

## Title

### **An Introduction to Diachronic Construction Morphology**

## Pitch

If your friend says she's "underjoyed", how come you understand what she means, even if she uses a word that is not in the dictionary? What happens if the English suffix *ish* is borrowed into other languages? Why do some people use the plural form *boxen* when they refer to computers? Why is the past tense form of a new verb e.g. *skyped*, but not *skope*? Accessibly written and richly illustrated, this advanced textbook explains how speakers use existing patterns for creating new ones.

## Synopsis

### **I. THEORETICAL BACKGROUND**

#### **I.1 CONSTRUCTION GRAMMAR: SOME BASIC CONCEPTS**

The term 'construction grammar' (with lower case *c* and *g*) is a superordinate label for cognitive approaches to grammar in which all lexical and grammatical units, including those larger than words, are viewed as symbolic pairings of form and meaning (see, e.g., Fillmore 1988, Goldberg 1995, 2006, Langacker 1999, 2009, Croft 2001; for an overview see Hoffmann & Trousdale 2013).

The central notion in construction grammar is the CONSTRUCTION: "Constructions are defined as pairings of form and meaning, ranging from the morphemic to the utterance level of linguistic structure [...] the scope of the notion of constructions ranges from 'lexicalized' or 'idiomatic' items to abstract, productive patterns" (Bergs & Diewald 2008: 1f.). Constructions, of whatever form, consist of formal and semantic properties and the symbolic link between them. The construction grammar representation of a construction is given in Figure 1.

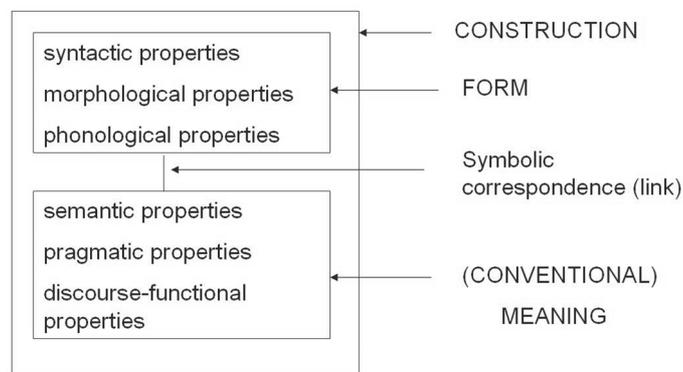


Figure 1: The symbolic structure of a construction (after Croft 2001: 18)

From a construction grammar point of view, there is no strict division between grammar and lexicon, as both words and larger units are considered symbolic units, linking properties of form and meaning. The main difference between single lexical items and multi-word constructions is that the former are substantive and atomic (i.e. minimal syntactic units) whereas the latter are (at least in part) schematic and complex (consisting of more than one element; Croft 2001: 16). On this view, lexicon and grammar constitute a continuum and can be represented in the same way, using the structure in Figure 1. Likewise, there is no essential difference between morphological constructions and syntactic constructions, the only difference being that the former involve bound morphemes, whereas the latter may be entirely made up of free morphemes (Croft 2001: 17). Summing up thus far, construction grammar presents a gradient view: grammar and lexicon form a continuum, as do syntax and morphology. Moreover, constructions on the continuum from substantive to schematic, and from atomic to complex, have basically the same structure.

## **I.2 CONSTRUCTIONAL NETWORKS**

Constructional networks play an essential role in construction grammar. Such networks are not just assumed to be found in part of the language (such as the lexicon), but pertain to the language system as a whole. As Hudson put it: “[L]anguage is **nothing but** a network — there are no rules, principles or parameters to complement the network. Everything in language can be described formally in terms of nodes and their relations.” (Hudson 2007: 2; emphasis original). Following Traugott & Trousdale (2013: 51), I will assume that networks are multidimensional, encompassing three kinds of nodes: schemas, subschemas and micro-constructions. Micro-constructions are phonologically specified, subschemas and schemas are abstractions over sets of micro-constructions. In this model, each node further down in the hierarchy inherits properties from its dominating nodes, which implies that formal and semantic properties need to be represented only once (Traugott & Trousdale 2013: 61).

