

## 1 Introduction

In this Element, we introduce a family of approaches that regard constructions – that is, form–meaning pairs at various levels of abstraction and complexity – as the main units of linguistic knowledge. Traditional approaches to grammar often assume that our knowledge of language consists of two components: the lexicon as a repository of morphemes, words, and a very limited set of idioms, on the one hand, and the grammar as a set of rules for combining the items in the lexicon on the other (see e.g. Pinker 1994; Taylor 2012). In such approaches, the lexicon is usually kept at a minimum – as Di Sciullo and Williams (1987: 3) famously put it, “[t]he lexicon is like a prison – it contains only the lawless, and the only thing that its inmates have in common is lawlessness.” Constructionist approaches take a radically different stance. Their starting point is the observation that there is much more idiomaticity in language than is usually assumed. Broadly speaking, idiomatic units are complex constructions whose meaning cannot be fully derived from their constituent parts (but see Wulff 2008, 2013 for a more nuanced treatment of idiomaticity and its relation to compositionality). Consider, for example, the much discussed *way*-construction, exemplified in (1) (all from the *News on the Web* corpus, Davies 2016–).

- (1)
- a. Mr. Musk bluffed his way through the crisis. (October 5, 2018, US, *MarketWatch*, NOW corpus)
  - b. Last month Tesla CEO Elon Musk bullied his way to reopening his electric car factory in California ahead of local health officials’ recommendations. (June 11, 2020, KE, *nairobiwire.com*, NOW corpus)
  - c. Tesla founder and CEO Elon Musk teased his way through the car’s introduction, showing pictures of the company’s past (April 1, 2016, PK, *BusinessRecorder*, NOW corpus)
  - d. Elon Musk tweets his way through his pending Twitter acquisition. (May 21, 2022, US, *wral.com*, NOW corpus)

As Israel (1996) points out, one important feature of this construction is that it always entails the subject’s movement (in a literal or metaphorical sense), even if the lexical semantics of the verb do not imply any kind of movement. Thus, the meanings of the sentences in (1) cannot necessarily be derived from the meanings of their constituent parts. In these examples, the whole is more than the sum of its parts – in other words, we are dealing with structures that are not fully compositional. As we will show in Section 2, the insight that noncompositionality is more ubiquitous in language than one might think was one of the main starting points of constructionist approaches. Language, on this view, is highly idiomatic. Constructionist approaches therefore depart from the classic position that words and morphemes are the main “building blocks” of language

that are combined via a set of rules, and instead propose a joint format for the representation of meaning-bearing units of varying sizes and at different levels of abstraction: constructions.

Speaking of “constructionist approaches” underlines that Construction Grammar (CxG), which has grown into a large research field over the last decades with a variety of journals, textbooks, and book series dedicated to it, is not a uniform paradigm but has rather developed into a heterogeneous set of “Construction Grammars,” plural (see e.g. Hoffmann 2017a, b). While different approaches differ substantially in some of the assumptions they make as well as in their goals, Goldberg (2013) and Hoffmann (2022: 10–16) summarize four basic assumptions that are common to all “flavors” of Construction Grammar, in addition to the basic concept of linguistic constructions:

- They do not assume a strict division between lexicon and grammar but instead postulate a *lexicon-syntax continuum*.
- They assume that constructions do not exist in isolation and that our knowledge of constructions should not be conceived of as an unstructured list (as is sometimes the case in conceptualizations of the mental lexicon). Instead, they are organized in a taxonomic network, a *construct-i-con*. We will deal with the inner workings of this “grammar network” (Diessel 2019) in Section 4.
- They are *surface oriented*, that is, they do not posit some sort of “deep structure” with abstract syntactic representations and operations. Instead, it is assumed that constructions emerge (historically) and are learned (ontogenetically) via generalizations over concrete instances that language users encounter.
- Given this surface orientation, they do not assume a “Universal Grammar” that underlies all human languages but instead expect a considerable amount of cross-linguistic variability. To the extent that there are universals of language (see Evans & Levinson 2009 for a skeptical stance), they are explained as generalizations deriving from domain-general cognitive processes and functional pressures (Hoffmann 2022: 16).

