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*Hans C. Boas,  
Alexander Ziem (Eds.)*

# CONSTRUCTIONAL APPROACHES TO ARGUMENT STRUCTURE IN GERMAN

TRENDS IN LINGUISTICS

Hans C. Boas, Alexander Ziem (eds.)

**Constructional Approaches to Syntactic Structures in German**

# Trends in Linguistics Studies and Monographs

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## Volume 322

# **Constructional Approaches to Syntactic Structures in German**



Edited by  
Hans C. Boas and  
Alexander Ziem

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## Preface

This volume grew out of our collective realization that over the last decade a great deal of constructional research has been published on German, in German. At the same time, however, very few constructional studies on German were published in English or other languages, which could make the results of that research available to a broader international audience. This situation is not unique to Construction Grammar, but spans the entire field of Germanic Linguistics: There is a lot of excellent linguistic research published on German that is written in German and is therefore not available to those who do not know German. As a result, too many insights that are relevant to linguistics more generally (not only to Germanic Linguistics) have gone unnoticed by too many linguists over the years.

In order to address this problem, we decided to put together this volume presenting some of the latest research on a variety of grammatical constructions in present-day German. Among the publications that emerged out of the research group “German Construction Grammar” hosted in Düsseldorf ([goo.gl/khzwmT](http://goo.gl/khzwmT)), this volume is the first one that addresses the English-speaking scientific community. As such, this volume offers a number of easily accessible, yet comprehensive and sophisticated studies on various grammatical constructions. By doing so, this volume also pays attention to Valency Theory, which has figured quite prominently in Germanic Linguistics over the past decades. Valency Theory is of interest to Construction Grammar because of its connection to Frame Semantics, the sister theory of Construction Grammar, which seeks to systematically use semantic frames to account for the meaning of lexical units and constructions more generally. Frame Semantics, as developed by Charles J. Fillmore and his associates over several decades, pays a great deal of attention to valency, especially in the context of the Berkeley FrameNet project (<http://framenet.icsi.berkeley.edu>), which seeks to create a corpus-based lexicographic database of English based on the principles of Frame Semantics. Both of us are thankful for having had the privilege to work with the FrameNet team under Fillmore’s direction for a number of years, and to see the beginnings of the so-called “Constructicon,” a database of grammatical constructions of English that grew out of FrameNet. Both the Berkeley FrameNet and the Constructicon project have served as the basis for parallel projects for a number of other languages, and we are happy to have seen them grow over the past years.

Putting together an edited volume is a complex enterprise. Our warmest thanks go to the reviewers that provided valuable feedback on the papers in this volume: Alexander Bergs, Arnulf Deppermann, Stefan Engelberg, Mirjam Fried, Juliane Goschler, Martin Hilpert, Thomas Hoffmann, Wolfgang Imo, Clemens Knobloch, Alexander Lasch, Stefan Müller, Jan-Ola Östman, Marc Pierce, Jouni Rostila, Josef

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Ruppenhofer, Hans-Jörg Schmid, Thomas Schmidt, Doris Schönefeld, Daniel Wiechmann, Stefanie Wulff, Amir Zeldes, and Arne Zeschel. Without their help, this volume would never have materialized. We are also grateful to our colleagues Johanna Flick, Anastasia Neumann, Bernhard Ost, and Marc Pierce, who gave us many useful comments on an earlier version of our introductory chapter, helping us balance the complexities of German syntax (and Construction Grammar). Thank you so much!

In addition, we would like to thank the various people with de Gruyter who have accompanied the project over the years, specifically Julia Miess and Birgit Sievers. We are also grateful for the detailed feedback from an anonymous reviewer and the support from the series editor of TiLSM, Volker Gast, who contributed invaluable feedback on previous versions of our manuscript.

Finally, we would like to express our greatest gratitude to our wonderful families, who always were, and still are, so understanding and supportive, especially when it comes to us spending extra time away at conferences, workshops, and other meetings. Without their continuous support this volume would not have seen the light of day. Thank you Andrea and Claire; thank you Joni, Lena, Linnea, and Sophia!

Austin and Düsseldorf, June 2018  
Hans C. Boas and Alexander Ziem

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# Approaching German syntax from a constructionist perspective

## 1 Introduction

Over the last decade or so, Construction Grammar (CxG) has evolved into an influential paradigm in linguistic research. CxG subsumes a family of related constructional approaches to language including Cognitive Construction Grammar (Lakoff 1987, Goldberg 1995, Boas 2013), Berkeley Construction Grammar (Fillmore et al. 1988, Kay and Fillmore 1999, Fillmore 2013), Sign-based Construction Grammar (SBCG; Sag 2011, Boas and Sag 2012, Michaelis 2013), Radical Construction Grammar (Croft 2001, 2013), and Cognitive Grammar (Langacker 1987, 2008; Broccias 2013), among others (for an overview see Hoffmann/Trousdale 2013, Ziem and Lasch 2013, and Lasch and Ziem 2014). Although such approaches differ not only in methodological terms but also with respect to the types of linguistic phenomena addressed, they all embrace the view that both lexicon and grammar essentially consist of constructions, i.e. non-compositional (and compositional) form-meaning pairings of varying abstractness and syntagmatic complexity. Building on this basic assumption, this volume investigates a variety of grammatical phenomena in German from a constructional point of view, including argument structure constructions, prepositional constructions, comparative correlatives, and relative clause constructions. Each contribution is anchored in a constructional approach to language, and the constructional nature of each phenomenon addressed is demonstrated in detail.

Why German? Since its beginnings in the 1980s, constructional research has primarily focused on English, although languages such as Czech, Finnish, French, and Japanese have also received considerable attention. Since the 2000s, there has also been a significant amount of constructional research on German, including Järventausta (2006), Imo (2007), Nikula (2007), Chang (2008), Cloene and Willems (2006a, b), Deppermann (2007), Rostila (2008), Felfe (2012), Zeldes (2012), Hein (2015), and Lasch (2017); as well as a number of edited volumes such as Fischer and Stefanowitsch (2006), Stefanowitsch and Fischer (2008), Günthner and Bücker (2009), Engelberg et al. (2011), Lasch and Ziem (2011),

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Lasch and Ziem (2014), Ziem and Lasch (2015); and a special issue of “Zeitschrift für Germanistische Linguistik” (Knobloch 2009). However, almost all of the constructional research on German has been written in German (exceptions include Hens (1996), Michaelis and Ruppenhofer (2001), Boas (2003), Hilpert (2008, 2009), and Auer and Pfänder (2011)). To date, there exists relatively little constructional research on German written in English, which denies linguists without knowledge of German access to the insights of these German linguists.

The purpose of this volume is thus to help overcome this dearth of access by providing a state of the art collection of CxG-based research on grammatical constructions in German. The collection of papers presented in this volume is unique in that it offers an easily accessible, yet comprehensive and sophisticated collection of papers on various grammatical constructions in German. Moreover, many of the papers in the volume make explicit connections between argument structure constructions and the concept of valency, which has figured quite prominently in Germanic linguistics over the past half century (e.g. in Helbig and Schenkel 1973, Ágel 2000, Heringer 2009, and Welke 2011). As such, this volume is of direct interest to at least four different groups of linguists: (1) syntacticians in general; (2) linguists interested in German who do not read German and therefore have at best limited access to constructional research published in German; (3) Construction Grammars who want to know more about grammatical constructions in German and how studying them may further inform the general theory of CxG; and (4) linguists interested in contrastive grammatical issues (particularly English-German).

The remainder of this chapter is structured as follows. Section 2 discusses a number of selected features of German syntax that are relevant for researchers with very little or no prior knowledge of German syntax.<sup>1</sup> In Section 3 we discuss specific points that a constructional analysis of grammatical phenomena in German should consider. Finally, Section 4 provides an overview of the individual papers contained in this volume.

## 2 A selection of interesting characteristics of German syntax

This section briefly reviews some characteristics of German (morpho-)syntax that have posed a variety of problems for syntactic analyses across different theories, i.e. phenomena related to word order and case. The goal is to show that German

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<sup>1</sup> Section 2 of our chapter is based on Boas & Ziem (in press).

syntax is of interest to anyone interested in syntax, because analyses of these syntactic phenomena in German inform our understanding of syntactic principles more generally. Undoubtedly, also a constructionist approach to German should cover these phenomena. However, this is a long-term goal of empirical analyses. In the following, we would like to introduce some grammatical characteristics of German that a constructionist approach should address.

## 2.1 Word Order

We begin with issues related to word order. In contrast to English, which is assumed to be an SVO language, German has often been characterized as an SOV language, i.e. SOV order is considered to be the “basic” word order, while other word orders are said to be derived from this basic word order (see Bach 1962, Bierwisch 1963, Haider 1993). Consider the following examples, in which word order differs between SOV (1a), VSO (1b), and OVS (1c).

- (1) a. ...dass Fritz den Wein austrinkt. (SOV)  
     ... that Fritz the wine out-drinks  
     ‘that Fritz drinks the wine up.’
- b. Trinkt Fritz den Wein aus? (VSO)  
     drink Fritz the wine out  
     ‘Does Fritz drink the wine up?’
- c. Den Wein trinkt Fritz aus. (OVS)  
     the wine drinks Fritz up  
     ‘Fritz drinks the wine up.’

Generative syntactic models such as Government and Binding / Minimalism (Reis 1980, den Besten 1983, Webelhuth 1992), Generalized Phrase Structure Grammar (Jacobs 1986, Uszkoreit 1987), Lexical Functional Grammar (Berman 2003), and Head-Driven Phrase Structure Grammar (Kathol 2000, Meurers 2000, Müller 2005) assume that the “basic” German word order is as in (1a), in which the finite verb occurs in the last position (V-L) in sentences introduced by complementizers, and that other word order configurations in which the verb occurs in second position (V-2) such as in (1b) are derived from it (see Müller 2005 for details). Similarly, generative theories account for other differences in word order by assuming a basic underlying SOV word order in order to derive specific word orders such as those for infinitives (Haider 1986, von Stechow/Sternfeld 1988), left dislocation (Haider 1990), topicalization (Fanselow 1989, Haider 1990), passives (Grewendorf 1989), and relative clauses (Haider 1985, Rimsdijk 1985).

From the viewpoint of Construction Grammar, the assumption that one word order is more basic than others and should therefore serve as the basis for deriving other types of word orders is difficult to maintain, since there are no a priori empirical criteria for determining what types of constructions are more basic than others, or what types of constructions should be derived from “basic” constructions (see Fillmore/Kay 1993, Croft 2001, Goldberg 2006). In other words, the constructional view holds that (1) there are no constructions which are necessarily more basic than other constructions<sup>2</sup> and (2) constructions are organized in networks with inheritance hierarchies in which related constructions inherit information from each other (Goldberg 1995, Fillmore 1999, Boas 2011, Michaelis 2012, Sag 2012, Ziem 2014b).

More traditional approaches to German syntax employ the so-called topological fields model to classify the basic clause types of German based on the position of the finite verb, among other factors (for details, see Eisenberg 2006: 394–420, Eisenberg and Gallmann 2016: 871–899, and Imo 2016: 199–226). We briefly review some of the key insights of this model before showing how some of these insights can be integrated into a constructional approach to German syntax. The topological fields model captures generalizations about the position of the finite verb by employing different sets of co-called fields and brackets, as in Figure 1.

In this view, the clause is structured around a left bracket (“linke Satzklammer” = “LS”), which hosts the verb in either initial or second position and a right bracket (“rechte Satzklammer” = “RS”), which is the position taken by clause-final verbs (finite and non-finite) and verbal particles (Höhle 1986). The left and right brackets are used to define structural positions, so-called fields: The position to the left of the LS is the so-called prefield (“Vorfeld”), which can host only one constituent with varying degrees of complexity. The prefield remains empty in a variety of sentences, such as in subordinate clauses, verb-first sentences, and yes-no questions. The left bracket contains either the finite verb or a subordinating conjunction and may only be left empty in a few select instances such as special cases of relative clauses, infinitival clauses, and an embedded constituent question (see Reis 1985, Wöllstein-Leisten et al. 1997).

Prefield	Left Sentence Bracket	Middle Field	Right Sentence Bracket	Final Field
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**Figure 1:** Topological Fields.

<sup>2</sup> Prototype effects may yield similar observations (Lakoff 1987, Goldberg 1995), but we leave this refinement aside here.

The position between the LS and the RS is the so-called middle field (“Mittelfeld”) and the position to the right of the RS is the so-called final field (“Nachfeld”). According to Wöllstein-Leisten et al. (1997), the middle field can host a potentially unlimited number of constituents of various types, each of which have internal structure of their own (e.g. they can also be clauses). The right sentence bracket hosts all non-finite verbs or the finite verb in cases in which it does not appear in the left sentence bracket. The final field typically contains constituents in cases of subject, object, adverbial, and relative clauses.<sup>3</sup> According to the topological fields model, different types of elements (which themselves can have internal structure of their own) can occur in different fields, thereby covering the three types of sentence patterns, characterized in terms of the position of the finite verb, in German, as in Figure 2.

	Prefield	Left Bracket	Middle Field	Right Bracket	Final Field
V-1		<i>Finite verb</i>	Constituents	Inf. V	Constituents
		<i>Ist</i>	Egon in die Bar	gegangen	um Bier zu trinken?
V-2	<i>Constituent</i>	<i>Finite verb</i>	Constituents	Inf. V	Constituents
	Egon	ist	in die Kneipe	gegangen	um Bier zu trinken
V-L		<i>Conjunction</i>	Constituents	<i>Inf. V</i> <i>finite Verb</i>	Constituents
		<i>dass</i>	Egon in die Kneipe	gegangen ist	um Bier zu trinken

**Figure 2:** Three sentence types according to the position of the finite verb; items in italics are obligatory (see Wöllstein-Leisten et al. 1997: 54). Elements in italics are obligatory while other elements are optional. Depending on the verb, a subject and different types of objects may also be obligatory or optional, which directly influences the number and ordering of elements in the middle field and final field. See Wöllstein-Leisten et al. (1997) and Welke (2011) for more details. In a construction that adopts key insights from the topological fields model it will thus also be necessary to determine how lexical entries of words (specifically verbs) interact with different types of constructions, i.e. under what circumstances particular verbs may fuse with constructions (for details see Boas 2008, 2011).

Figure 2 is the result of a generalization over a multitude of different sentence types (e.g. declarative, imperative, interrogative, etc.) defined by the position of the finite

<sup>3</sup> For further details about the different types of constituents occurring in the various positions of German sentences in the topological field model, see Lenerz (1977), Bech (1983), Höhle (1986), Reis (1987), Abraham (1995), and Wöllstein-Leisten et al. (1997).

verb, i.e. V-1 (e.g. *Ist Egon in die Kneipe gegangen, um Bier zu trinken?* ‘Did Egon go to the bar to drink beer?’), V-2 (e.g. *Egon ist in der Kneipe, um Bier zu trinken.* ‘Egon is in the bar to drink beer.’), and V-L sentences (e.g. ..., *dass Egon in die Kneipe gegangen ist, um Bier zu trinken.* ‘... so that Egon went to the bar to drink beer’).

Wöllstein-Leisten et al. (1997: 55) list a total of 28 different types of sentence templates depending on different combinations, configurations, and positions of the finite verb and other constituents in the topological field model.<sup>4</sup> From a constructional point of view, each of the 28 sentence templates can be regarded as part of the form of a construction (leaving aside other issues regarding the form of constructions such as intonation), and could thus serve as the basis for an inventory of German word order constructions that could eventually be organized in terms of a network of constructions with inheritance relations (see Ackerman & Webelhuth 1998, Ginzburg and Sag 2000, Sag 2012). Following the concept that constructions are pairings of form with meaning would also require us to address the meaning side of each of the 28 constructions (and others). Because of space constraints, we leave this investigation to further research.

So far, we addressed only syntactic ordering (focused primarily on the position of the finite verbs) as a particularly interesting phenomenon in German syntax. We now turn to pragmatic ordering, which orders sentence constituents not only based on syntactic ordering mechanisms, but also according to their role and function in communication. That is, the order of constituents in a sentence may depend on the specific circumstances in which the sentence is uttered, e.g. on the particular emphasis required, on what has been said before, and so on (Fox 1990: 251). Consider, for example, the sentences in (2a)–(2d), which contain the same constituents, ordered in different ways.

- (2) a. Der Mann hat dem Jungen gestern den Ball gegeben. (subject)  
 b. Den Ball hat der Mann dem Jungen gestern gegeben. (direct object)  
 c. Dem Jungen hat der Mann gestern den Ball gegeben. (indirect object)  
 d. Gestern hat der Mann dem Jungen den Ball gegeben. (adjunct)  
 ‘Yesterday, the man gave the ball to the boy.’

The examples above show that the prefield position can host different elements: the subject, the direct object, the indirect object, and an adjunct. The ordering is based on the communicative function that the speaker intends to encode, depending on the context and depending on what is already known (and what

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<sup>4</sup> Space limitations prevent us from going into any further detail about the 28 different configurations of constituents according to the topological field model here.

is not known) by the hearer.<sup>5</sup> Typically, animate NPs tend to precede inanimate ones, short constituents (e.g. pronouns) tend to occur before longer ones, and given information precedes new information (Behaghel 1930).

For example, depending on the question that has been asked, such as *Who gave the boy the ball?*, *When did the man give the boy the ball?*, or *What was going on?*, the speaker will likely prefer one of the pragmatic orderings in (2) over the others.<sup>6</sup> An additional factor complicating the choice and interpretation of different pragmatic orders is the nucleus of the intonation pattern that can be moved around in each of the sentences in (2), thereby achieving different interpretations depending on the communicative context (for details see Lenerz 1977, Höhle 1982, Eroms 1986, Fox 1990). In a constructional approach, these different intonation patterns will also require a careful analysis as a part of the form side of each individual construction. This entails that one would most likely have to identify and classify the full range of intonation patterns as a part of the form side of the construction entries for each of the 28 different constructional patterns pointed out above.

With this short overview of German word order in hand, we turn to another important aspect of German (morpho)syntax, namely its case system.

## 2.2 Case

Unlike most other Germanic languages, German has a relatively elaborate case system consisting of four cases (nominative, accusative, dative, and genitive), all of which may be used to inflect nouns, adjectives, pronouns, and determiners. Its four-case system allows German to encode a variety of grammatical functions in many different word order combinations, yielding a much more flexible (close to free) word order when compared with other languages such as English, which has a relatively fixed word order because of the almost complete absence of an overt case marking system (for details see Kirkwood 1969, Hawkins 1986, Barðdal 2013, and Fischer 2013). Case can be assigned structurally (configurationally), i.e. to identify the grammatical functions such as subject (nominative), direct object (accusative), or indirect object (dative) in a sentence, or lexically by verbs and prepositions (see Engel 1988 and Zifonun et al. 1997). As can be seen in (3), the

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<sup>5</sup> Acceptability judgements may vary depending on a speaker's background.

<sup>6</sup> Note that most likely, a speaker will reply to one of these questions in natural discourse by just answering *Der Mann* ('the man') or *Gestern* ('yesterday'), leaving out the rest of the information. We thank Bernhard Ost for pointing this out to us.



paradigm of German case marking on NPs is quite extensive, involving number and gender.

(3) a.	der gute Mann	die gute Frau	das gute Kind
	den guten Mann	die gute Frau	das gute Kind
	des guten Mannes	der guten Frau	des guten Kindes
	dem guten Mann	der guten Frau	dem guten Kind
b.	die guten Männer	die guten Frauen	die guten Kinder
	die guten Männer	die guten Frauen	die guten Kinder
	der guten Männer	der guten Frauen	der guten Kinder
	den guten Männern	den guten Frauen	den guten Kindern

The NPs in (3) differ in number: those in (a) are singular, those in (b) are plural. The first row shows nominative marking, the second row accusative marking, the third row genitive marking, and the fourth row dative marking. Each of the case markers in (3) can be regarded as their own constructions, combining a specific form with a specific meaning (this also holds to a certain degree when case is assigned lexically by verbs and prepositions). For example, the sequence [<sub><Nom-sing-masc></sub> *der*, [Adj]-*e*, [N]-Ø ] is the form side of a nominative singular masculine NP construction which specifies three elements: the determiner *der* ('the'), an adjective with an ending in *-e*, and a noun with no marker. The meaning-function side of the construction is typically that of Agent (subject) or some semantically more specific instantiation of Agent, depending on the semantic frames evoked by the noun (and verb in the same sentence) (see Van Valin/Wilkins 1996; Boas 2010c).<sup>7</sup> In contrast, the form side of the accusative case marking construction for singular masculine nouns is [<sub><Acc-sing-masc></sub> *den*, [Adj]-*en*, [N]-Ø ], while the meaning-function side is typically that of a Patient (direct object) or some specific semantic instantiation of it.

Of course, case in German has many more facets than those discussed above (for more details, see Zifonun et al. 1997). At this point, however, we hope to have shown that a constructional approach to case in German requires a great number of case-marking constructions that apply to determiners, adjectives, and nouns, and that case is either structurally assigned depending on the grammatical

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<sup>7</sup> The nominative in German has different types of functions, as described in works like Sommerfeldt/Starke (1992: 103–104). As such, there is great variation in sentence initial subject position, which is not always identified as the Agent of a sentence. Compare, e.g., *Der kalte Kaffee schmeckt nicht* ('The cold coffee does not taste good') and *Die laute Musik ist nicht auszuhalten* ('The loud music cannot be tolerated').

function of a NP in a sentence or it is assigned based on the properties of particular verbs and prepositions that govern specific cases.<sup>8</sup>

### 3 A Construction Grammar view of syntactic structures in German

The typologically interesting features of German Grammar discussed above belong to what is sometimes called “core grammar”. On top of that, however, there are many other constructions both at the lexical and at the syntactic level that generative analyses of German syntax consider “peripheral” with respect to the role they play in the grammatical system (see, e.g., Haider 1993). Nonetheless, they are peculiar to German and thus deserve analytical attention; a number of these “peripheral” phenomena, such as many of those mentioned in Section 3.4, also turn out to be very productive in terms of their range of variation and their frequency of occurrence (for an overview see Section 3.2). Given this, the question arises how to approach these phenomena theoretically and methodologically. In other words: What is an appropriate theoretical framework to best capture all grammatical properties, be they peripheral or core-like (as claimed by generative syntax), of a language such as German? Which theoretical principles should inform such an approach? What are the basic concepts required for full-fledged analyses claiming to analyze all grammatical phenomena of a language and not only just a few?

The remainder of this section tackles these questions by first introducing the basic concepts and principles of CxG (Sections 3.1–3.3). Based on this, we provide a short overview of some of the most important constructional studies concerned with German (Section 3.4).

#### 3.1 What’s (in) a construction?

By putting the notion of construction at the center of linguistic analysis, CxG aims to account for both peripheral intransparent grammatical phenomena and fully regular semantic and syntactic structures. Even though we are a long way from having identified, let alone described and explained, the bulk of the

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<sup>8</sup> For more details on how case can be analyzed in a constructional approach, see Barðdal (2006, 2008, 2009).

constructions constituting a language's grammar, there is a rapidly growing body of literature adopting a usage-based, constructional perspective (cf. Fillmore et al. 2012, Hoffmann/Trousdale 2013; or Ziem/Lasch 2013: 153–164 on German specifically).

CxG evolved out of the wish for a comprehensive (ideally full) coverage of linguistic phenomena within a single theoretical framework. For this reason, CxG is sometimes called a maximalist approach to grammar (Fried/Östman 2004: 24). Its roots can be traced back to the 1980s, particularly to Lakoff's seminal investigation of *there*-constructions (Lakoff 1987: 462–585) and the influential study of the *let alone*-construction by Fillmore/Kay/O'Connor (1988). In line with functional approaches, and in contrast to generative Chomskyan approaches, CxG is usage-based. Just like its sister theory Frame Semantics (Fillmore 1982), CxG aims at modeling what a language user really knows in order to fully understand any linguistic expression, given all kinds of cognitive and social distractions they are exposed to.<sup>9</sup>

The constructional view of language thus stands in stark contrast to Chomsky's (1965: § 1) dictum to focus entirely on an ideal speaker/hearer. Instead, CxG is concerned with a regular everyday speaker/hearer in a heterogeneous speech community, who is also always affected by grammatically relevant conditions such as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying their knowledge of the language in actual performance (cf. Ziem 2014a: 55).<sup>10</sup> To account for such factors, CxG proposes a non-modular and non-derivational architecture of grammar. This means that the basic unit of a language, and therefore of any linguistic analysis, is the linguistic sign, i.e. a conventional pairing of form and meaning at varying levels of abstraction and complexity. At the same time, one of the core interests of CxG is to capture both generalizations and constraints on those generalizations that license those and only those expressions that can be found in a given language. In this sense CxG is generative.

Since CxG is a sign-based theory of grammar, form and meaning cannot be separated from one another. Of course, for analytical reasons it might make sense to investigate form or meaning aspects in isolation. However, form and function do not exist on their own, e.g. as autonomous (sub-)modules as is often postulated

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<sup>9</sup> For more information on the relationship between CxG and Frame Semantics, see Fillmore and Atkins (1992), Boas (2005, 2010a, 2013b, 2017), and Fillmore et al. (2012).

<sup>10</sup> Like analyses in other frameworks, CxG accounts typically focus on the analysis of a particular variety of a language, most often the standard variety. At the same time, however, constructional analyses are also well equipped to handle issues related to language variation, as shown by Östman/Trousdale (2013) and Hollmann (2013), among others.

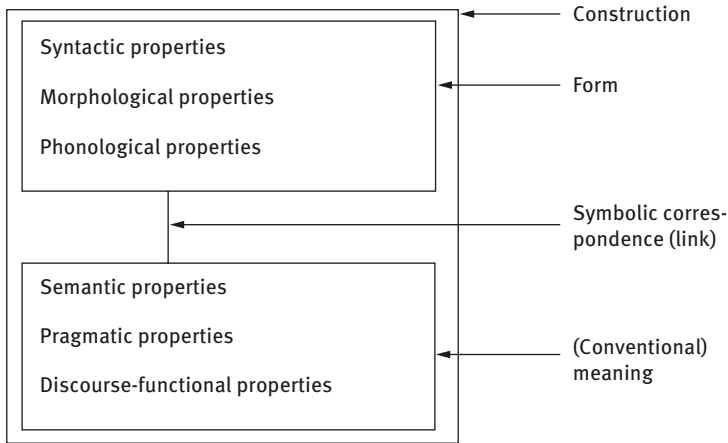
in other syntactic theories. In CxG, form and meaning rather constitute inseparable parts of a linguistic sign. It is also the sign-based nature of constructions that necessitates a usage-based perspective, since form and meaning are coupled by a social convention established within a speech community due to similar communicative needs. As a result, recurrent use of similar linguistic categories may give rise to usage patterns, such as grammatical constructions. Currently, the most commonly used definition of “construction” is probably that of Goldberg (2006:5):

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.

This definition differs from Goldberg (1995) in that it also accounts for word combinations that are semantically and syntactically fully transparent, but which, because of frequency effects, became at some point unit-like entities that are individually stored. Entrenchments based on frequency effects can be found in transparent phraseologisms (e.g. *in letzter Sekunde* ‘in the nick of time’), collocations (e.g. *schallendes Gelächter* ‘roaring laughter’), *blühende Fantasie* ‘vivid imagination’), welcoming/leave-taking formulas (e.g. *mit freundlichen Grüßen* ‘with best regards’), among others. Such prefabricated word combinations can be directly accessed without being decomposed into individual component parts. The existence of many such fixed strings of words suggests that the variety of constructions should be extended to cover not only schemas with open slots but also non-schematic units (Goldberg 2006: 5).

Hence, the question arises of what is in a construction. According to Croft (2001: 18), each construction specifies a set of information types. As illustrated in Figure 3, Croft adopts Saussure’s bilateral sign concept supplemented with properties specific to grammatical constructions.

Most constructions do not require specifications of all information types. For example, Goldberg’s (1995) analysis of the ditransitive construction does not include specific morphological or phonological constraints, and it does not explicitly provide discourse-functional information specific to double-object constructions. However, other constructions, such as the *What’s-X-doing-Y* construction (WXDY) discussed by Kay/Fillmore (1999), also features pragmatic properties. Similarly, phonological information can also enter a construction. As is the case of the Incredulity construction (e.g. *Him being a doctor?*), constructions may also rely on phonological properties, such as the prosodic contour (see Lambrecht 1990). Finally, extraposition constructions (e.g. *It’s amazing, the people you see here*, Michaelis/Lambrecht 1996) are good examples of discourse-functional properties specifying constructions. They have a significant



**Figure 3:** Types of information in constructions (Croft 2001: 18).

effect on the overall information structure – a strategy often found in verbal interaction (Günthner 2006a, 2008a, b).

It is worth mentioning that Croft’s distinction between information types does not account for contextual information that may also be reflected in constructions. As already noticed by Fillmore (1988: 51), a grammar “needs a way of dealing with the subtle character of contexts which are created or defined by particular grammatical constructions”. What Fillmore has in mind here are contextual requirements determining what kind of linguistic expressions (both in terms of their form and their meaning) can enter an open slot of a schematic construction. Similarly, Fried and Östman (2004: 20) observe that “some constructions must make reference to differences in register, social value, and context-related properties or pragmatic reasoning”. Information about the register is crucial to distinguish different forms of address in letters (e.g. in German *Lieber Herr X* vs. *Sehr geehrter Herr X*).<sup>11</sup> Contextual information is also needed to account for the role sometimes played by particles such as *mal* (‘sometime’) in questions of the kind *Warum gehen wir nicht mal ins Kino?* (‘Why don’t we go to the movies sometime?’), since they presuppose a positive attitude of the person asking the question towards the situation expressed. Bybee (2010: 14) even goes one step further when she argues that the semantic pole of constructions may include “inferences made from this meaning [of a given linguistic in a certain

<sup>11</sup> German *lieber* indicates an informal register, while *sehr geehrter* belongs to a formal register, but in English both are translated as *dear*.

situation] and from the context, and properties of the social, physical and linguistic context”. In Bybee’s usage-based approach, any given context feature may become a part of a construction as long as it co-occurs often enough with the linguistic unit instantiating the construction. Hence, it should be noted that in principle any background information, including recurrent situation or other context parameters, could become conventionally encoded in a linguistic sign (for a detailed discussion cf. Ziem 2014a: 179–195).

As conventional form-meaning pairings, constructions are building blocks capable of representing both the language competence itself as well as linguistic analyses addressing aspects of such language competence. In other words: Constructions are conceptual tools for systematically investigating a language; at the same time, they are employed to represent the knowledge that a speaker has of a language and to serve as a cognitive resource to produce and understand linguistic expressions of varying complexity. Goldberg (2003: 219) even goes so far as to claim that “the totality of our knowledge of language is captured by a network of constructions.”

As cognitive units, constructions are categories that share basic characteristics. Consider the following examples.

- (4) a. Peter gibt seiner Tochter einen Kuss.  
       ‘Peter gives his daughter a kiss.’  
       b. Laura backt Bob einen Kuchen.  
       ‘Laura bakes Bob a cake.’

(4) subsumes a set of instances of the ditransitive construction (Goldberg 1995; Croft 2003). While varying significantly with respect to their actual meaning, they are all licensed by the ditransitive construction they instantiate. The ditransitive construction consists of an Agent (*Peter, Laura*) causing a Recipient (*his daughter, Bob*) to receive a Theme (*a kiss, a cake*). Terminologically, it is therefore important to distinguish between different constructional schemas: the ditransitive construction, on the one hand, and instances of a schema, such as (4), on the other hand. For the sake of terminological clarity, the latter are called “constructs”. While constructional schemas are *conventionalized* form-meaning pairings (just like any other linguistic sign in the Saussurean sense), constructs are equated with instantiations of constructions.

### 3.2 Motivating a constructional approach to German

CxG differs from other theories of language in taking constructions as the basic building blocks of a language. Instead of assuming distinct modules of linguistic analyses, CxG proposes at least three different continua, namely the periphery-core

continuum, the lexis-grammar continuum, and the instance-schema continuum. This section reviews each of these.

### 3.2.1 The periphery-core continuum

It has long been a truism in linguistic research that grammar divides into a “core” area subsuming fully regular linguistic expressions and structures on the one hand and a “periphery” on the other, to which irregular linguistic forms are relegated. The metaphor *core grammar* goes back to Chomsky’s outline of the Government-and-Binding approach (Chomsky 1981: 1–151). It has at least two meanings. First, it means that there are grammatical phenomena that are evidently more important than others. On this view, the syntactic structures of German discussed in Section 2 belong to core grammar. Second, *core grammar* has a more technical meaning relevant for the overall architecture of a theory of grammar. This is the case when a theory is designed for describing and explaining a set of grammatical features and structures constituting the “core”, while ignoring other grammatical features and structures constituting the “periphery”. Chomsky’s idea of a Universal Grammar (UG) is such a theory (cf. Chomsky 1980: 8, among others). In UG any grammatical phenomenon belonging to the “core” is regular, in that it is, at least in principle, explainable within the theoretical rule-based framework provided by UG. In contrast, any grammatical phenomenon that pertains to the “periphery” is exceptional in such a way that it can hardly be captured by the principles of UG. Explanations are often very complex, opaque and far from a cognitively realistic analysis (for the case of verbless directives and nominal reduplications see Müller 2010, for a critique Stefanowitsch 2010).

CxG challenges the core-periphery dichotomy, since from an empirical point of view it is unclear as to what extent the “periphery” really is “peripheral”. Given that idiomatic expressions of various types and complexities are ubiquitous and syntactic irregularities do not seem to be restricted to a small number either, the genuine “core” could instead be regarded as the “periphery” (see, e.g., Pawley/Syder 1983 for a discussion). But if it does turn out that the phenomena traditionally counted as “peripheral” constitute, in fact, the majority of the inventory of constructions of a language, it is more advantageous to prefer a theory that is able to cover these cases as well in order to provide more comprehensive analyses.<sup>12</sup> Hence, CxG denies a principle difference between core and peripheral grammatical phenomena. Rather, both should be analyzed with the same analytical and methodological tool

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<sup>12</sup> For an extensive discussion of this logical/economical argument see Stefanowitsch (2011).

set, without losing track of either, fully transparent, compositional constructions and opaque, idiomatic structures (Michaelis 2012).

In the early days of CxG, the rejection of the core-periphery distinction has been an important driving force. As Fillmore (1988: 36) put it:

Our reasons for concerning ourselves with otherwise neglected domains of grammar are not so that we can be left alone, by claiming territory that nobody else wants, but specifically because we believe that insights into the mechanics of the grammar as a whole can be brought out most clearly by the work of factoring out the constituent elements of the most complex constructions.

In other words: Singling out those mechanisms that are at work in seemingly irregular grammatical instances has a critical impact on approaching more “central” phenomena. By starting at the periphery, rather than at the core where we find transparent structures, CxG aims at developing a “maximalist” approach covering both peripheral and core linguistic phenomena alike.

### 3.2.2 The lexis-grammar continuum

Traditionally, lexicon and grammar are, implicitly or explicitly, kept separate from one another, both on the object level of linguistic organization and on the level of linguistic analysis. Formal theories of grammar, e.g. Chomsky’s Government-and-Binding approach (Chomsky 1981: 135–138), propose a strict separation into different modules (e.g. lexicon / syntax / phonology). While, in this view, a language’s grammar subsumes a system of rules determining the way words and phrases can be combined, the lexicon provides the linguistic material accessed by those rules. CxG challenges this assumption by providing empirical evidence for a substantial overlap between lexicon and grammar. For example, grammatical phrasemes such as the *let alone*-construction (Fillmore/Kay/O’Connor 1988) cannot simply be relegated to the lexicon, since the syntactic constraints determining possible realization patterns would be part of a comprehensive lexicon entry. In essence, this means that words and syntactic structures do not fall into different categories and consequently do not need to be treated separately in what has been traditionally labeled “the lexicon” and “syntax” (see also Herbst 2014 on the relationship between lexical valence patterns and constructions).

