another tool for modeling and testing mechanisms that seem to underlie grammaticalization processes and for which constructions are a crucial concept.

5. Conclusions and outlook

If the goal is to uncover the *motivation* for change, then the integration of grammaticalization research and constructional analysis appears to be a highly promising approach. Although CxG has only recently started to be applied to diachronic analyses, it is rapidly gaining currency among historical linguists, as it is becoming evident that the constructional approach can be helpful in capturing the *emergence* of grammatical structure, thereby going beyond simply comparing discrete synchronic stages and toward identifying diachronic relationships at an appropriate level of detail.

Above all, CxG is a useful tool for analyzing and representing the direct relationship between language use and language change, which is the *sine qua non* of grammaticalization processes. The task of mapping out the intricate web of motivations and partial shifts from which an observable change may gradually arise requires an approach in which the changing form can be studied in relation to its usage environment. This requirement is served well by the notion of construction, as it allows analysis from both the holistic and the ‘inside-out’ perspective. Finally, it goes without saying that CxG is inherently consistent with the co-evolution hypothesis (Bybee et al. 1994), i.e. form and meaning changing simultaneously, although this appears to be true only at the constructional, not the feature-based, level. It is clear we need to combine these two perspectives, rather than interpret the idea of a ‘constructional’ analysis only in the narrow sense of non-compositionality, concerning mainly the result of change. While the holistic aspect is an indispensable part of the enterprise, the range of issues that need to be incorporated goes far beyond the question of constructional meaning.

The conceptual underpinnings of CxG are thus naturally compatible with the goals of functionally oriented diachronic analyses, primarily due to the following features:

- allowing the possibility that constructions maintain (at least a certain degree of) internal complexity, regardless of their non-compositional meaning/function;
- incorporating features that constrain a form’s behavior in larger structures;

- allowing underspecification at any level of representation, thus accommodating the descriptive challenges in dealing with incompletely attested languages, as well as gradient categoriality;
- treating constructions as multilayered functional prototypes (i.e. ‘blueprints’ defined by clusters of features) that can be stretched, and their shape negotiated, through novel uses in actual communication;
- incorporating recurrent pragmatic features and contextual constraints if warranted by the data.

It is these features that make CxG helpful in conceptualizing the gradualness of change and formulating more precisely our hypotheses about it, so that we can be systematic without sacrificing the complexity of the processes. In particular, we can more easily address the following:

- the incremental (feature-by-feature) nature of variation and change;
- the relationship between partial transitions and a larger diachronic shift at a sufficient level of granularity;
- potential mismatches between schematic grammatical patterns and the words that fill them (thus allowing for non-compositionality);
- the role of pragmatic and semantic triggers of novel interpretations.

The principles of constructional change capitalize on the fact that CxG treats grammatical knowledge as the result of a gradual conventionalization of patterns of understanding, in which morpho-semantic structure, syntactic function, communicative function, and lexical meaning form an integrated whole, and linguistic change can involve any subset of these aspects. The nature and details of the integration and its manifestations in the emergence of new linguistic structure are only beginning to be systematically addressed, but a firm direction for further research has been charted. Moreover, CxG-based analyses hold promise for giving sufficient prominence also to topics that have not attracted as much attention yet (compared to the preoccupation with issues surrounding the evolution of grammatical markers), for both theoretical and methodological reasons: focus on the discursal origin of linguistic change and the evolution of non-propositional (pragmatic) meanings, such as the emergence of pragmatic particles. All of this still awaits serious research.

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