In the remainder of this text, we will give an overview of the historical development, the current state of the art, and potential future outlooks of constructionist approaches. Of course, many excellent introductions to the framework already exist: for book-length introductions, see Hilpert (2019) and Hoffmann (2022); for chapter-length summaries, see Fried and Östman (2004), Croft and Cruse (2004: 257–290), Croft (2007), Diessel (2015), Hoffmann (2017a) and Boas (2021); see also Hoffmann and Trousdale’s (2013) handbook. Compared with these earlier overviews, our focus here will be especially on recent developments in the field, including current research topics as well as ongoing debates that yet need to be resolved.

In Section 2, we provide an overview of the genesis of CxG, before addressing varying definitions of the concept of “construction” and discussing the question of whether morphemes and words should also count as constructions. In Section 3, we compare different constructionist approaches with regard to three parameters: their degree of formalization, their research foci, and the methods they prefer to use. Section 4 focuses on the structure of the construct-i-con, addressing its psychological underpinnings and the different types of links it may contain as well as some open research problems (see also Diessel’s [2023] contribution to the *Elements in Construction Grammar* series for an in-depth treatment of constructional networks). Finally, Section 5 discusses some further current developments in CxG, zeroing in on three research topics that have increasingly gained attention in recent years: linguistic creativity, multimodality, and individual differences between language users. Section 6 offers a brief conclusion.

## 2 Discovering Idiomaticity: The Case for Constructions

### 2.1 The Early Days of CxG

Historically, the emergence of CxG is closely connected to the endeavor of establishing a counterpart to Chomskyan generative linguistics, which was the dominant paradigm especially in North American linguistics for much of the second half of the twentieth century (see e.g. Harris 2021).<sup>1</sup> While the concept of “constructions” in the constructionist sense as well as the term “Construction Grammar” emerged in the 1980s, especially in the works of Fillmore (1988; Fillmore, Kay, & O’Connor, 1988) and Lakoff (1987), Boas (2021: 43) points out that the intellectual roots of CxG – and of its “sister theory,” frame semantics – lie in Fillmore’s (1968) seminal paper “The Case for Case.” Specifically, he argues that the idea of “deep cases” foreshadows what later came to be known as semantic roles, which in turn play a key role in the interaction of verbs and constructions in CxG. But while the notion of “construction” already appears in earlier works, Fillmore et al.’s (1988) paper on the *let alone* construction is nowadays usually seen as the key starting point of CxG (see e.g. Boas 2021: 49).

Fillmore et al. (1988) argue that idiomaticity is not just an “appendix” to the grammar of the language – instead, idiomatic patterns are themselves productive, highly structured, and worthy of grammatical investigation. In the case of *let alone*, they argue that neither can its properties be exhaustively derived from its lexical makeup and grammatical structure, nor can it be treated as a fixed

<sup>1</sup> We can only give a relatively brief overview of the history of constructionist approaches here; for more in-depth discussions, see Boas (2021) and Hoffmann (2017b).

expression. At the syntactic level, Fillmore et al. analyze *let alone* as a coordinating conjunction; at the semantic and pragmatic level, they see it as a paired-focus construction that evokes a certain scale. For example, in (2a), “taking the first step” and “taking the second step” can be interpreted as the contrastively focused elements, and as points on a scale. In (2a), this scale is fairly obvious, as it is in (2b), where *approach* and *equal* can be considered classic examples of lexical items that form a so-called Horn scale, that is, a scale where the stronger term entails the weaker one while the weaker term implicates the falsity of the stronger one (e.g. <*warm, hot*>, <*some, many, most, all*>; see Cummins 2019: 49).