Table 1 presents an ordered inventory of different types of constructions illustrating the continuum between what has traditionally been characterized as “the lexicon” respectively “syntax”. Some constructions, such as morphemes and words, are considered to be very specific whereas others, such as argument structure constructions or sentence type constructions, are regarded as abstract and schematic. Words as well as idioms and double-object constructions count as pairings of form with meaning: “it’s constructions all the way down” Goldberg (2006: 18).



**Table 1:** Constructions of varying complexity and schematicity.

Constructions	Examples
Morphemes	<i>-er</i> [ <i>größ-er</i> ] ('tall-er'); <i>-er</i> [ <i>Trau-er</i> ] ('sad-ness')
(complex) words	<i>traurig</i> ('sad'), <i>Junge</i> ('boy'), <i>Weberknecht</i> ('daddy longlegs')
Multi-word units	<i>Guten Tag!</i> ('Good day!')
Grammatical phrasemes	<i>geschweige denn</i> ('let alone')
Proverbs	<i>Morgenstund hat Gold im Mund</i> ('The early bird catches the worm')
Idioms	<i>jdm. an die Gurgel gehen</i> ('to be at each other's throat')
Comparatives	<i>je x-er desto y-er</i> [ <i>je mehr desto besser</i> ] (‘the -er, the -er’, ‘the more, the better’)
Double-object constructions	[[NP <sub>Nom</sub> ][VP][NP <sub>Dat</sub> ][NP <sub>Acc</sub> ]]
Parts of speech	[NOUN]

The examples in Table 1 vary considerably in terms of their syntagmatic complexity and in terms of schematicity and abstractness. Schematicity refers to the degree to which constructions are lexically specified; double-object constructions, for example, are highly schematic, since none of their slots are lexically specified (even though their fillers have to meet a set of form- and meaning-related requirements, see Barðdal 2008, Boas 2008 and 2010b). Abstractness, then, concerns the category level on which a construction is located; lexical units, such as *boy*, *table*, *ability*, are relatively concrete lexical constructions, whereas the category noun to which these lexical units belong is both more abstract and cognitively more complex (Behrens 2005).

The lexicon-grammar continuum is undoubtedly one of the key features of CxG (cf. Boas 2010b, Broccias 2013). There is some dissent, however, as to where the continuum starts and where it ends. According to Goldberg (2006: 5), the smallest constructional units are morphemes. Booij (2010: 15), however, questions whether grammatical morphemes should be assigned a constructional status. If Booij's arguments were probative, a CxG approach would be problematic, precisely because morphemes would then not be regarded as linguistic signs. Equally controversial is the question of what could count as the largest constructional units. While many researchers remain agnostic in this matter, Goldberg's list of sample constructions (Goldberg 2006: 5) seems to suggest that syntactic patterns such as the covariational conditional are the endpoint of the continuum. Yet, there is good reason to include units such as text genres. Östman (2005), for example, makes the valid point that in the case of recipes so-called "discourse constructions" license subjectless constructions such as "cook and stir bacon in skillet". Following this line of argumentation, Bücken, Günthner, and Imo (2015) argue that text genres are generally constructions in their own right (for further discussion see Günthner 2006b and Imo 2010b).

### 3.2.3 Productivity and the instance-schema continuum

Productivity has been an important concept in linguistic research, particularly in morphology but also in syntax. In many studies productivity has been regarded as an all-or-nothing-phenomenon (for an overview, see Barðdal 2008: 36ff.). This perspective, however, ignores that constructions may significantly vary in terms of their syntactic and semantic restrictions. For example, also due to its more numerous restrictions, the English double-object construction is less productive than the *way*-construction (Goldberg 1995: 141–151, 199–218).

CxG views the productivity of constructions on a continuum, ranging from fully productive constructions to semi- and non-productive constructions. It takes the view that productivity has a crucial impact on the way a construction is shaped and related to other constructions in the constructicon. In this view, as Barðdal (2012: 467) notes with respect to argument structure constructions, syntactic productivity does not primarily refer to the ability to generate new sentences, but rather to “the interesting question of how case and argument structure constructions are extended to new verbs.” In other words, usage-based CxG takes

the type frequency and the coherence of a schema to determine the actual level of schematicity at which the construction exists in the minds of speakers [...]. This level of schematicity, i.e. a construction’s highest level, also determines the construction’s productivity. The higher the degree of schematicity, the more productive the construction is, and, conversely, the lower the degree of schematicity, the less productive the construction is (Barðdal 2008: 45).

To illustrate, consider the idiomatic construction *jdm. den Laufpass geben* (‘to jilt’) that instantiates the double-object construction evoked by the verb *geben* (‘to give’). The instances of the idiomatic expression such as (5a) instantiates different constructions at various levels of specificity, namely the schematic idiomatic construction (5b), the more abstract *give* construction, evoking the Giving frame (see <https://framenet.icsi.berkeley.edu>, accessed: 1.10.2016) as well as the highly schematic double-object construction (5c).<sup>13</sup>

- (5) a. Judith gibt Thomas den Laufpass. (‘Judith jilts Thomas’)  
 b. [[Agent]/[NP]] gibt [[Recipient]/[NP]] den Laufpass.  
 c. [[Agent]/[NP]] [Verb] [[Recipient]/[NP]] [[Topic]/[NP]].

Although the fully schematic double-object construction (5d) features also preferences with regard to the (types of) verbs entering this construction (Stefanowitsch/

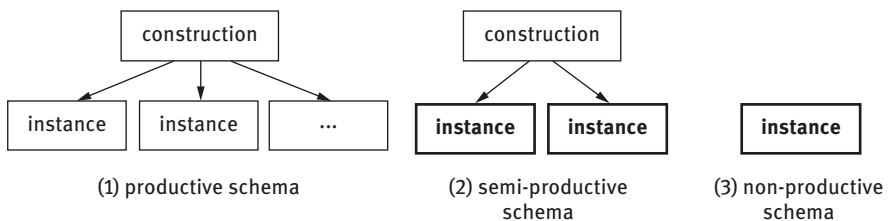
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<sup>13</sup> Since in English the verb *jilt* incorporates the meaning provided by the direct object in the German equivalent, the verb *jilt* instantiates a transitive instead of a double-object construction.

Gries 2003: 227–230), the double-object construction remains very productive since a plethora of instances are licensed to enter the construction and many more specific constructions instantiate the double-object construction, including idiomatic constructions such as (5b). This idiomatic construction (5b) comprises only two open slots restricted to human agents and recipients, which helps entrench the idiomatic construction as a whole.

In addition to productivity related to the range of instances entering a slot, productivity may also relate to semantic variation, that is, to syntactic structures whose (abstract) meanings systematically change depending on the lexical items entering them (e.g., *He gives her a glass* vs. *He gives her a kiss* vs. *He promises her a kiss*). In any case, constructions vary from entirely unproductive to highly productive units depending on type and token frequency as illustrated in Figure 4. According to Clausner/Croft (1997: 271), schema instantiation gives rise to gradient productivity and thus cognitive entrenchment in three ways: (a) A constructional schema is productive, and thus entrenched, if a range of different examples instantiate this schema; (b) in contrast, token entrenchment occurs, if the schema is semi-productive, that is, if only a very limited number of examples instantiate the schema; (c) finally, token entrenchment also happens, if there is no variation such that only one instance reoccurs which is why a schema is neither instantiated nor formed. As illustrated in Figure 4, each of these cases must be regarded as degrees on a continuum. In Figure 4, the bold lines indicate entrenchment, more precisely: type entrenchment in the case of productive schemata and token entrenchment in the case of semi-productive as well as unproductive schemata.<sup>14</sup>

On this view, type and token entrenchment determine the way a grammar is cognitively structured and organized. Even though there is no uniform way



**Figure 4:** Constructional productivity (based on Clausner/Croft 1997: 271).

<sup>14</sup> For an extensive discussion of token and type entrenchment in Frame Semantics, cf. Ziem (2014a: 292–300).

of dealing with relations holding between constructions across different CxG approaches, schema instantiation is deemed to be the most important and most powerful mechanism (Ziem 2014b). As such, the constructional view holds that a grammar is no more and no less than a construction, that is, an inventory of constructions systematically related with one another both in terms of their forms and meanings (see Fillmore 2008, Fillmore et al. 2012). At the same time, it serves as a cognitive resource to generate and understand utterances. Language in use is thus licensed by interacting constructions. Consider (6), which is licensed by seven types of constructions summarized in Table 1.

- (6) Die            Blumen    duften    stark.  
       the.NOM    flowers    smell    strongly  
       ‘The flowers have a strong scent.’

The intransitive construction licensed by the one-place predicate *duften* sets out the sentence structure, comprising an NP and VP construction, whereby the first is complex in itself such that it consists of a definite pronoun and a noun. Lexical constructions make up the lexical material combined into phrases. Again, lexical constructions may be simple in cases in which the items do not inflect (*die, aber, stark*) or complex (*duften, Blumen*). The latter instantiate morphological constructions, such as plural constructions (*Blumen*) or other inflection constructions specifying number, tense and mood (*duften*).

As demonstrated in Table 2, in contrast to projectionist accounts, CxG adopts a what-you-see-is-what-you-get approach to syntactic form (Goldberg 2003: 219). With abstaining from empty categories, traces and invisible derivation processes, CxG argues that constructions are learned and shaped in language use, rather than being derived from each other. The driving force behind this is the productivity of a construction as attested in empirical data.

### 3.3 CxG as a family of approaches

CxG is not a homogenous theory of language but rather a family of closely related approaches. This is also important to keep in mind when engaging oneself with the contributions in this volume. All contributions share basic assumptions and concepts, particularly those introduced above. They also converge with regard to the methodology applied, respectively the way constructions are approached and examined, since all analyses assembled in this volume rely on corpus data in one or the other way while refraining from formalizations of constructions and adopting a cognitive-linguistic perspective at the same time. However,

**Table 2:** Constructions instantiated by *Die Blumen duften stark* ('The flowers have a strong scent').

Types of constructions	Instances
Intransitive construction [[ X] <sub>NP</sub> [Y] <sub>V</sub> ]	[[ <i>Die Blumen</i> ] <sub>NP</sub> [ <i>duften</i> ] <sub>V</sub> ]
VP construction <sup>1</sup> [[ X ] <sub>V</sub> ([Y] <sub>NP</sub> ) ([Z] <sub>PP</sub> )]	<i>duften</i>
AdvP construction [[X] <sub>Adv</sub> ([y] <sub>Adv</sub> )]	<i>stark</i>
NP construction	[[ <i>die</i> ] <sub>def-Pr.</sub> [ <i>Blumen</i> ] <sub>N</sub> ]
Plural construction [[X] <sub>N-root-morph</sub> [-y] <sub>infl-morph</sub> ]	[[ <i>Blume-</i> ] <sub>root-morph</sub> [-n] <sub>infl-morph</sub> ]
Verb-inflection construction <sup>2</sup> [[ X ] <sub>V-root-morph</sub> [ Y ] <sub>infl</sub> ]	[[ <i>duft-</i> ] [-en]]
Lexical constructions	[ <i>duften</i> ], [ <i>die</i> ], [ <i>Blume</i> ], [ <i>stark</i> ], [ <i>aber</i> ]

**Note:**

<sup>1</sup> Even though we are dealing here with an intransitive construction, the VP construction offers options for licensing direct and indirect object NPs in cases involving transitive and ditransitive verbs.

<sup>2</sup> The verb-inflection construction will need to access a subject-predicate agreement construction that licenses the verb's proper inflectional ending.

beyond such a cognitive approach based on corpus evidence, we find a wealth of alternative research agendas that also subscribe to a constructional approach to grammar.

First of all, substantial differences between different constructional approaches concern the objectives and particular interests motivating both the linguistic issues addressed and the methodological requirements needed for approaching them appropriately (for an overview cf. Hoffmann/Trousdale 2013: Section II; Ziem/Lasch 2013: 48–66). Croft's (2001) *Radical Construction Grammar*, for example, adopts basic assumptions and concepts developed in Langacker's *Cognitive Grammar* in order to raise the question to what extent typologically different languages make use of distinct grammatical categories. A cognitive approach is also favored in the domains of language change (e.g. Traugott/Trousdale 2013, Hilpert 2013) and language acquisition (for an overview Tomasello 2003). In contrast, *Embodied Construction Grammar* (e.g. Feldman/Dodge/Bryant 2009; Bergen/Chang 2005) and *Fluid Construction Grammar* (e.g. Steels 2011) aim at developing a computational model facilitating implementations of constructional processing. To this end, robust formalisms that can be implemented computationally are required.

Second, another distinguishing feature is the degree to which each constructional approach allows for, or strives at, formalizing constructions. At one end we find Berkeley Construction Grammar, also called Traditional Construction Grammar, as well as Fluid Construction Grammar, Embodied Construction Grammar and Sign-Based Construction Grammar. Closely related to the early work of Charles Fillmore and Paul Kay (Kay 1984, Fillmore 1988, Fillmore/Kay/O'Connor 1988), Berkeley CxG evolved out of the endeavor to provide full-fledged analyses of idiosyncratic grammatical constructions by means of the same formalisms capturing also fully regular syntactic structures. Even though Berkeley CxG was methodologically inspired by Head-driven Phrase Structure Grammar, it took more than a decade until both approaches were systematically blended, yielding a new theory known as Sign-Based Construction Grammar (Boas/Sag 2012). At the other end, we find constructional approaches that are not very interested in expressing linguistic insights in terms of specific formalizations, e.g., Goldberg's Cognitive CxG and, to some extent, Croft's Radical CxG. According to them, formalizations of constructions distract attention from the rich conceptual content and structure best describable in terms of radial categories (Goldberg 2006: 216). Formalizations, as Goldberg puts it in an interview with González-García (2008, 348), are "daunting"; referring to Fillmore (1975), Goldberg is "doubtful that a perspicuous formalism for lexical semantics can exist." Despite these seemingly different stances, however, all approaches build on the same idea that constructions are the basic building blocks of language. What is more, as Sag, Boas and Kay (2012) have shown, analyses in one constructional framework can in principle be translated into another. Thus, individually pursued research aims to eventually determine what kind of approach is privileged and adopted for empirical investigations.

Third, another difference between CxG approaches concerns the methods applied. At least four methodological strands can be identified (Ziem/Lasch 2013: 67–76): (a) introspection, (b) data-driven, quantitative methods, (c) qualitative corpus analyses, and (d) experiential approaches. In the present volume, most studies orient themselves towards a cognitive approach, particularly inspired by Goldberg's seminal studies on argument structures (Goldberg 1995, 2006); occasionally constructions are also formalized for the sake of clarity and precision. Generally, a main focus is on quantitative and qualitative analyses of corpus data. In this vein, the methods applied include comparisons of different approaches in terms of explanatory adequacy (e.g. Imo), quantitative and multifactorial corpus analyses (e.g. Engelberg, Hoffmann, Madlener), corpus-based investigations of annotated data (e.g. Willems, Zeldes, Dux, Roustila), qualitative analyses of interactional data (Imo), and contrastive analyses (Ruppenhofer, Hoffmann).

### 3.4 Major strands of constructional approaches to syntactic structures in German

Since the turn of the millennium a growing number of studies have addressed grammatical constructions in German both from a synchronic and a diachronic perspective, including frame semantic studies particularly focusing on valence-bearing words and their construction realizations patterns (Boas 2005b, 2013b; Schmidt 2009; Busse 2012: 23–250; Ziem 2014a). However, the vast majority of these studies are in German and thus not accessible to people not familiar with this language. In this section we therefore provide an overview of constructional approaches to syntactic structures in German. Currently, five major research strands can be identified: (a) syntactic structures from a synchronic perspective, (b) syntactic structures from a diachronic perspective, (c) idiomatic constructions, (d) syntactic structures from an interactional perspective, and (e) syntactic structures in language acquisition. We briefly discuss each of them.

- (a) Syntactic structures from a synchronic perspective. Following Goldberg's rationale (1995), many studies focus on argument structure constructions peculiar to German (Engelberg et al. 2011; Imo 2007a; Rostila 2009), including resultative constructions (Chang 2008; Müller 2007, Boas 2011, 2014) and double-object constructions (Haspelmath 2004). More specifically, a broad range of verb-oriented analyses concern grammatical voice (Primus 2011; Lasch 2014/2017), grammatical tense (Hilpert 2008; Petrova 2008), semantic shifts (Engelberg 2009; Goschler 2011) and various valence patterns (Nikula 2007; Jacobs 2009; Welke 2009a, b; Rostila 2014; Lasch 2015) as well as specific verb classes, such as verbs of cognition (Osswald 2014), light verbs and particle verbs (Müller 2007, Zeschel 2008, Felfe 2012).
- (b) Syntactic structures from a diachronic perspective. In a historical perspective, we find a main focus of CxG studies in the field of grammaticalization and constructional change (Diewald 2007, 2009; Hilpert 2011). Most diachronic constructional studies focus on the status of the verb, addressing verb-second word order in German (Freywald 2010), future and past tense (Hilpert 2008, Froschauer 2014, Rödel 2014), progressive aspect (Flick 2016), and complement constructions (Smirnova 2011). Moreover, Diewald (2008) investigates the historical development of idiomatic constructions and the role of modal particles in constructions.
- (c) Idiomatic constructions. It is not by chance that idiomaticity has been, and still is, one of the driving forces for a constructionist approach to grammar (Fillmore/Kay/O'Connor 1988). In contrast to other theories that relegate idiomatic expressions to the lexicon (Chomsky 1981, Bresnan 1982, Pollard & Sag 1994), CxG considers irregular expressions test cases displaying the

descriptive and explanatory power of the framework applied. Interestingly, however, only a few studies on German address idiomaticity (for an overview: Feilke 2007; Dobrovolskij 2011). Worth mentioning is Zeschel's (2011) study contrasting rule-based and pattern-based analyses of German constructions with a locative subject (e.g. *Wiesen und Wälder blühen* 'meadows and forests are blooming'). At the same time, it is striking that constructions play an increasingly important role in attempts to account for generalizations and constraints licensing idiomatic expressions in German, such as deictic constructions (Dobrovolskij 2010), somatisms (Staffeldt/Ziem 2008; Staffeldt 2010, 2011a, b; Ziem/Staffeldt 2011) and idioms in general (Birkner 2008b; Zeschel 2008; Dobrovolskij 2011; Stathi 2011; Diedrichsen 2014; Richter/Sailer 2014). The analyses provided here offer fine-grained investigations of the constructional mechanisms that remain unnoticed both in traditional phraseology and in approaches that focus solely on non-idiomatic expressions like projectionist accounts, such as Valency Grammar and Generative Grammar.

- (d) Syntactic structures from an interactional perspective. In quantitative terms the dominating area of constructional research on German is interactional linguistics. In contrast to projectionist approaches to grammatical structures, CxG is a very appealing approach for addressing interactional data because it offers a useful usage-based framework to describe grammatical categories and structures in context and on the basis of empirical evidence without presuming pre-existing rules or linguistic categories (Günthner 2010). Both interactional linguistics and CxG subscribe to the guiding principle "What you see is what you get" mentioned above. Overall, there is a bulk of studies providing brief surveys of particular constructions at work in spoken discourse (Auer 2002, 2005, 2006, 2007a, b, 2008; Deppermann 2002, 2006, 2007, 2011a, b, 2012; Selting 2004; Fried/Östman 2005; Günthner 2005, 2006, 2010; Fischer 2006, 2007; Günthner/Imo 2006; Uhmman 2006; Imo 2007a, b, 2011a, b; Betz 2008; Günthner/Bücker 2009; Günthner/Hopper 2010, Auer/Pfänder 2011). One of the major interests of Interactional Construction Grammar lies in accounting for properties of interaction that constrain and facilitate communicative practices when describing constructions. According to Deppermann (2011: 207), these properties include (a) co-presence of interlocutors (in terms of time and space), (b) materiality and multimodality of interaction, (c) temporality, and (d) pragmaticity. There is overwhelming empirical evidence that these factors crucially shape constructions in interaction. Constructions scrutinized so far include turn-taking (Selting 2005), lexical categories with discourse function, such as discourse particles (Fischer 2006, Alm 2007), modal particles (Alm 2007; Imo 2008), discourse markers (Imo 2012), and adverbs (Imo 2010a) as well as clause-level constructions, such as garden-path



sentences (Imo 2011a, b), verb-first constructions (Auer/Lindström 2011), relative-clause constructions (Birkner 2008a) and pseudo-cleft constructions (Günthner 2006a). In addition, a number of studies focus on particular verbs (Imo 2007a; Deppermann/Elstermann 2008; Goschler/Stefanowitsch 2010; Deppermann 2011c) and phenomena specific to spoken discourse, including increments (Auer 2006b, Imo 2011b), interjections (Imo 2009; Reber/Couper-Kuhlen 2010), *von-x-her* constructions (Bücker 2014), *so* constructions (Auer 2006b, Imo 2011b), quotative constructions (Bücker 2009), idiomatic constructions (Birkner 2008b), and verbal humor (Brône 2008, 2010).

- (e) Syntactic structures in language acquisition. In the field of language acquisition, there is an ongoing debate on the issue as to what extent language is an innate faculty or rather an emergent product of human communicative competence, that is, a sophisticated adaptive cognitive system (Tomasello 2008). In contrast to research in the Chomskyan paradigm, Michael Tomasello and his research group argue for the fundamental role of grammatical constructions as the building blocks of language acquisition (see Tomasello 2006a, b, c; Behrens 2009a, b and 2011a for overviews). Many corpus and experiential studies conducted so far relate to English grammar. However, based on German data, Behrens (2006) investigates relations between input data (linguistic data a learner comes across) and output data (linguistic data a learner generates), showing to what extent the acquisition of syntactic structures is a matter of frequency (for the case of second language acquisition see Madlener 2015). Following the same rationale, a selection of studies addresses complex constructions in German, such as word order, transitive and complement constructions (e.g. Abbot-Smith/Behrens 2006; Diessel 2006, 2007; Abbot-Smith/Lieven/Tomasello 2008; Brandt/Lieven & Tomasello 2010; Brandt 2011). The same methodology has also been applied to investigate the acquisition of abstract categories, notably part of speech (Akhtar/Tomasello 1997, Behrens 2005, Stumper 2011). With the help of sophisticated corpus linguistic and experimental methods, the framework of CxG allows to capture and model the gradual process of acquiring constructions in real-world ecological environments, yielding a full-fledged, yet still “fluid” cognitive grammar at the end.

## 4 This volume

This volume presents ten original research papers that all deal with particular aspects of German syntax from a constructionist perspective. The papers are organized into four thematic sections:

- i. Grammatical constructions and valency
- ii. Comparing Constructions in German and English
- iii. Prepositional Constructions in German
- iv. Constructional productivity

#### **i. Grammatical constructions and valency**

**Stefan Engelberg** (IDS Mannheim) argues in his study *The argument structure of psych-verbs: A quantitative corpus study on cognitive entrenchment* that psych-verbs exhibit a fairly large variation of argument structure patterns, alternating between stimuli and experiencers in subject position, between nominal and sentential realizations of arguments, and between explicit and implicit arguments. Engelberg's corpus-based investigation relies on statistical analyses to demonstrate that different factors determine the quantitative distribution of argument structures with psych-verbs, including stylistic properties of text genre, requirements from information structure, functional dependencies between different argument structure patterns, and cross-linguistic conceptual-semantic properties of verbs. Taking all these factors into account, Engelberg argues that a number of language-specific, idiosyncratic preferences of verbs for particular argument structure patterns remain, and that these are reflected in the frequencies of their co-occurrence. While this points to the existence of valency-based argument structure representations, Engelberg also presents evidence for construction-driven behavior. In particular, argument structures of small or medium frequency all show similar frequency distributions with respect to the respective verbs they occur with. This reveals how the constructions are entrenched with particular verbs and slowly spread into other parts of the verb lexicon. The remainder of Engelberg's article focuses on the interplay of valency and argument structure constructions.

The second paper in this section, *Case alternation in argument structure constructions with prepositional verbs: A case study in corpus-based constructional analysis* by **Klaas Willems**, **Jonah Rys**, and **Ludovic De Cuypere** (University of Ghent), investigates nine so-called two-way prepositions in modern German, which can take either the accusative (ACC) or dative (DAT). In traditional explanations, ACC is typically associated with 'motion' and DAT with a 'static event'. However, Willems et al. review previous corpus-based research (Willems 2011; 2012) showing that many instances of prepositional verbs cannot be accounted for in this way. The authors develop an alternative account, which not only is corpus-based but also pays attention to a diverse set of motivating factors that bear on the selection of either the ACC or DAT. More specifically, Willems et al. perform a constructional analysis of corpus data drawn from the Mannheim German Reference Corpus for four prepositional verbs that vary as to the extent of

the case alternation: *versinken in, einpflanzen in, aufsetzen auf, aufbauen auf*. For each item, the authors annotated ca. 750 example sentences for constructional factors (transitivity, voice, tense, and the complexity of the verb) and lexical properties (typing restrictions of the prepositional argument, verbal aspect, and the meaning of the preposition). The analysis shows that constructional factors have a significant effect on the case alternation. The seemingly random alternation between ACC and DAT with, e.g., *aufsetzen auf* appears to correlate strongly with the distinction between transitivity and intransitivity. However, Willems et al. demonstrate that lexical properties also play a significant role, given that correlations between case assignment and specific prepositional arguments can be observed in the corpus.

The third paper in this section, **Wolfgang Imo's** (University of Hamburg) *Valence patterns, constructions, and interaction: Constructs with the German verb erinnern ('to remember / to remind')* addresses a continuous debate in valency-oriented approaches, namely the question of whether some units have the status of a verb's argument or not. Previous research typically tackled this question by applying a range of syntactic and semantic tests. In contrast, Imo takes a different approach: Instead of trying to localize the core argument structure of the verb *erinnern* via hypothetical reconstructions and tests, he employs a usage-based, empirical method. On the basis of corpora of spoken German, Imo analyzes all instances of *erinnern* to achieve a combination of both quantitative and qualitative results. These results are then interpreted in relation to the concepts of *interactional construction grammar* (Deppermann 2006, 2011; Imo 2007a; Günthner 2010). Specific questions addressed by Imo include: (1) Should valence patterns be treated separately from constructions or should they be integrated into constructions?, and (2) what are the specific discourse functions of constructions with *erinnern*, and (3) for what specific purposes do speakers employ such constructions?

## ii. Comparing Constructions in German and English

The first paper in this section, **Thomas Hoffmann's** (Catholic University of Eichstätt-Ingolstadt) *Comparing Comparative Correlatives: The German vs. English construction network*, investigates the properties of Comparative Correlative (CC) constructions (*the more you eat, the fatter you get / je mehr du isst, desto dicker wirst du*), which are fascinating peripheral members of the set of filler-gap constructions (Sag 2010). In his study, Hoffmann draws on corpus data to analyze and compare the CC construction network of English and German with respect to the types of filler phrase, word order variation, the presence of complementizers, deletion phenomena as well as the interaction with argument structure constructions. On top of that, Hoffmann discusses the status of ternary structures such as

[the more opaque that atmosphere is]C1, [the less conductive it is]C2 [the bigger the temperature difference you need to cross it]C3 (ICE-GB:S2A-043) or [Je länger der Backprozess dauert,]C1 [um so mehr Wasser verdampft auch aus den darunterliegenden Teigschichten,]C2 [um so dicker also wird die Kruste.] C3 (LIMAS 116:09.24:240).

The second paper in this section, **Josef Ruppenhofer's** (University of Heidelberg) *Argument omissions in multiple German corpora*, discusses unexpressed arguments, which are a long- and much-studied phenomenon in theoretical linguistics (Lehrer 1970, Fillmore 1986, Bender 1999, inter alia). Still, there are aspects of the phenomenon that have not yet received sufficient attention, two of which Ruppenhofer examines. First, he investigates whether there is evidence of cross-linguistic regularity, or whether argument omission affordances appear as unpredictable across languages as they have traditionally been said to be within languages. Second, while most previous studies focused on written data, Ruppenhofer broadens the scope of these investigations by taking spoken language data into account. In particular, he presents an analysis of lexical and constructional argument omission phenomena in several written (e.g. HUGe German Corpus) and spoken (e.g. CallHome German, Kiez-Deutsch Corpus) German corpora. One part of the analyses consists of comparing the findings for the spoken and written corpora. The interest lies in seeing which omission types in German are genre- or modality-specific. The other part compares the results for written German to findings for written English, in particular those of Ruppenhofer (2004) and Ruppenhofer & Michaelis (2010). The paper focuses on the question whether the per-frame interpretation regularity hypothesized for English by Ruppenhofer (2004) also holds for German, and on how similar the inventory of constructions licensing omissions is between the two languages.

### iii. Prepositional constructions in German

The first contribution in this section *The Case for Caseless Prepositional Constructions with 'voller' in German*, by **Amir Zeldes** (Georgetown University), deals with German prepositions that typically mark their objects with one of three cases: accusative, dative or genitive. However, in some constructions case marking varies in colloquial usage, either systematically or sporadically. Cases of variation between genitive and dative objects are well known (e.g. *wegen*+gen/dat 'because of'), whereas cases applying to more specific lexicalized constructions are less discussed, e.g. *mit jemand anderem* [dat] / *anders* [gen] 'with someone else'. For still other constructions, speakers profess uncertainty (so-called *Zweifelsfälle* 'dubious cases') and no fixed case analysis seems to apply. To address this issue, Zeldes focuses on the recently grammaticalized deadjectival quasi-preposition *voller* ('full of'), which appears to occur with genitive, dative

and even nominative forms, e.g.: *eine Stadt voller Kinder[gen]*? ('a city full of children'), *eine Badewanne voller Wasser [dat]*? ('a tub full of water'), *Menschen voller Aberglaube [nom]*? ('people full of superstition'). Using a large Web corpus, normative lexica, and native speakers' forum discussions on the subject, Zeldes explores patterns of variation in the case marking of *voller* and related cases, and proposes that case conflation leads to systematic avoidance and suppletion of forms with clear case marking, such as objects with attributive adjectives. Zeldes then puts forth a constructional approach to capture these data, which defies traditional analyses.

The second contribution in this section, *Construction, compositionality, and the system of German particle verbs with 'an'*, by **Marc Felfe** (Humboldt University, Berlin) discusses the form and meaning of German transparent particle verbs with *an* ('on'). Felfe shows how these particle verbs can be generated in a rule-based manner in approximately 50% of cases from minimal argument structures of verb and particle. At the same time, however, he argues that it would be appropriate to also consider an alternative analysis that is also able to account for the remaining 50% of particle verbs. According to Felfe, this is possible by pursuing a constructional approach, in which neither the concept of lexeme-based connections nor that of construction-based connections is made absolute. He shows why and how very different complexes are analyzed on the basis of different argument constructions with *an* as a lexical component. Felfe also proposes that the principle of compositionality, modeled with the help of a frame-semantic approach (Fillmore 1985), should be employed. In cases in which particle verbs with *an* occur in the plural, systematic relationships within the analytical model should be explicable, according to Felfe. Such cases are then analyzed using the concepts of family resemblance and schema–instance relationship.

#### iv. Constructional productivity

In the first contribution in this section, *Type and token frequency effects on developing constructional productivity: The case of the German 'sein' ('be') + present participle construction*, **Karin Madlener** (University of Basel) shows that constructions often restrict the range of filler choice for a specific slot, a phenomenon which has been discussed as partial productivity. The German *sein* + present participle construction, for example, is restricted to the class of causative psychological verbs, some 200 verbs like *enttäuschen* ('disappoint') and *beunruhigen* ('worry'). Using German corpus data, Madlener demonstrates that the construction's productivity is not only limited in terms of type frequencies, type variation and coverage, but also by idiosyncratic blockings (*ärgerlich*/\**ärgernd*), and that it does not have any apparent coercion potential. However, Madlener asks whether this necessarily means that the pattern is a low-level, mostly item-specific schema. In order

to approximate this question, she discusses data from a training study on the acquisition of *sein* + present participle by adult learners of German as a second language. Madlener argues that learners generalize productively even when exposed to input with extremely limited type variation (down to nine types only). This suggests that higher-level schema abstractions may commonly be made in spite of restricted constructional productivity.

The second contribution in this section is **Ryan Dux's** (Sam Houston State University), *Frames, verbs, and constructions: German constructions with verbs of stealing*. Dux first reviews Goldberg (1995, 2006), who proposes abstract constructions with relatively few restrictions on their combination with individual verbs and the juxtaposes Goldberg's work with that of Boas (2003), who claims that to account of individual verbs' lexical entries one must first specify whether or not they may occur with a given construction. Recently, scholars have found that semantic frames advance the description of this combination (Boas 2008, Croft 2009, Herbst 2014). Dux's analysis of the 'dative victim' construction with German verbs evoking the *Theft* frame reveals that frame membership determines the interpretation of polysemous constructions. At the same time, however, the ability of a verb to combine with the construction must be specified for each individual verb. Various dative constructions, including the 'dative victim' and 'dative recipient' construction, differ according to the semantic properties associated with the dative argument. Dux shows that all dative objects occurring with verbs evoking the *Theft* frame are interpreted as victims, and never as benefactives or recipients. With verbs of the *Giving* frame, however, the dative object is always a recipient. Dux takes this as evidence that semantic frames predict the interpretation of the polysemous dative object construction.

**Jouni Rostila's** (University of Helsinki) *Argument structure constructions among German prepositional objects* is the final contribution of the volume. Rostila investigates object markers in the form of prepositions such as *auf* ('on') (e.g. with *warten* 'wait') and *an* ('at') (e.g. with *zweifeln* 'doubt') in German, which have hitherto mostly been described as lexical idiosyncrasies of the predicate head they accompany. However, Rostila argues that there are reasons to assume that some of them have turned into productive templates whose choice displays semantic regularities. Concentrating on the case of prospective *auf*, Rostila argues that such productive prepositions of prepositional objects in fact constitute argument structure constructions whose sole formal exponent is the preposition in question. What is even more interesting is that the emergence of such productivity can be viewed as a grammaticalization process. Rostila's proposal has repercussions for the discussion of whether argument structure constructions can be considered products of grammaticalization, as well as on the description of similar prepositional structures in other languages.