I will furthermore argue that there are two basic types of links in a network: inheritance links, which form hierarchical structure, and lateral links which link nodes on the same level of schematicity. Inheritance links relate constructional schemas (e.g. word formation schemas or inflectional schemas) to their instantiations at the micro-constructional level, whereby a micro-construction may inherit from multiple schemas (cf. Goldberg 1995). Within the category of lateral links, I will introduce three new concepts: (i) intraparadigmatic links (adapted from Booij’s (2010) paradigmatic links), i.e. micro-constructions with the same base (for either inflection or derivation), (ii) interparadigmatic links, i.e. micro-constructions that inherit from the same schema(s), and (iii) resemblance links, linking phonologically and / or semantically similar micro-constructions that are not paradigmatically related. In addition, lateral links can be observed to exist on the level of (sub-)schemas, a phenomenon termed degeneracy (Van de Velde 2014).

### I.3 LANGUAGE CHANGE AS CHANGE IN CONSTRUCTIONAL NETWORKS

In a constructional approach to language change (Noël 2007, Bybee 2010, Fried 2010, Trousdale 2012, Hilpert 2013, Traugott & Trousdale 2013, Trousdale & Norde 2013, Norde & Van Goethem 2014, 2015), constructions as defined in section I.1 form the basic unit of analysis. Following Traugott & Trousdale 2013, I will distinguish between two basic types of change: (i) constructional change, i.e. change in one property of an existing construction (cf. Figure 1), and (ii) constructionalization, a ‘composite change’ (Norde 2009) which involves the coming into being of a new conventional symbolic unit, i.e. a new node in a constructional network. I will argue that, from a diachronic point of view, constructional networks are in constant flux: expanding in some places, shrinking in others, with new links emerging and others being severed. Crucially, it will be argued that expansion in part of the network is not necessarily suggestive of the rise of a new (sub-)schema, but can also be due to attraction from lateral links (cf. Cappelle’s (2014) ‘pockets of productivity’ and Kay’s (2013) ‘patterns of coining’). I furthermore aim to show that these network changes (expansion, reduction and realignment) are constrained by two basic constructional properties: connectivity, i.e. the number of links (both inheritance and lateral) which connect micro-constructions to other nodes in the network, and frequency, both at the micro-constructional level (i.e. token frequency) and at the schema level (i.e. type frequency).

### I.4 CONSTRUCTION MORPHOLOGY

In this book, I will adopt the formalism of Construction Morphology (Booij 2010) in order to account for the properties of morphological constructions and their organization in a constructional network. In Construction Morphology (henceforth CxM), words are considered constructions, i.e. arbitrary pairings of form and meaning that are stored in an inventory of constructions. This inventory is conceived of as a network of individual words, schemas and subschemas, whereby schemas, too, are conceived of as constructions. I will illustrate this architecture with diminutive constructions in Dutch (see also Norde & Morris, ms.). A general schema for diminutives is given in (1) (adapted from Booij 2010, p. 54):

$$(1) \quad [[a]_{x_i} \text{DIM}]_{N_j} \Leftrightarrow [\text{SMALL } [\text{ENTITY RELATED TO SEM}_i]]_j$$

The above schema should be interpreted as follows: *a* is a phonological string which is a member of word class *x*; DIM represents the diminutive suffix, its precise phonological form depending on the phonological properties of *a*. Diminutive constructions are invariably nouns, as indicated by subscript *N*. The double arrow ( $\Leftrightarrow$ ) refers to the symbolic link between the form on the left and the meaning on the right. Subscript *i* and *j* are lexical indexes. The schema in (1) contains the maximal number of variables for this construction, and it sanctions various subschemas, in which one or more variables have been specified. For example, the subschema in (2) represents

diminutive constructions in which *a* is a noun, e.g. *lampje* ‘little lamp’, whereas the subschema in (3) specifies that *a* is an adjective, as in *liefje* (sweet-DIM) ‘sweetheart’. Individual words, or maximally substantive micro-constructions, are given in (4) and (5), whereby (4) inherits its properties from the subschema in (2), and (5) inherits its properties from the subschema in (3).