- (2)
- a. I barely knew what step to take first, let alone what step to take second, let us not talk about the third. (A08, BNC)
  - b. The old Herring and Addis tools were made with a finesse and temper that modern tools do not approach, let alone equal. (A0X, BNC)
  - c. [R]eference to its existence, let alone study of its function, has been sedulously avoided. (A69, BNC)
  - d. I don't have time to feed the children, let alone prepare my lecture. (Fillmore et al. 1988: 531)

In some cases, however, the scales evoked by *let alone* are more complex, as (2c) and especially Fillmore et al.'s example (2d) illustrate: Here, the conjuncts – *reference to its existence* and *study of its function* in (2c), *feed the children* and *prepare my lecture* in (2d) – do not belong to the same semantic domain. Thus, the scales evoked by *let alone* can be strongly context-dependent.

Apart from *let alone*, Fillmore et al. (1988: 510–511) mention a number of other constructions in passing, some of which have been investigated in more detail in later constructionist work; for example, the *what with* construction (*what with the kids and all*; see e.g. Trousdale 2012) and the incredulity response construction (*Him a doctor?!?*; see e.g. Szcześniak & Pachoł 2015). Fillmore et al.'s article thus spawned a series of further constructionist analyses, starting in the early 1990s – for example Kay's (1990) paper on *even* and Michaelis' (1993) study of the English perfect construction – and growing in number ever since.

In the following, we cannot provide a summary of all the phenomena that have been studied from a constructionist perspective over the last thirty-five years, as there are too many. Instead, we will focus on the key notion of “construction,” exploring how the concept has developed over time in the context of the changes that CxG as a paradigm has undergone. In particular, we will focus on Goldberg's (1995, 2006, 2019) definitions of constructions, as the evolution of the concept in her writing arguably reflects important developments in CxG, which is why the different definitions she has provided over the

years are often cited and compared to each other in introductory texts (e.g. Hilpert 2019; Ziem & Lasch 2013). We will also discuss what kinds of units can be seen as constructions, which naturally depends on the definition of construction that one adopts.

## 2.2 “Construction”: An Evolving Concept

A major contribution to defining the notion of construction was made by Goldberg (1995) in a monograph that also constitutes the first book-length summary of the constructional approach and can therefore be seen as a further milestone in CxG history.<sup>2</sup> In this book, Goldberg outlines many of the key issues that have been at the heart of constructionist approaches ever since: the important role that aspects of meaning (semantic and pragmatic) play in the analysis of grammar; the interaction between constructional meaning and verb meaning; the notion that constructions motivate each other within a network of stored knowledge (see Section 4); and a usage-based account of the partial productivity of constructions based on learning mechanisms such as indirect negative evidence (see Goldberg 2019 for a more recent account of this mechanism in terms of “statistical preemption”).

Crucially, Goldberg (1995) also proposes what may be the best-known definition of “construction”:

C is a construction iff<sub>def</sub> C is a form-meaning pair  $\langle F_i, S_i \rangle$  such that some aspect of  $F_i$  or some aspect of  $S_i$  is not strictly predictable from C’s component parts or from other previously established constructions. (Goldberg 1995: 4)

The definition captures two central elements. First, drawing on the traditional concept of a Saussurean sign (Goldberg 1995: 6), constructions are regarded as units of form that inherently carry meaning, contrary to their generativist conception in terms of meaningless structural rules. In Goldberg’s approach as well as subsequent work, “meaning” has come to be understood in a broad sense, comprising lexical, semantic, pragmatic, discourse-functional, and social aspects, while “form” is usually taken to include phonological, syntactic, and morphological information (but see e.g. Herbst & Uhrig 2020 for discussion).<sup>3</sup> Second, Goldberg uses nonpredictability as a criterion for what counts as

<sup>2</sup> To be more precise: the first published book-length summary. A CxG textbook by Fillmore and Kay (1993), used in Berkeley linguistics classes, was distributed via a local copy shop (see e.g. [www1.icsi.berkeley.edu/~kay/bcg/ConGram.html](http://www1.icsi.berkeley.edu/~kay/bcg/ConGram.html), last accessed September 14, 2022).