## References

- Abbot-Smith, Kirsten & Heike Behrens. 2006. How Known Constructions Influence the Acquisition of Other Constructions: The German Passive and Future Constructions. *Cognitive Science* 30. 995–1026.
- Abbot-Smith, Kirsten, Elena Lieven & Michael Tomasello. 2008. Graded Representations in the Acquisition of German and English Transitive Constructions. *Cognitive Development* 23(1). 48–66.
- Abraham, Werner. 1995. *Deutsche Syntax im Sprachenvergleich*. Tübingen: Narr.
- Ackerman, Farrell & Gert Webelhuth. 1998. *A Theory of Predicates* (CSLI lecture notes 76). Stanford: CSLI Publications.
- Ágel, Vilmos. 2000. *Valenztheorie*. Tübingen: Narr.
- Akhtar, Nameera & Michael Tomasello. 1997. Young Children's Productivity with Word Order and Verb Morphology. *Developmental Psychology* 33. 952–965.
- Alm, Maria. 2007. "Also darüber lässt sich ja streiten!" *Die Analyse von "also" in der Diskussion zu Diskurs- und Modalpartikeln*. Almqvist & Wiksell International: Stockholm.
- Auer, Peter. 2002. *On line-Syntax – Oder: was es bedeuten könnte, die Zeitlichkeit der mündlichen Sprache ernst zu nehmen*. *Sprache und Literatur* 85. 43–56.
- Auer, Peter. 2005. Projection in Interaction and Projection in Grammar. *Text* 25(1). 7–36.
- Auer, Peter. 2006a. Construction Grammar Meets Conversation: Einige Überlegungen am Beispiel von 'so'-Konstruktionen. In Susanne Günthner & Wolfgang Imo (eds), *Konstruktionen in der Interaktion*, 291–314. Berlin: de Gruyter.
- Auer, Peter. 2006b. Increments and More. Anmerkungen zur augenblicklichen Diskussion über die Erweiterbarkeit von Turnkonstruktionseinheiten. In Arnulf Deppermann, Reinhard Fiehler & Thomas Spranz-Fogasy (eds.), *Grammatik und Interaktion. Untersuchungen zum Zusammenhang von grammatischen Strukturen und Gesprächsprozessen*. 279–294. Radolfzell: Verlag für Gesprächsforschung. <http://www.verlag-gespraechsforschung.de/2006/pdf/gui-auer.pdf> (accessed 10.11.2014)
- Auer, Peter. 2007a. Why are Increments such Elusive Objects? *Pragmatics* 17(4). 647–658.
- Auer, Peter. 2007b. Syntax als Prozess. In Heiko Hausendorf (eds.), *Gespräch als Prozess. Linguistische Aspekte der Zeitlichkeit verbaler Interaktion*, 94–124. Tübingen: Narr.
- Auer, Peter. 2008. On-line Syntax: Thoughts on the Temporality of Spoken Language. *Language Sciences* 31. 1–13.
- Auer, Peter & Jan Lindström. 2011. Verb-first conditionals in German and Swedish: convergence in writing, divergence in speaking. In Peter Auer & Stefan Pfänder (eds.), *Constructions: emerging and emergent*, 218–162. Berlin; Boston, Mass.: De Gruyter.
- Auer, Peter & Stefan Pfänder (eds.). 2011. *Constructions: Emerging and Emergent (linguae & litterae 6)*, 156–185. Berlin/Boston: de Gruyter.
- Bach, Emmon. 1962. The Order of Elements in a Transformational Grammar of German. *Language* 38(3). 263–269.
- Barðdal, Johanna. 2006. Construction-Specific Properties of Syntactic Subjects in Icelandic and German. *Cognitive Linguistics* 17(1). 39–106.
- Barðdal, Johanna. 2008. *Productivity. Evidence from Case and Argument Structure in Icelandic*. Amsterdam/Philadelphia: John Benjamins.
- Barðdal, Johanna. 2009. The Development of Case in Germanic. In Jóhanna Barðdal and Shobhana Chelliah (eds.), *The Role of Semantic, Pragmatic and Discourse Factors in the Development of Case*, 123–159. Amsterdam: John Benjamins.

- Barðdal, Jóhanna. 2012. Predicting the Productivity of Argument Structure Constructions. *Berkeley Linguistics Society* 32. 467–478.
- Barðdal, Johanna. 2013. Construction-Based Historical-Comparative Reconstruction. In Thomas Hoffmann & Graeme Trousdale (eds.), *Oxford Handbook of Construction Grammar*, 438–457. Oxford: Oxford University Press.
- Bech, Gunnar. 1983. *Studien über das deutsche verbum infinitum*. 2. Auflage. Tübingen: Narr.
- Behaghel, Otto. 1930. Von deutscher Wortstellung. *Zeitschrift fuer Deutschkunde* 44. 81–89.
- Behrens, Heike. 2000. *Anleitung zur Kodierung und Disambiguierung von Erwerbsdaten des Deutschen*. Unveröffentlichtes Manuskript. Leipzig: Max-Planck-Institut für Evolutionäre Anthropologie.
- Behrens, Heike. 2005. Wortartenerwerb durch Induktion. In Clemens Knobloch, Bernhard Schaefer (eds.), *Wortarten und Grammatikalisierung: Perspektiven in System und Erwerb*, 177–198. Berlin: de Gruyter.
- Behrens, Heike. 2006. The Input-Output Relationship in First Language Acquisition. *Language and Cognitive Processes* 21. 2–24.
- Behrens, Heike. 2009a. Konstruktionen im Spracherwerb. *Zeitschrift für Germanistische Linguistik* 37: 427–444.
- Behrens, Heike. 2009b. Usage-Based and Emergentist Approaches to Language Learning. *Linguistics* 47(2). 383–411.
- Behrens, Heike. 2011a. Die Konstruktion von Sprache im Spracherwerb. In Alexander Lasch, Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 165–179. Tübingen: Stauffenburg.
- Behrens, Heike. 2011b. Grammatik und Lexikon im Spracherwerb: Konstruktionsprozesse. In Stefan Engelberg, Anke Holler, Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 375–396. Berlin, New York: de Gruyter.
- Bender, Emily. 1999. Constituting Context: Null Objects in English Recipes Revisited. *Penn Working Papers in Linguistics* 6(1). 53–68.
- Bergen, Ben & Nancy Chang. 2005. Embodied Construction Grammar in simulation-based language understanding. In Jan-Ola Östman and Mirjam Fried (eds.), *Construction Grammars. Cognitive grounding and theoretical extensions*, 147–190. Amsterdam/ Philadelphia: John Benjamins.
- Betz, Emma. 2008. *Grammar and interaction. Pivots in German conversation*. (Studies in discourse and grammar 21). Amsterdam/Philadelphia: John Benjamins.
- Bierwisch, Manfred. 1963. *Grammatik des deutschen Verbs*. Studia Grammatica No. 2. Berlin: Akademie Verlag.
- Birkner, Karin. 2008a. *Relativ(satz)konstruktionen im gesprochenen Deutsch: syntaktische, prosodische, semantische und pragmatische Aspekte*. Berlin, New York: de Gruyter.
- Birkner, Karin. 2008b. ‚Was X betrifft‘. Textsortenspezifische Aspekte einer Redewendung. In Anatol Stefanowitsch, Kerstin Fischer (eds.), *Konstruktionsgrammatik II. Von der Konstruktion zur Grammatik*. 59–80. Tübingen: Stauffenburg.
- Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford: CSLI Publications.
- Boas, Hans C. 2004. You wanna consider a Constructional Approach to Wanna-Contraction? In Michel Achard and Suzanne Kemmer (eds.), *Language, Culture, and Mind*, 471–491. Stanford, CA: CSLI Publications.
- Boas, Hans C. 2005a. Determining the Productivity of Resultative Constructions: A Reply to Goldberg & Jackendoff. *Language* 81(2). 448–464.



- Boas, Hans C. 2005b. From Theory to Practice: Frame Semantics and the Design of FrameNet. In S. Langer and D. Schnorbusch (eds.), *Semantik im Lexikon*, 129–160. Tübingen: Narr.
- Boas, Hans C. 2008. Determining the structure of lexical entries and grammatical constructions in Construction Grammar. *Annual Review of Cognitive Linguistics* 6. 113–144.
- Boas, Hans C. (eds.). 2010a. *Contrastive studies in Construction Grammar*. Amsterdam/Philadelphia: John Benjamins.
- Boas, Hans C. 2010b. The syntax-lexicon continuum in Construction Grammar: A case study of English communication verbs. *Belgian Journal of Linguistics* 24. 58–86.
- Boas, Hans C. 2010c. Comparing constructions across languages. In Hans C. Boas (ed.), *Contrastive Studies in Construction Grammar*, 1–20. Amsterdam/Philadelphia: John Benjamins.
- Boas, Hans C. 2011. Zum Abstraktionsgrad von Resultativkonstruktionen. In Stefan Engelberg, Anke Holler, and Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 37–69. Berlin, New York: de Gruyter.
- Boas, Hans C. 2013a. Cognitive Construction Grammar. In Thomas Hoffmann and Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*. 233–254. Oxford: Oxford University Press.
- Boas, Hans C. 2013b. Wie viel Wissen steckt in Wörterbüchern? Eine frame-semantische Perspektive. *Zeitschrift für Angewandte Linguistik* 57. 75–97.
- Boas, Hans C. 2014. Zur Architektur einer konstruktionsbasierten Grammatik des Deutschen. In A. Ziem & A. Lasch (eds.), *Grammatik als Inventar von Konstruktionen? Sprachliches Wissen im Fokus der Konstruktionsgrammatik*. Berlin/New York: de Gruyter.
- Boas, Hans C. 2017. Computational Resources: FrameNet and Constructicon. In B. Dancygier (ed.), *The Cambridge Handbook of Cognitive Linguistics*, 549–573. Cambridge: Cambridge University Press.
- Boas, Hans C. & Ivan Sag (eds.). 2012. *Sign-Based Construction Grammar*. Stanford: CSLI Publications.
- Boas, Hans C. & Alexander Ziem. In press. Constructing a constructicon for German: Empirical, theoretical, and methodological issues. In: Benjamin Lyngfelt, Tiago Timponi Torrent, Lars Borin, and Kyoko Hirose Ohara (eds.), *Constructicography. Constructicon development across languages*. Amsterdam/Philadelphia: John Benjamins.
- Booij, Gerd. 2010. *Construction Morphology*. Oxford: Oxford University Press.
- Brandt, Silke. 2011. Einfache Transitive und Komplementsatz-Konstruktionen im Spracherwerb: Analysierbarkeit und Kategorienbildung. In Alexander Lasch, Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 181–192. Tübingen: Stauffenburg.
- Brandt, Silke, Elena Lieven & Michael Tomasello. 2010. Development of Word Order in German Complement-Clause Constructions: Effects of Input Frequencies, Lexical Items, and Discourse Function. In *Language* 86 (3). 583–610.
- Bresnan, Joan. 2001. *Lexical-Functional Syntax*. Oxford: Blackwell.
- Broccias, Cristiano. 2013. Cognitive Grammar. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 191–210. Oxford: Oxford University Press.
- Brône, Geert. 2008. Hyper- and Misunderstanding in Interactional Humor. In *Journal of Pragmatics* 40(12). 2027–2061.
- Brône, Geert. 2010. *Bedeutungskonstitution in verbalem Humor: Ein kognitiv-linguistischer und diskurssemantischer Ansatz*. Frankfurt am Main: Lang.

- Bücker, Jörg. 2009. Quotativ-Konstruktionen mit 'Motto' als Ressourcen für Selbst- und Fremdpositionierungen. In Susanne Günthner and Jörg Bücker (eds.), *Grammatik im Gespräch. Konstruktionen der Selbst- und Fremdpositionierung*, 215–248. Berlin, New York: de Gruyter.
- Bücker, Jörg. 2014. Konstruktionen und Konstruktionscluster: Die Zirkumposition von XP her im gesprochenen Deutsch. In Alexander Lasch and Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 117–135. Berlin, Boston: de Gruyter.
- Bücker, Jörg, Susanne Günthner & Wolfgang Imo. 2015. Einleitung zu Konstruktionsgrammatik V: Konstruktionen im Spannungsfeld von sequentiellen Mustern, kommunikativen Gattungen und Textsorten. In Jörg Bücker, Susanne Günthner, and Wolfgang Imo (eds.), *Konstruktionen im Spannungsfeld von sequentiellen Mustern, kommunikativen Gattungen und Textsorten*, 1–14. Tübingen: Stauffenburg.
- Busse, Dietrich. 2012. *Frame-Semantik. Ein Kompendium*. Berlin, Boston: de Gruyter.
- Bybee, Joan. 2010. *Language, use, and cognition*. Cambridge: Cambridge University Press.
- Chang, Lingling. 2008. Resultative Prädikate, Verbpartikeln und eine konstruktionsgrammatische Überlegung. *Deutsche Sprache* 36(2). 127–145.
- Chomsky, Noam. 1965. Aspects of a theory of syntax. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 1980. *Rules and Representations*. Oxford: Basil Blackwell.
- Chomsky, Noam. 1981. *Lectures in Government and Binding*. Dordrecht: Foris Publications.
- Clausner, Timothy C., and William Croft. 1997. Productivity and Schematicity in Metaphors. *Cognitive Science* 21(3). 247–82.
- Croft, William. 2001. *Radical Construction Grammar*. Oxford: Oxford University Press.
- Croft, William. 2003. Lexical rules vs. constructions: a false dichotomy. In Hubert Cuyckens, Thomas Berg, René Dirven, and Klaus-Uwe Panther (eds.), *Motivation in language: studies in honor of Günther Radden*, 49–68. Amsterdam/Philadelphia: John Benjamins.
- Croft, William. 2013. Radical Construction Grammar. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 211–232. Oxford: Oxford University Press.
- Den Besten, Hans. 1983. On the interaction of root transformations and lexical deletive rules. In W. Abraham (ed.), *On the formal syntax of the Westgermania: Papers from the 3rd Groningen Grammar Talks*, 47–131. Amsterdam/Philadelphia: John Benjamins.
- Deppermann, Arnulf. 2002. Von der Kognition zur verbalen Interaktion: Bedeutungskonstitution im Kontext aus Sicht der Kognitionswissenschaften und der Gesprächsforschung. In Arnulf Deppermann, Thomas Spranz-Fogasy (eds.), *Be-deuten: Wie Bedeutung im Gespräch entsteht*. 11–33. Tübingen: Stauffenburg.
- Deppermann, Arnulf. 2006. Construction Grammar – eine Grammatik für die Interaktion? In Arnulf Deppermann, Reinhard Fiehler, Thomas Spranz-Fogasy (eds.), *Grammatik und Interaktion*, 43–65. Radolfzell: Verlag für Gesprächsforschung. <http://www.verlag-gespraechsforschung.de/2006/pdf/gui-deppermann.pdf> (accessed 19.10.2014).
- Deppermann, Arnulf. 2007. *Grammatik und Semantik aus gesprächsanalytischer Sicht*. Berlin: de Gruyter.
- Deppermann, Arnulf. 2011a. Pragmatics and Grammar. In Wolfram Bublitz, Neal Norrick (eds.), *Handbook of Pragmatics*, Vol. 1, 425–460. Berlin: de Gruyter.
- Deppermann, Arnulf. 2011b. Konstruktionsgrammatik und Interaktionale Linguistik: Affinitäten, Komplementaritäten und Diskrepanzen. In Alexander Lasch & Alexander Ziem (eds.),

- Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 205–238. Tübingen: Stauffenburg.
- Deppermann, Arnulf. 2011c. Constructions vs. lexical items as sources of complex meanings. A comparative study of constructions with German *verstehen*. In Peter Auer & Stefan Pfänder (eds.), *Constructions: Emerging and Emergent* (linguae & litterae 6), 88–126. Berlin, Boston: de Gruyter.
- Deppermann, Arnulf. 2012. How Does ‘Cognition’ Matter to the Analysis of Talk-in-Interaction? *Language Sciences* 34 (6). 746–767.
- Deppermann, Arnulf & Mechthild Elstermann. 2008. Lexikalische Bedeutung oder Konstruktionsbedeutungen? Eine Untersuchung am Beispiel von Konstruktionen mit *verstehen*. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II: Von der Konstruktion zur Anwendung*, 103–133. Tübingen: Stauffenburg.
- Diedrichsen, Elke. 2014. Zur “Inventarisierung“ von idiomatischen und Argumentstruktur-Konstruktionen im Deutschen. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 175–195. Berlin, Boston: de Gruyter.
- Diessel, Holger. 2006. Komplexe Konstruktionen im Erstspracherwerb. In Kerstin Fischer & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik – Von der Anwendung zur Theorie*, 36–51. Tübingen: Stauffenburg.
- Diessel, Holger. 2007. Komplexe Konstruktionen im Erstspracherwerb. In Kerstin Fischer & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 39–54. Tübingen: Stauffenburg Verlag.
- Diessel, Holger. 2013. Construction Grammar and first language acquisition. In Thomas Hoffmann and Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 347–364. Oxford: Oxford University Press.
- Diewald, Gabriele. 2007. Konstruktionen in der diachronen Sprachwissenschaft. In Kerstin Fischer and Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 79–104. Tübingen: Stauffenburg Verlag.
- Diewald, Gabriele. 2009. Konstruktionen und Paradigmen. *Zeitschrift für germanistische Linguistik* 37(3). 445–468.
- Dobrovol’skij, Dmitrij. 2010. Deiktische Konstruktionen des Deutschen aus lexikographischer Perspektive. In Anne Dykstra, Tanneke Schoonheim, *Proceedings of the XIV Euralex International Congress, Leeuwarden, 6–10 July 2010*. CD-ROM. Leeuwarden: Fryske Akademy.
- Dobrovol’skij, Dmitrij. 2011. Phraseologie und Konstruktionsgrammatik. In Alexander Lasch and Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 111–130. Tübingen: Stauffenburg.
- Dobrovol’skij, Dmitrij & Artëm Šarandin. 2010. Konstruktionsgrammatik und Lexikographie: Verben der Fortbewegung im *Neuen deutsch-russischen Großwörterbuch*. In Peter Đurco (ed.), *Feste Wortverbindungen und Lexikographie. Kolloquium zur Lexikographie und Wörterbuchforschung*, 37–41. Berlin: de Gruyter.
- Eisenberg, Peter. 2006. *Grundriss der deutschen Grammatik: Band 2: Der Satz*. Stuttgart: Metzler.
- Eisenberg, Peter and Reinhard Peter Gallmann. 2016. *Der Duden in 12 Bänden: 4 – Die Grammatik*. Bibliographisches Institut & FA Brockhaus AG.
- Engel, Ulrich. 1988. *Deutsche Grammatik*. Heidelberg: Julius Groos.
- Engel, Ulrich & Meike Meliss (eds.). 2004. *Dependenz, Valenz und Wortstellung*. München: iudicium.

- Engelberg, Stefan. 2009. *Blätter knistern über den Beton*. Zwischenbericht aus einer korpuslinguistischen Studie zur Bewegungsinterpretation bei Geräuschverben. In Edeltraud Winkler (eds.), *Konstruktive Varianz bei Verben* (OPAL Sonderheft 4/2009), 75–97. Mannheim: Institut für Deutsche Sprache.
- Engelberg, Stefan, Svenja König, Kristel Proost & Edeltraud Winkler. 2011. Argumentstrukturmuster als Konstruktionen? Identität – Verwandtschaft – Idiosynkrasien. In Stefan Engelberg, Anke Holler, Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 71–112. Berlin, New York: de Gruyter.
- Eroms, Werner. 1986. *Funktionale Satzperspektive*. Berlin/New York: Mouton de Gruyter.
- Fanselow, Gisbert. 1989. Coherent infinitives in German: Restructuring vs. IP-Complementation. In C. Bhatt, E. Loebel, and C. Schmidt (eds.), *Syntactic phrase structure phenomena in noun phrase and sentences*, 1–16. Amsterdam/Philadelphia: John Benjamins.
- Feilke, Helmuth. 2007. Syntaktische Aspekte der Phraseologie III: Construction Grammar und verwandte Ansätze. In Harald Burger (ed.), *Phraseologie. Ein internationales Handbuch der zeitgenössischen Forschung* (HSK 18.1), 63–76. Berlin: de Gruyter.
- Felfe, Marc. 2011. Lexemas y construcciones sintácticas – unidades del léxico. In Lanzi de Zeitune, Josefina & Silvia Deborah Grodek de Marengo (eds.), *Perspectivas en estudios de traducción y terminología*. Tucumán: Editorial Universidad Nacional de Tucumán.
- Felfe, Marc. 2012a. *Das System der Partikelverben mit “an”. Eine konstruktionsgrammatische Untersuchung*. (Reihe: Sprache und Wissen 12). Berlin, Boston: de Gruyter.
- Felfe, Marc. 2012b. Transitive Resultativkonstruktionen in der Konstruktionsgrammatik. In *Zeitschrift für Germanistische Linguistik* (ZGL) 40(3). 352–395.
- Feldman, Jerome, Dodge, Ellen, and John Bryant. 2009. A Neural Theory of Language and Embodied Construction Grammar. In B. Heine and Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 111–138. Oxford: Oxford University Press.
- Fillmore, Charles J. 1975. An alternative to checklist theories of meaning. *Proceedings of the First Annual Meeting of the Berkeley Linguistics Society* 1. 123–131.
- Fillmore, Charles J. 1982. Frame Semantics. In: *Linguistics in the Morning Calm*, ed. Linguistic Society of Korea, 111–38. Seoul: Hanshin.
- Fillmore, Charles J. 1986. Pragmatically controlled zero anaphora. *Proceedings of the 12th annual meeting of the Berkeley Linguistics Society*. 95–107.
- Fillmore, Charles J. 1988. The Mechanisms of “Construction Grammar”. *Proceedings of the Fourteenth Annual Meeting of the Berkeley Linguistics Society*: 35–55.
- Fillmore, Charles J. 1999. Inversion and constructional inheritance. In G. Webelhuth, J.-P. Koenig and A. Kathol (eds.), *Lexical and Constructional Aspects of Linguistic Explanation*, 113–128. Stanford: CSLI Publications.
- Fillmore, Charles J. 2008. Border Conflicts: FrameNet meets Construction Grammar. *Proceedings of the XIII EURALEX International Congress* (Barcelona, 15–19 July 2008), 49–68.
- Fillmore, Charles. 2013. Berkeley Construction Grammar. In Thomas Hoffmann and Graeme Trousdale (eds.), *The Oxford handbook on Construction Grammar*, 111–132. Oxford: Oxford University Press.
- Fillmore, Charles J. & Collin Baker. 2010. A frames approach to semantic analysis. In B. Heine and H. Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 13–340. Oxford: Oxford University Press.
- Fillmore, Charles J. & Paul Kay. 1993. *Construction Grammar Course Book*. UC Berkeley: Department of Linguistics.

- Fillmore, Charles J., Kay, Paul & Mary C. O'Connor. 1988. Regularity and idiomaticity in grammatical constructions: The case of 'let alone.' *Language* 64. 501–538.
- Fillmore, Charles, Lee-Goldman, Russell & Russell Rhomieux. 2012. The FrameNet Constructicon. In: H.C. Boas and I. Sag (eds.), *Sign-based Construction Grammar*, 309–372. Stanford: CSLI Publications.
- Fischer, Kerstin. 2006. Konstruktionsgrammatik und Interaktion. In Susanne Günthner and Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 343–364. Berlin: de Gruyter.
- Fischer, Kerstin. 2007. Konstruktionsgrammatik und Interaktion. In Anatol Stefanowitsch and Kerstin Fischer (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 129–146. Tübingen: Stauffenburg.
- Fischer, Kerstin & Anatol Stefanowitsch. 2007. Konstruktionsgrammatik: Ein Überblick. In Anatol Stefanowitsch and Kerstin Fischer (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 3–17. Tübingen: Stauffenburg.
- Fischer, Klaus. 2013. *Satzstrukturen im Deutschen und Englischen*. Berlin: Akademie Verlag.
- Flick, Johanna. 2016. Der *am*-Progressiv und parallele *am* V-en *sein*-Konstruktionen: Kompositionalität, Variabilität und Netzwerkbildung. *Beiträge zur Geschichte der deutschen Sprache und Literatur (PBB)* 138 (2). 163–196.
- Fox, Anthony. 1990. *The structure of German*. Oxford: Clarendon Press.
- Freywald, Ulrike. 2010. Obwohl vielleicht war es ganz anders. Vorüberlegungen zum Alter der Verbzweitstellung nach subordinierenden Konjunktionen. In Arne Ziegler (ed.), *Historische Textgrammatik und Historische Syntax des Deutschen*, 55–84. Berlin: de Gruyter.
- Fried, Mirjam & Jan-Ola Östman. 2004. Construction Grammar: a thumbnail sketch. In Mirjam Fried and Jan-Ola Östman (eds.), *Construction Grammar in a cross-language perspective*, 11–86. Amsterdam: John Benjamins.
- Froschauer, Regine. 2014. Die Grammatikalisierung der beiden Vollverben „habên“ und „eigan“ zu Auxiliaren bei der Umschreibung von Vergangenheitstempora im Althochdeutschen. In Alexander Lasch and Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 195–207. Berlin, Boston: de Gruyter.
- González-García, Francisco. 2008. Cognitive Construction Grammar works. An interview with Adele E. Goldberg. *Annual Review of Cognitive Linguistics* 6. 345–360.
- Ginzburg, Jonathan & Ivan Sag. 2000. *Interrogative Investigations: The Form, Meaning and Use of English Interrogatives*. Stanford: CSLI.
- Goldberg, Adele. 1995. *Constructions: A Construction Grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, Adele. 2006. *Constructions at Work*. Oxford: Oxford University Press.
- Goschler, Juliana. 2011. Geräuschverben mit direktonaler Erweiterung: Syntax, Semantik und Gebrauch. In Alexander Lasch, Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 27–41. Tübingen: Stauffenburg.
- Goschler, Juliana & Anatol Stefanowitsch. 2010. Pfad und Bewegung im gesprochenen Deutsch: Ein kollostruktonaler Ansatz. In Thomas Stolz, Jürgen Trabant, and Esther Ruigendijk (eds.), *Linguistik im Nordwesten (Diversitas Linguarum)*, 103–115. Bochum: Brockmeyer.
- Grewendorf, Günther. 1989. *Ergativity in German*. Dordrecht: Foris.
- Gries, Stefan Th. 2008. Phraseology and Linguistic Theory: A Brief Survey. In Sylviane Granger and Fanny Meunier (eds.), *Phraseology: An Interdisciplinary Perspective*, 3–25. Amsterdam, Philadelphia: John Benjamins.
- Günthner, Susanne. 2005. *Dichte Konstruktionen*. Potsdam: Universität Potsdam (InList 43).

- Günthner, Susanne. 2006a. "Was ihn trieb, war vor allem Wanderlust" (Hesse: *Narziss und Goldmund*). Pseudocleft-Konstruktionen im Deutschen. In Susanne Günthner and Wolfgang Imo (eds.), *Konstruktionen in der Interaktion (Linguistik – Impulse & Tendenzen 20)*, 59–90. Berlin: de Gruyter.
- Günthner, Susanne. 2006b. Von Konstruktionen zu kommunikativen Gattungen: Die Relevanz sedimentierter Muster für die Ausführung kommunikativer Aufgaben. In *Deutsche Sprache* 34(1–2), 173–190.
- Günthner, Susanne. 2008a. "die Sache ist ...": eine Projektor-Konstruktion im gesprochenen Deutsch. *Zeitschrift für Sprachwissenschaft* 27(1), 39–71.
- Günthner, Susanne. 2008b. Die *die Sache/das Ding ist*-Konstruktion im gesprochenen Deutsch – eine interaktionale Perspektive auf Konstruktionen im Gebrauch. In Anatol Stefanowitsch and Kerstin Fischer (eds.), *Konstruktionsgrammatik II. Von der Konstruktion zur Grammatik*, 157–177. Tübingen: Stauffenburg.
- Günthner, Susanne. 2008c. Projektorkonstruktionen im Gespräch: Pseudoclefts, 'die Sache ist'-Konstruktionen und Extrapositionen mit 'es'. *Gesprächsforschung* 9, 86–114. <http://www.gespraechsforschung-ozs.de/heft2008/ga-guenthner.pdf> (accessed 10.10.2014)
- Günthner, Susanne. 2009. Adjektiv + *dass*-Satzkonstruktionen als kommunikative Ressourcen der Positionierung. In Susanne Günthner and Jörg Bücker (eds.), *Grammatik im Gespräch. Konstruktionen der Selbst- und Fremdpositionierung*, 149–184. Berlin: de Gruyter.
- Günthner, Susanne. 2010. Konstruktionen in der kommunikativen Praxis – zur Notwendigkeit einer interaktionalen Anreicherung konstruktionsgrammatischer Ansätze. In *Zeitschrift für Germanistische Linguistik* 37 (3), 402–426.
- Günthner, Susanne. 2011. Between emergence and sedimentation. Projecting constructions in German interactions. In Peter Auer and Stefan Pfänder (eds.), *Constructions: Emerging and Emergent (linguae & litterae 6)*, 156–185. Berlin, Boston: de Gruyter.
- Günthner, Susanne & Jörg Bücker. 2009 (eds.). *Grammatik im Gespräch: Konstruktionen der Selbst- und Fremdpositionierung*. Berlin: de Gruyter.
- Günthner, Susanne & Paul J. Hopper. 2010. Zeitlichkeit & sprachliche Strukturen: Pseudoclefts im Englischen und Deutschen. *Gesprächsforschung* 10, 1–28. <http://www.gespraechsforschung-ozs.de/heft2010/ga-guenthner.pdf> (accessed 10.10.2014)
- Günthner, Susanne & Wolfgang Imo. 2006. Konstruktionen in der Interaktion. In Günthner, Susanne and Wolfgang Imo (eds.), *Konstruktionen in der Interaktion (Linguistik – Impulse & Tendenzen 20)*, 1–22. Berlin: de Gruyter.
- Haider, Hubert. 1986. Fehlende Argumente: Vom Passiv zu kohärenten Infinitiven. *Linguistische Berichte* 101, 3–33.
- Haider, Hubert. 1990. Topicalization and other puzzles of German syntax. In Günthner Grewendorf and Wolfgang Sternefeld (eds.), *Scrambling and Barriers*, 93–112.
- Haider, Hubert. 1993. *Deutsche Syntax – Generativ*. Tübingen: Narr.
- Haspelmath, Martin. 2004. Explaining the Ditransitive Person-Role Constraint. A Usage-Based Account. *Constructions* 2. <http://elanguage.net/journals/constructions/article/view/3073> (accessed 10.10.2014)
- Hawkins, John. 1986. *A comparative typology of English and German: Unifying the contrasts*. London: Routledge.
- Hein, Katrin. 2015. *Phrasenkomposita im Deutschen. Empirische Untersuchung und konstruktionsgrammatische Modellierung*. Tübingen: Narr.
- Helbig, Gerhard & Wolfgang Schenkel. 1971. *Wörterbuch zur Valenz und Distribution deutscher Verben*. Tübingen: Niemeyer.

- Helbig, Gerhard & Schenkel, Wolfgang. 1973. *Wörterbuch zur Valenz und Distribution deutscher Verben*. Leipzig: VEB Bibliographisches Institut.
- Hens, Gregor. 1996. (jm) (einen Brief schreiben). Zur Valenz der Konstruktionsgrammatik. *Linguistische Berichte* 164. 334–356.
- Hentschel, Elke & Harald Weydt. 2003. *Handbuch der deutschen Grammatik* (de Gruyter Studienbuch). Berlin/New York: de Gruyter.
- Heringer, Hans-Jürgen. 2009. *Morphologie*. Paderborn: Fink Verlag.
- Herbst, Thomas. 2014. The valency approach to argument structure constructions. In Thomas Herbst, Hans-Jörg Schmidt & Susan Faulhaber (eds.), *Constructions – Collocations – Patterns*, 167–216. Berlin: De Gruyter.
- Hilpert, Martin. 2008. Germanic future constructions. Amsterdam/Philadelphia: John Benjamins.
- Hilpert, Martin. 2009. The German *mit*-predicative construction. *Constructions and Frames* 1(1). 29–55.
- Hilpert, Martin. 2011. Was ist Konstruktionswandel? In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 59–75 Tübingen: Stauffenburg.
- Hilpert, Martin. 2013. *Constructional Change in English: Developments in Allomorphy, Word Formation, and Syntax*. Cambridge: Cambridge University Press.
- Höhle, Tilman. 1986. Der Begriff “Mittelfeld”, Anmerkungen über die Theorie der topologischen Felder. In Walter Weiss, Herbert E. Wiegand, and Marga Reis (eds.), *Akten des VII. Kongresses der Internationalen Vereinigung für germanische Sprach- und Literaturwissenschaften*. Göttingen 1985. 3rd Vol., 329–340. Tübingen: Max Niemeyer Verlag.
- Hoffmann, Thomas & Graeme Trousdale (eds.). 2013. *The Oxford Handbook of Construction Grammar*. Oxford: Oxford University Press.
- Holler, Anke. 2005. *Weiterführende Relativsätze. Empirische und theoretische Aspekte*. Berlin: Akademie Verlag.
- Hollmann, Willem. 2013. Constructions in cognitive sociolinguistics. In T. Hoffmann and G. Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 491–510. Oxford: Oxford University Press.
- Imo, Wolfgang. 2007a. *Construction Grammar und Gesprochene-Sprache-Forschung: Konstruktionen mit zehn matrixsatzfähigen Verben im gesprochenen Deutsch*. Reihe Germanistische Linguistik 275. Tübingen: Niemeyer.
- Imo, Wolfgang. 2007b. Der Zwang zur Kategorienbildung: Probleme der Anwendung der ‘Construction Grammar’ bei der Analyse gesprochener Sprache. *Gesprächsforschung* 8: 22–45. <http://www.gespraechsforschung-ozs.de/heft2007/ga-imo.pdf> (accessed 19.10.2014)
- Imo, Wolfgang. 2008. Individuelle Konstrukte oder Vorboten einer neuen Konstruktion? Stellungsvarianten der Modalpartikel ‘halt’ im Vor- und Nachfeld. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II: Von der Konstruktion zur Grammatik*, 135–156. Tübingen: Stauffenburg.
- Imo, Wolfgang. 2009. Konstruktion oder Funktion? Erkenntnisprozessmarker im Deutschen. In Susanne Günthner & Jörg Bücker (eds.), *Grammatik im Gespräch. Konstruktionen der Selbst- und Fremdpositionierung*, 57–86. Berlin: de Gruyter.
- Imo, Wolfgang. 2010a. Das Adverb “jetzt“ zwischen Zeit- und Gesprächsdeixis. *Zeitschrift für germanistische Linguistik* 38(1). 25–58.
- Imo, Wolfgang. 2010b. ‘Mein Problem ist/mein Thema ist’ – how syntactic patterns and genre interact. In Anja Wanner & Heidrun Dorgeloh (eds.), *Syntactic variation and genre*, 141–166. Berlin: de Gruyter.

- Imo, Wolfgang. 2011a. Die Grenzen von Konstruktionen: Versuch einer granularen Neubestimmung des Konstruktionsbegriffs der *Construction Grammar*. In Stefan Engelberg, Anke Holler & Kristel Proost. (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 113–148. Berlin, New York: de Gruyter.
- Imo, Wolfgang. 2011b. Ad-hoc-Produktion oder Konstruktion? Verfestigungstendenzen bei Inkrement-Strukturen im gesprochenen Deutsch. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 239–254. Tübingen: Stauffenburg.
- Imo, Wolfgang. 2011c. Online changes in syntactic gestalt in spoken German. Or: do garden path sentences exist in everyday conversation? In Peter Auer & Stefan Pfänder (eds.), *Constructions: Emerging and Emergent (linguae & litterae 6)*, 127–155. Berlin, Boston: de Gruyter.
- Imo, Wolfgang. 2012. Grammatik als gerinnender Diskurs: Äußerungsfinale Gradpartikeln zwischen sequenziellem Muster und syntaktischer Struktur. *Germanistische Mitteilungen* 38. 3–24.
- Imo, Wolfgang. 2016. *Grammatik: Eine Einführung*. Stuttgart: Metzler.
- Imo, Wolfgang. This volume. Valence patterns, constructions and interaction: Constructs with the German verb *erinnern* (remember/remind).
- Jacobs, Joachim. 1986. The syntax of focus and adverbials in German. In W. Abraham and S. De Meij (eds.), *Topic, Focus, and Configurationality. Papers from the 6th Groningen Grammar Talks, Groningen 1984*, 103–127. Amsterdam/Philadelphia: John Benjamins.
- Jacobs, Joachim. 2008. Wozu Konstruktionen? *Linguistische Berichte* 213. 3–44.
- Jacobs, Joachim. 2009. Valenzbindung oder Konstruktionsbindung? Eine Grundfrage der Grammatiktheorie. *Zeitschrift für germanistische Linguistik* 37(3). 490–513.
- Järventausta, Marja. 2006. Valenzielle und konstruktionelle Information in einem lernerorientierten Verbwörterbuch. *Neuphilologische Mitteilungen* 107(1): 45–85.
- Kathol, Andreas. 2000. *Linear syntax*. Oxford: Oxford University Press.
- Kay, Paul. 1984. The kinda/sorta construction. *Proceedings of the Tenth Annual Meeting of the Berkeley Linguistics Society*. 157–171.
- Kay, Paul, & Charles J. Fillmore. 1999. Grammatical constructions and linguistic generalizations: The ‘What’s X doing Y?’ Construction. *Language* 75. 1–33.
- Kirkwood, H.W. 1969. Aspects of word order and its communicative function in English and German. *Journal of Linguistics* 5. 85–107.
- Knobloch, Clemens. 2005. *Oberfläche: metapragmatisch – zum Erwerb modalisierender Sprachzeichen*. Siegen: Siegener Inst. für Sprachen im Beruf.
- Knobloch, Clemens. 2009. Einladung und Einleitung. ZGL-Workshop „Konstruktionsgrammatik“ am 29./30. Januar 2009. *Zeitschrift für germanistische Linguistik* 37(3). 385–401.
- Knop, Sabine de. 2014. Deutsche Konstruktionen mit komplexen “bis“-Präpositionalgruppen. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 157–175. Berlin, Boston: de Gruyter.
- Lakoff, George. 1987. *Women, Fire, and Dangerous Things*. Chicago: University Press of Chicago.
- Lambrecht, Knud. 1990. ‘What me worry?’ Mad magazine sentences revisited. *Berkeley Linguistics Society* 16. 215–228.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar I: Theoretical Prerequisites*. Stanford: Stanford University Press.
- Langacker, Ronald W. 1999. *Grammar and Conceptualization*. Berlin, New York: Mouton de Gruyter.