(2)  $[[a]_{N_i \text{DIM}}]_{N_j} \Leftrightarrow [\text{SMALL } [\text{ENTITY RELATED TO SEM}_i]]_j$

(3)  $[[a]_{\text{ADJ}_i \text{DIM}}]_{N_j} \Leftrightarrow [\text{SMALL } [\text{ENTITY RELATED TO SEM}_i]]_j$

(4)  $[[\textit{lamp}]_{je}]_N \Leftrightarrow [\text{SMALL LAMP}]$

(5)  $[[\textit{lief}]_{je}]_N \Leftrightarrow [\text{SWEET PERSON}]$

As becomes evident from the schemas in (1)-(5), constructions and schemas are represented in the same way, irrespective of their level of schematicity, and they are hierarchically linked. Apart from these hierarchical relations however, constructions and schemas may also be linked laterally. For example, (2) and (3) are linked to each other since each inherits its properties from the general schema in (1), and (4) and (5) are linked by means of their suffix which modifies the meaning of the base.

## II. DATA, SOURCES AND METHODS

The empirical part of the textbook will consist of detailed case studies, which exemplify network expansion, reduction or realignment, or a combination of those. Data will be drawn from online corpora (both historical and contemporary, both tagged and untagged; see below for a non-exhaustive list) of English, German, Dutch, Danish, Norwegian, and Swedish. Most of these corpora can be queried online (by means of search interfaces and / or regular expressions), others can be downloaded as plain .txt files, which can be analysed using concordance software such as WordSmith. The search results will be analysed both qualitatively (in MS Access) and quantitatively (in MS Excel). R software will be used for statistical analysis.

## Chapter-by chapter description

### **1. Introduction (estimated number of words: 3,000)**

- 1.1 Why this book?
- 1.2 Sources and methods
- 1.3 How to use this book

There are many textbooks on morphology, so why present a new one? In the first section of this chapter, I will explain how and why a network-based approach may offer a new perspective on morphological change. Using data from earlier case studies, I will argue why a network model is more suitable to account for a specific set of new formations in Dutch than a rule-based model. In the second section, I will provide short descriptions of the corpora I have used for the case studies (for a list see the end of this document). I will be working primarily with corpora of contemporary Germanic languages, such as COW (Schäfer 2015), which are gigatoken web corpora that lend themselves well to the study of change in progress. I will explain how corpora have been queried (using web interfaces and / or regular expressions), how the data have been stored and annotated (in MS Excel and Access), and how the results have been processed statistically (using R). In the last section, finally, I will briefly discuss the outline of the book and how it can be used, both as a textbook on morphological theory and as an introduction into analysing morphological variation in present-day Germanic languages.

### **2. The constructional approach (estimated number of words: 8,000)**

- 2.1 Introduction
- 2.2 Construction grammar
- 2.3 Construction Morphology
- 2.4 The minimal linguistic sign
- 2.5 Diachronic construction grammar
- 2.6 Constructionalization and grammaticalization
- 2.7 Chapter summary
- 2.8 Suggestions for further reading

In this chapter, I will outline the theoretical foundations of this book. First, I will discuss the basics of the three major conceptualizations of (synchronic) construction grammar (Langacker, Goldberg, Croft). In the next section, I will zoom in on Booij's (2010) approach to morphology. This section also offers a stepwise introduction to Booij's formal representations of monomorphemic words, compounds and derived words. In addition, I will show how inflection can be represented as morphological schemas (a topic that is only briefly touched upon in Booij 2010). Special attention will be paid to the question of whether bound

morphemes (i.e. clitics, affixes, and affixoids) shall be considered constructions in their own right, or parts of morphological schemas only. The last two sections are devoted to constructional approaches to language change. I will critically review earlier work, in particular Traugott & Trousdale (2013) since this work has quickly established itself as the leading approach in diachronic construction grammar. In my view, their basic distinction, between constructionalization and constructional changes, is a very useful one, but I will also argue that their diachronic parameters of schematicity, productivity and compositionality are not suitable to describe all kinds of change. An important question, finally, is how constructionalization intersects with other compound changes (i.e. changes affecting both form and meaning), such as grammaticalization, degrammaticalization, and lexicalization.