<sup>3</sup> The question of what should count as “form” is where CxG deviates from the related approach of Cognitive Grammar (Langacker 1987): While most Construction Grammarians include syntactic constituents (e.g., NP, VP), syntactic functions (e.g., subject, object), and possibly other grammatical categories (e.g., case, agreement) within the form pole (see e.g. Hoffmann 2022: 39–40),

a construction and what does not: Any pattern that has “unique” properties that go beyond the properties of its subparts and those of other, partially similar, constructions is recognized as a construction in its own right. Nonpredictability is closely linked to the notions of idiomaticity and noncompositionality, which are also often used to argue for the construction status of a pattern (see Pleyer et al. 2022 for the multifaceted meanings of “compositionality”). Crucially, however, the nonpredictability criterion applies not only to idiomatic constructions which, in previous generative work, had been relegated to the “periphery” of language (Chomsky 1981); it also allows for highly frequent and seemingly “regular” or “core” patterns, such as the caused-motion pattern illustrated in (3), to be treated as constructions. The fact that (3b) implies a motion event, even though it contains an intransitive nonmotion verb, suggests that the “caused motion” meaning is associated with the construction itself and is not predictable from the lexical items it contains. As a result, Goldberg’s definition allows for a wide view of “constructions” that covers both broad grammatical generalizations and the many less-frequent idiomatic patterns whose role was emphasized by early CxG work.

- (3) a. Pat pushed the piano into the room. (Goldberg 1995: 76)  
 b. Sally sneezed the napkin off the table. (Goldberg 1995: 6)

Goldberg’s (1995) definition has, however, not remained unchanged over time; rather, it has continued to evolve as subsequent research has brought to light some of its limitations. First, scholars have come to agree that, apart from their nonpredictability, the frequency of linguistic patterns is another major determinant of their status as constructions. Early evidence that speakers track and record frequencies in the linguistic input came from studies showing that more frequent units tend to be phonologically more reduced than less frequent ones (Bybee 2000; Losiewicz 1992). Moreover, the long-standing research on formulaic patterns in language (Bolinger 1976; Kuiper & Haggo 1984; Pawley 1985) has highlighted that speakers rely heavily on lexically fixed chunks in natural speech. As illustrated in (3) and (4), speakers routinely prefer certain frequent expressions over less frequent alternatives, even when the words they contain have similar meanings and they are both sanctioned by the same abstract construction, such as the noun-phrase construction in (4) and the transitive construction in (5). This suggests that speakers store highly frequent chunks as constructions in their own right, even when they can be predicted from their component parts or based on an abstract template they instantiate.

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Cognitive Grammar restricts linguistic form to phonological information only and regards “grammatical form” as a reflex of underlying semantic constraints (Langacker 2005: 104–107).

- (4) a. innocent bystanders (preferred)  
 b. uninvolved people (dispreferred)
- (5) a. it boggles my mind (preferred)  
 b. it giggles my brain (dispreferred)  
 (all adapted from Goldberg 2019: 53)

Apart from these fully lexicalized instances, there is also ample evidence that speakers encode frequency information about partially lexicalized subtypes of more abstract constructions. For example, Gries and Stefanowitsch's (2004) corpus results indicate that speakers' use of the ditransitive and the *to*-dative construction varies depending on the verb: While verbs such as *give*, *tell*, and *show* are more often used with the ditransitive, as illustrated in (6), verbs such as *allocate*, *wish*, and *accord* are preferably used with the *to*-dative, as in (7). Even though the sentences in (6) and (7) are all instances of more abstract generalizations, the fact that speakers prefer one variant over the other suggests that they associate distinct frequency-based information with each verb-specific pattern.