- Langacker, Ronald W. 2008. *Cognitive Grammar. A Basic Introduction*. Oxford: Oxford University Press.
- Lasch, Alexander. 2014. *Das Fenster wirkt geschlossen – Überlegungen zu nonagentiven Konstruktionen des Deutschen aus konstruktionsgrammatischer Perspektive*. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachliches Wissen im Fokus der Konstruktionsgrammatik*, 65–97. Berlin, New York: de Gruyter.
- Lasch, Alexander. 2015. *Gott ist ein Freund des Lebens*. Die Konstruktion [[NP]+[[DETgen] + Lebens]] als gestalthafte Routine im palliativmedizinischen Diskurs. In Alexander Ziem & Alexander Lasch (eds.), *Konstruktionsgrammatik IV: Konstruktionen als soziale Konventionen und kognitive Routinen*, 134–154. Tübingen: Stauffenburg.
- Lasch, Alexander. 2017. *Nonagentive Konstruktionen des Deutschen*. Berlin/Boston: De Gruyter.
- Lasch, Alexander & Alexander Ziem (eds.). 2011. *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*. Tübingen: Stauffenburg.
- Lasch, Alexander & Alexander Ziem (eds.). 2014. *Grammatik als Netzwerk von Konstruktionen? Sprachliches Wissen im Fokus der Konstruktionsgrammatik*. Berlin, New York: de Gruyter.
- Lasnik, H. and R. Freidin. 1981. Core grammar, Case theory, and markedness. In A. Belletti, L. Brandi, and L. Rizzi (eds.), *Theory of Markedness in Generative Grammar*, 407–421. Pisa: Scuola Normale Superiore.
- Lehrer, Adrienne. 1970. Verbs and Deletable Objects. *Lingua* 25. 227–253.
- Lenerz, Jürgen. 1977. *Zur Abfolge nominaler Satzglieder im Deutschen*. Tübingen: Stauffenburg.
- Lingnau, Beate & Birte Schaller. 2009. Bedeutung und Gebrauch in der Konstruktionsgrammatik. Wie kompositionell sind modale Infinitive im Deutschen? *Zeitschrift für germanistische Linguistik* 37(3). 565–593.
- Meurers, Walt Detmar. 2000. *Lexical generalizations in the syntax of German non-finite constructions*. Arbeitspapiere des SFB 340, No. 145. Eberhard-Karls-Universität Tübingen.
- Michaelis, Laura. 2012. Making the case for Construction Grammar. In: H.C. Boas and I. Sag (eds.), *Sign-based Construction Grammar*, 30–68. Stanford: CSLI Publications.
- Michaelis, Laura. 2013. Sign-Based Construction Grammar. In Thomas Hoffman & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 133–152. Oxford: Oxford University Press.
- Michaelis, Laura & Knud Lambrecht. 1998. Sentence accent in information questions. In J.P. Koenig (ed.), *Discourse and Cognition: Bridging the Gap*, 387–402. Stanford: CSLI Publications.
- Michaelis, Laura & Josef Ruppenhofer. 2001. *Beyond alternations: A constructional model of the German applicative pattern*. Stanford: CSLI Publications.
- Michel, Sascha. 2014. Die Verschmelzung von Konstruktionen in der Wortbildung – Präfixkonversion und Zusammenbildung. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 139–157. Berlin, Boston: de Gruyter.
- Müller, Gereon. 2011. Regeln oder Konstruktionen? Von verblosen Direktiven zur sequentiellen Nominalreduktion. In S. Engelberg, A. Holler, & K. Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 211–249. Berlin/Boston: De Gruyter.
- Müller, Stefan. 1999. *Syntactic Properties of German Particle Verbs*. In Abstracts of HPSG 99, 83–88, Edinburgh.
- Müller, Stefan. 2002. *Complex Predicates: Verbal Complexes, Resultative Constructions, and Particle Verbs in German*. Stanford: CSLI Publications.

- Müller, Stefan. 2005. German: A grammatical sketch. In: A. Alexiadou & T. Kiss (eds.), *Syntax – ein internationales Handbuch zeitgenössischer Forschung*, 2nd Edition. Berlin: de Gruyter.
- Müller, Stefan. 2007. Resultativkonstruktionen, Partikelverben und syntaktische vs. lexikonbasierte Konstruktionen. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 177–202. Tübingen: Stauffenburg.
- Nikula, Henrik. 2007. Valenz, Satzmodell und Konstruktion. In Nina Niemelä & Esa Lehtinen (eds.), *Fachsprachen und Übersetzungstheorie*, 200–211. Vaasa: University of Vaasa.
- Östman, Jan-Ola. 2005. Construction Discourse: A Prolegomenon. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction Grammars: Cognitive Grounding and Theoretical Extensions*, 121–144. Amsterdam/Philadelphia: Benjamins.
- Östman, Jan-Ola & Graeme Trousdale. 2013. Dialects, discourse, and Construction Grammar. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*. 476–490. Oxford: Oxford University Press.
- Osswald, Rainer. 2014. Konstruktion versus Projektion – Argumentrealisierung bei Kognitionsverben des Deutschen und Englischen. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 313–329. Berlin, Boston: de Gruyter.
- Pawley, Andrew & Frances Syder. 1983. Two puzzles for linguistic theory: Nativelike selection and nativelike frequency. In Jack C. Richards & Richard W. Schmidt (eds.), *Language and Communication*, 191–226. London: Longman.
- Petrova, Svetlana. 2008. *Zur Interaktion von Tempus und Modus. Studien zur Entwicklungsgeschichte des Konjunktivs im Deutschen*. Heidelberg: Winter.
- Pollard, Carl & Ivan A. Sag. 1994. *Head-Driven Phrase Structure Grammar*. (Studies in Contemporary Linguistics). Chicago: University of Chicago Press.
- Primus, Beatrice. 2011. Das unpersönliche Passiv: ein Fall für die Konstruktionsgrammatik? In Stefan Engelberg, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 285–313. Berlin, New York: de Gruyter.
- Reber, Elisabeth & Elizabeth Couper-Kuhlen. 2010. Interjektionen zwischen Lexikon und Vokalität. Lexem oder Lautobjekt? In Arnulf Deppermann & Angelika Linke (eds.), *Sprache intermedial. Stimme und Schrift, Bild und Ton*, 69–96. Berlin: de Gruyter.
- Reis, Marga. 1980. On justifying topological frames: ‘positional field’ and the order of non-verbal constituents in Berman. *Documentation et Recherche en Linguistique Allemande Contemporaine* 22/23. 59–85.
- Reis, Marga. 1985. Wer glaubst Du hat recht? On the so-called extractions from verb-second clauses and verb-first parenthetical constructions in German. *Sprache und Pragmatik* 36. 27–83.
- Reis, Marga. 1987. Die Stellung der Verbargumente im Deutschen. Stilübungen zum Grammatik-Pragmatik-Verhältnis. In: I. Rosengren (ed.), *Sprache und Pragmatik*, 139–177. Stockholm: Almqvist & Wiksell.
- Rezat, Sara. 2009. Konzessive Konstruktionen: ein Verfahren zur Rekonstruktion von Konzessionen. *Zeitschrift für Germanistische Linguistik* 37(3). 469–489.
- Richter, Frank & Manfred Sailer. 2014. Idiome mit phraseologisierten Teilsätzen: Eine Fallstudie zur Formalisierung von Konstruktionen im Rahmen der HPSG. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 291–313. Berlin, Boston: de Gruyter.
- Rimsdijk, Henk van. 1985. Zum Rattenfängereffekt bei Infinitiven in deutschen Relativsätzen. In Werner Abraham (ed.), *Erklärende Syntax des Deutschen*, 75–99. Tübingen: Narr.

- Rödel, Michael. 2014. Mehr als die Summe der einzelnen Teile: Die Entstehung von Konstruktionen am Beispiel von Perfekt und am-Progressiv. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachliches Wissen im Fokus der Konstruktionsgrammatik*, 207–225. Berlin, New York: de Gruyter.
- Rostila, Jouni. 2009. Lectio praecursoria: Konstruktionsansätze zur Argumentmarkierung im Deutschen. *Neuphilologische Mitteilungen* CX 1. 105–114.
- Rostila, Jouni. 2011. Phraseologie und Konstruktionsgrammatik: Konstruktionsansätze zu präpositionalen Funktionsverbgefügen. In Michal Prinz & Ulrike Richter-Vapaatalo (eds.), *Idiome, Konstruktionen, „verblümete Rede“: Beiträge zur Geschichte der Phraseologieforschung*, 263–282. Stuttgart: S. Hirzel Verlag.
- Rostila, Jouni. 2014. Inventarisierung als Grammatikalisierung: das Beispiel Präpositionalobjekte. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen? Sprachwissen im Fokus der Konstruktionsgrammatik*, 97–117. Berlin, Boston: de Gruyter.
- Ruppenhofer, Josef. 2004. *The interaction of valence and information structure*. University of California, Berkeley dissertation.
- Ruppenhofer, Josef & Laura Michaelis. 2010. A constructional account of genre-based argument omissions. *Constructions and Frames* 2(2). 158–184.
- Sag, Ivan. 2010. English Filler-Gap Constructions. *Language* 86(3). 486–545.
- Sag, Ivan. 2012. Sign-based Construction Grammar: An informal synopsis. In Hans C. Boas & Ivan Sag (eds.), *Sign-based Construction Grammar*, 69–202. Stanford: CSLI Publications.
- Sag, Ivan, Boas, Hans C. & Paul Kay. 2012. Introducing Sign-based Construction Grammar. In Hans C. Boas & Ivan Sag (eds.), *Sign-based Construction Grammar*, 1–29. Stanford: CSLI Publications.
- Schmidt, Thomas. 2009. The Kicktionary. A multilingual resource of football language. In Hans C. Boas (ed.), *Multilingual FrameNets in Computational Lexicography. Methods and Applications*, 101–134. Berlin/New York: Mouton de Gruyter.
- Selting, Margret. 2004. Konstruktionen am Satzrand als interaktive Ressource in natürlichen Gesprächen. In Brigitte Haftka (ed.), *Was determiniert Wortstellungsvariation?*, 299–318. Opladen: Westdeutscher Verlag.
- Selting, Margret. 2005. Syntax and Prosody as Methods for the Construction and Identification of Turn-Constructional Units in Conversation. In Auli Hakulinen & Margret Selting (eds.), *Syntax and Lexis in Conversation. Studies on the Use of Linguistic Resources in Talk-in-Interaction*. Amsterdam, 17–44. Philadelphia: John Benjamins.
- Smirnova, Elena. 2011. Zur diachronen Entwicklung deutscher Komplementsatz-Konstruktionen. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 77–94. Tübingen: Stauffenburg.
- Sommerfeldt, Karl-Ernst & Günther Starke. 1992. *Einführung in die Grammatik der deutschen Gegenwartssprache*. Tübingen: Niemeyer.
- Staffeldt, Sven. 2010. Zur Rolle des Körpers in der phraseologisch gebundenen Sprache. Fingerübungen zur semantischen Teilbarkeit. In Jarmo Korhonen (ed.), *EUROPHRAS 2008. Beiträge zur internationalen Phraseologiekonferenz vom 13.–16.8.2008 in Helsinki*. <http://goo.gl/a9Njg> (accessed 10.10.2014).
- Staffeldt, Sven. 2011a. “wie Sie wissen“: kleines Plädoyer für mehr Pragmatik und mehr Konstruktionen in Grammatiken. *Sprachwissenschaft* 36. 85–112.
- Staffeldt, Sven. 2011b. In der Hand von Konstruktionen. Eine Fallstudie zu bestimmten Phraseologismen mit *in ... Hand*. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 131–147. Tübingen: Stauffenburg.

- Staffeldt, Sven & Alexander Ziem. 2008. Körper-Sprache: Zur Motiviertheit von Phraseologismen mit Körperteilbezeichnungen. *Sprachwissenschaft* 33(4). 455–499.
- Stathi, Katherina. 2011. Idiome in der Konstruktionsgrammatik: im Spannungsfeld zwischen Lexikon und Grammatik. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 149–163. Tübingen: Stauffenburg.
- Steels, Luc (ed.). 2011. *Design patterns in Fluid Construction Grammar*. Amsterdam, Philadelphia: John Benjamins.
- Stefanowitsch, Anatol. 2009. Bedeutung und Gebrauch in der Konstruktionsgrammatik. Wie kompositionell sind modale Infinitive im Deutschen? *Zeitschrift für Germanistische Linguistik* 37(3). 565–592.
- Stefanowitsch, Anatol. 2011a. Keine Grammatik ohne Konstruktionen: Ein logisch-ökonomisches Argument für die Konstruktionsgrammatik. In Stefan Engelberg, Anke Holler, & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*. Berlin/Boston: de Gruyter.
- Stefanowitsch, Anatol. 2011b. Konstruktionsgrammatik und Grammatiktheorie. Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 11–25. Tübingen: Stauffenburg.
- Stefanowitsch, Anatol & Kerstin Fischer (eds.). 2008. *Konstruktionsgrammatik II: Von der Konstruktion zur Grammatik*, Stauffenburg Linguistik. Tübingen: Stauffenburg.
- Stefanowitsch, Anatol & Stefan Gries. 2003. Collostructions: The interaction of words and constructions. *International Journal of Corpus Linguistics* 8(2). 209–243.
- Stumper, Barbara. 2011. Kookurrenzen in der Kind-gerichteten Sprache: verlässlicher Hinweis auf die Wortarten? In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 193–203. Tübingen: Stauffenburg.
- Tesnière, Lucien 1959. *Éléments de syntaxe structurale*. Paris: Klincksieck.
- Tomasello, Michael. 2003. *Constructing a Language*. Cambridge, Mass.: Harvard University Press.
- Tomasello, Michael. 2006a. Acquiring Linguistic Constructions. In William Damon, Richard M. Lerner, Deanna Kuhn & Robert S. Siegler (eds.), *Handbook of Child Psychology, Volume 2: Cognition, Perception, and Language*, 255–298. New York: Wiley.
- Tomasello, Michael. 2006b. Construction Grammar for Kids. *Constructions* 1(11). 1–23.
- Tomasello, Michael. 2006c. *Die kulturelle Entwicklung des menschlichen Denkens: Zur Evolution der Kognition*. Stuttgart: Suhrkamp.
- Tomasello, Michael. 2008. *Origins of Human Communication*. Cambridge, MA: MIT Press.
- Traugott, Elizabeth Closs & Trousdale, Graeme. 2013. *Constructionalization and Constructional Change*. Oxford: Oxford University Press.
- Uhmann, Susanne. 2006. Grammatik und Interaktion: Form follows function? – Function follows form? In Arnulf Deppermann, Reinhard Fiehler & Thomas Spranz-Fogasy (eds.), *Grammatik und Interaktion – Untersuchungen zum Zusammenhang von grammatischen Strukturen und Gesprächsprozessen*, 179–203. Radolfzell: Verlag für Gesprächsforschung.
- Uszkoreit, Hans. 1987. *Word order and constituent structure in German*. Stanford: CSLI Publications.
- Van Valin, Robert & D.P. Wilkins. 1996. The case for ‘Effector’: Case Roles, agents, and agency revisited. In M. Shibatani & S. Thompson (eds.), *Grammatical Constructions*, 289–322. Oxford: Oxford University Press.
- Webelhuth, Gert. 1992. *Principles and Parameters of Syntactic Saturation*. Oxford: Oxford University Press.

- Webelhuth, Gert. 2011. Paradigmenwechsel rückwärts: Die Renaissance der grammatischen Konstruktion. In Stefan Engelberg, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 149–179. Berlin, New York: de Gruyter.
- Welke, Klaus. 2009a. Valenztheorie und Konstruktionsgrammatik. *Zeitschrift für Germanistische Linguistik* 37(1). 81–124.
- Welke, Klaus. 2009b. Konstruktionsvererbung, Valenzbewegung und die Reichweite von Konstruktionen. *Zeitschrift für Germanistische Linguistik* 37(3). 514–543.
- Welke, Klaus. 2011. *Valenzgrammatik des Deutschen. Eine Einführung*. Berlin, New York: de Gruyter.
- Willems, Klaas. 2011. The semantics of variable case marking (Accusative/Dative) after two-way prepositions in German locative constructions. Towards a constructionist approach. *Indogermanische Forschungen* 116. 324–366.
- Willems, Klaas. 2012. Intuition, introspection and observation in linguistic inquiry. *Language Sciences* 34. 665–681.
- Wöllstein, Angelika. 2010. *Topologisches Satzmodell*. Heidelberg: Winter.
- Wöllstein-Leisten, Angelika, Heilmann, Axel, Stepan, Peter & Sten Vikner. 1997. *Deutsche Satzstruktur*. Tübingen: Stauffenburg Verlag.
- Yoo, Duck-Geun. 2008. *Syntax und Kontext: Satzverarbeitung in kopffinalen Sprachen*. Bielefeld University dissertation.
- Zeldes, Amir. 2012. *Productivity in Argument Selection. From Morphology to Syntax*. (Trends in Linguistics: Studies and Monographs 260.) Berlin, New York: de Gruyter.
- Zeschel, Arne. 2008. Funktionsverbgefüge als Idiomverbände. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II: Von der Konstruktion zur Grammatik*, 263–278. Tübingen: Stauffenburg.
- Zeschel, Arne. 2011. Den Wald vor lauter Bäumen sehen – und andersherum: zum Verhältnis von ‘Mustern’ und ‘Regeln’. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 43–57. Tübingen: Stauffenburg.
- Ziem, Alexander. 2014a. *Frames of Understanding in Text and Discourse: Theoretical Foundations and Descriptive Applications* (= Human Cognitive Processing 48). Amsterdam, Philadelphia: Benjamins.
- Ziem, Alexander. 2014b. Konstruktionsgrammatische Konzepte eines Konstruktikons. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen. Sprachliches Wissen im Fokus der Konstruktionsgrammatik*, 15–34. Berlin/New York: de Gruyter.
- Ziem, Alexander & Alexander Lasch (eds.). 2015. *Konstruktionsgrammatik IV. Konstruktionen als soziale Konventionen und kognitive Routinen*. Tübingen: Stauffenburg.
- Ziem, Alexander & Sven Staffeldt. 2011. Compositional and embodied meanings of somatisms: a corpus-based approach to phraseologisms. In Doris Schönefeld (ed.), *Converging evidence: Methodological and theoretical issues for linguistic research*, 195–219. Amsterdam, Philadelphia: John Benjamins.
- Ziem, Alexander & Alexander Lasch. 2013. *Konstruktionsgrammatik. Konzepte und Grundlagen gebrauchsbasierter Ansätze* (Germanistische Arbeitshefte 44). Berlin, Boston: de Gruyter.
- Zifonun, Gisela, Ludger Hoffmann & Bruno Strecker. 1997. *Grammatik der deutschen Sprache*, Bd. 3. Berlin: de Gruyter.



## **Part I: Grammatical constructions and valency**



Stefan Engelberg

# The argument structure of psych-verbs: A quantitative corpus study on cognitive entrenchment

## 1 Introduction

### 1.1 Psych-verbs and argument structure alternations

Psych-verbs exhibit a fairly large variation in argument structure patterns, as the following examples from German show. Many of these verbs allow alternations between stimuli and experiencers in subject position (1a vs. 1b), between nominal and clausal realizations of arguments (1a vs. 1c, 1b vs. 1d), between inanimate and agent-like animate stimuli (1a vs. 1e), between simple stimuli and “split-stimuli” that are spread out over two constituents, a subject NP and a PP (1a vs. 1f), and between explicit and implicit argument realization (1b vs. 1g).

- (1) a. Rebeccas bösertige Bemerkung      ärgerte              Jamaal.  
Rebecca’s malicious remark.NOM   anger.3SG.PST   Jamaal.ACC  
‘Rebecca’s malicious remark angered Jamaal.’
- b. Jamaal            ärgerte            sich      über Rebeccas bösertige Bemerkung.  
Jamaal.NOM   anger.3SG.PST   RFL   over Rebecca’s malicious remark.ACC  
‘Jamaal was/became angry about Rebecca’s malicious remark.’
- c. Dass Rebecca so eine bösertige Bemerkung gemacht hatte,  
that Rebecca had made such a malicious remark  
    ärgerte              Jamaal.  
    anger.3SG.PST      Jamaal.ACC  
    ‘That Rebecca had made such a malicious remark angered Jamaal.’
- d. Jamaal            ärgerte                      sich (dar-über),  
Jamaal.NOM   anger.3SG.PST            RFL   there-over

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dass Rebecca so eine bösertige Bemerkung gemacht hatte.

that Rebecca had made such a malicious remark

‘Jamaal was/became angry that Rebecca had made such a malicious remark.’

e. Rebecca ärgerte Jamaal.

Rebecca.NOM anger.3SG.PST Jamaal.ACC

‘Rebecca angered Jamaal.’

f. Rebecca ärgerte Jamaal mit ihrer bösertigen Bemerkung.

Rebecca.NOM anger.3SG.PST Jamaal.ACC with her malicious remark

‘Rebecca angered Jamaal with her malicious remark.’

g. Jamaal ärgerte sich.

Jamaal.NOM anger.3SG.PST RFL

‘Jamaal was/became angry.’

Traditionally, psych-verbs have been investigated because the alternation between stimulus and experiencer subjects poses some interesting problems for linking theories (cf., e.g., Belletti and Rizzi 1988; Grimshaw 1990; Dowty 1991). Other argument structure alternations with psych-verbs – of which the examples in (1) only represent a small part – have attracted much less attention. In particular, there has been little discussion of why a particular argument structure is chosen and why the alternations differ so strongly with respect to their frequency of occurrence.

The latter question has of course not been addressed because quantitative investigations in general led a marginal existence in the linguistics of the 1980s and 1990s with its strong tendency to separate competence and performance, system and use. This is currently changing, and the present article adheres to a conception of linguistics that assumes a strong connection between linguistic knowledge and language use.

## 1.2 Frequency in usage-based linguistics

While to a certain degree, frequency data has always been discussed in linguistics with respect to language acquisition, language processing and language change, the assumption that frequency of use is an important factor in the cognitive representation of synchronic grammatical structure is a more recent development. Within usage-based linguistics, language is seen “as fluid and dynamic, changing through the interaction of social usage events with the cognitive processes characteristic of the human brain in general” (Bybee and Beckner 2010: 854).<sup>1</sup> This

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<sup>1</sup> The basic ideas of usage-based linguistics are discussed, e.g., in Beckner et al. (2009), Bybee (2010), Bybee and Beckner (2010), and Diessel (2011).

has consequences for the grammatical system: “[...] language structure comes about through the application of a handful of common mechanisms that recur when human beings use language. The domain-general processes of sequential learning, chunking, categorization, and inference-making, along with the effect of partial or complete repetition, lead to the establishment and conventionalization of the categories and structures we find in languages. This bottom-up and emergentist perspective, we argue, may turn out to be indispensable to our understanding of linguistic processes and structure” (Bybee and Beckner 2010: 853).

This conception of linguistics requires weakening or even giving up on the separation between language use and linguistic structure in favor of a dynamic model of grammar (Diessel 2007: 123–124). Thus, recurrence and co-occurrence of linguistic expressions shape our linguistic system. One of the concepts that is closely attached to the recurrence and co-occurrence of expression is cognitive entrenchment. The entrenchment of a linguistic item or pattern into the cognitive system is strongly influenced by its frequency of occurrence and its frequency of co-occurrence with other entities or patterns. This presumes that speakers have linguistic knowledge that is based on a statistical assessment of the input they are confronted with. Ellis (2002) describes this from a psycholinguistic point of view: “[...] psycholinguistic studies of sentence processing show that fluent adults have a vast statistical knowledge about the behavior of the lexical items of their language. They know the strong cues provided by verbs, in English at least, in the interpretation of syntactic ambiguities. Fluent comprehenders know the relative frequencies with which particular verbs appear in different tenses, in active versus passive and in intransitive versus transitive structures, the typical kinds of subjects and objects that a verb takes, and many other such facts. This knowledge has been acquired through experience with input that exhibits these distributional properties and through knowledge of its semantics” (Ellis 2002: 160).

Similarly, corpus linguists who take a cognitive stance towards language argue: “It is common practice in corpus linguistics to assume that the frequency distribution of tokens and types of linguistic phenomena in corpora have – to put it as generally as possible – some kind of significance. Essentially, more frequently occurring structures are believed to hold a more prominent place, not only in actual discourse but also in the linguistic system, than those occurring less often” (Schmid 2010: 101). Thus, cognitively oriented corpus linguists “try to correlate the frequency of occurrence of linguistic phenomena (as observed in corpora) with their salience or entrenchment in the cognitive system. A corollary of this assumption is that patterns of frequency distributions of lexico-grammatical variants of linguistic units correspond to variable degrees of entrenchment of cognitive processes or representations associated with them” (Schmid 2010: 102).

Entrenchment has become quite a popular concept within cognitive and usage-based linguistics. In this paper, entrenchment will be viewed not so much as the absolute strength of the representation of a linguistic item in memory, but rather as a relative notion. I will investigate how strongly a lexical item is associated with a pattern in which it occurs. Thus, the paper addresses the question of whether and how strongly a verb is cognitively entrenched relative to an argument structure pattern and how strongly an argument structure pattern is entrenched with respect to particular verbs. This might be called relative, or associative entrenchment. It is of course undisputed that the relation between quantitative corpus data and cognitive processes as revealed by psycho- and neurolinguistic experiments is not a straightforward one. However, most linguists using the concept of entrenchment agree that there is a strong connection between quantitative corpus data and cognitive processes (cf. Schmid 2010, Blumenthal-Dramé 2012, Gries 2012b). Since I will not be discussing data from experimental studies in this paper, I shall leave the exact nature of the relationship between data from corpus and experimental studies open.

### 1.3 Quantitative corpus studies on argument structure

The present article starts from the observation that each verb shows particular frequencies of occurrence with respect to its argument structure patterns and each argument structure pattern seems to attract some verbs more strongly than others. The basic assumption is that the observed quantitative distribution patterns can be accounted for, on the one hand, by numerous diverse linguistic factors and, on the other, by basic functions of the human memory system, such as the entrenchment structures as a consequence of recurrent use. I will assume that argument structure patterns constitute entities in our linguistic memory system that accumulate traces of use that determine their variation and diachronic dynamics.

Corpus-based quantitative studies on argument structure have continually – albeit rather infrequently – been published since the 1990s. A number of early studies collected frequency data in order to explain certain phenomena in language processing. MacDonald (1994) and MacDonald, Perlmutter, and Seidenberg (1994) demonstrate how the frequency of argument structures with particular verbs serves to resolve syntactic ambiguities in argument structure processing.

Within research that highlights the role of frequency in the structure of grammar, Gries and Stefanowitsch's Collostructional Analysis has revealed distribution patterns of verbs and their argument structure (Stefanowitsch and Gries 2003; Gries and Stefanowitsch 2004, 2010; Gries 2011, 2012a). Having measured the association of argument structure constructions to particular verbs, Gries and

Stefanowitsch claim that those verbs most strongly entrenched in the construction are those that reflect the meaning of the construction. For example, the verb showing the strongest association to the ditransitive pattern is *give*, which itself lexicalizes the transfer meaning that Gries and Stefanowitsch attribute to the ditransitive construction (Stefanowitsch and Gries 2003: 228).

Another topic that has occasionally been addressed in quantitative corpus studies on argument structure is the question of how genre influences the distribution of argument structure. Roland and Jurafsky (1998) and Roland (2001) attribute influences of this sort to the preference of particular kinds of discourse for particular verb senses, which, in turn, are associated with different argument structures. Some more recent studies have also been able to show the extent to which the distribution of argument structure patterns is influenced by register and by the distinction between spoken and written language (Gries 2011; Engelberg et al. 2012). To the degree that discourse frequencies govern the degree of entrenchment of a linguistic entity, the dependency of frequencies on genre raises the question of whether entrenchment is a notion that is to be understood relative to particular communicative situations, such as writing a letter, giving a talk, or having a chat on the phone. Since frequencies of particular linguistic structures are based on counting linguistic events and events are always contextualized, entrenchment might turn out to be a context-dependent notion.

Other issues that have been addressed are the mechanisms underlying the extension of a construction to new lexical items (cf., e.g., Boas 2011), the productivity of constructions (e.g., Barðdal 2008), the diachronic development of valencies (Köhler 2005), the distribution of valency frames within the lexicon (Steiner 2011; Duwaerts and Ullmann 2013), the role of frequency in argument structure acquisition (Tomasello 2003; Behrens 2011), and the attraction between lexical elements that fill different slots in argument structure patterns (e.g., Engelberg et al. 2011). Schulte im Walde (2003, 2009) employed frequency data in order to automatically induce verb classes from the distribution of valency frames. Some other investigations assessed argument structure frequencies in order to provide norming data for psychological experiments (e.g., Roland et al. 2000; Gahl, Jurafsky, and Roland 2004).

Despite these studies, most of the issues have only been subjected to very few empirical studies, such that there are still a number of open questions:

- (i) The claim that argument structures are most strongly associated with verbs that share their meaning with the construction has only been checked with respect to very few argument structure constructions, such as the ditransitive transfer construction (Stefanowitsch and Gries 2003) and the *as*-predicative (Gries, Hampe, and Schönefeld 2010). More evidence is needed for the kind of relationship between the meaning of a verb, the meaning of an argument

structure, and the frequency with which verb and argument structure pattern co-occur.

- (ii) There is also a lack of cross-linguistic studies in order to establish the extent to which language-specific versus cross-linguistic semantic and grammatical conditions determine the quantitative distribution patterns in the domain of argument structures.
- (iii) A large number of other factors can be expected to determine the frequency of argument realization patterns, such as TAM categories, information structure, or the lexical filling of argument slots. Few of these have so far been investigated.<sup>2</sup>
- (iv) There have also been only very few quantitative investigations into the influence of genre, register, and medium on the frequencies of argument structure, in particular on a fine-grained level, taking into account the whole array of argument realization patterns a verb has to offer.

## 1.4 Argument structure: basic concepts

Since the terms ‘argument’ and ‘argument structure’ differ widely in their respective uses denoting different semantic and syntactic concepts, the uses of these and related terms in this article shall be outlined here.

Argument structures are meaning representations in which variables for entities ( $x, y, z$ ) are related by semantic predicates to each other and – at least in the case of verbs – to some situation variable  $e$  (an event or state variable), e.g.  $\text{ASSUME}(x, y, e)$ . The argument structure is connected to a lexical predicate by a meaning postulate such that all the entities correspond to the arguments of a lexical predicate. A simple example would be:

- (2) a.  $\text{ASTONISH}(x, y, e) \rightarrow \text{ASTONISHING\_ENTITY}(e, x) \ \& \ \text{ASTONISHED\_ENTITY}(y, x)$
- b.  $\text{ASTONISH}(x, y, e) \rightarrow \text{STIMULUS}(e, x) \ \& \ \text{EXPERIENCER}(y, x)$

The semantic predicates specify the verb-specific semantic roles (2a) that can be generalized over to a certain degree (2b). The variables in these argument structures are argument variables, and the arguments are the semantic representations of the expressions that specify these arguments in the sentence (cf. Engelberg 2000).

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<sup>2</sup> Cf. Gries (2011) on the influence of tense and aspect on the distribution of argument structure.

An argument realization pattern (ARP) is an (empirically observed) mapping of syntactic valency features onto a list of arguments:

- (3)  $\text{NP}^{\text{nom}}$                        $\text{NP}^{\text{acc}}$   
       |                                      |  
        $x^{\text{ASTONISHING\_ENTITY}}$          $y^{\text{ASTONISHED ENTITY}}$

Argument realization patterns are the entities that are counted in the quantitative verb profile studies described in Section 2.

An argument structure pattern (ASP) is a mapping of syntactic valency features onto an argument structure, where (i) some formal or pragmatic-semantic property of this mapping, (ii) some idiosyncrasy with respect to the lexical specification of the argument variables, (iii) the set of verbs that may occur in this pattern, or (iv) an unexpected quantitative distribution of verbs relative to this pattern prohibits an explanation of the distribution and interpretation of this mapping on the basis of independently necessary linguistic or cognitive rules and principles.

This definition emphasizes the unpredictability of many argument structure phenomena and will render many of these phenomena as ASPs in the above sense. These patterns will of course exhibit unpredictable behavior to different degrees, some being more idiosyncratic than others.

## 1.5 Aims and structure of the article

This article will explore the quantitative distribution of psych-verbs with respect to argument structure patterns. Its aim is to explore some of the linguistic and non-linguistic factors that determine this distribution.

In the foregoing sections, I outlined the major tenets of usage-based linguistics and its relation to usage frequency, and I reviewed some of the quantitative studies that have been conducted on the relationship between verbs and argument structure. In Section 2, I will describe three studies based on the creation and analysis of verb profiles that have been carried out at the Institute of German Language.<sup>3</sup> Each of the four subsections of Section 3 is devoted to one of the factors that seem to influence the quantitative distribution. The first three are

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<sup>3</sup> Alexander Koplenig, Kristel Proost, Edeltraud Winkler, and, as a cooperating partner from the University of Bucharest, Ruxandra Cosma contributed to one or another of these studies. Some other results from these studies have been published in Engelberg et al. (2012) and Cosma and Engelberg (2014).

linguistic factors: functional dependencies between different argument structure patterns (3.1), stylistic properties of text genre (3.2), and cross-linguistic conceptual-semantic properties of verbs (3.3). The fourth factor, the tendency to particular forms of cognitive entrenchment, is dependent on general principles of the memory system (3.4). Section 4 summarizes the results.

## 2 Verb profiles

### 2.1 Study I: German verbs in newspaper texts

The following studies are based on verb profiles.<sup>4</sup> A verb profile can be defined as a frequency count of the argument realization patterns of the verb based on a random sample of sentences from text corpora. In the different studies, the samples usually consist of either 100 or 200 sentences. The samples are processed by assigning each sentence to the argument realization pattern it represents. The number of sentences for each argument realization pattern of a verb are counted and subjected to statistical analyses.

Since the verb profiles serve to detect verb-specific idiosyncrasies with respect to argument realization patterns, we adopted a rather generous conception of arguments, also including roles that are usually not considered to be arguments but can be assumed to have a verb-specific distribution, such as comitatives, instruments, and benefactives. No statement about the theoretical status of an argument is connected to the descriptive device used for these studies. The list of arguments was constructed while analyzing the sentences from the samples. This procedure led to between 10 and 80 argument realization patterns per verb. For the verb *ärgern* ('be angry / anger'), the analysis yields eight roles and an expletive pronoun:

- role 1 = person that experiences the anger [EXP]
- role 2 = inanimate stimulus that triggers the anger [STM-I1]
- role 3 = secondary inanimate stimulus (in split-stimuli constructions, cf. Section 3.3) [STM-I2]
- role 4 = animate stimulus (often with agentive interpretation) [STM-A]
- role 5 = comment on the stimulus (a clause or PP that does not strictly realize the stimulus but comments on it, e.g., a *weil/because*-clause) [CMT]
- role 6 = comitative [COM]
- role 7 = direct/indirect speech [SPE]

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<sup>4</sup> Cf. for the following Engelberg (2015). For a similar but multifactorial approach, cf. Gries and Divjak (2009) and Gries (2010).