### **3. Morphological networks (estimated number of words: 8,000)**

- 3.1 Introduction
- 3.2 The conceptualization of networks in construction grammar
- 3.3 Morphology as a constructional network
- 3.4 Types of links
- 3.5 Changes in constructional networks
- 3.6 Chapter summary
- 3.7 Suggestions for further reading

This chapter is concerned with networks, which play an essential role in construction grammar, both synchronic and diachronic. I will discuss how networks have been conceptualized in earlier work. Some approaches (e.g. Croft, 2001, Traugott & Trousdale, 2013) focus on the hierarchical organization of networks, and primarily concern themselves with issues of (multiple) inheritance and coercion. Bybee (2010, 2013), on the other hand, conceptualizes constructional networks as ‘exemplar clouds’, with less focus on hierarchy and more on clusters of constructions that are linked to each other by virtue of similarities in form and or meaning, and strengthened by frequency of use. I will then move on to networks of morphological constructions, including compounding, derivation, inflection, and affixoid constructions. I will present my own typology of links, both hierarchical and lateral (see section I.2 above), which forms the basis of the analysis of the case studies in the next chapters. Lateral links, connecting (fully substantive) micro-constructions to micro-constructions and (sub-)schemas to (sub-)schemas, have received far less attention than hierarchical links (connecting micro-constructions to (sub-)schemas), but in my model, they play a crucial role, as the locus of network expansion. In the final section of this chapter, I will contrast my network-based model to Traugott & Trousdale’s model of diachronic construction grammar (that had already been introduced in the previous chapter). Their concept of ‘procedural constructionalization’ will be recast as the establishment of a new subschema in a network of

morphological constructions, and ‘contentful constructionalization’ will be considered severance from a subschema. Moreover, I will argue that, apart from constructionalization, constructional change may also result in a new node in the network, for instance when a new preterite form comes to be used without ousting the old form (*snuck* besides *sneaked*). I will furthermore argue that changes in networks are constrained by connectivity and frequency (cf. I.3 above).

#### **4. Network expansion (estimated number of words: 6,000)**

- 4.1 Introduction
- 4.2 Prefixoids in Germanic languages
- 4.3 Slipstream category shift
- 4.4 Affix borrowing
- 4.5 Chapter summary
- 4.6 Suggestions for further reading

Network expansion implies the establishment of new nodes and links. In this chapter, I will argue that change starts locally, by means of analogical extension. This may lead to a cluster of (formally and / or semantically) similar micro-constructions, i.e. an increase in type frequency. Eventually, this may lead to the establishment of a new subschema, which may also sanction new members, which will further promote type frequency. Using data from historical corpora, I will show how these two stages of horizontal and vertical expansion are reflected by (sudden) increases in frequency. In the remainder of this chapter, I will present four case studies. The first will be on so-called prefixoids in the Germanic languages. These are morphemes that occur as free forms, but have a more restricted meaning when bound. For example, German *Hammer* means ‘hammer’ when used as a noun, but has an evaluative / intensifying meaning when used as a prefixoid: *Hammerstimme* ‘great voice’, *hammergeil* ‘really cool’. By slipstream category shift I mean the adjectivization of adverbs when the verb the adverb collocates with is being nominalized, as in English *a stepwise change*. As an example of affix borrowing, I will discuss *ish* in Dutch, Swedish and Norwegian.