- (6) a. She told the children the story. (preferred)  
 b. She told the story to the children. (dispreferred)
- (7) a. She allocated the seats to the guests. (preferred)  
 b. She allocated the guests the seats. (dispreferred)

As a result, many researchers have argued for the existence of lexically specific constructions even when their form and meaning seem predictable from the more abstract schemas they instantiate (Booij 2002; Bybee & Hopper 2001; Langacker 2005). An often-cited example is *I love you* (Langacker 2005: 140), which, due to its high frequency, is likely to be stored as a separate construction, even though it is fully compositional. Given this evidence, Goldberg (2006) proposed a modified definition of constructions, which explicitly incorporates the frequency criterion and which has again been widely used since:

Any linguistic pattern is recognized as a construction as long as some aspect of its form or function is not strictly predictable from its component parts or from other constructions recognized to exist. In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency. (Goldberg 2006: 5)

But the story does not end there, and aspects of the 2006 definition have also come under scrutiny. Zeschel (2009), for instance, raises doubts about the use of the nonpredictability criterion for delineating constructions. In particular, he takes issue with the categorical nature of the criterion: By regarding patterns as either predictable or nonpredictable, analysts are forced to draw sharp distinctions between the

features that set apart one construction from another and the ones that fail to do so. As Zeschel (2009: 187–188) argues, however, these decisions are often difficult to make because tests for the presence of a certain feature are not always available; because features might vary in their salience depending on the context; and because interindividual variation among speakers means that constructions are not really characterized by strictly necessary properties but rather by statistical tendencies. Similarly, with respect to compositionality, it has been argued that patterns are not either compositional or noncompositional but that compositionality is a matter of degree (Langacker 2008: 169).

As an alternative to the nonpredictability criterion, Zeschel (2009) advocates the use of Langacker's (1987, 2005) entrenchment criterion, according to which a pattern is recognized as a construction if it is sufficiently entrenched, that is, cognitively routinized (on the concept of entrenchment, see e.g. Blumenthal-Dramé 2012 and Schmid 2017b). Since entrenchment is naturally a gradient concept, this view entails that the distinction between what is a construction and what is not may be continuous rather than categorical, with higher degrees of entrenchment providing increasingly stronger evidence that a pattern has construction status. Crucially, the entrenchment of a unit is commonly assumed to depend on several factors, among them the frequency and the similarity of its instances: The more instances a pattern comprises, and the more similar these instances are to each other (while being simultaneously dissimilar to instances of other patterns), the more likely speakers are to group them together under a construction (Bybee 2013; Schmid 2020; see also Section 4.3 for discussion). Crucially, the notion of similarity is closely related to the nonpredictability criterion used in Goldberg's earlier definitions: The more dissimilar a pattern is to already existing units, the less predictable it is. If, instead, a group of instances are highly similar to an extant construction, they can be subsumed under that generalization, thereby further strengthening it, rather than forming a construction in their own right. The entrenchment criterion, grounded in similarity, can therefore be used to identify constructions in a similar way as the nonpredictability criterion, while simultaneously recasting the distinction in gradient rather than in categorical terms (see later in this section for a discussion of this gradient view).

These comments help explain the differences between Goldberg's earlier accounts and her third and most recent definition of constructions, as stated in her 2019 monograph:

[C]onstructions are understood to be emergent clusters of lossy memory traces that are aligned within our high- (hyper!) dimensional conceptual space on the basis of shared form, function, and contextual dimensions. (Goldberg 2019: 7)



As is evident from this quote, Goldberg’s latest definition completely does away with the notion of nonpredictability. Instead, the similarity among instances is used to group them together in “clusters” that correspond to constructions. Moreover, Goldberg couches her view of constructions in more psychological terms than in earlier definitions, relying on the concepts of “memory traces,” “emergent clusters,” “conceptual space,” and “lossiness.” The latter concept is borrowed from computer science and characterizes speakers’ memories as partially abstracted (“stripped-down”) versions of the original input. The strong psychological component of the definition can be related to theoretical and methodological trends in CxG, where more and more emphasis has been placed on the cognitive reality of constructions, rather than on their description alone, and in which psycho- and neurolinguistic paradigms have become ever more important sources of evidence (see e.g. Hoffmann 2020).