**Table 1:** Verb profile for *ärgern* ('be angry / anger') and the realization of its arguments (excerpt).<sup>1</sup>

	role 1	role 2	role 3	role 4	role 5	role 6	role 7	role 8	E	Fr
	EXP	STM-I1	STM-I2	STM-A	CMT	OM	SPE	RES		
ARP-01	NP-nom						dir_sp		<i>sich</i>	30
ARP-02	NP-nom								<i>sich</i>	24
ARP-03	NP-nom	PP-über							<i>sich</i>	47
ARP-04	NP-akk			NP-nom						13
ARP-05	NP-nom	S-wenn						AP	<i>sich</i>	1
ARP-...										

<sup>1</sup>ARP = argument realization pattern; dir\_sp = direct speech; E = expletive pronoun; Fr = frequency; S = clause.

- role 8 = result (in a resultative construction) [RES]
- E = expletive reflexive pronoun (no reflexive interpretation)

The argument roles determine the columns of our annotation table while each occurring argument realization pattern determines a row in the table. Table 1 shows an excerpt from the verb profile for *ärgern* ('be angry / anger'). The frequencies were then subjected to several statistical analyses, such as correlation analyses, cluster analyses, multidimensional scaling, and association measures.

The data on psych-verbs discussed in this paper comes from three different studies: (i) German verbs in newspaper texts (Engelberg 2015), (ii) German verbs in corpora representing different text genres (Engelberg et al. 2012), and (iii) German psych-verbs and their Romanian counterparts in newspaper texts (Cosma & Engelberg 2014). All these studies were explorative, non-hypothesis-driven investigations. The first study comprised a number of verb profiles for psych-verbs and other verbs in order to test the method and to detect basic distribution patterns.

## 2.2 Study II: German and Romanian verbs contrasted

The second study is a contrastive German-Romanian study of psych-verbs. Its aim was to investigate the extent to which cross-linguistic, language-specific, and verb-idiosyncratic parameters determine the distribution of argument structure. For that purpose, ten German verbs and their closest Romanian counterparts were subjected to verb profiling and statistical analysis. The study was carried out on the basis of newspaper corpora. The verbs investigated are listed in Table 2.

Some results from this study are presented in Section 3.3, in particular those that shed light on cross-linguistic lexical factors.



**Table 2:** Verbs investigated in the contrastive German-Romanian study.

German	Romanian	Gloss
(sich) <i>amüsieren</i>	<i>a (se) amuza</i>	‘amuse (oneself)’
(sich) <i>ärgern</i>	<i>a (se) supăra</i>	‘be angry / anger’
(sich) <i>aufregen</i>	<i>a (se) enerva</i>	‘get upset / upset’
<i>deprimieren</i>	<i>a (se) întrista</i>	‘depress’
<i>faszinieren</i>	<i>a fascina</i>	‘fascinate’
(sich) <i>freuen</i>	<i>a (se) bucura</i>	‘be happy / please’
(sich) <i>interessieren</i>	<i>a (se) interesa</i>	‘be interested / interest’
<i>schmerzen</i>	<i>a durea</i>	‘hurt’
<i>überraschen</i>	<i>a surprinde</i>	‘surprise’
(sich) <i>wundern</i>	<i>a (se) mira</i>	‘be astonished / astonish’

### 2.3 Study III: German verbs and text genres

The third study arose from the assumption that the general-purpose corpus we used for Study I might conceal register-specific argument structure preferences. In order to check this assumption, we chose 16 verbs from five semantic groups:

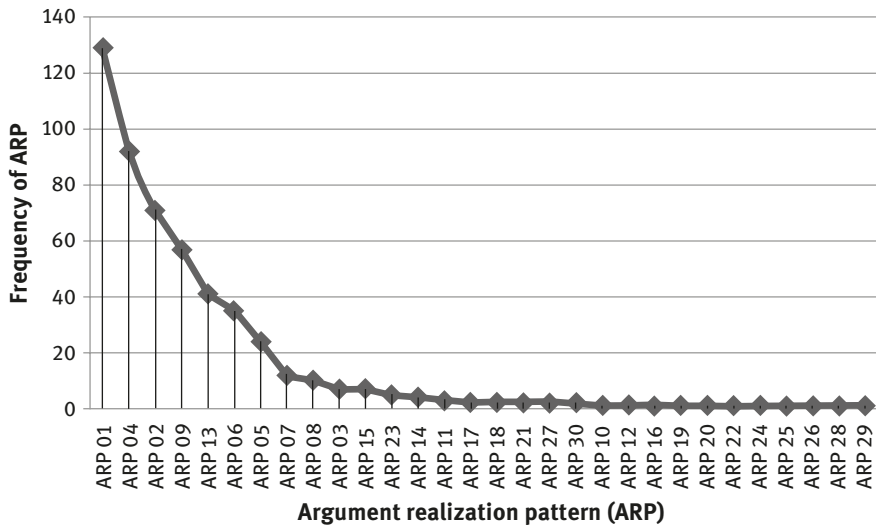
- A) **Alternating psych-verbs** (*freuen* ‘become/make happy’, *wundern* ‘be astonished/astonish’, *ärgern* ‘get/make angry’) denote a relation between an experiencer  $x$  and a stimulus  $p$  (essentially a proposition-like entity).
- B) **Connective verbs** (*widersprechen* ‘contradict’, *erklären* ‘explain’, *verursachen* ‘cause’) denote relations between two proposition-like entities; they also allow the realization of NPs expressing human participants, e.g., *widersprechen* (‘contradict’) expresses a relation between a proposition  $p$ , uttered by a participant  $x$ , and a proposition  $q$ , held by a participant  $y$ .
- C) **Directed emotion verbs** (*lieben* ‘love’, *hassen* ‘hate’, *bewundern* ‘admire’) denote an emotion between an animate experiencer  $x$  and a target of emotion  $y$  (an animate being, an object, or a proposition).
- D) **Perception verbs** (*empfinden* ‘feel/sense’, *fühlen* ‘feel’, *hören* ‘hear’) describe a relation between an animate participant  $x$  and the participant (or event/proposition-like entity)  $y$  that  $x$  experiences or becomes cognitively aware of.
- E) **Action verbs** (*arbeiten* ‘work’, *bauen* ‘build’, *kochen* ‘cook’, *malen* ‘paint’) denote a (mostly) physical action of medium complexity performed by an agent  $x$  with respect to an object  $y$ .

For each of these verbs, we took samples from six corpora representing five different groups of text genres: a newspaper corpus, a corpus of scientific texts, a corpus of general non-fiction texts, two fiction corpora, and a corpus of spoken German. We created a verb profile for each verb and performed a number of statistical analyses (correlations, cluster analysis, multi-dimensional scaling) (for details cf. Engelberg et al. 2012).

## 2.4 General observations

With all verbs, the distribution of argument realization patterns is heavily skewed to the right. As shown in Figure 1 (*ärgern* ‘be angry / anger’), there are a few patterns that occur very often and many patterns that occur only once or twice in the samples. This is very similar for all the verbs – not only psych-verbs – we have investigated so far.

Apart from this general distribution pattern, the single verbs of course differed from each other with respect to the argument realization patterns they preferred. This will be shown in the following for the eleven psych-verbs we investigated, the ten verbs from the contrastive Study II mentioned above, plus the verb *nerven*



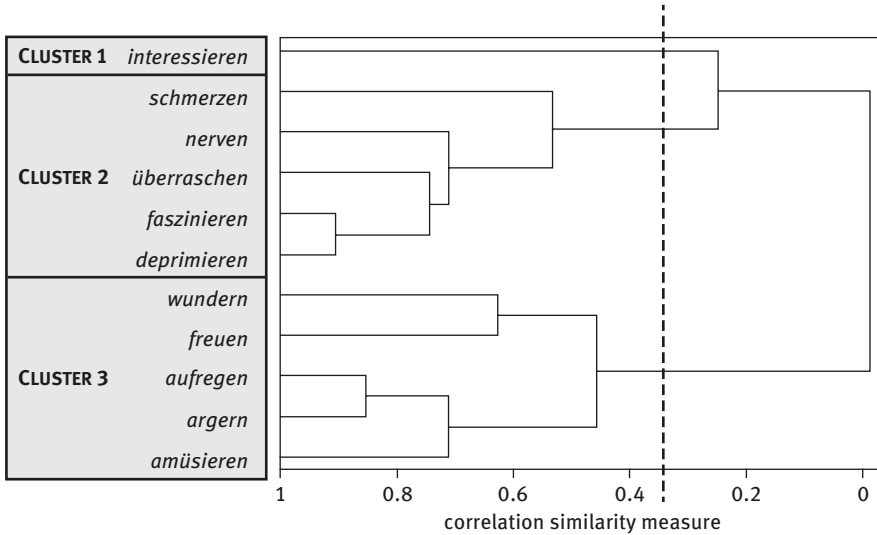
**Figure 1:** Quantitative Distribution of the 27 argument realization patterns that appear in samples of a total of 518 sentences containing the verb *ärgern* (‘to be angry / to anger’) (from Study III).

(‘annoy’). In order to do that, we computed for each pair of the eleven verbs the bivariate (pairwise) correlation coefficients on the basis of the quantitative distribution of the argument realization patterns that occurred with each of the verbs.<sup>5</sup> The higher the correlation coefficient  $r$  (between  $-1$  and  $+1$ ), the more the percentages of patterns for verb A correspond to the percentages of patterns for verb B. The correlation coefficients yield the correlation matrix in Table 3.

**Table 3:** Correlation matrix for pairs of verbs on the basis of the frequency of argument realization patterns.

	<i>amüsieren</i>	<i>ärgern</i>	<i>aufregen</i>	<i>deprimieren</i>	<i>faszinieren</i>	<i>freuen</i>	<i>interessieren</i>	<i>nerven</i>	<i>schmerzen</i>	<i>überraschen</i>	<i>wundern</i>
<b><i>amüsieren</i></b> 'amuse'	1.00										
<b><i>ärgern</i></b> 'be angry / anger'	0.71	1.00									
<b><i>aufregen</i></b> 'upset / get upset'	0.83	0.85	1.00								
<b><i>deprimieren</i></b> 'depress'	0.18	0.25	0.32	1.00							
<b><i>faszinieren</i></b> 'fascinate'	0.19	0.16	0.28	0.91	1.00						
<b><i>freuen</i></b> 'be happy / please'	0.50	0.76	0.66	0.04	0.02	1.00					
<b><i>interessieren</i></b> 'be interested / interest'	0.07	0.09	0.14	0.46	0.44	0.00	1.00				
<b><i>nerven</i></b> 'annoy'	0.16	0.17	0.24	0.75	0.74	0.02	0.31	1.00			
<b><i>schmerzen</i></b> 'hurt'	0.12	0.10	0.18	0.66	0.61	-0.01	0.25	0.71	1.00		
<b><i>überraschen</i></b> 'surprise'	0.13	0.18	0.21	0.77	0.74	-0.01	0.32	0.71	0.53	1.00	
<b><i>wundern</i></b> 'be astonished / astonish'	0.46	0.68	0.60	0.07	0.01	0.63	0.01	0.04	0.02	0.02	1.00

<sup>5</sup> It is implicitly assumed that the functional form of the relationship between the variables of interest is linear which explains the choice of the parametric Pearson correlation coefficient.



**Figure 2:** Cluster analysis on the basis of the correlation matrix in Table 3.

On the basis of this correlation matrix, an agglomerative hierarchical cluster analysis was carried out that measured the similarity between the eleven verbs with respect to the quantitative distribution of their argument realization patterns and grouped verbs within the binary-branching cluster tree in Figure 2.<sup>6</sup> The more similar the correlation values of two verbs are, the closer the two verbs are linked in the tree and the more to the left the branching node is situated, the higher the similarity.

If we cut through the tree in its lower third, the tree gives rise to two observations. Firstly, the tree reveals three main clusters that correspond to the three main types of argument structures that characterize the three classes.<sup>7</sup> The two main classes are represented by Clusters 2 und 3. Cluster 3 comprises those psych-verbs that allow an alternation between a pattern with the stimulus as subject and the experiencer as direct object and a pattern with the experiencer as subject

<sup>6</sup> This analysis used the complete linkage algorithm with the correlation coefficients as measures of similarity. It is important to note that the order in the dendrogram from top to bottom is arbitrary. For example, the distance matrix (cf. Table 3) reveals that the fact that *aufregen* is arranged right after *freuen* in Figure 2 does not imply that *aufregen* and *freuen* are more similar than *argern* and *freuen*. I thank one anonymous reviewer for pointing that out.

<sup>7</sup> A further analysis of the clustering reveals that a three-cluster solution is the best clustering of the data, as indicated by the Calinski-Harabasz pseudo-F index ( $F = 7.27$ ), closely followed by a two-cluster solution ( $F = 7.22$ ).

and the stimulus as a PP headed by the preposition *über* ('over') as in (2). Cluster 2 assembles those verbs that are restricted to the first of these patterns as in (3). The verb *interessieren* in Cluster 1 finally is representative of those verbs that express a sort of mental focusing on some state of affairs. These verbs do allow an alternation similar to that in Cluster 3 but use the preposition *für* ('for') as in (4).

- (2) a. Seine dumme Bemerkung ärgerte sie.  
 his stupid remark.NOM angered her.ACC  
 'His stupid remark made her angry.'
- b. Sie ärgerte sich über seine dumme Bemerkung.  
 she.NOM angered REFL over his stupid remark  
 'She got angry at his stupid remark.'
- (3) a. Seine dumme Bemerkung überraschte sie.  
 'His stupid remark surprised her.'
- b. \*Sie überraschte sich über seine dumme Bemerkung.  
 'She got surprised at his stupid remark.'
- (4) a. Seine dumme Bemerkung interessierte sie.  
 'Her stupid remark interested her.'
- b. Sie interessierte sich für seine dumme Bemerkung.  
 'She was interested in his stupid remark.'

Secondly, the correlation matrix shows that psych-verbs are a very heterogeneous group with respect to the quantitative distribution of argument realization patterns. While some pairs of verbs show a moderate to high similarity with correlation coefficients of up to 0.85, other pairs yield correlation coefficients of around zero.<sup>8</sup>

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**8** One anonymous reviewer asked the reasonable question why raw frequencies were correlated instead of log frequencies. Since the data contains many "zero" observations, a log-transformation would have led to many missing values because  $\log(0) = -\infty$ . In principle, this could be avoided by fudging the whole data set (for example by adding 1 to the count before the log-transformation). However, as O'Hara and Kotze (2010) show, this is seldom a good strategy. Nevertheless, after doing a log-transformation and re-running the cluster analysis, the results remained almost identical. The only exception is that the Calinski-Harabsz pseudo-F index (cf. Footnote 7) now favors a two-cluster solution ( $F = 6.50$ ) instead of the three-cluster solution presented in the text, with Cluster 1 and Cluster 2 (cf. Figure 2) as one distinct cluster and Cluster 3 as the other one. A three-cluster solution receives the second highest value ( $F = 4.47$ ).

## 3 Distribution factors

### 3.1 Functional dependencies between argument realization patterns

As we have seen in (2) through (4), some psych-verbs allow an alternation between an external realization (i.e., as subject) of the stimulus argument and an external realization of the experiencer argument. This alternation has been used as crucial data in theories on argument linking and verbal aspect. Sometimes it was assumed that the stimulus-as-subject variant – in contrast to the experiencer-as-subject variant – has to be interpreted as causative. Linking of the stimulus to the subject position was then attributed to its causative nature (e.g., Grimshaw 1990). Other approaches assumed that both psych-verb variants were basically semantically equivalent (Dowty 1991).

The frequency data from Study II shows that the stimulus-as-subject and the experiencer-as-subject variant are not evenly distributed:

All together, less than a quarter of the example sentences of the sample show the stimulus as subject; the other examples realize the experiencer in subject position. In the following, it will be shown how the frequencies of two other phenomena, namely sentential subjects and passive constructions, are related to this data.

Stimulus arguments can not only be realized as NPs but also as sentential complements. The complement sentence as a sentential subject (5) or as a sentential object (6) can appear preverbally or at the end of the sentence. As a sentential object, the preverbal position requires the occurrence of a prepositional correlate (*darüber*).

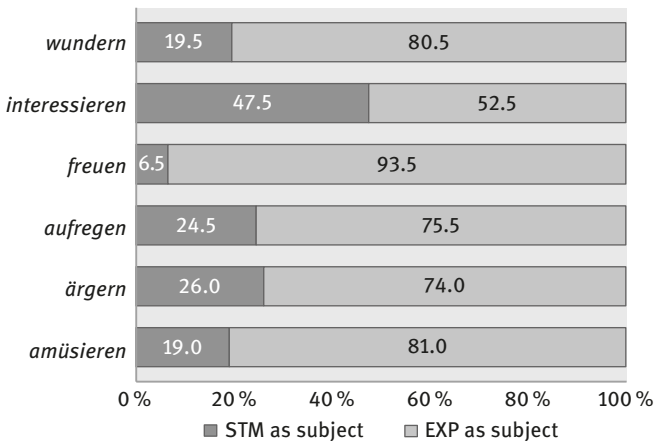
- (5) a. Dass er kommen wollte, freute sie.  
 that he wanted to come please.3SG.PST her.ACC
- b. Es freute sie, dass er kommen wollte.  
 it please.3SG.PST her.ACC that he wanted to come  
 'It pleased her that he wanted to come.'
- (6) a. Sie freute sich (darüber), dass er kommen wollte.  
 she.NOM please.3SG.PST RFL there.over that he wanted to come
- b. Darüber, dass er kommen wollte, freute sie sich.  
 There.over, that he wanted to come please.3SG.PST she.NOM RFL  
 'It pleased her that he wanted to come.'

In general, it seems to be assumed that complement clauses are realized more frequently as objects than as subjects or at least that object clauses play a more

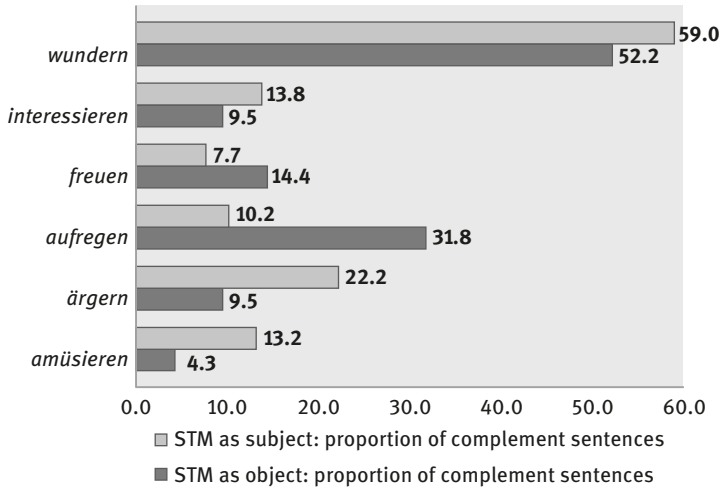
important role in language use and the language system. This impression is reinforced by the fact that both large typological studies on complement sentences, Noonan (1985) and Cristofaro (2003), do not take sentential subjects into consideration at all.

The tendency of subjects to attract NPs that have animate referents and the restrictions of the subject roles of many verbs to agents explain why many verbs do not select sentential subjects. However, sentential subjects are not as marginal as their treatment in linguistics might suggest. Salkoff (2002: 132–146) lists 700 psych-verbs in English that allow sentential subjects. A cursory look at his verb list suggests that the German equivalents of most of the English verbs also allow a sentential subject. Yet, the data from Study II seems to show that, even with psych-verbs, sentential objects are preferred to sentential subjects. In our samples, sentential objects occur twice as often as sentential subjects. One might speculate whether this dispreference for sentential subjects is due to processing differences that might go back to the conflict between the postverbal position as the preferred position for complement sentences (cf. Dryer 1980) and the preverbal position as the preferred position for subjects.

However, citing the higher numbers of object sentences in our samples does not take into consideration the different preferences for the stimulus-as-subject and experiencer-as-subject variants (Figure 3). If we compute the proportion of subject sentences of all stimulus-as-subject variants and the proportion of object sentences of all experiencer-as-subject variants, the picture changes (Figure 4).



**Figure 3:** Proportion of experiencer-as-subject and stimulus-as-subject examples in the German samples (active voice).



**Figure 4:** Proportion of complement sentences of all stimulus-as-subject versus stimulus-as-object sentences (only for those verbs that allow both variants).

As Figure 4 shows, the proportion of sentential subjects and sentential objects of their respective argument structure variants is the same: about a fifth of all stimuli in stimulus-as-subject variants (21.0%) as well as of stimuli in experiencer-as-subject variants (20.3%) are realized as a sentential complement. Thus, sentential subjects do not occur as often as sentential objects with psych-verbs because the stimulus-as-subject variant does not occur as often as the experiencer-as-subject variant, but there does not seem to be any genuine dispreference for complement sentences in subject position.<sup>9</sup>

The low number of stimulus-as-subject variants that is displayed in Figure 3 might be partly due to the tendency to realize animate, sentient referents such as experiencers in subject position. However, the frequency of stimulus-as-subject examples is also partly explained by its competition with another pattern.

The data from Study II suggested that psych-verbs with an experiencer-as-subject variant (2) only rarely occur in the passive voice (some of them not at all)

<sup>9</sup> Romanian shows a stronger preference for complement sentences within the experiencer-as-subject condition: 21.1% of all stimuli in stimulus-as-subject sentences and 34.2% of stimuli in experiencer-as-subject sentences are realized as sentential complements.



while those that lack this variant (3) can be found more often in either eventive (auxiliary *werden*) or stative passive (auxiliary *sein*) sentences. Thus, sentences like (7a) are rare, those like (7b) rather frequent.

- (7) a. Sie            wurde/war (von/durch etwas)    geärgert.  
       she.NOM    AUX.PASS    by something            anger.PTCP  
       ‘She was angered (by something).’
- b. Sie            wurde/war (von/durch etwas)    überrascht.  
       she.NOM    AUX.PASS    by something            surprise.PTCP  
       ‘She was surprised (by something).’

This observation reflects a systematic dependency between passive sentences and active experiencer-as-subject sentences: if we correlate the frequencies of these two types of sentences, we find a negative correlation coefficient of  $-0.64$  between the proportion of active external experiencer sentences and passive sentences and a positive correlation of  $+0.59$  between the proportion of active external stimulus sentences and passive sentences.

This suggests that active experiencer-as-subject sentences and passive sentences share a certain functional duty. Since both patterns serve to promote the experiencer to subject position, information structure seems to be at play. If the main function of passive sentences is to bring the original object argument into a position where it can easily serve as topic, the same should hold for active experiencer-as-subject sentences. The examples in (8) show how the experiencer in subject position picks up a referent in the preceding discourse.

- (8) a. So fasziniert wie der Grüne soll nur **Helmut Kohl** von der Fliegerei  
       gewesen sein. Dem Altkanzler verdankt die Flugbereitschaft, wie es  
       heißt, auch manche Auffrischung:
- |                    |                      |      |      |
|--------------------|----------------------|------|------|
| <b>Der Pfälzer</b> | habe                 | sich | 1982 |
| The Palatian       | AUX.3SG.PRS.PFR.SBJV | RFL  | 1982 |
- auf einer Ägypten-Reise fürchterlich über die ausgefallene Klima-Anlage  
 on an Egypt-trip            terribly            over the broken air-conditioning  
 in seiner Boeing            geärgert  
 in his Boeing            anger.PTCP
- (während es die in einem moderneren Flugzeug sitzenden Journalisten  
 angenehm kühl hatten).  
 ‘Only **Helmut Kohl** was as fascinated by aviation as the Green Party  
 member. The Special Air Mission Wing, so they say, owes some  
 modernizations to the former chancellor. **The Palatian** is said to have  
 been terribly angry about the broken air-conditioning in his Boeing

during a trip to Egypt in 1982 (while the journalists, traveling in a more modern plane, felt comfortably cool).’

[M01/SEP.66530 Mannheimer Morgen, 07.09.2001; Sparsamkeit ist vorgeschrieben]

- b. **Du** wachst morgens auf, bist eigentlich guter Laune, es ist ein schöner heller Tag –

und dann **musst du** dich hinsetzen und dich

and then **must.2SG.PRS you RFL** sit down and RFL

über irgendetwas **ärgern.**

over something **anger.INF**

‘**You** wake up in the morning, you are actually in a good mood, it is a beautiful bright day – and then **you** have to sit down and get angry about something.’

[M00/APR.08355 Mannheimer Morgen, 08.04.2000; Über die fehlenden Reize der Tagespolitik]

- c. Von Fernseh-Werbespots fühlen sich danach **zwei Drittel** der Verbraucher gestört.

**Ein Drittel** ärgert sich über Anzeigenwerbung in Zeitschriften.

One third **anger.3SG.PRS RFL** over ads in journals

‘**Two thirds** of consumers feel annoyed by TV commercials. **One third** are angry about ads in journals.’

[F05/507.31913 Frankfurter Allgemeine, 26.07.2005; Verbraucher ärgern sich über Werbung]

In summary, the psych-verb alternation is relevant for information structure; it serves to promote an argument to subject position in order to pick up the theme of the preceding discourse.<sup>10</sup>

This section has shown that the frequency of one argument realization pattern often depends on the frequency of another pattern in a meaningful way. The frequency of complement sentences depends on the frequency of the two basic argument realization patterns for psych-verbs, which in turn depends on general preferences for particular semantic role configurations. The frequency of passive sentences and that of active experiencer-as-subject sentences depend on each other since they carry the same functional load.

<sup>10</sup> However, this hypothesis is not corroborated by quantitative data and calls for a more thorough corpus study.

## 3.2 Influences of register

As described in Section 2.3, we investigated the distribution of argument realization patterns across register and medium. Some of the results were as follows (cf. Engelberg et al. 2012):

- While some verbs hardly show any cross-corpus differences with respect to the distribution of argument realization patterns, other verbs differ widely across corpora, that is, across register and medium.
- Often particular stylistic properties attached to registers account for the distribution of argument realization patterns, that is, the tendency to employ many passives and few addressee datives in scientific texts is the result of a tendency for impersonal descriptions in scientific texts.
- Sometimes, particular verbs show a strong association with a particular pattern in a particular register. For example, there is a high proportion of impersonal passives with *arbeiten* ('work') in scientific texts due to expressions such as *Über das Thema wurde viel gearbeitet* ('That topic has been worked on extensively').
- Some types of argument realization patterns show a strong tendency towards low cross-corpus correlations, for example addressee and benefactive datives or patterns involving direct speech.

Among the classes of verbs we investigated, there were two groups of psych-verbs, three "alternating psych-verbs" (*freuen* 'become/make happy', *wundern* 'be astonished/astonish', *ärgern* 'get/make angry'), and three "directed emotion verbs" (*lieben* 'love', *hassen* 'hate', *bewundern* 'admire'). This is obviously too small a basis to yield representative results for the whole class of psych-verbs. However, I will sketch some results here, not published in Engelberg et al. (2012), which might give some preliminary answers to the question of how register, verb, verb class, and language-specific factors interact with respect to the distribution of argument realization patterns.

There is one striking difference between the two subclasses of psych-verbs. The three directed emotion verbs show hardly any cross-register variance. We compared the frequencies of the argument realization patterns for each verb in the six corpora. This yielded 15 correlation coefficients for each verb and the pairwise comparison of the six frequency lists. The correlation coefficients for the verbs *lieben* and *hassen* were almost perfect (0.99 or 1.00); the coefficients for *bewundern* were only slightly lower (10 coefficients > 0.95 and 5 slightly below 0.90). That is, no matter what corpus/register is chosen, the verbs always show almost the same distribution of argument realization patterns. The picture for the alternating psych-verbs is different: *freuen* exhibits correlation coefficients

of between 0.36 and 0.89, *ärgern* between 0.64 and 0.94, and *wundern* between 0.21 and 0.88. These verbs only show a moderate cross-register correspondence with respect to argument realization frequencies. With *wundern* and *freuen*, the lowest coefficients show up when the spoken language data is compared with the written corpora.<sup>11</sup> *Freuen* shows noticeable distribution differences in the corpora of scientific texts and of spoken language. But even with respect to all other corpus pairs, the three alternating psych-verbs show less correspondence between frequencies than the directed emotion verbs.

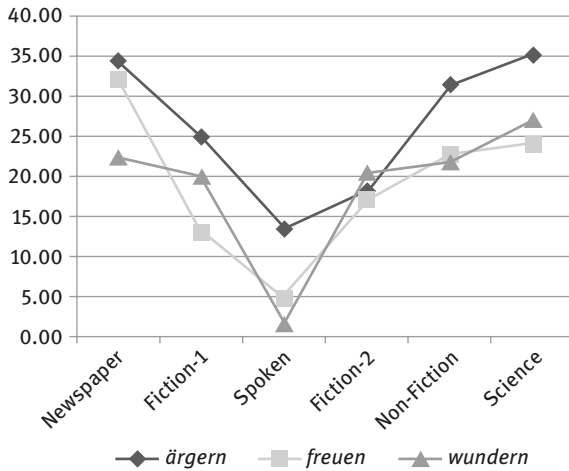
In order to reveal the interaction between register and other factors, I will now take a closer look at the alternating psych-verbs and three argument structure patterns they occur in: (i) the pattern where the experiencer is realized as subject and the stimulus as a PP headed by *über* ‘over’ (9a), (ii) the introduction of direct speech by psych-verbs (9b), and (iii) the realization of an inanimate stimulus as subject (9c):

- (9) a. Sie ärgerte / freute / wunderte sich über ihn.  
 she anger / please / astonish.3SG.PST RFL over him  
 ‘She was angry at him / happy about him / astonished about him.’
- b. “Das habe ich nicht erwartet,“ ärgerte / freute / wunderte  
 that have I not expected anger / please / astonish.3SG.PST  
 sie sich.  
 her RFL  
 “I didn’t expect that,“ she said with anger / pleasure / astonishment.’
- c. Das / Dass er das tat / Sein Verhalten ärgerte / freute / wunderte sie.  
 that / that he did that / his behavior anger / please / astonish.3SG.PST her  
 ‘That / That he did that / His behavior angered / pleased / astonished her.’

Figure 5 exhibits the proportion of the argument realization patterns corresponding to pattern (i) (experiencer as subject, stimulus as PP-*über*).<sup>12</sup>

<sup>11</sup> Cf. the multi-dimensional scaling in Engelberg et al. (2012) that allows us to map the differences between corpora for verbs and verbs groups.

<sup>12</sup> An anonymous reviewer criticized the fact that Figures 5–7 present proportional data without any indication of significance. However, in accordance with Koplenig (2017), this was done on purpose: essentially, statistical significance testing quantifies how likely it is that a pattern that is found in a sample will also be found in the population. However, the corpora the example sentences are taken from are not sampled randomly from the population, i.e., all the utterances of the language. Thus, in corpus studies, significance values usually do not allow for interesting generalizations.

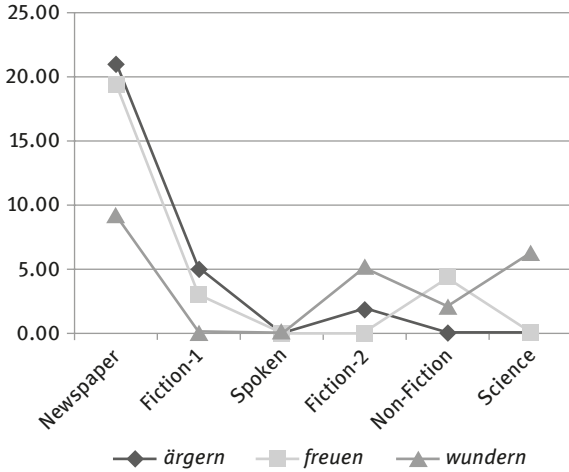


**Figure 5:** Proportion of argument realization patterns with experiencer as subject and stimulus as PP-über in the three verb samples.

Figure 5 shows that, regardless of the verb, the pattern is not preferred in spoken language and occurs most often in newspaper texts and – to a lesser degree – in other non-fictional registers. Yet, regardless of register restrictions, there is a stronger overall preference of *ärgern* (‘be angry / anger’) for this pattern relative to the other two psych-verbs. The distribution of pattern (ii) (psych-verbs introducing direct speech) also shows how register-specific and verb-specific preferences interact (Figure 6).

What can be seen in Figure 6 is that psych-verbs are not used in spoken language to introduce direct speech. In fiction, and in scientific and other non-fiction texts, psych-verbs occur with direct speech only rarely, while in newspaper texts this usage is widespread. However, as we have seen with respect to pattern (i), all verbs display this tendency, but to a different degree. The proportion of examples in newspaper texts with *ärgern* and *freuen* is twice as high as with *wundern*. A third factor comes into play if we look at newspaper data cross-linguistically. Our contrastive German-Romanian study showed that German employs psych-verbs to introduce direct speech more than six times as often as Romanian does (Cosma and Engelberg 2014), and an ongoing German-Spanish study shows that this use of psych-verbs is even more rarely attested in Spanish newspaper texts.<sup>13</sup>

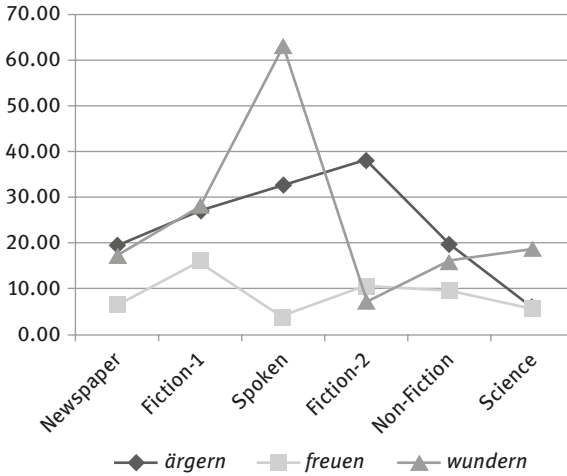
<sup>13</sup> This study is currently being carried out by Stefan Engelberg, Meike Meliss, and Paloma Sánchez Hernández.



**Figure 6:** Proportion of argument realization patterns in which the psych-verb introduces direct speech.

Pattern (iii) (inanimate stimulus as subject) points to another kind of interaction between register- and verb-specific peculiarities. Since all active sentences with these three verbs have to realize either the stimulus or the experiencer as subject, the complement of the percentages in Figure 7 indicates the proportion of experiencers as subject. That is, Figure 7 reflects the fact that – as we have seen in Section 3.1 (Figure 3) – experiencer as subjects are more frequent than stimuli as subjects (approx. 75.0% versus 25.0%). The data also confirms a verb-specific result from the investigation presented above, namely that *freuen* is even less associated with the stimulus-as-subject variant than other psych-verbs. As Figure 7 shows, this also holds for spoken language and other written registers besides newspapers. What is particularly striking is that *wundern* exhibits an extremely high number of stimuli as subjects in spoken language. This is mainly due to examples such as the following:

- (10) a. ja das war äh an der Grenze zu Belgien also von hier zirka  
 fünfundachtzig Kilometer ungefähr **das hat mich auch gewundert** ich  
 dachte eigentlich da würden mehr deutsch sprechen  
 ‘yes that was at the border with Belgium, that is about eighty-five  
 kilometers from here, **that astonished me, too**, actually I thought more  
 people would speak German there’  
 [E:\IDS\KorporaGS\Dh\_IV\PRM1\_IV.TextGrid]



**Figure 7:** Proportion of argument realization patterns with an inanimate stimulus as subject.

- b. **das hat mich gewundert** nein das hat mich nicht gestört nein  
 wir saßen alle am Tisch haben gegrillt und haben uns halt  
 unterhalten  
 ‘that astonished me, no, that didn’t bother me, no, we all sat at the  
 table, barbecued, and talked’  
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- c. ja **das hat mich auch unwahrscheinlich gewundert** ja  
 ‘yes that astonished me a great deal, too, yes’  
 [E:\IDS\KorporaGS\Dh\_IV\AUG1\_IV.TextGrid]

In spoken discourse, the almost formulaic expression *das hat mich gewundert* is used frequently and serves to express astonishment about a state of affairs that is at stake in the conversation. Since this presupposes that the state of affairs, which constitutes the stimulus of *wundern*, has already been introduced into the discourse, the stimulus as topic usually occurs in subject position.