#### **5. Network reduction (estimated number of words: 6,000)**

- 5.1 Introduction
- 5.2 Deflexion
- 5.3 Petrification
- 5.4 Chapter summary
- 5.5 Suggestions for further reading

This chapter discusses several issues related to the severance of links. The first is deflexion, i.e. the loss of morphological categories such as case or mood. By means of illustration, I will review

the literature on the loss of case in Swedish, which has been abundantly documented in a series of case studies. In this meta-study, I will re-examine these changes from a network perspective. I will also address the question of whether CASE can be considered an abstract schema, or whether it only exists as part of argument structure. In the section on petrification, I will first discuss several examples of micro-constructions that used to be sanctioned by a subschema (either derivational or inflectional), but that became isolated in the network, when the schema ceased to be productive and most other micro-constructions disappeared. Examples are English *oxen* or Dutch *vaart* ‘canal’ (original a deverbal noun derived from the verb *varen* ‘to sail’ by means of the -now obliterate- suffix *-t*). However, micro-constructions with idiosyncratic meaning may also become severed when the subschema is still fully productive, which is what seems to be happening to some Dutch prefixoid formations, e.g. *keihard* ‘boulder hard, very hard’ which can also be used as an adjective / adverb meaning overwhelming(ly): *een keiharde minderheid* ‘an overwhelming minority’.

## **6. Network realignment (estimated number of words: 6,000)**

- 6.1 Introduction
- 6.2 Exaptation
- 6.3 Conjugation shift
- 6.4 Construction contamination
- 6.5 Online category shift
- 6.6 Chapter summary
- 6.7 Suggestions for further reading

A third type of network change is one in which nodes in part of the network come to be realigned. One example is the kind of change called ‘exaptation’, a term borrowed from evolutionary biology (Norde & Van de Velde 2016), which refers to a functional shift in a morpheme that does not conform to shifts that are typically attested in grammaticalization or other semantically regular types of change. For example, the Swedish suffix *-er* is now a device to derive nouns with (mostly) derogatory meaning, but it used to be an inflectional suffix (masculine, singular, nominative). In exaptation, then, the node itself does not disappear, but comes to be sanctioned by a different subschema (Norde & Trousdale 2016). Another example of network realignment that will be discussed in this chapter are changes in conjugational classes in the Germanic languages, which have been studied by Strik (2015). ‘Construction contamination’ is a term coined in Pijpops & Van de Velde (ms.) and denotes constructionalization from multiple sources. As an example of this phenomenon, I will present a case study on the Dutch [*van de A-e<sub>i</sub>*] *PP* construction (e.g. *van de gekke* ‘of the mad-*e*’ > ‘outrageous’), which originates in Dutch partitives, (partial) grammatical replication from French (*c’est du bon!*) and the particular way of speaking of an Indian in a popular children’s television series in the sixties and seventies. The final case study I will present in this

chapter is one on online category shift, in particular the ad hoc creation of nouns from personal names to refer to a recent event, e.g. Dutch *een Diederik Stapeltje* (a Diederik Stapel-DIM) 'a case of academic fraud' (based on a famous fraud case in the Netherlands). These formations are typically short-lived, i.e. they do not become entrenched, which suggests that there exists a subschema that only temporarily sanctions specific micro-constructions.

## **7. Conclusions (estimated number of words: 3,000)**

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## **Corpora (selection)**

COW14: <http://corporafromtheweb.org/> (contemporary English, German, Swedish, Dutch)

KorpusDK: <http://ordnet.dk/korpusdk> (Danish)

Tekstlaboratoriet: <http://www.hf.uio.no/iln/om/organisasjon/tekstlab/> (Norwegian)

Språkbanken: <http://spraakbanken.gu.se/> (Swedish)

Fornsvenska textbanken: <http://project2.sol.lu.se/fornsvenska/index.html> (Old Swedish)

Corpus Hedendaags Nederlands: <https://portal.clarin.inl.nl/> (Dutch)

COHA: <http://corpus.byu.edu/coha/> (historical American English)