While Goldberg’s (2019) definition is the outcome of several decades of constructionist theorizing, it surely will not mark the last attempt to come to terms with the concept of “constructions.” One obvious question raised by the definition, for example, is *how much* formal, functional or contextual information has to be shared by a group of instances (or memory traces) for them to be classified as a construction. Clearly, determining an adequate threshold for similarity is an important task for future empirical research (see also Section 4.3). Another striking feature of the 2019 definition is that it no longer makes reference to frequency as a necessary or sufficient criterion for construction status, in contrast to Goldberg’s 2006 account (see the earlier definition in this section). This omission is, in fact, intentional, as Goldberg (2019) identifies a problem with the earlier frequency criterion. According to the 2006 definition, a pattern is only recognized as a construction if speakers have witnessed it with sufficient frequency. The paradox that Goldberg (2019: 54) identifies is this: How can speakers accrue experience with a pattern if they only store it once they have already encountered it with sufficient frequency? In other words, if speakers do not retain individual instances of a new pattern, then each newly witnessed instance would seem to be the first of its kind, and speakers would never reach the frequency threshold required for forming a constructional representation. There is, in fact, ample evidence that speakers *do* store single instances of use, also called “exemplars” (Abbot-Smith & Behrens 2006; Ambridge 2020; Bybee 2010). The latter are an important feature of the view of grammar as an emergent system (Hopper 1987) that many cognitive linguists and Construction Grammarians subscribe to (e.g. Ellis & Larsen-Freeman 2006; Goldberg 2006; MacWhinney 2019).

Given these arguments, researchers are faced with a potential dilemma: On the one hand, if scholars maintain Goldberg's (2006: 18) well-known claim that "it's constructions all the way down," that is, that speakers' grammatical knowledge *in toto* consists of constructions, then they need to count a single stored exemplar of a new pattern as a construction. This would undermine the frequency criterion of the 2006 definition discussed earlier in this section and allow a potentially exploding number of constructions into the theory. If, on the other hand, scholars reserve the label "construction" for groups of stored exemplars that have grown sufficiently large, then they seem to give up the claim that grammatical knowledge consists of constructions *only*, and instead treat constructions as generalizations over more atomic units.

There are several ways to (potentially) resolve this problem. One rather radical approach would be to abandon the notion of constructions entirely and to reconceptualize linguistic knowledge in terms of a network of associations. Schmid's (2020) entrenchment-and-conventionalization model goes in this direction, although he retains the notion of construction (however, he abandons the idea of constructions as "nodes" in a network; see Schmid 2017a). A second approach would also be quite radical as it would abandon one of the major tenets of CxG: retaining the concept of construction as a heuristic device but dropping the idea that constructions are cognitively plausible entities. This would, however, entail the question of why the concept of constructions is needed in the first place. A third, and potentially the most promising, approach is to adopt a gradualist notion of constructionhood (see Ungerer 2023) – an idea that is also implicit in Goldberg's latest definition and Langacker's entrenchment criterion, as discussed earlier in this section. On this view, construction status is not conceived of as a binary concept according to which a linguistic unit either counts as a construction or does not. Instead, this approach assumes a gradient scale of constructionhood, understood as the degree to which a pattern is mentally encoded. This view, of course, entails challenges of its own: For example, the question remains of how degrees of constructionhood can be measured and whether such quantification could be used to define a threshold that patterns have to cross to be included in the constructional inventory of a given analysis (see also Section 4.3). However, there are good arguments in favor of a reconceptualization of constructions in gradualist terms – for instance, diachronic studies show very clearly that the emergence of constructions is usually a gradual process (Hartmann 2021; Traugott & Trousdale 2013).

As this discussion has illustrated, the concept of "construction" has undergone a considerable evolution over the last thirty years, and yet researchers are still grappling with its definition and operationalization. The different definitions of the concept have important consequences for the question of which