### 3.3 Cross-linguistic conceptual-semantic properties of verbs

One of the aims of the contrastive German-Romanian study was to find out whether German verbs and their Romanian equivalents show cross-linguistically similar preferences for particular argument realization patterns.

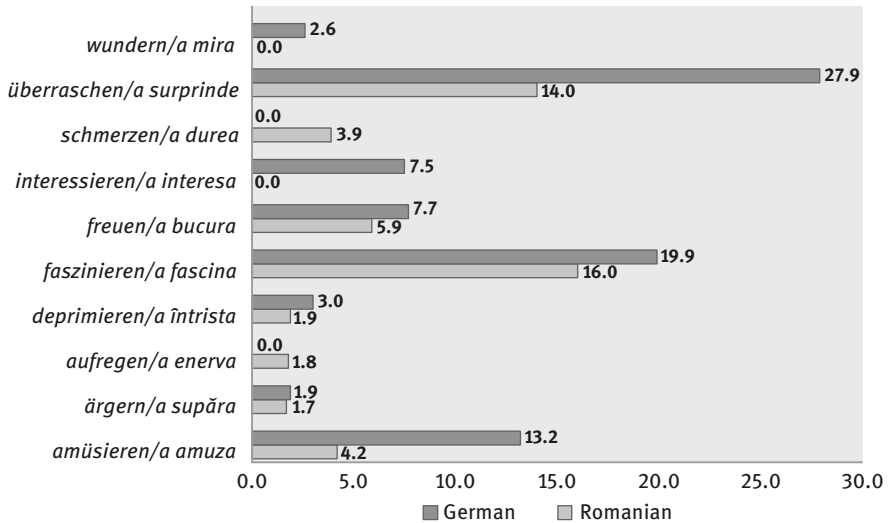
In each of the two languages, we observed that (i) argument realization patterns were distributed very unevenly for each verb (cf. Figure 1) and that (ii) even within a class of semantically similar verbs like psych-verbs, these verbs differed widely with respect to the distribution of argument realization patterns. Thus, we also expected there to be quite a large number of verb-specific idiosyncratic differences between each German verb and its Romanian equivalent. However, this assumption turned out to be wrong. This will be illustrated with respect to three phenomena: split stimuli, sentential subjects and experiencers as subjects.

Stimulus arguments are basically propositional arguments (for evidence cf. Cosma and Engelberg 2014). This allows them to take various shapes, among them different kinds of complement sentences and NPs denoting propositional entities. Another way to reflect the propositional nature of the stimulus is to split up the argument into an NP and a PP constituent. The two basic variants of this construction are illustrated in (11):

- (11) a. Im Lager der gedemütigten Asiaten, [die]<sub>EXP</sub> [der Doppel-Vizeweltmeister]<sub>STM\_part\_1</sub> [mit verfeinerten und neuen Schlagtechniken]<sub>STM\_part\_2</sub> überrascht hatte, erteilte Trainer Liu Guoliang dem Triumphator einen Ritterschlag.  
 ‘In the camp of the humiliated Asians whom [the two-time runner-up in the world championships]<sub>STM\_part\_1</sub> had surprised [with refined and new hitting techniques]<sub>STM\_part\_2</sub> the champion received the accolade from coach Liu Golang.’  
 [Mannheimer Morgen, 25.11.2005]
- b. [Ihr aktuelles Album „Brother, Sister, Bores“]<sub>STM\_part\_1</sub> fasziniert [mit zerbrechlichen Pianopassagen]<sub>STM\_part\_2</sub> und schlägt mit kantigen Rockriffs feine Macken in die Gehörgänge.  
 ‘[Their current Album “Brother, Sister, Bores”]<sub>STM\_part\_1</sub> fascinates [with fragile piano passages]<sub>STM\_part\_2</sub> and chisels fine scratches into the ear canals with edgy rock riffs.’  
 [Hamburger Morgenpost, 8.9.2006]
- c. Das Japanische klingt rhythmisch, das Philippinische melodisch, [am Polnischen]<sub>STM\_part\_1</sub> faszinierten [Gal]<sub>EXP</sub> at the Polish fascinate-3PL.PST Gal.ACC [„die hochfrequenten Zischlaute“]<sub>STM\_part\_2</sub>. the highly frequent sibilants.NOM  
 ‘Japanese sounds rhythmical, Filipino melodic, Polish fascinated Gal with highly frequent sibilants.’  
 [Berliner Zeitung, 12.12.2003]



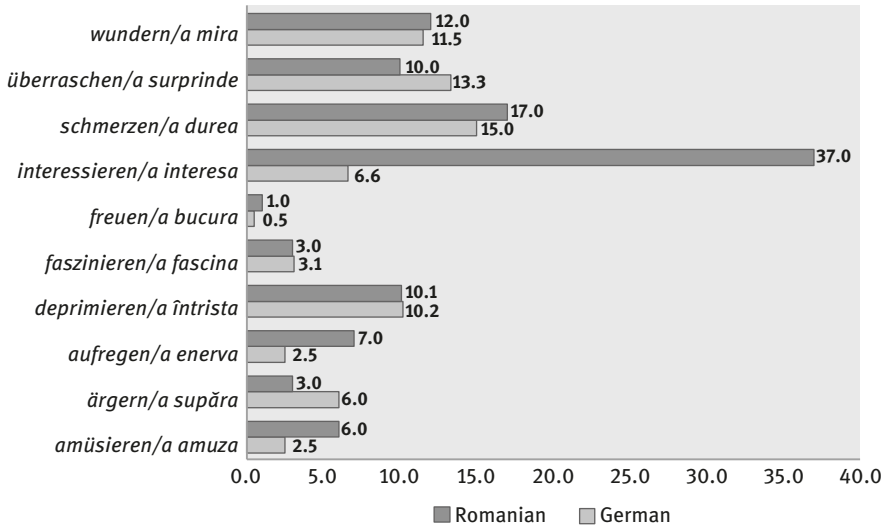
Other prepositions, for example, *durch* ('through') instead of *mit* ('with') or *bei* ('by') instead of *an* ('at'), also occur with slightly different shades of meaning. Romanian shows pretty much the same array of split stimulus patterns. Looking at the preferences of German verbs and their Romanian counterparts for split stimuli, the following picture emerges (Figure 8):



**Figure 8:** Proportion of examples exhibiting split stimuli in the German and Romanian verb profiles.

Correlating the two paired vectors of frequency data for German and Romanian yields a high correlation coefficient of 0.86. In particular, those verbs expressing surprise and fascination are strongly associated with the split stimulus pattern in both languages. A closer look at the data shows that *überraschen* ('surprise') tends to realize the variant exemplified in (11a) and *faszinieren* ('fascinate') the variant in (11c).

The stimulus can also be realized as a sentential subject. This is not a preferred option. Only 7.1% of the German sentences and 10.6% of the Romanian sentences exhibit sentential subjects. Again, the tendency to select sentential subjects is very similar for German verbs and their respective Romanian equivalents (Figure 9). Only the verb expressing interest contradicts this generalization. Excluding *interessieren / a interesa*, the correlation coefficient is 0.88; including it, the correlation coefficient drops to 0.37. Looking more closely at the data, it can be seen that this difference is mainly due to a large number of indirect interrogative clauses functioning as the sentential subject for the Romanian verb *a interesa*, which is the only verb in the Romanian samples that shows this pattern.



**Figure 9:** Proportion of examples exhibiting sentential subjects in the German and Romanian verb profiles.

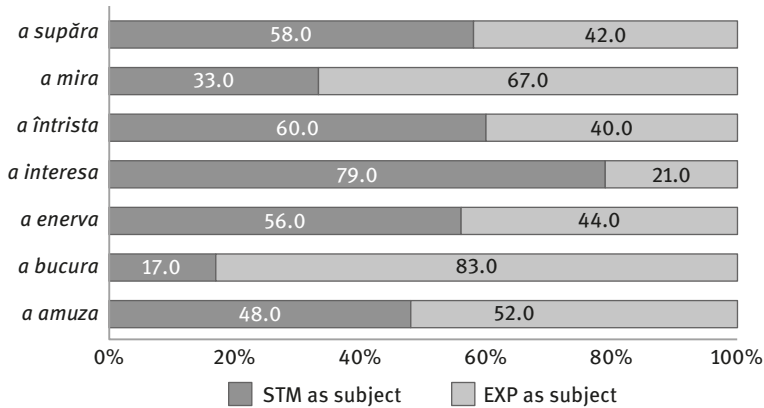
It serves – to a much higher degree than its German counterpart – as a kind of interrogative verb.

A comparable observation can be made for the tendency of verbs to select inanimate versus animate, agent-like stimuli (e.g., *it surprised me* versus *he surprised me*). German verbs and their Romanian equivalents have similar affinities towards one or the other variant, except for one verb: *a supăra* ('be/get/make angry') shows a much stronger tendency towards animate stimuli in Romanian (79.0% of all stimulus-as-subject sentences) than its German counterpart *ärgern* (29.0%). This is due to the fact that *a supăra* has agentive readings not available in German as 'to hinder / disturb' and 'to afflict / plague'.

The argument realization patterns for each psych-verb can be exhaustively classified into experiencer-as-subject and stimulus-as-subject variants (ex. 2 vs. 3). As Figure 3 has shown, German is characterized by a strong tendency towards experiencer-as-subject patterns. Romanian does not show this tendency: averaged over all samples, experiencer-as-subject and stimulus-as-subject variants are evenly distributed (49.9 % experiencer as subject, 50.1% stimulus as subject):

However, even though both languages show very different preferences for the two types of argument realization patterns, the individual preferences of the German verbs and their Romanian counterparts are very similar. The correlation coefficient for the two rows of frequencies for the German and Romanian verbs is

0.94. Of all verbs, the Romanian verb *a interesa* and its German counterpart *interessieren* ('interest') show by far the strongest tendency towards stimulus subjects while *a bucura / freuen* ('be/get happy') has the strongest affinity to experiencer subjects (cf. Figure 10 for the Romanian data).



**Figure 10:** Proportion of experiencer-as-subject and stimulus-as-subject examples in the Romanian samples (active voice).

We have seen in Section 2.4 that psych-verbs in a given language have very different preferences for particular argument realization patterns. However, cross-linguistically, verbs and their counterparts often show very similar association strengths with respect to particular patterns. However, semantic correspondence between two verbs of different languages only holds to a certain degree. In particular, a verb may have a function, a reading or a particular shade of meaning which is not available for its cross-linguistic counterpart. This often occurs in particular constructions, as we have seen for the Romanian *a interesa* ('interest') and its selection of indirect interrogatives as subject and *a supăra* ('be/get/make angry') and its tendency to combine with animate stimulus subjects. Apart from that, all patterns we looked at cross-linguistically exhibited clear positive correlations with respect to the verb's affinity to particular argument realization patterns.<sup>14</sup>

Thus, German verbs and their Romanian counterparts exhibit similar preferences for argument realization patterns in spite of strong language-internal

<sup>14</sup> The only pattern not clearly corresponding to this observation was the use of psych-verbs for the introduction of direct speech. However, since German employs this function very often while the Romanian samples produced only a handful of examples, we dispensed with a correlation analysis.

distribution differences between verbs and in spite of cross-linguistic differences with respect to the preference for particular argument realization patterns. This similarity points to a strong influence of cross-linguistic verbal concepts. Particular concepts like FASCINATION, INTEREST, or SURPRISE seem to attract particular argument realization patterns independent of the particular language.<sup>15</sup>

### 3.4 Entrenchment

Even though the linguistic factors discussed in Sections 3.1, 3.2, and 3.3 explain some of the properties of the frequency distributions, the strong adhesion of an argument structure pattern to one or very few verbs is determined by non-linguistic factors, too. One of these factors is entrenchment. The entrenchment of patterns is probably one of the general – and not specifically linguistic – concepts that explain the organization and processes of our memory. The degree of entrenchment of an item within a pattern shall be understood here as the degree of association of this item with the pattern; this is – at least partly – determined by the frequency of events in which this pattern occurs. The cognitive entrenchment of argument structure patterns is facilitated by their strong association with

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<sup>15</sup> “Cross-linguistic” is, of course, not to be understood as “universal”. On the basis of two languages, that would be a bold claim. One reviewer remarked that the observed similarity between German and Romanian might as well be due to the fact that both languages are genetically related or that they are geographically not very distant. However, considering the rather moderate genetic relatedness of the two languages, it seems unlikely to me that preferences concerning the realization of verbal concepts can be traced back to the common origin of both languages. Language contact might be taken into consideration, in particular the moderate lexical influence of German on Romanian due to the presence of a large German minority in Romania since medieval times. However, the verbs under investigation are not involved in borrowing processes between the two languages. The possibility that the concepts expressed by the Romanian verbs or particular usage preferences might have been influenced by the corresponding German verbs cannot of course be completely excluded. However, I am not aware of studies that show that such an influence existed. If there is an influence on the similar behavior of German and Romanian with respect to argument structure preferences, I would rather suspect that the meaning and use of the verbs might have been shaped by the European culture both languages participate in. As Reichmann (2012) has shown, the common cultural ancestry of European languages, shaped in particular by Latin, its scriptures and the translations of Latin texts into many languages, had a large influence on the lexicon of European languages, not necessarily as a result of words being borrowed from Latin or other languages but mainly due to the influence on the semantic structures of words. However, it will be difficult to show empirically whether this had an influence on the distribution of the argument structure distribution in our samples.

very few verbs. These verbs seem to function as “memory anchors” that help to ground the argument structure pattern in our memory system. I will close this article by measuring the strength with which these anchor verbs ground their argument structure patterns.

Which measure adequately captures these kinds of associations is the subject of some debate (cf. Schmid 2010: 125–126).<sup>16</sup> One of the measures that is assumed to reveal cognitive entrenchment is  $\Delta P$ , which is usually employed in psychological learning and conditioning theory (Ellis 2006: 10) and applied to corpus linguistics by Baayen (2011).<sup>17</sup>  $\Delta P$  measures the strength with which a particular outcome can be expected as a reaction to a particular cue. It yields values between  $-1$  and  $1$ .<sup>18</sup> Since we want to take the idea seriously that argument structure patterns (ASP) are entities in their own right, we use them as the cue and the verb as the outcome. Four cases are distinguished with respect to the co-occurrence of argument structure pattern and verb:

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**16** Schmid (2010) reminds us of the work that still has to be done in this respect: “[...] so far we have understood neither the nature of frequency itself nor its relation to entrenchment, let alone come up with a convincing way of capturing either one of them or the relation between them in quantitative terms. This remains true in spite of the indisputable advantages of quantitative methods such as their predictive power, the possibility to falsify models by means of repeat analysis and their enormous capacity when it comes to coming to grips with highly multivariate datasets. Essentially, this failure is caused by the following complications. Firstly, frequency of occurrence is a much less objective measure than most proponents of quantitative (cognitive) linguistics seem to realize. The assessment of frequency scores depends not only on what researchers retrieve and count as valid tokens, but also on how they calculate frequency. Even if they show awareness of the need to distinguish absolute from relative frequency (as of course most practitioners do), then it is still unclear how the two interact with each other, since absolute frequency may not be as irrelevant as most corpus linguists think. Secondly, advanced statistical techniques, which take absolute frequencies into consideration in order to gauge the significance of observed relative frequencies, have the problem of determining the reference scores required for the tests and run the risk of obscuring different combinations of absolute and relative frequency of occurrence. Thirdly, even if we accept the plausibility of the general claim that frequency of processing, and thus of occurrence in discourse, correlates with strength of entrenchment, we are still under-informed about the relation between cotext-free and cotextual entrenchment. This is particularly true of the large bulk of cases showing a medium range of association of lexemes and construction.” (Schmid 2010: 125f.)

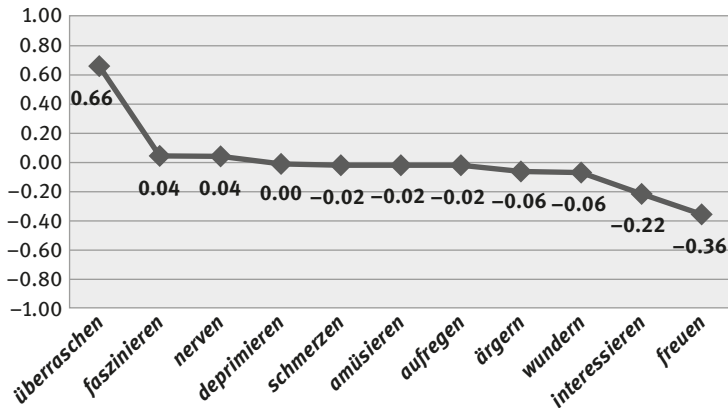
**17** It is defined as  $P(\text{Outcome}|\text{Cue}) - P(\text{Outcome}|\sim\text{Cue})$ . In this case it is the conditional probability of observing the verb given the ASP  $[a/(a+b)]$  minus the conditional probability of observing the verb given another ASP  $[c/(c+d)]$ .

**18** Baayen (2011) compared five different measures for collexeme strength (among them Stefanowitsch and Gries’s standard collexeme measure and  $\Delta P$ ) and found positive correlations between all measures.

In our basic verb profiles, the absolute corpus frequency of verbs and combinations of verbs and argument realization patterns is not captured. In order to apply  $\Delta P$  to our data, we compute the absolute frequency of verbs and extrapolate the frequencies for verb-ARP combinations to a corpus of 1,000,000,000 running words.<sup>19</sup> The resulting numbers serve as input for the computation of  $\Delta P$  according to Table 4. In the following, the  $\Delta P$  values for four argument structure patterns that occur with psych-verbs are shown: (i) split stimuli with *mit* ('with') (Figure 11), (ii) sentential subjects headed by *dass* ('that') (Figure 12), (iii) direct speech introduced by psych-verbs (Figure 13), and (iv) animate stimuli as subjects (Figure 14).

**Table 4:**  $\Delta P$ .

		OUTCOME	
		verb present	verb not present
CUE	ASP present	A	b
	ASP not present	C	d



**Figure 11:**  $\Delta P$  values for split stimuli with *mit* ('with').

<sup>19</sup> Of course, to calculate the  $\Delta P$  values, the extrapolation to 1 billion tokens is not necessary. It is done merely to make the values for different verbs with strongly differing corpus frequencies intuitively more comparable. Further analyses (not reported here) show that the results (especially the rankings presented in this section) do not change if we use the raw frequencies instead of the extrapolated values.

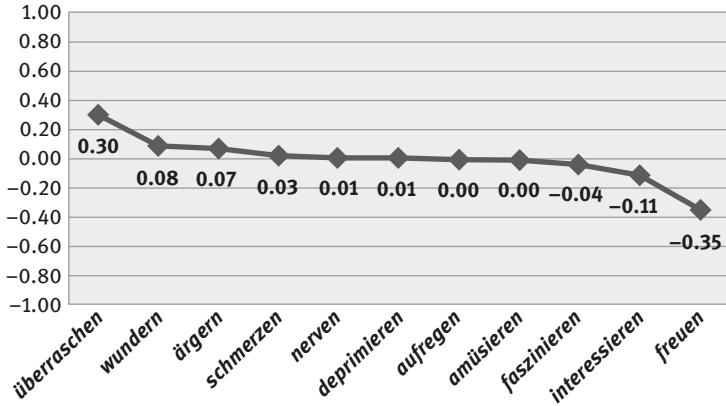


Figure 12:  $\Delta P$  values for sentential subjects headed by *dass* ('that').

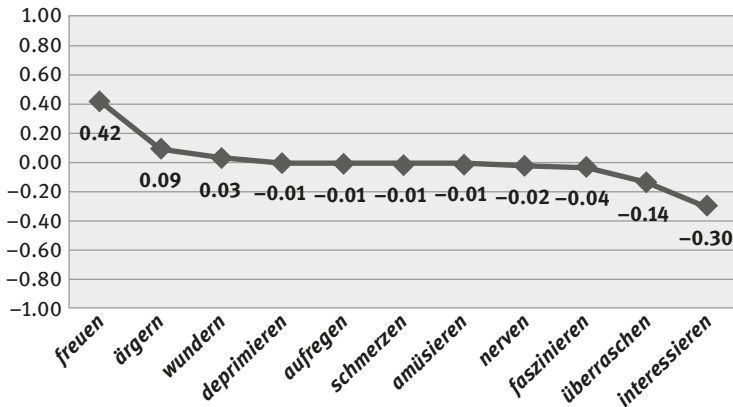


Figure 13:  $\Delta P$  values for direct speech introduced by psych-verbs.

A strong caveat is in order here. Since our investigation of psych-verbs is limited to eleven verbs and their verb profiles, the following results reflect a small part of linguistic reality in which only eleven verbs and their range of argument realization patterns exist. The extension of this study to more verbs and their profiles will probably modify the results found so far. Yet, we do expect that it will always be the case that argument structure patterns not only show stronger associations with some verbs than with others but also that we will not get a linear distribution of  $\Delta P$  values. There will always be very many verbs that show an unobtrusive connection to a particular argument structure pattern and very few verbs that have significantly higher  $\Delta P$  values than all others. The  $\Delta P$  values for a particular

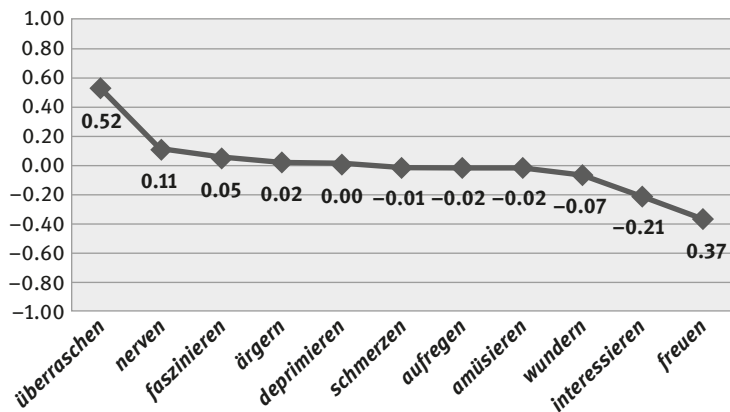


Figure 14:  $\Delta P$  values for animate stimuli as subjects.

pattern not only show that few verbs are entrenched very strongly with a pattern but also that there are some verbs that quite strongly repel the argument structure pattern.

Stefanowitsch and Gries (2003: 228) analyze the ditransitive construction with its basic transfer meaning and find that *give* shows the strongest association to this construction. Thus, the verb most strongly associated with the construction is the verb that also shares its basic meaning with the meaning of the construction. Of all four phenomena, the one represented in Figure 13 probably lends most to a Gries/Stefanowitsch type of explanation. If the function of introducing direct speech by a psych-verb is to convey the emotion somebody displayed while making an utterance, then emotion verbs like *freuen* ('be happy / please') or *ärgern* ('be angry / anger') should indeed show a stronger affinity to the construction than cognition verbs like *interessieren* ('be interested / interest'). A different explanation might hold for Figure 11: the strong attachment of *überraschen* ('surprise') to the split stimulus pattern with *mit* ('with') is partly due to the fact that *überraschen* has a not infrequent usage variant similar to verbs of transfer, meaning 'give something (as a present) to somebody and thereby surprise him'.

Semantic explanations for the other two phenomena are not as easy to come by. Although emotions can be triggered by all kinds of states of affairs, they are most often triggered by what other people do (cf. Ben Ze'ev 2001). One should, therefore, expect that in particular psych-verbs expressing strong emotions should be attracted to an animate stimulus pattern. This is not the case, though (cf. Figure 14). The two verbs expressing prototypical emotions, namely, *ärgern* ('be angry / anger') and *freuen* ('be happy / please') do not show any particular association to the pattern with animate stimulus subjects. Similarly, it is hard



to imagine what semantic property might render *überraschen* ('surprise') in Figure 12 particularly suited to realize its stimulus as sentential subject.<sup>20</sup>

This brief discussion suggests that the general quantitative distribution patterns as represented by the four curves in Figure 11 through 14 are probably more similar than the reasons why particular verbs show an above-average association to each of the argument structure patterns.

## 4 Conclusion

The article tried to shed some light on the linguistic and non-linguistic factors that determine the quantitative distribution of psych-verbs with respect to argument structure patterns. On the basis of verb profile analyses, it explored the following four factors:

- (i) Functional dependencies between different argument structure patterns cause a certain trade-off between these patterns; the promotion of experiencers by the standard psych-verb alternation and by passive formation correlated negatively, and the frequency of sentential complements depended on the general distribution of stimulus-as-subject and stimulus-as-experiencer patterns.
- (ii) Different genres show particular preferences for particular kinds of argument structure patterns; these preferences interact with the strength of genre-independent verb-specific affinities to these patterns.
- (iii) Cross-linguistically, it can be observed that verbs and their counterparts in another language often exhibit similar associations to particular patterns: the German-Romanian study showed that this holds even then when the general language-specific preferences for these patterns differ; thus, cross-linguistic conceptual-semantic properties seem to influence the distribution of argument structure patterns.
- (iv) Finally, general principles of the memory system influence the distribution; the cognitive entrenchment of each argument structure pattern seems to be facilitated by its strong association with very few verbs. It is not yet

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**20** One of the reviewers suggested that information structure might play a role in the strong association of sentential stimuli with *überraschen* ('to surprise'). Verbs expressing surprise might attract stimuli with a topic-comment structure such as sentential subjects more often than other psych-verbs, since surprise often involves learning something new about something that is already known. This is different from emotions such as anger or happiness, which often have more immediate experiences as stimuli.

completely clear in how far semantic properties of verbs guide this entrenchment with particular argument structure patterns.

The empirical basis for investigations of this sort is still very thin. Only a couple dozen of verbs have been subjected to verb profile analyses so far. We are currently extending the verb profile analyses to more verbs. Furthermore, since the studies so far have indicated that there are probably more factors that strongly influence the distribution of argument structure patterns, these will be included into our verb profiles in order to facilitate multi-factorial analyses. This concerns factors such as word order, information structure, mode, pronominalization, and others.

## References

- Baayen, Harald R. 2011. Corpus linguistics and naive discriminative learning. *Brazilian Journal of Applied Linguistics* 11. 295–328.
- Barðdal, Jóhanna. 2008. *Productivity. Evidence from Case and Argument Structure in Icelandic*. Amsterdam & Philadelphia: Benjamins.
- Beckner, Clay, Richard Blythe, Joan Bybee, Morten H. Christiansen, William Croft, Nick C. Ellis, John Holland, Jinyun Ke, Diane Larsen-Freeman & Tom Schoenemann. 2009. Language Is a Complex Adaptive System: Position Paper. *Language Learning* 59 (Suppl. 1). 1–26.
- Behrens, Heike. 2011. Grammatik und Lexikon im Spracherwerb: Konstruktionsprozesse. In Stefan Engelberg, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 375–396. Berlin & New York: de Gruyter.
- Belletti, Adriana & Luigi Rizzi. 1988. Psych-Verbs and  $\theta$ -Theory. *Natural Language and Linguistic Theory* 6. 291–352.
- Ben-Ze'ev, Aaron. 2001. *The Subtlety of Emotions*. Cambridge, MA & London: MIT Press.
- Blumenthal-Dramé, Alice, 2012. *Entrenchment in Usage-based Theories. What Corpus Data Do and Do not Reveal about the Mind*. Berlin & Boston: De Gruyter.
- Boas, Hans C. 2011. Coercion and leaking argument structures in Construction Grammar. *Linguistics* 49(6). 1271–1303.
- Bybee, Joan. 2010. *Language, Usage and Cognition*. Cambridge et al.: Cambridge University Press.
- Bybee, Joan L. & Clay Beckner. 2010. Usage-based theory. In Bernd Heine & Heiko Narrog (eds.), *The Oxford Handbook of Linguistic Analysis*, 827–855. Oxford: Oxford University Press.
- Cosma, Ruxandra & Stefan Engelberg. 2014. Subjektsätze als alternative Valenzen im Deutschen und Rumänischen. In Ruxandra Cosma, Stefan Engelberg, Susan Schlotthauer, Speranța Stanescu & Gisela Zifonun (eds.), *Komplexe Argumentstrukturen. Kontrastive Untersuchungen zum Deutschen, Rumänischen und Englischen*. Berlin: Akademie-Verlag.
- Cristofaro, Sonia. 2003. *Subordination*. Oxford & New York: Oxford University Press.

- Diessel, Holger. 2007. Frequency effects in language acquisition, language use, and diachronic change. *New Ideas in Psychology* 25. 108–127.
- Diessel, Holger. 2011. Review of “Language, usage and cognition. By Joan Bybee. Cambridge: Cambridge University Press, 2010. Pp. ix, 262”. *Language* 87(4). 830–844.
- Dowty, David R. 1991. Thematic Proto-Roles and Argument Selection. *Language* 67. 547–619.
- Dryer, Matthew Syngé. 1980. The Positional Tendencies of Sentential Noun Phrases in Universal Grammar. *Canadian Journal of Linguistics* 25. 123–195.
- Duwaerts, Tim & Gereon Ullmann. 2013. Quantitative Untersuchung zur Valenz deutscher Substantive. In Reinhard Köhler & Gabriel Altmann (eds.), *Issues in Quantitative Linguistics 3, Dedicated to Karl Heinz Best on Occasion of his 70th Birthday*, 392–403. Lüdenscheid: RAM-Verlag.
- Ellis, Nick C. 2002. Frequency effects in language processing. A Review with Implications for Theories of Implicit and Explicit Language Acquisition. *Studies in Second Language Acquisition* 24. 123–183.
- Ellis, Nick C. 2006. Language acquisition as rational contingency learning. *Applied Linguistics* 27(1). 1–24.
- Engelberg, Stefan. 2000. *Verben, Ereignisse und das Lexikon*. Tübingen: Niemeyer.
- Engelberg, Stefan. 2015. Gespaltene Stimuli bei Psych-Verben: Kombinatorische Mustersuchen in Korpora zur Ermittlung von Argumentstrukturverteilungen. In: Stefan Engelberg, Meike Meliss, Kristel Proost & Edeltraud Winkler (eds.), *Argumentstruktur zwischen Valenz und Konstruktionen*, 469–491. Tübingen: Narr.
- Engelberg, Stefan, Svenja König, Kristel Proost & Edeltraud Winkler. 2011. Argumentstrukturmuster als Konstruktionen? Identität - Verwandtschaft - Idiosynkrasien. In Stefan Engelberg, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 71–112. Berlin & New York: de Gruyter.
- Engelberg, Stefan, Alexander Koplenig, Kristel Proost & Edeltraud Winkler. 2012. Argument structure and text genre: cross-corpus evaluation of the distributional characteristics of argument structure realizations. *Lexicographica* 28. 13–48.
- Gahl, Susanne, Dan Jurawsky & Douglas Roland. 2004. Verb subcategorization frequencies: American English corpus data, methodological studies, and cross-corpus comparisons. *Behavior Research Methods, Instruments, & Computers* 36(3). 432–443.
- Gries, Stefan Th. 2010. Behavioral Profiles. A fine-grained and quantitative approach in corpus-based lexical semantics. *The Mental Lexicon* 5(3). 323–346.
- Gries, Stefan Th. 2011. Corpus data in usage-based linguistics. What’s the right degree of granularity for the analysis of argument structure constructions? In Mario Brdar, Stefan Th. Gries & Milena Žić Fuchs (eds.), *Cognitive Linguistics. Convergence and Expansion*, 237–256. Amsterdam & Philadelphia: Benjamins.
- Gries, Stefan Th. 2012a. Frequencies, probabilities, and association measures in usage-/exemplar-based linguistics. Some necessary clarifications. *Studies in Language* 11(3). 477–510.
- Gries, Stefan Th. 2012b. Corpus linguistics, theoretical linguistics, and cognitive/psycholinguistics: Towards more and more fruitful exchanges. In Joybrato Mukherjee & Magnus Huber (eds.), *Corpus Linguistics and Variation in English*, 41–63. Theory and Description. Amsterdam & New York: Rodopi.
- Gries, Stefan Th. & Dagmar Divjak. 2009. Behavioral profiles: A corpus-based approach to cognitive semantic analysis. In Vyvyan Evans & Stéphanie Pourcel (eds.), *New Directions in Cognitive Linguistics*, 57–75. Amsterdam & Philadelphia: Benjamins.

- Gries, Stefan Th., Beate Hampe & Doris Schönefeld. 2010. Converging evidence II: more on the association of verbs and constructions. In John Newman & Sally Rice (eds.), *Experimental and empirical methods in the study of conceptual structure, discourse, and language*, 59–71. Stanford: CSLI.
- Gries, Stefan Th. & Anatol Stefanowitsch. 2004. Extending collocation analysis. A corpus-based perspective on ‘alternations’. *International Journal of Corpus Linguistics* 9(1). 97–129.
- Gries, Stefan Th. & Anatol Stefanowitsch. 2010. Cluster Analysis and the Identification of Collexeme Classes. In John Newman & Sally Rice (eds.), *Empirical and Experimental Methods in Cognitive/Functional Research*, 59–71. Stanford: CSLI Publications.
- Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, MA & London: MIT Press.
- Köhler, Reinhard. 2005. Quantitative Untersuchungen zur Valenz deutscher Verben. *Glottometrics* 9. 13–20.
- Koplenig, Alexander. 2017. Against statistical significance testing in corpus linguistics. *Corpus Linguistics and Linguistic Theory*. Online: 03.06.2017 | DOI: <https://doi.org/10.1515/clt-2016-0036>.
- MacDonald, Maryellen C. 1994. Probabilistic Constraints and Syntactic Ambiguity Resolution. *Language and Cognitive Processes* 9(2). 157–201.
- MacDonald, Maryellen C., Neal J. Pearlmutter & Mark S. Seidenberg. 1994. Syntactic ambiguity resolution as lexical ambiguity resolution. In Charles Clifton, Jr., Lynn Frazier & Keith Rayner (eds.), *Perspectives on Sentence Processing*, 123–153. Hillsdale, NJ: Lawrence Erlbaum.
- Noonan, Michael. 1985. Complementation. In Timothy Shopen (ed.), *Language Typology and Syntactic Description. Vol. II: Complex Constructions*, 42–140. Cambridge et al.: Cambridge University Press.
- O’Hara, Robert. B., & Kotze, D. Johan. 2010. Do not log-transform count data. *Methods in Ecology and Evolution*, 1(2), 118–112.
- Reichmann, Oskar. 2012. *Historische Lexikographie. Ideen, Verwirklichungen, Reflexionen an Beispiele des Deutschen, Niederländischen und Englischen*. Berlin & Boston: De Gruyter.
- Roland, Douglas William. 2001. *Verb Sense and Verb Subcategorization Probabilities*. Ph.D. dissertation, University of Colorado.
- Roland, Douglas & Daniel Jurafsky. 1998. How verb subcategorization frequencies are affected by corpus choice. *COLING-ACL ’98: 36th Annual Meeting of the Association for Computational Linguistics and 17th International Conference on Computational Linguistics, Aug. 10–14, 1998, Montreal, Quebec, Canada*, 1122–1128. Montreal.
- Roland, Douglas, Daniel Jurafsky, Lise Menn, Susanne Gahl, Elizabeth Elder & Chris Riddoch. 2000. Verb Subcategorization Frequency Differences between Business-News and Balanced Corpora: The Role of Verb Sense. *Comparing Corpora. A workshop held in conjunction with the 38th Annual Meeting of the Association for Computational Linguistics, 7th October 2000, Hong Kong*, 28–34. Hong Kong.
- Salkoff, Morris. 2002. Verbs with a Sentential Subject. A Lexical Examination of a Sub-Set of Psych Verbs. *Linguisticæ Investigationes* 25(1). 97–147.
- Schmid, Hans-Jörg. 2010. Does frequency in text instantiate entrenchment in the cognitive system? In Dylan Glynn & Kerstin Fischer (eds.), *Quantitative Methods in Cognitive Semantics: Corpus-Driven Approaches*, 101–133. Berlin & New York: de Gruyter.
- Schulte im Walde, Sabine. 2003. *Experiments on the Automatic Induction of German Semantic Verb Classes*. Ph.D. Stuttgart: Universität Stuttgart, Institut für Maschinelle Sprachverarbeitung.

- Schulte im Walde, Sabine. 2009. The induction of verb frames and verb classes from corpora. In Anke Lüdeling & Merja Kytö (eds.), *Corpus Linguistics. An International Handbook*, Teilband 2, 952–971. Berlin & New York: Mouton de Gruyter.
- Stefanowitsch, Anatol & Stefan Th. Gries. 2003. Collostructions: Investigating the interaction of words and constructions. *International Journal of Corpus Linguistics* 8(2). 209–243.
- Steiner, Petra. 2011. Diversification of English Valency Patterns. In Emmerich Kelih, Victor Levickij & Yuliya Matskulyak (eds.), *Issues in Quantitative Linguistics 2, Dedicated to Reinhard Köhler on Occasion of his 60th Birthday*, 148–169. Lüdenscheid: RAM-Verlag.
- Tomasello, Michael. 2003. *Constructing a Language. A Usage-Based Theory of Language Acquisition*. Cambridge, MA & London: Harvard University Press.

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# Case alternation in argument structure constructions with prepositional verbs: A case study in corpus-based constructional analysis

## 1 Introduction

Ever since the advent of the constructional approach in linguistic research, the exact relationship between the constructional and the lexical level has been a contentious issue (cf. Fillmore 1988, Goldberg 1995, 2003, Croft 2003, Boas 2008, 2009, among others).<sup>1</sup> Goldberg argues that ultimately all levels are constructional in nature as long as some aspect of the form or function of a construction “is not strictly predictable from its component parts or from other constructions recognized to exist” (Goldberg 2003: 219). Even when fully predictable, a pattern can be claimed to be stored as a construction if it “occurs with sufficient frequency”, according to Goldberg (2003: 220; cf. Rostila 2011). It is obvious that the degree of conventionalization, the frequency of occurrence and the interaction between different kinds of meaning, ranging from abstract “higher-level” constructional meanings over intermediary semantic levels to “lower-level” item-specific meanings, are important and potentially competing factors in determining whether a syntagmatic combination has to be described as a fully-fledged ‘construction’ in the sense of a form-meaning pairing in its own right.

In this chapter, we investigate how lexical-semantic and morpho-syntactic properties of verbs and constructional patterns interact when verbs and two-way prepositions in German combine to instantiate argument structure constructions with a prepositional phrase (PP) which is either marked in the Accusative (ACC) or Dative (DAT). Our case study is based on a corpus of over 1000 sentences with

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*aufsetzen auf* ('set down on, land on, base on') and *aufnehmen in* ('allow [as a member], incorporate, shelter, assimilate mentally') drawn from the Mannheim German Reference Corpus (*Deutsches Referenzkorpus*, DeReKo). We henceforth call such a verb-preposition combination "prepositional verb" (henceforth: PV). *Aufsetzen auf* and *aufnehmen in* are among the dozens of PVs listed in *Duden* (2007) as particularly interesting, or peculiar, as far as their case marking is concerned. We argue that the ACC/DAT alternation is not primarily a matter of the conceptual difference between 'motion'/'directionality' and 'location'/'state' but the result of a complex interplay of various factors that can be adequately accommodated in a constructional framework. Using a multivariate analysis of the data, we evaluate the effect of four morpho-syntactic and lexical-semantic factors, viz. transitivity, voice, perfect tense and the conventionalized senses of the two PVs.

The chapter is structured as follows. In Section 2 we address the gradient distinction between prepositional complements and prepositional adjuncts from a constructional perspective and argue that previous accounts of the case alternation with two-way prepositions remain inconclusive. Section 3 describes the methodology of the study and introduces the morpho-syntactic and lexical-semantic factors that are investigated. Considering the results of the statistical analysis of the two PVs *aufsetzen auf* and *aufnehmen in*, we develop in Section 4 a constructional framework to address the issue of the case alternation in a way that takes full account of the quantitative findings. In Section 5 we discuss the complementarity of our approach with H. Paul's (1920) claims about the semantics of ACC and DAT and the case alternation with two-way prepositions. Section 6 rounds off the chapter with a summary of the main results.

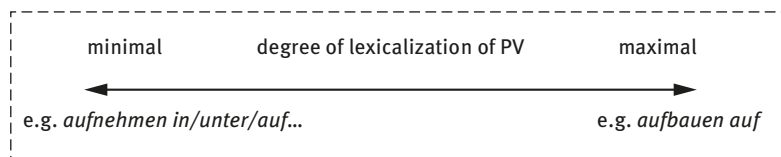
## 2 Case marking with two-way prepositions in German

### 2.1 Argument structure constructions with two-way prepositions

The vexing problem of the complement/adjunct distinction has beset the theory of verb valency since its inception. No agreement exists about the criteria needed to define this distinction (Ågel 2000: 167–213). If the verb is construed as the central valency-bearing constituent of sentences with two-way prepositions, then the question arises on what grounds a distinction can be made between a prepositional complement and a prepositional adjunct. In the present study, syntactic structures with two-way PPs (either ACC PP or DAT PP) are not considered from

the standpoint of the verb but from that of argument structure constructions with PVs. We term such constructions “prepositional argument structure constructions” in the remainder of the chapter. The sentences we will be analyzing are seen as instantiations of constructional patterns whose verbal nucleus is a PV, which is itself a construction in its own right consisting of a verb and a preposition. Taking this perspective allows us to develop the complement/adjunct distinction in a novel way and to use a gradient distinction between complement and adjunct as a key to explain the case alternation with two-way prepositions.

Constructions are amenable to a description in terms of the traditional continuum of lexicalization. The preposition involved in a PV may either be highly lexicalized, as in *aufbauen auf* (‘build on’), or less so, as for instance in *aufnehmen* (‘include, take up’) + PREP, where the preposition varies between *in*, *unter* and *auf* (and possibly still other prepositions, see Duden 2007: 115). Various PVs can be situated at different points on a cline ranging from a virtually fixed and strongly lexicalized preposition to relatively freely varying prepositions. The degree of prepositional variation does not necessarily coincide with semantic bleaching of the preposition. For example, as a PV *versinken* (‘sink, disappear’) is probably always combined with *in*, but the preposition retains its normal meaning as a lexical item. By contrast, as part of the PV *aufnehmen unter* (‘include among’) the function of *unter* deviates substantially from its common spatial meaning ‘under’. Figure 1 depicts the differences in the degree of lexicalization of the prepositional slot in a schematic way:



**Figure 1:** The lexicalization continuum of PREP in German PV constructions.

Identifying the PV, and not the verb per se, as the central verbal unit of the sentence does not mean that the methodological problem with the complement/adjunct distinction simply disappears. In the sentences (1) and (2) below, it is not immediately clear whether the highlighted PPs have complement or adjunct status, even when the analysis focuses on the PV rather than the verb alone<sup>2</sup>:

<sup>2</sup> Unless indicated otherwise, all example sentences in this chapter are taken from DeReKo. The translations are ours; they are source language biased for the purposes of the analysis and not intended to be stylistically entirely adequate. The following abbreviations are used in the glosses: NOM: nominative, ACC: accusative, DAT: dative, PREP: preposition, REFL: reflexive, PV: prepositional verb, PVPARTICLE: particle of the prepositional verb, SUBJ: subjunctive (‘Konjunktiv’).



- (1) *Eine 69 Jahre alte Frau hatte auf ihrem Herd einen Topf*  
 a 69 years old woman.NOM had on her stove.DAT a pot.ACC  
*mit Zucker, Essen und Früchten aufgesetzt.*  
 with sugar, food and fruit PV-put  
 'A 69-year-old woman had put a pot with sugar, food and fruit on the stove.'
- (2) *In ihrer Musik nahm sie schon vor Jahrzehnten*  
 in her music.DAT took she.NOM already before decades  
*verschiedene Stilrichtungen auf.*  
 different styles.ACC PVPARTICLE  
 'She already included different styles in her music decades ago.'

At first glance, *ihrem Herd* ('her stove') in (1) is simply a complement of *aufsetzen auf*. However, the following two observations should be taken into account: (i) the verb *aufsetzen* regularly occurs in the corpus together with a direct object NP but without an accompanying PP (e.g. *einen Topf aufsetzen* 'put a pot on the fire', *Nudeln aufsetzen* 'cook the pasta', *den Deckel aufsetzen* 'close the lid', *Wasser aufsetzen* 'put a kettle on' etc.); (ii) the combination of *aufsetzen* with a particular class of object nouns such as the aforementioned ones is highly conventionalized semantically; it designates an activity that is a prerequisite to boil, cook etc. a substance. These two observations suggest that the complement status of the phrase in the DAT may be less straightforward than originally thought. By contrast, in (2), DAT marking and the observed word order (*in ihrer Musik* 'in her music' is not immediately adjacent to the direct object *verschiedene Stilrichtungen* 'different styles') might be taken as indicating that the PP is an adjunct rather than a complement. In itself, however, the position of the PP is not a sufficient condition to classify it as an adjunct, in particular when the preposition takes ACC; compare (3):

- (3) *In diese Kita-Gruppe sollen mindestens zwei,*  
 in this day-care-group.ACC ought to at least two,  
*höchstens vier behinderte*  
 maximally four disabled  
*oder von Behinderung bedrohte Kinder aufgenommen werden.*  
 or by disablement threatened children.NOM on-taken got  
 'The plan is to allow at least two, maximally four, children who are disabled or threatened by disablement in this day care centre.'

The above observations suggest that no strict boundary can be drawn between complement PP and adjunct PP. We believe that a constructional account of prepositional argument structure constructions should go one step further and explicitly

acknowledge the possibility that with particular PVs a PP is in-between a complement and an adjunct. In this study we show that assuming a gradient distinction between complement and adjunct from the perspective of the constructions in which PPs are realized allows for a more realistic account of the data we will be investigating than when a strict boundary between complements and adjuncts is assumed from the point of view of the verb and its specific valency. This also creates a possible avenue for analyzing prepositional argument structure constructions in terms of a network of interrelated constructional patterns in which the case marking in one pattern may influence the case marking in another one.

## 2.2 The meaning/function of two-way prepositions

In Duden (2007), which is devoted to unclear cases (“Zweifelsfälle”) in German grammar as well as questions of adequate style, there are separate entries for 73 PVs which occur both with ACC and DAT. Three-quarters of these PVs are particle verbs that consist of a root verb in combination with a particle (*an-*, *auf-*, *ein-*, *nieder-*, *unter-* etc.), but *basieren auf* (‘be based on’), *münden in* (‘flow into, result in’), *entladen über* (‘unload, discharge, go off over/above’), *verschwinden in* (‘disappear in/into’) etc. show that the case alternation also applies to other types of PVs (cf. Section 4 below for further discussion). Most of the entries in Duden (2007) focus on the question whether either ACC or DAT is preferred, which as a rule is illustrated with examples. Some entries additionally provide a semantic/functional explanation for the case alternation. The fact that Duden (2007) deems it necessary to list several dozens of PVs and comment on their case alternation should not come as a surprise. The case alternation with two-way prepositions is a notoriously difficult part of German grammar, not only from a theoretical but also from an acquisitional point of view (Sylla 1999, Baten 2009, Baten and Willems 2012). However, the way the case alternation is commonly treated in textbooks of German might suggest that it is fairly straightforward. The alternation is usually explained by means of the conceptual difference between ‘motion’/‘directionality’ and ‘location’/‘state’, a distinction which is familiar from the grammar of the classical languages Greek and Latin. This conceptual explanation is also common in current cognitive accounts, albeit adjusted to the basic assumptions of the cognitive framework (see, e.g., Langacker 1987, 1999, Smith 1995, Serra-Borneto 1997, among others).

In Duden (2006), the variability of the case marking is partly explained on the basis of Smith’s (1995) conceptual treatment of certain German verbs (“endpoint focus verbs”) whose meanings encompass both the path and the endpoint of a directional event. With such verbs, ACC is said to instantiate a focus on

the path, whereas DAT brings the endpoint into focus (cf. Lakoff 1987: 422–424, Smith 1995: 297–304, Duden 2006: § 913; see Willems 2011a for discussion). In (4) the use of ACC with the reflexive PV *sich einschließen in* ('lock oneself up in') is said to entail a focus on the directionality of someone entering his room and locking himself up, whereas DAT in (5) emphasizes the eventual state of being locked up in the room:

(4) *Er schloss sich in sein Zimmer ein.*  
 he.NOM locked REFL.ACC in his room.ACC PVPARTICLE  
 'He locked himself up in (into) his room.'

(5) *Er schloss sich in seinem Zimmer ein.*  
 he.NOM locked REFL.ACC in his room.DAT PVPARTICLE  
 'He locked himself up in (into) his room.'

It is further maintained that with some verbs, DAT is associated with a concrete interpretation and ACC with an abstract interpretation (Duden 2006: §913), e.g.:

(6) *Sie hat sich schnell in die neue Schule eingelebt.*  
 she.NOM has REFL.ACC quickly in the new school.ACC PV-settled  
 'She has settled quickly in (into) the new school.'

(7) *Sie hat sich schnell in der neuen Schule eingelebt.*  
 she.NOM has REFL.ACC quickly in the new school.DAT PV-settled  
 'She has settled quickly in (into) the new school.'

DAT in (7) would entail that the new school is the actual building to which a person has been transferred, whereas ACC in (6) refers to the educational institution. Since abstractness/concreteness and directionality/state are not correlating categories, it is not clear from the observations in Duden (2006) whether a path-endpoint opposition is also in effect here, or how both oppositions could be united in a comprehensive explanation.

To these general remarks Duden (2007) adds some interesting observations regarding several of the PVs included in the volume.<sup>3</sup> For 45 out of the 73 items that are listed, either a weak or a strong preference for one of the two cases is

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<sup>3</sup> An anonymous referee points out that Duden (2007) is intended as a normative guideline for lay people, with occasional pseudo-scientific explanations. However, similar explanations have been proposed elsewhere in the literature, e.g. Smith (1995) and Serra-Borneto (1997), which have no normative purposes, and Duden (2006) explicitly draws on Smith (1995).

postulated. According to Duden (2007), the case alternation with 17 verbs is influenced by specific semantic and morpho-syntactic factors. For example, it is claimed that ACC with *aufnehmen* *in* is only correct if the included person or object is conceived in such a way that it becomes a permanent part of the incorporating entity; if the inclusion is temporary, then DAT is required. Compare (8) and (9) (Duden 2007: 115):

- (8) *Ich nahm den jungen Mann als Schwiegersohn in meine Familie auf.*  
 I.NOM took the young man.ACC as son-in-law in my family.ACC  
 PVPARTICLE  
 'I adopted the young man as a son-in-law into my family.'
- (9) *Ich nahm ihn als Feriengast in meiner Familie auf.*  
 I.NOM took him.ACC as holiday guest in my family.DAT PVPARTICLE  
 'I adopted him as a holiday guest into my family.'

However, it is not at all clear how the precise nature of the inclusion relationship is to be determined and there is an obvious danger of circular reasoning. In (8) and (9), for instance, it can be argued that the lexical meanings of *Schwiegersohn* ('son-in-law') and *Feriengast* ('holiday guest') trigger the permanent and temporary readings. It stands to reason that the relationship between a family and a son-in-law is ordinarily considered to be of a more permanent nature than the relationship between a family and a holiday guest. But this type of information is contained in the lexical meanings of the words used in the sentences, not in any grammatical feature. Not surprisingly, if in both sentences the apposition introduced by *als* is omitted, it is no longer possible to tell whether the inclusion is permanent or not. It could be argued that more detailed information about the larger contextual setting, which might or might not be present in the text as a whole, is necessary in order to determine the functional difference between ACC and DAT. Moreover, the fact that in Duden (2007) obligatory case selection is restricted to a particular subset of PVs seems to imply that whenever such detailed information is not available, the case marking might vary depending on the speaker's own choice. But if sentences turn out to lack the necessary contextual cues to verify on what basis a particular case is selected, then the risk of circularity is again apparent, since the primary reason for ascribing a certain meaning difference to alternating cases would be the case marking itself.

Duden (2007: 119, 287) mentions two more semantic factors that might influence the case alternation with a number of PVs:

- literal (DAT) vs. figurative use (ACC), e.g. *sich entladen über* ('go off above'):  
*Das Gewitter entlud sich über dem See.*  
 the thunderstorm.NOM went off REFL.ACC above the lake.DAT  
 'The thunderstorm came down above the lake.'  
*Sein Zorn wird sich über mich entladen.*  
 his anger.NOM will REFL.ACC over me.ACC go off  
 'His anger will come over me.'
- the difference in prepositional meaning, e.g. *ausbreiten auf* (DAT)/*über* (ACC) ('spread, unfold on/over'):  
*die Decke auf dem Rasen ausbreiten*  
 the blanket.ACC on the lawn.DAT out-spread  
 'spread the blanket on the lawn'  
*Nebel breitete sich über das Land aus.*  
 fog.NOM spread REFL.ACC over the land.ACC PVPARTICLE  
 'Fog rolled over the land.'

Among the morpho-syntactic factors that possibly play a role in the case marking, Duden (2007: 116, 262, 913) mentions:

- nominalization of the verb, e.g. *unterbringen in* ('place, house in'):  
*Kannst du den Anzug noch im Koffer*  
 can you.NOM the suit.ACC in addition in the suitcase.DAT  
*unterbringen?*  
 under-place  
 'Could you also store the suit in the suitcase?'  
*die Unterbringung in ein/einem Krankenhaus*  
 the accommodation in a hospital.ACC/DAT  
 'the accommodation in a hospital'
- passive voice, e.g. *einfügen in* ('put in/into'):  
*ein Zitat in den Text einfügen*  
 a quote.ACC in the text.ACC in-put  
 'add a quote to the text'  
*Wie viel Steinchen sind in diesem Mosaik eingefügt?*  
 How many pieces.NOM are in the mosaic.DAT in-put  
 'How many pieces are inserted in (into) the mosaic?'
- transitivity, e.g. *aufsetzen auf* ('set down on, land on, base on'):  
*Der Pilot setzte die Maschine sicher auf die Piste*  
 the pilot.NOM put the plane.ACC safely on the runway.ACC

*auf.*

PVPARTICLE

‘The pilot put the plane down safely on the runway.’

*Das Flugzeug setzte sanft auf dem Boden auf.*  
 the plane.NOM put gently on the ground.DAT PVPARTICLE  
 ‘The plane landed gently on the ground.’

This short survey of factors that may contribute to the ACC/DAT alternation with two-way prepositions can be read as an invitation to clarify the alternation from a constructional point of view. Because the constructional approach pays particular attention to the relationship between patterns and the lexical and grammatical properties of the items that occur in the slots of the patterns, it looks to be a promising approach to determine the relative preference for one or the other case in virtue of a set of simultaneously motivating factors. Moreover, many constructional approaches currently use quantitative methods, making these approaches particularly suited to investigate the role of a diverse set of potentially interacting factors not only in qualitative terms but also on a statistical basis. In the next section we discuss the methodology of the study and present the different factors we consider in the ensuing analysis.

## 3 Methodology

### 3.1 Qualitative and quantitative approach

A promising step towards a better understanding of the ACC/DAT alternation in prepositional argument structure constructions is to establish a detailed, statistically underpinned overview of the correlations of both cases with lexical elements, different constructional patterns and various other factors as they occur in natural language. The application of quantitative methods has not yet been used to study the motivations behind the case alternation with two-way prepositions in German. Previous accounts have primarily relied on self-constructed examples, or at best on a selective analysis of small corpus samples. As will become clear in the next sections, a multifactorial, corpus-based approach to the ACC/DAT alternation is able to detect the simultaneous influence of several factors in a sentence. At the same time, we must bear in mind that a statistical delimitation of correlations is only one of the instruments in the search for a comprehensive qualitative explanation. Statistical analysis subserves the qualitative interpretation of the findings but we want to go beyond predicting the co-occurrence of constructions

with a potentially large array of factors (presented in some recent studies as the primary goal of variational corpus linguistics, e.g., Stefanowitsch and Gries 2003, Gries and Stefanowitsch 2003, Gries 2003). Constructions are, after all, pairings of form and meaning/function that play a role in the production and comprehension of language in communicatively specific contexts of utterance. At the same time, the meanings/functions of constructions cannot be grasped to their full extent if we do not relate observed co-occurrences in discourse to the semantics of both the constructional patterns and the instantiating parts.

### 3.2 Data set

From the group of 73 PVs described in Duden (2007), we selected two verbs based on their diverse morpho-syntactic and lexical-semantic properties and the alleged different factors that motivate the case alternation: *aufsetzen auf* and *aufnehmen in*. For both PVs, we extracted all available observations from DeReKo, a multi-billion word corpus of written present-day standard German consisting mainly of edited newspaper articles (the sentences were extracted in 2014; since then DeReKo has kept growing in size). Of this first sample, we removed the observations from Swiss and Austrian sources, to exclude interference from macro-regional variety.<sup>4</sup> We also excluded the observations in which the PP is readily analyzable as a spatial adjunct<sup>5</sup> (see also Section 4 below). Finally, in order to ensure that all sentences were analyzable for the morpho-syntactic factors included in the study, all non-verbal (i.e. adjectival, nominal and infinitive) uses were removed. This resulted in a data set of N = 1098 observations (*aufsetzen auf*: 644, *aufnehmen in*: 454).

### 3.3 Corpus annotation

All observations were annotated for two types of factors: one lexical-semantic factor, viz. the conventionalized senses the PV takes on in particular occurrences, and three morpho-syntactic factors, viz. voice, perfect tense, and transitivity. In accordance with the constructional approach, we do not consider the boundaries between the two types of factors to be strict. The morpho-syntax of a language

<sup>4</sup> Regional preferences within Germany may also have an effect on the case alternation. However, in this study we do not examine regional differences, nor differences relating to register and style.

<sup>5</sup> Compare, e.g.: *Die Fotos sind alle in der Region aufgenommen.*  
 the photos.NOM are all in the region.DAT on-taken  
 ‘All photos are taken in the region.’

contributes to linguistic meaning just as lexical-semantic motivations of an alternation are, as a rule, reflected in the syntax. However, there are good methodological reasons to keep both types separated in the analysis. The morpho-syntactic properties envisaged in this study are general (“higher-level”) properties that can be used as the basis for an analysis of the data set as a whole, potentially allowing generalizing conclusions that span all observations. On the other hand, the lexical-semantic factor we take into account is item-specific, i.e. applicable to a particular (“lower-level”) PV (for a discussion of the relationship between different levels of the lexicality-schematicity hierarchy, see Croft 2003, Boas 2009, Barðdal 2011, among others). Our selection of factors has been partly based on previous analyses and assumptions in the literature, partly on preliminary corpus analyses. The selection is not exhaustive and other factors may prove pertinent, but in selecting the factors we discuss below our major concern was that they are relevant to a corpus-based analysis of the two PVs under investigation. We excluded the meaning of the preposition as a factor from the study. Defining the meaning of prepositions is a contentious issue, given the apparent multifunctionality of most prepositions, which has led linguists to propose complex prepositional polysemy networks (cf. Tyler and Evans 2003 and the discussion in Van der Gucht, Willems, and De Cuyper 2007). We now turn to a presentation of the four factors.

– *Voice*. Sentences were annotated as either active or passive. Duden (2006: 617) claims that in sentences with a *sein*-passive, case marking corresponds, as a rule, to the equivalent active sentence, which means that the ‘stative’ meaning associated with the passive construction (whence ‘Zustandspassiv’) bears no consequences for the case marking. In Duden (2007), however, five verbs are described as preferring DAT when used in the passive voice, viz. *einfügen in* (‘insert into’), *einnähen in* (‘sew into’), *einpflegen in* (‘enter into’), *einschreiben in* (‘register in’), *gründen auf* (‘base on’). Consider the following examples with *einnähen in*:

(10) *Er hat das Geld in die Jacke eingenäht.*  
 he.NOM has the money.ACC in the jacket.ACC in-sewn  
 ‘He has sewn the money into the jacket.’

(11) *Das Geld ist in der Jacke eingenäht.*  
 the money.NOM is in the jacket.DAT in-sewn  
 ‘The money is sewn into the jacket.’

The case alternation illustrated in (10)–(11) is in line with the viewpoint discussed in Section 2.2 which contrasts a focus on the ‘path’ (directionality) with ‘endpoint focus’ (cf. Ágel 2000: 157 for a similar analysis). It might therefore be assumed



that with some PVs the passive voice has a preference for DAT. It would also be interesting to see whether the semantic differences between *werden*-passives and *sein*-passives are associated with different case preferences. However, due to the low occurrence in our data set of *sein*-passives compared to the number of *werden*-passives, it is not possible to compute reliable statistics. We therefore leave this question for future research.

– *Perfect tense*. It has long been assumed that the presence of a past participle (in the present perfect or past perfect tense, but also as an adjective) which denotes the perfective aspect of an event motivates the use of DAT (cf. Paul 1920: 11–12, Dal 2014: §45). In essence, this follows from a similar reasoning as the one used to associate the passive voice with DAT, given that perfect tenses usually indicate the resulting state of an event rather than the event itself.

– *Transitivity*: Each observation was annotated for transitivity. Whereas for *aufnehmen* in transitivity was found to be an invariable factor, *aufsetzen auf* allows for both the transitive and intransitive use. In accordance with common practice, reflexive uses were considered as transitive (albeit of a special nature). Passive sentences were also considered as transitive, even if there was no expressed agent (impersonal passives did not occur in our data). With regard to *aufsetzen auf*, Duden (2007) maintains that transitive use is associated with ACC which is said to correlate with the designation of “direction” (“weil eine Richtung bezeichnet werden soll”, Duden 2007: 116; cf. also Ágel 2000: 165). The link between ACC and directionality is however difficult to maintain if figurative uses are taken into account. In (12) and (13), a directional reading is improbable, regardless of the transitivity of the sentences:

- (12) *TCP*            *setzt*            *in den meisten Fällen*            ***auf das IP-Protokoll***  
 TCP.NOM    places    in most cases                    on the IP-protocol.ACC  
*auf.*

PVPARTICLE

‘In most cases, TCP builds on the IP-protocol.’

- (13) *Wir*            *brauchen*    *zunächst*    *eine inhaltliche Basis,*  
 we.NOM    need            first            a content-related basis.ACC,  
***aufder*** *wir*            *diese Aktionen*    *dann aufsetzen können.*  
 on the.DAT we.NOM these actions.ACC then on-place can  
 ‘First, we need a broad and firm basis on which we can then build these actions.’

In both sentences, there is a basis on which something is or will be built, but this relationship is not directional. Moreover, what is built can hardly be said to

‘move onto’ something else in (12) because of ACC but not in (13) because of DAT. Of course, this does not exclude the possibility that transitivity indeed influences the case marking, but then we should be able to define the role of transitivity in more generally applicable terms.

– *Conventionalized sense.* We consider this factor to be pivotal to the development of a well-founded, realistic constructional approach to the case alternation under investigation. Defining a finite number of conventionalized senses is a means to arrange the various semantic relationships between a PV and the different contexts of use in the sample sentences in a systematic way. There is an almost infinite range of semantic properties that can be ascribed to individual naturally occurring sentences. Demarcating these properties consistently depends to a large extent on the accuracy of context- and discourse-driven interpretations of as many observations as possible. In the past it was customary to define a set of semantic properties that might influence case marking on the basis of a small sample of (artificial) examples. Because the drawbacks of such an approach are obvious, we decided to inductively define a number of conventionalized senses similar to “default interpretations” in the pragmatics literature. Before proceeding with the definition of the conventionalized senses we propose for *aufsetzen auf* and *aufnehmen in*, we first outline the theoretical assumptions of our approach to meaning.

Regarding the different types of “meaning” that can be distinguished in the analysis of prepositional argument structure constructions with a PV, we follow the “layered” approach to semantics advocated by Coseriu (1970, 1975, 2001) and neo-Gricean linguists (cf. Grice 1989 and Levinson 2000). In particular, we adopt the “three-level” approach to meaning, i.e. the view that “meaning” is a complex phenomenon in which at least three different but interdependent semantic layers have to be distinguished. While Coseriu primarily focuses on the meaning of lexical items and word formations, Grice and Levinson concentrate on sentence meaning. Coseriu (1970: 108–116, 1975: 64–101, 2001: 248–249) makes a distinction between the following levels (cf. Willems 2001, 2013 for discussion):

- Level 1: the general systemic *meaning* defined by the contrasts that hold between language-specific lexical items or constructions (“paradigmatic relations”, following Saussure’s theory of “valeurs” and “signifiés”, see Willems 2011b);
- Level 2: the “normal language use” of a lexical item or construction in which the general systemic meaning of Level 1 is enriched by conceptual and pragmatic knowledge, yielding a conventionalized *sense*, i.e. a “default” or “preferred” interpretation;

Level 3: the unique, referential *reading* that accrues to a lexical item or construction in the process of their interpretation in a particular contextual setting; this reading may or may not coincide with Level 2.

The major distinctions in Grice's and Levinson's "three-leveled theory of meaning" (Levinson 2000: 25) are conceived along similar lines, with, however, differences in focus. These authors emphasize the need to separate two types of utterance-meaning ("utterance-token-meaning" and "utterance-type-meaning") and one sentence meaning. "Sentence meaning" corresponds to the abovementioned Level 1; it constitutes the semantic layer of a sentence that is to be explicated by the theory of grammar. "Utterance-token-meaning" corresponds to Level 3; it constitutes the speaker-meaning which is a matter of the "actual nonce or once-off inferences made in actual contexts by actual recipients with all their rich particularities" (Levinson 2000: 22). Finally, there is the "utterance-type-meaning" which corresponds to Level 2; it is "a level of systematic pragmatic inference based *not* on direct computations about speaker-intentions but rather on general expectations about how language is normally used" (Levinson 2000: 22, emphasis in the original). It is this intermediary level which Levinson defines as the layer of "generalized conversational implicatures", "default inference" or "preferred interpretation" (Levinson 2000: 11, 21). The Coserian level of "normal language use" and Levinson's "generalized conversational implicatures" are no monolithic or static strata. They generalize over similar specific usage norms and allow for variation among speakers and speaker groups within limits.

Regarding the two PVs under investigation, the "three-level" approach results in the identification of the following conventionalized senses on "Level 2"<sup>6</sup>:

*aufsetzen auf*:

a) SET DOWN ON: 'X or Y sets down, or Y is set down by X, on a surface Z'; e.g.:

- (14) *Mehrere Versuche, die Kugel auf den Pylon*  
 several attempts.NOM, the ball.ACC on the pylon.ACC

---

<sup>6</sup> In this study, conventionalized senses are rendered as verbs and in capital letters for the sake of clarity. The ensuing classification is based on extensive preliminary corpus analyses. Only senses that were attested in our data set are included. The senses we identified were cross-checked by comparing them with the semantic definitions of the two PVs provided in two standard dictionaries of present-day German, viz. Duden (1999) and Klappenbach & Steinitz (1978). We use the following symbols to designate the participant roles: X = Agent, Y = Theme or Patient, Z = Ground (the reason why we choose the term 'Ground' for the Z role will be made clear as we go along). In intransitive sentences with *aufsetzen auf* the subject may either be X or Y (see Section 4).

*der Severinsbrücke aufzusetzen, schlugen fehl.*

of the Severin bridge on-to-put, failed

‘Several attempts to place the ball on the pylon of the Severin bridge failed.’

b) LAND ON: ‘Y is put down by X, or X/Y lands, on a surface Z’<sup>7</sup>; e.g.:

(15) *Der Pilot startete durch und setzte die Maschine*  
the pilot.NOM started through and put the plane.ACC

***auf einer anderen Landebahn des Hamburger Flughafens auf.***

on another runway.DAT of the Hamburg airport PVPARTICLE

‘The pilot made a go-around and put the plane down on another runway of Hamburg airport.’

c) BASE ON: ‘X or Y build, or Y is based by X, on a foundation Z’; e.g.:

(16) *JEPI setzt auf dem Hypertext Transfer Protocol auf.*

JEPI.NOM puts on the Hypertext Transfer Protocol.DAT PVPARTICLE

‘JEPI is based on the Hypertext Transfer Protocol.’

*aufnehmen in:*

a) ALLOW (AS A MEMBER): ‘X adds Y as a member to a group Z’; e.g.:

(17) *Maximal zehn Kleinkinder können in einer Gruppe*  
maximally ten small-children.NOM can in one group.DAT

***aufgenommen werden.***

on-taken get

‘A maximum of ten small children can be part of one group.’

b) INCORPORATE: ‘X includes Y as an integral part into Z’; e.g.:

(18) ***Im Finanzierungsplan des städtischen Haushalts***

in.the finance-plan.DAT of.the city budget

***werde die Maßnahme daraufhin aufgenommen.***

will be.SUBJ.PASSIVE the measure.NOM then on-taken

‘It is said that the measure is then incorporated into the finance plan of the city budget.’

c) SHELTER: ‘X offers Y shelter in Z’; e.g.:

(19) *In Bremen nahm sie eine bosnische Flüchtlingsfamilie*

in Bremen took she.NOM a family.ACC of Bosnian-refugees

***in ihr Haus auf.***

in her house.ACC PVPARTICLE

‘In Bremen, she took a family of Bosnian refugees into her home.’

<sup>7</sup> The most frequent instantiation of this sense is with regard to an airplane landing on a runway but various kinds of vehicles and landing surfaces can be involved (compare, e.g., *Der Korb mit den fünf Insassen konnte gerade noch auf dem Flachdach eines vierstöckigen Hauses aufsetzen* ‘Just in time the basket with the five passengers could land on the flat roof of a four story building’).

d) ASSIMILATE MENTALLY: ‘X assimilates, or absorbs, a (mental or sensory) perception Y into Z’; e.g.:

- (20) *So habe ich diese Magie in mich aufgenommen.*  
 so have I.NOM that magic.ACC in me.ACC on-taken  
 ‘In this way I took up and absorbed the magic.’

### 3.4 Statistical analysis

We used the classification tree approach (see Breiman et al. 1984, Baayen 2008: 148–154) to evaluate the effects of the four factors on the choice of case. Classification tree modeling is a data mining tool that is traditionally used in exploratory data analysis.<sup>8</sup> Two of its main advantages are that a classification tree easily sorts through complex and unbalanced data and that it can straightforwardly uncover interaction effects that may stay unnoticed in other models. The method is well-suited for our data analysis, which purports to reveal the potential effects of simultaneously interacting factors. Numerous algorithms have been created to fit a classification tree. Basically, each algorithm performs a stepwise splitting of the data into successive subgroups with respect to the outcome variable. In this study, we have applied the algorithms provided in SPSS 20 to fit our models. The specific algorithm that we used is reported in Section 4. One known issue with classification tree modeling is that different trees can often be fit to the same data. We have fitted several trees to our data, but only report our final model. We evaluated the quality of our fitted trees based on their predictive accuracy after split-sample validation. Following the principle of parsimony, we also tried to establish a minimal adequate model (Crawley 2007), i.e. the tree that was able to classify most of the data based on the least number of variables.

## 4 Results and discussion

In this section we present the statistical findings and discuss what qualitative conclusions can be drawn from them. In Section 4.1 we set up a framework for evaluating the role of transitivity in a constructional account of the case alternation with PVs. This is the backdrop against which we interpret the statistical findings for *aufsetzen auf* and *aufnehmen in* in Sections 4.2 and 4.3.

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<sup>8</sup> Other examples of linguistic studies that use classification tree analysis include De Backer & De Cuypere (2012), Tagliamonte & Baayen (2012), and Vanderscheuren & De Cuypere (2013).

## 4.1 Constructions, transitivity and case alternation: a constructional framework

In Section 3.3 we introduced the morpho-syntactic factor transitivity. Transitivity is a central notion in modern functional accounts of argument structures (in particular since Hopper and Thompson 1980) and occupies a prominent position in many constructional accounts as well. In order to determine the probability of transitivity as a principal motivating factor in the case alternation under investigation, we conducted a preliminary corpus study. We extracted a sample from DeReKo with six PVs which were selected in view of their differences in transitivity as outlined in Table 1 (cf. Rys, Willems, and De Cuypere 2014).

**Table 1:** Profiles of six PVs with respect to the factor transitivity.

prepositional verb	intransitive use	transitive use
<i>aufsetzen + auf</i> ('set down on etc.')	yes	yes
<i>aufnehmen + in</i> ('incorporate, allow etc.')	no	yes
<i>versinken + in</i> ('sink, disappear in/into')	yes	no
<i>versenken + in</i> ('sink in/into')	no	yes
<i>einsinken + in</i> ('sink in/into')	yes	no
<i>einsenken + in</i> ('sink in/into')	no	yes

The total corpus sample for this part of the study contained  $N = 2177$  observations. We found that *versinken in*, *versenken in* and *aufsetzen auf* most often occurred with DAT and *einsinken in*, *aufnehmen in* and *einsenken in* most often with ACC ( $\chi^2(5) = 670$ ,  $p$ -value  $< 0.0001$ ,  $\varphi_c = 55\%$ )<sup>9</sup> (Table 2). Based on the six PVs in Table 2, there is a statistically significant correlation between transitivity and case marking, cf. Table 3 ( $\chi^2(1) = 445$ ,  $p$ -value  $< 0.0001$ ,  $\varphi_c = 45\%$ ).

The effect of the factor transitivity is comparable to the effect of the PV itself ( $\chi^2 = 670$ ,  $df = 5$ ,  $p$ -value  $< 0.0001$ ,  $\varphi_c = 55\%$ ). Yet, there is no straightforward one-to-one relationship between each particular PV and transitivity: while *einsenken in* and *aufnehmen in* are only used transitively and indeed occur with ACC much more often than with DAT, so does *einsinken in* which is only used intransitively. Conversely, the strictly transitive *versenken in* prefers DAT instead

<sup>9</sup>  $\varphi_c$  (Cramér's  $V$ ) is a widely adopted measure of the strength of the association between two variables, in this case transitivity and case marking with a two-way preposition (either ACC or DAT).

**Table 2:** Bivariate distribution of the PVs with respect to case.

prepositional verb	ACC	DAT
<i>versinken in</i>	38 (8%)	419 (92%)
<i>versenken in</i>	91 (23%)	306 (77%)
<i>aufsetzen auf</i>	213 (33%)	431 (67%)
<i>einsinken in</i>	104 (53%)	91 (47%)
<i>aufnehmen in</i>	382 (84%)	72 (16%)
<i>einsenken in</i>	27 (90%)	3 (10%)

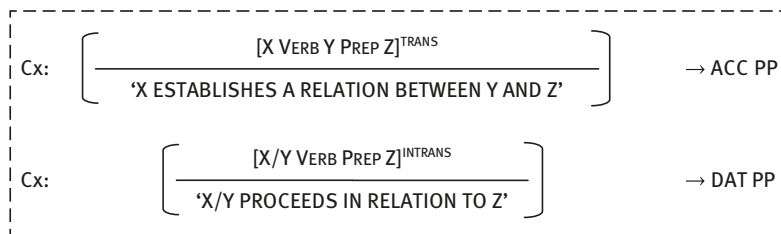
**Table 3:** Bivariate statistics of the factor transitivity with respect to case.

transitivity	ACC	DAT
intransitive	169 (16%)	873 (84%)
transitive	686 (60%)	449 (40%)

of ACC in our data set. On the basis of these findings and in accordance with the premises of the constructional approach, we consider transitivity not only to be a property of the valency of particular (prepositional) verbs but also a defining property of argument structure constructions. Based on previous accounts and the values in Table 3 (intransitive/DAT: 84%, transitive/ACC: 60%), we furthermore assume, as a working hypothesis, that the PP in the transitive construction defaults to ACC, whereas the PP in the intransitive construction defaults to DAT. Under this view, deviations from the default correlations are especially in need of elucidation.

One of the basic assumptions of constructional approaches to which we subscribe is that constructions are form-meaning pairings. While the formal definition of a construction is rarely a subject of dispute, the way its meaning is to be defined is more controversial. We hold the view that higher-level constructional meanings are of a general (“schematic”) nature. In addition to the working hypothesis regarding the correlation of (in)transitivity and the case alternation of the PP, we therefore posit the following pairings of form and meaning for prepositional argument structure constructions (Figure 2).

The semantic paraphrases of the transitive and intransitive construction in Figure 2 are intended to convey higher-level schematic meanings. They unite, in constructionally different ways, the categorial meaning of a VERB with the instrumental meaning of a PREP as part of the two prepositional argument structure constructions under investigation. Contrary to lexically-based constructional



**Figure 2:** The correlation between transitivity, constructional meanings and the case marking of the two-way preposition in prepositional argument structure constructions.

approaches which emphasize constructional polysemy and prototypical central senses (cf. Goldberg 1995, Fried and Östman 2004, among others), we stress that the proposed paraphrases target the “Level 1” meanings of the constructions, as explained in Section 3.3. It is imperative that these constructional meanings are not confounded with particular meanings of lexical items or specific conventionalized senses (see Coene and Willems 2006 why it is undesirable to mix up different layers of meaning in the definitions of constructional meanings). As a result, any paraphrase of a constructional pattern is at best an approximation of its schematic meaning (see in this regard Coseriu 2001: 69–107 and 355–369 for useful discussions of the relationship between language and metalanguage). Importantly, both paraphrases in Figure 2 remain underspecified, in the sense that they are general enough to encompass the entire range of PVs, not just those we consider in this chapter. The general concepts ESTABLISH and PROCEED render the two categorial meanings of VERB, while the proposed instrumental meaning RELATION bears out the relational nature of PREP (see Van der Gucht, Willems & De Cuyper 2007 for further discussion).<sup>10</sup> In the intransitive pattern, either the Agent role (X) or the Patient or Theme role (Y) can occupy the subject slot.<sup>11</sup>

**10** In response to a comment of an anonymous referee, it is worth pointing out that these are semantic paraphrases of VERB and PREP with respect to prepositional argument structure constructions, bearing in mind that we are focusing on combinations of verbs and two-way prepositions which are themselves defined as constructions (see Section 2). This excludes cases such as the following one, given that there is no prepositional verb *essen auf* in German: *Klaus isst Nüsse auf dem Fußboden* (‘Klaus is eating nuts on the floor’).

**11** Compare, e.g., the following examples with *aufsetzen auf* (examples from DeReKo):

*Mit Tempo 90 setzte er das Flugzeug*  
at 90 km per hour put he.NOM the plane.ACC

*auf dem Brachgelände neben der Autobahn auf.*  
on a waste-land.DAT near the motorway PVPARTICLE

‘At 100 kilometers per hour he put the plane down on a wasteland near the motorway.’



It may even be the case that both roles merge into a single role which is undetermined for agency.

In the following two sections we will look at the case marking regularities that can be observed when the two constructions in Figure 2 are instantiated (or “elaborated”, Goldberg 1997: 386) by the PVs *aufsetzen auf* and *aufnehmen in*.

## 4.2 aufsetzen auf

The subset with *aufsetzen auf* contains  $N = 644$  observations. 213 sentences occur with ACC (33.1%), 431 sentences with DAT (66.9%). Among the lexical-semantic factors the conventionalized senses yield the strongest effect. The classification tree in Figure 3 shows that *aufsetzen auf* mostly occurs with ACC when used in the sense SET DOWN ON and with DAT in the senses LAND ON and BASE ON. The effect is particularly strong with the sense LAND ON, which in 98.7% of all cases correlates with DAT.

Recall that *aufsetzen auf* can be used both transitively and intransitively. Among the morpho-syntactic factors transitivity is the only factor for which we found a significant effect. With the conventionalized sense SET DOWN ON the intransitive use is clearly associated with a preference for DAT and the transitive use with a preference for ACC. There is a small but nearly negligible effect of transitivity for the sense LAND ON: the intransitive use always correlates with DAT, but in the transitive use, too, DAT is dominant. ACC occurs in only four transitive observations of *aufsetzen auf* with the sense LAND ON.

We can evaluate the predictive accuracy of our statistical model by comparing the predictions of the model as they occur in the classification tree in Figure 3 with the cases observed in our data set. Table 4 cross-tabulates the predicted and observed categories. We can see that both ACC and DAT are correctly predicted in more than 92.1% of all cases (the misclassification risk is 7.9% after 10-fold cross-validation). This correct prediction rate is substantially higher than the baseline of 66.9% (the observed proportion of DAT in the data, see Node 0 in Figure 3).<sup>12</sup>

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<i>Der 65-jährige Pilot [...]</i>	<i>setzte</i>	<i>unbeschadet</i>	<b><i>auf einer Wiese</i></b>	<i>auf.</i>
the 65-year-old pilot.NOM [...]	put	unharmd	on a meadow.DAT	PVPARTICLE
‘The 65-year-old pilot [...] landed on a meadow without any injuries.’				
<i>Die Raumsonde “Near”</i>	<i>setzt</i>	<b><i>auf dem Gesteinsbrocken “Eros”</i></b>	<i>auf.</i>	
the space-probe ‘Near’.NOM	puts	on the rock ‘Eros’.DAT		PVPARTICLE
‘The space probe ‘Near’ lands on the rock ‘Eros’.’				

<sup>12</sup> We use the term “predicted” following common statistical parlance. Note, however, that the 10-fold cross-validation method only involves predictions within subsets of the current data set, we do not evaluate the prediction of our model outside our data set.

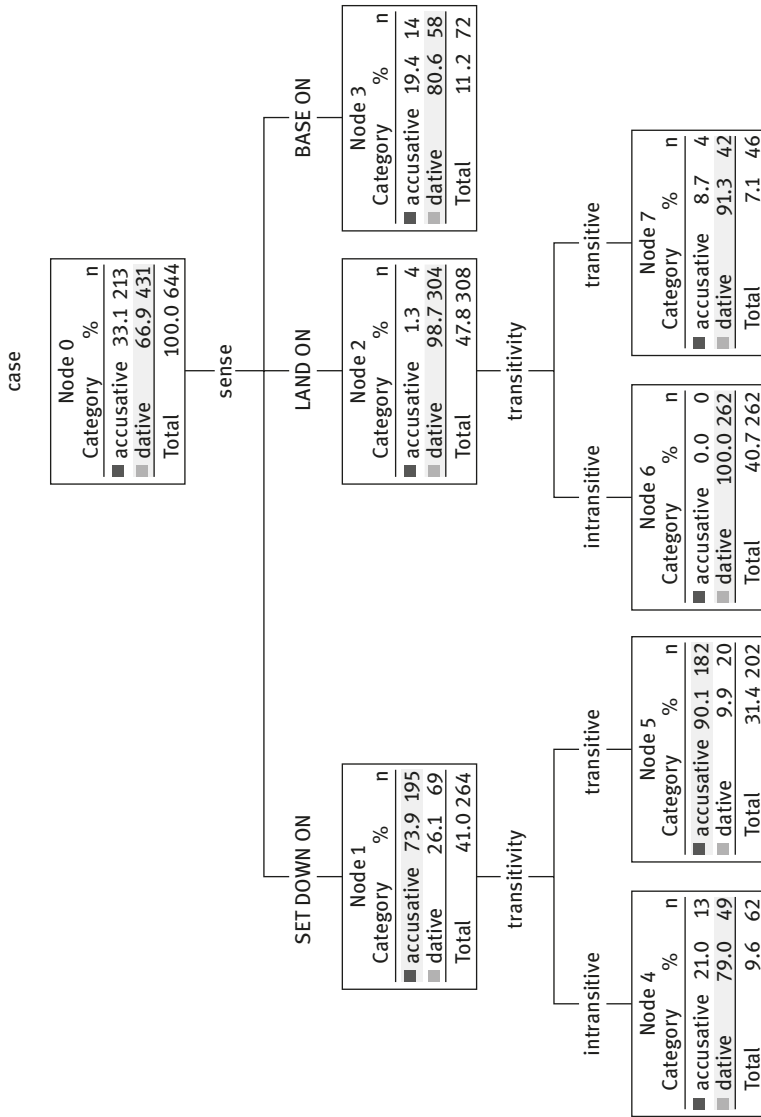


Figure 3: Classification tree for *aufsetzen auf*.

**Table 4:** Classification table for the estimated classification tree for *aufsetzen auf*.

Observed	Predicted		
	ACC	DAT	Correct
ACC	182	31	85.4%
DAT	20	411	95.4%
Overall percentage	31.4%	68.6%	92.1%

We now turn to a qualitative discussion of the findings. ACC is dominant (90%) in transitive sentences when *aufsetzen auf* is used in the sense SET DOWN ON and DAT is dominant (79%) across the intransitive occurrences, but exceptions occasionally show up in the data. For example, (21) is transitive, (22) is intransitive:

- (21) *Nun habe er den Wunsch, Dach- und Obergeschoss abtragen zu lassen, um auf dem übrigen Erdgeschoss ein Satteldach aufzusetzen.*  
 now has.SUBJ he.NOM the wish.ACC, attic and upper-floor.ACC  
 tear down to let, to on the remaining ground-floor.DAT  
 a saddle-roof.ACC on-to-put  
 ‘He now wishes to tear down the attic and the upper floor in order to put a saddle roof on the remaining ground floor.’

- (22) *Bei Grippe etwa sind zwar Viren die Auslöser, oft setzen jedoch bakterielle Infektionen auf die Erkrankung auf.*  
 with influenza about are in fact viruses.NOM the causes.NOM,  
 often put though bacterial infections.NOM on the illness.ACC  
 PVPARTICLE  
 ‘Although viruses are the causes of influenza, bacterial infections often superimpose themselves on the illness.’

On the other hand, the conventionalized sense LAND ON is associated almost exclusively with DAT, an effect of transitivity is hardly noticeable. There are four transitive sentences (out of 46 sentences) used in this sense with ACC PP, one of which is (23) below:

- (23) *Butterweich, beinahe lautlos setzt Pilot Wolfgang Absmeier (46)*  
 very gently, almost silently puts pilot Wolfgang Absmeier (46).NOM

*den Giganten auf das Rollfeld in Finkenwerder auf.*  
 the giant.ACC on the roll-field.ACC in Finkenwerder PVPARTICLE  
 ‘The pilot W.A. (46) puts the giant plane very gently, almost silently, on  
 the runway in Finkenwerder’

Finally, although the frequency of transitive sentences that realize the sense BASE ON is too low to draw definitive conclusions, it is noteworthy that the six transitive sentences in the data set (on a total of 66 sentences for this particular sense, i.e. 9%) all have DAT, as in (24).

(24) *Das Projekt konnte auf bestehenden Anwendungen  
 the project.NOM could on existing applications.DAT  
 aufgesetzt werden.  
 on-put get  
 ‘The project could further build on existing applications.’*

It is clear that the above findings only lend limited support to the common correlation of the case alternation and transitivity provided for *aufsetzen auf* (e.g. in Duden 2007: 116). The substantial qualification is that the correlation is only prominent in one particular conventionalized sense, viz. SET DOWN ON, not across all the occurrences of the PV in the data set. If the correlation is to reveal its true significance, the morpho-syntactic factor ‘transitivity’ must therefore be narrowed down in terms of the specific conventionalized senses of the PV. If we take the transitive and intransitive constructional patterns as a starting point, then the basic correlations that emerge are as in Figure 4.

In two of the three senses we have distinguished, case marking is essentially indifferent to the factor transitivity, barring occurrences of exceptional case marking, which of course calls for an explanation (see below). This observation goes against any attempt to link the case alternation directly to morpho-syntax. To account for the correlations in Figure 4, we propose to introduce a number of explanative contrasts on a constructional level. The PP in the intransitive construction defaults to DAT when the PV *aufsetzen auf* is instantiated, regardless of any particular conventionalized sense (but with exceptions). Conversely, in the transitive construction ACC is the preferred case for the PP when the constructional meaning ‘X ESTABLISHES A RELATION BETWEEN Y AND Z’ is instantiated as SET DOWN ON, but not when the conventionalized senses LAND ON or BASE ON are instantiated.

Under the assumption that ACC is the default case of the PP in the transitive construction, the conclusion can be drawn that the association between the

[X VERB Y PREP Z] <sup>TRANS</sup>		[X/Y VERB PREP Z] <sup>INTRANS</sup>	
'X ESTABLISHES A RELATION BETWEEN Y AND Z'		'X/Y PROCEEDS IN RELATION TO Z'	
1.	'X SETS DOWN Y ON Z' → ACC		'X/Y SETS DOWN ON Z' → DAT
2.	'X LANDS Y ON Z' → DAT		'X/Y LANDS ON Z' → DAT
3.	'X BASES Y ON Z' → DAT		'X/Y BASES ON Z' → DAT

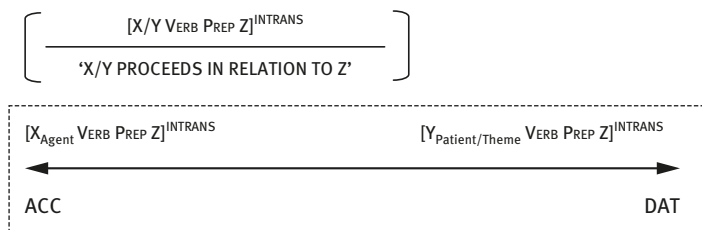
**Figure 4:** Case preferences of *aufsetzen auf* with different conventionalized senses.

conventionalized senses LAND ON and BASE ON and DAT is particularly strong, to the extent that it is able to override the association of the general constructional meaning and the default ACC marking of the PP. Put in other words: the stronger the bond is between a conventionalized sense and one of the two cases, the more the case marking of the PP tends to be “lexical”, i.e. tied to the PV as an item (itself a construction) of the lexicon with its own idiosyncratic properties, rather than “structural” (see Barðdal 2011 for a critical appraisal of the dichotomy between lexical and structural case). Moreover, with respect to LAND ON, an additional analogical motivation for DAT may very well play a role: the regular German verb which has LAND ON as its systemic (“Level 1”) meaning, *landen auf*, invariably selects DAT in DeReKo.

As illustrated in sentences (21)–(23) above, we found occurrences of exceptional case marking with the conventionalized senses SET DOWN ON and LAND ON, which need to be explained. We interpret exceptions such as these as the outcome of competing motivations for case marking. A constructional point of view proves helpful in accounting for such competing motivations. The ACC in (22) may be motivated by the fact that *Infektionen* (‘infections’) occupies a middle position between a typical Agent and a typical Patient or Theme role, making the sentence akin to the transitive structure with the sense SET DOWN ON which has an overtly expressed Agent and normally takes an ACC PP. This points to the need to further specify the intransitive construction at a finer level of granularity, viz. to posit a cline of subconstructional patterns which further specify argument roles and are intermediary between the general intransitive prepositional construction and specific PVs. This is schematically illustrated in Figure 5.

We claim that case variation is structurally linked to the cline presented in Figure 5. This is a further strong indication for the validity of the constructional approach. It provides a plausible explanation for why ACC occurs more often with the pattern on the left side of the cline:

$$[X_{\text{Agent}} \text{ VERB PREP Z}]^{\text{INTRANS}}$$



**Figure 5:** Subconstructional patterns of the intransitive prepositional argument structure construction with *aufsetzen auf*.

than with the – apparently more frequent and more entrenched – pattern on the right side:

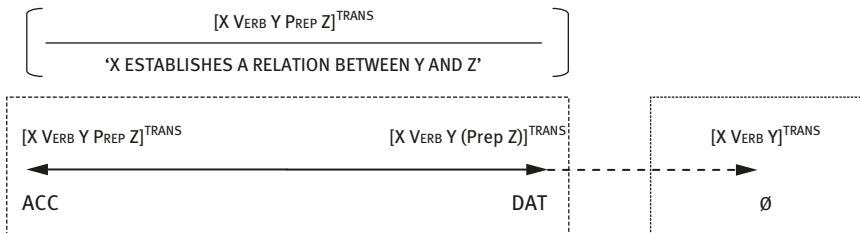
$[Y_{Patient/Theme} \text{ VERB PREP } Z]^{INTRANS}$

– even though the elaboration of the intransitive construction by *aufsetzen auf* is strongly associated with DAT PP.

In a similar vein, it can be argued that *auf dem übrigen Erdgeschoss* (‘on the remaining ground floor’) in (21) is midway between a complement and an adjunct, which may account for why DAT is preferred over ACC in this particular occurrence. There is again a constructional explanation to this. In DeReKo, *aufsetzen* most often occurs as part of the PV *aufsetzen auf*. However, we also found a considerable number of occurrences in which *aufsetzen* is used without a prepositional object, not only in intransitive sentences (e.g., *der Hänger setzte auf* ‘the trailer crashed’) but also in transitive sentences such as (25) and (26):

- (25) *Die Piloten konnten das Flugzeug sicher aufsetzen.*  
 the pilots.NOM could the plane.ACC safely PV:put  
 ‘The pilots succeeded in landing the plane safely.’
- (26) *Zwei Jahre später beschließen sie, das Rittergut zu retten und setzen ein neues Dach auf.*  
 two years later decide they.NOM the knight-manor.ACC  
 to safeguard and put a new roof.ACC PVPARTICLE  
 ‘Two years later they decide to safeguard the ancient manor and put a new roof in place.’

This observation underscores the need to distinguish subconstructional patterns with respect to the transitive construction as well, this time along the following lines:



**Figure 6:** Subconstructional patterns of the transitive prepositional argument structure construction with *aufsetzen auf*.

Figure 6 illustrates that the transitive prepositional argument structure construction can be placed on a cline with regard to two-way prepositions, ranging from the pattern

$$[X \text{ VERB } Y \text{ PREP } Z]^{TRANS}$$

in which the PP has full complement status, over the pattern

$$[X \text{ VERB } Y \text{ (PREP } Z)]^{TRANS}$$

in which the PP has a modifying status in-between a complement and an adjunct (represented by round brackets), to the altogether different argument structure pattern

$$[X \text{ VERB } Y]^{TRANS}$$

in which an added PP can only be an adjunct.<sup>13</sup> To further illustrate this continuum compare the examples below:

- (27) *Die Architektur*                      *setzt*  
 the architecture.NOM                  puts

**13** Given its gradient nature, it should not come as a surprise that the cline in Figure 6 may also interfere with what we call “constructional homonymy”. For instance, the sentence *Auch hatte der Fahrer seine vorgeschriebene Brille nicht aufgesetzt* (‘Moreover, the driver had not put on his glasses as required’) is analyzable as instantiating the right-most pattern on the cline. However, in DeReKo we did not come across sentences in which the collostruct (*seine*) *Brille aufsetzen* (‘put one’s glasses on’) was combined with an additional PP with *auf*, whereas external possessor constructions such as *jemandem/sich eine Brille auf die Nase setzen* (‘put glasses on someone’s/ one’s own nose’) (with accusative) were quite common. This proves that the central PV in this particular structure is not *aufsetzen auf* but *setzen auf*, which however may merge with *aufsetzen* in the pattern  $[X \text{ VERB } Y]^{TRANS}$  at the right end of Figure 6.

***auf dem Point-to-point-tunneling-Protocol (PPTP)*** *auf*.  
 on the PPTP.DAT PVPARTICLE  
 ‘The architecture is built on the basis of PPTP.’

- (28) [...] *produziert der Tänzer zwei unterschiedliche Rhythmen,*  
 produces the dancer.NOM two different rhythms.ACC,  
*zu deren Takt er seine Füße auf den Boden aufsetzt.*  
 to which beat he.NOM his feet.ACC on the ground.ACC on-puts  
 ‘the dancer produces two different rhythms and according to their beat he  
 puts his feet on the ground.’
- (29) *Wenn du nicht weißt, was du*  
 if you.NOM not know, what.ACC you.NOM  
*kochen willst, setzt erst mal einen Topf Kartoffeln auf.*  
 cook want, put first a pot of potatoes.ACC PVPARTICLE  
 ‘If you don’t know what to cook, start with putting a pot of potatoes on  
 the stove.’

The full complement status of the PP in (27) is clear from the observation that the sentence would become next to uninterpretable without the PP. At the other end of the cline, we find sentences such as (29) which lack a PP. Although it is possible to add one (compare, e.g., *einen Topf Kartoffeln auf dem Herd aufsetzen* ‘to put a pot of potatoes on the stove’, usually with DAT), it is important to draw attention to a major difference in conventionalization: whereas the pattern

[X *aufsetzen* Y (*auf*Z)]<sup>TRANS</sup>

realizes the sense SET DOWN ON, the pattern

[X *aufsetzen* Y]<sup>TRANS</sup>

entails a further specification of this sense and idiosyncratically designates in present-day German a telic activity intended to boil, cook etc. a substance. As already pointed out in Section 2.1, this idiosyncratic sense is typical of certain collocations (*Kartoffeln* ‘potatoes’, *Wasser* ‘water’, *Fleisch* ‘meat’ etc. *aufsetzen*, see Klappenbach and Steinitz 1978, 1: 279) and it is frequently, or even typically, instantiated without a PP.

Sentences such as (28) occupy an intermediate position on the cline in Figure 6. In this particular occurrence, the ACC marking of *den Boden* (‘the ground’) is arguably proof of its complement status. However, (30) shows that the information conveyed by the PP in (28) may be conventionalized to such a degree that it is not necessarily overtly expressed:



- (30) *Besonders wichtig ist es, die Füße gerade und weder nach innen*  
 particularly important is it, the feet.ACC straight and neither inwards  
*noch nach außen gedreht aufzusetzen.*  
 nor outwards turned on-to-put  
 ‘It is particularly important to place one’s feet straight on the ground and  
 not turn them inwards or outwards.’

The PP can therefore be considered more akin to an adjunct in (28) than in (27). This in turn concurs with the observation that in sentences such as (28) the PP occasionally occurs in the DAT. As a matter of fact, the same reasoning is also helpful to explain why *aufsetzen auf* takes DAT in more than 90% of the sentences with the sense LAND ON. This conventionalized sense also occurs without a PP, as illustrated in (25). Reference to a landing site is one of the conventionalized senses of the verb *aufsetzen*, with an ‘internalized Ground’ Z. However, this sense may be further specified or extended by a PP, and although part and parcel of the prepositional argument structure construction, this PP has a less profiled (more “backgrounded”, see Section 5) complement status, as signaled by the preference for DAT.

Our notion of an additional semantic specification or extension by means of a PP has to be carefully distinguished from the concept of pleonastic directionals (“pleonastische Direktionale”) in the literature on particle verbs. First described by Wunderlich (1983), pleonastic directionals have been a central element in recent studies on the relation between German particle verbs and accompanying PPs (see Olsen 1996, Lindemann 1998: 116–117, Eisenberg 2006: 265, Rehbein and Van Genabith 2006). It is claimed that a verb particle derived from a preposition (e.g. *ab-*, *an-*, *auf-*, *ein-*, *vor-*) saturates the prepositional argument position of the base verb. According to this view, the particle *auf-* in *aufsetzen* fills the same argument role as the PP *auf die Lötunkte* (‘on the solder pads’) in (31), which functions as a prepositional object of *setzen* (example from DeReKo):

- (31) *Vorsichtig führt er den Lötkolben und*  
 carefully handles he.NOM the soldering-iron.ACC and  
*setzt ihn genau auf die Lötunkte.*  
 puts it.ACC exactly on the solder-pads.ACC  
 ‘He carefully handles the soldering iron and puts it exactly on the solder  
 pads.’

Only PPs with ACC marking are pleonastic, the argument goes, since both the particle and the ACC PP are directional modifiers designating the goal of a movement (Olsen 1996: 304, Rehbein and Van Genabith 2006: 61). The only difference between

the particle and the ACC PP is that the latter carries an overt reference to the goal that remains implicit in the particle of the verb. DAT PPs, on the other hand, are analyzed as optional locative adjuncts that operate independently from the particle and have a different referent, i.e. they designate the spatial frame within which the movement takes place (e.g. *sickert in die Erde ein* ‘soaks into the soil’ vs. *sickert in der Erde ein* ‘soaks in the soil’, Rehbein and Van Genabith 2006: 60).

The problem with this rigid distinction between an independent DAT PP adjunct and an allegedly pleonastic ACC PP understood as an inherent part of the argument structure of the particle verb is that it is based on an unwarranted assumption concerning the complementarity of both types of PPs. If ACC and DAT mark two different types of PPs, then it is to be expected that both PPs regularly occur together in the same sentence. However, sentences with *aufsetzen auf* containing both a “locative” DAT PP and a “directional” ACC PP were not found in our corpus and it seems that they are quite exceptional. This casts doubt on the assumption that the two types of PPs are complementary. Moreover, the assumption that an ACC PP (but not a DAT PP) is in fact the redundant expression of an inherent part of the argument structure of a particle verb is not supported by the data. We searched the DeReKo corpus for sentences with *aufsetzen* as the main verb in combination with the noun *Flugzeug* (‘airplane’) either as the intransitive subject or the transitive object. This resulted in a sample (N = 106) of sentences that invariably instantiate the conventionalized sense LAND ON (see Table 5). 53 sentences turn out to have a PP with *auf*, the other sentences lack a PP. As is to be expected on the basis of the findings in our original data set (cf. Figure 3), the large majority of the PPs have DAT marking.

**Table 5:** Occurrences of the sense LAND ON of *aufsetzen auf* with *Flugzeug* (‘airplane’) as subject or object.

	without PP (N)	with PP (N)	ratio	PP with DAT(%)
<i>Flugzeug + aufsetzen</i>	53	53	1.00	94.3%

Consider (32)–(33) below. Both *auf die Landebahn* and *auf der Landebahn* (‘on the runway’) designate the ‘Ground Z’ as part of the sense LAND ON:

- (32) *Es ist 23.27 Uhr am Dienstag, Ortszeit Rabat, als das Flugzeug*  
 it is Tuesday 23.27 o'clock, local time Rabat, when the plane.NOM  
***auf die Landebahn*** *aufsetzt.*  
 on the runway.ACC PV:lands  
 ‘It is Tuesday 23.27 o'clock, Rabat local time, when the plane lands on the runway.’

- (33) *Zu dem Vorfall kam es, als das Flugzeug*  
 to the incident came it, when the plane.NOM  
*auf der Landebahn des Flugplatzes aufsetzte.*  
 on the runway.DAT of the airport PV:landed  
 ‘The incident occurred when the plane landed on the runway of the airport.’

The claim that the ACC PP is a directional argument in (32) whereas the DAT PP is a locative adjunct in (33) crucially relies on the difference in case marking. But this is begging the question because the very assumption that ACC expresses directionality and DAT locality is not confirmed by other evidence than the difference in case marking. The reasoning in support of this distinction is therefore circular, in the sense explained in Section 2.2. There is no reason to conclude that an ACC PP is an inherent but redundant part of the argument structure of a particle verb whereas a DAT PP has an altogether different function. We saw, on the one hand, that the use of a PP to express the Ground Z (the landing site) of the sense LAND ON is fairly common and that the preferred case of the PP is then DAT. On the other hand, the sense LAND ON of *aufsetzen auf* is conventionalized to the extent that reference to a landing site may be incorporated in the sense. However, given that such a reference to an ‘internalized Ground Z’ is necessarily generic in nature, i.e. not lexically specified, the use of an additional PP cannot simply be redundant. This is why we prefer to use the term “semantic specification” to designate the contribution of the PP in such occurrences.

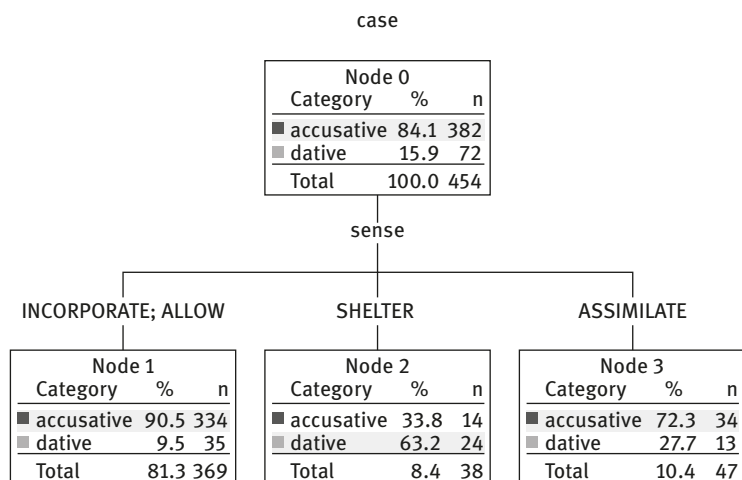
Finally, the case marking of the PP in the transitive sentence (23), in which *aufsetzen auf* selects the ACC instead of the much more common DAT in the conventionalized sense LAND ON, can be explained by resorting to yet another constructional motivation. Not only can the particularly strong bond between a conventionalized sense and a case override the correlation of the constructional meaning with a case, as we saw with LAND ON or BASE ON and DAT PP in the transitive sentences discussed above. The reverse also occurs. We hypothesize that in (23) *X setzt den Giganten auf das Rollfeld auf* ‘X puts the giant plane on the runway’ the constructional meaning ‘X ESTABLISHES A RELATION BETWEEN Y AND Z’, which defaults to an ACC PP (see Figure 2), overrides the observed strong association between the conventionalized sense LAND ON and DAT. Of course, the exact reason why a speaker does not choose the default case on a particular occasion cannot be stated in general terms and may differ from one speaker to another or even from one occasion to another. However, it is the general linguistic condition that renders such a choice possible that interests us here, and then the constructional approach is able to provide a particularly elegant, and realistic, explanation for the observed case variation, which also

has the advantage of being broadly generalizable. The simultaneous availability of different levels of meaning is foundational to creative language use (cf. Coseriu 1975, Willems 2013, among others). The fact that the two-way prepositional *auf* takes ACC in (23) shows that the general transitive meaning of the prepositional argument structure construction can be emphasized despite the fact that it is instantiated by a conventionalized sense which normally correlates with a DAT PP.

### 4.3 aufnehmen in

Our data set contained  $N = 454$  observations for *aufnehmen in*. There was a considerably larger proportion of observations that occurred with ACC, viz. 382 (84.1%), than with DAT, viz. 72 (15.9%). The classification tree in Figure 7 only retained the factor conventionalized sense as a predictor. No evidence was found for an effect of the morpho-syntactic factors.

The overall correct prediction rate of this model is 84.3% after 10-fold classification. This is only slightly better than the baseline of 84.1% (see Node 0, Figure 7), but the accuracy is accomplished by only one factor, viz. conventionalized sense. The performance of the model is particularly poor with respect to the prediction of DAT. As indicated in Table 6, DAT was predicted correctly in only one third of all occurrences. This low rate is partly related to the low overall use of DAT with *aufnehmen in* alongside the fact that there is no



**Figure 7:** Classification tree for *aufnehmen in*.

**Table 6:** Classification table for the estimated classification tree for *aufnehmen in*.

Observed	Predicted		
	ACC	DAT	Correct
ACC	368	14	96.3%
DAT	48	24	33.3%
Overall percentage	91.6%	8.4%	86.3%

environment (i.e., no combination of factors included in the model) in which DAT clearly outranks ACC as the preferred case. The ACC, on the other hand, was correctly predicted for 96.3% of the observations.

*Aufnehmen in* shows a preference for ACC with three out of the four conventionalized senses we have distinguished, viz. INCORPORATE, ALLOW (AS A MEMBER) and ASSIMILATE MENTALLY. This is consistent with the assumption that the PP in the transitive construction defaults to ACC (Figure 2). The distinction between the two senses ALLOW (AS A MEMBER) and INCORPORATE turned out to be insignificant. There is, however, a preference for DAT in the conventionalized sense SHELTER.

Recall that, contrary to *aufsetzen auf*, the PV *aufnehmen in* is confined to the transitive argument structure construction. The basic hypothesis that in this construction the default case of the PP is ACC is to a considerable extent borne out by the data. There is, however, a non-negligible number of occurrences with DAT PPs. Given that in our data set *aufnehmen in* did not occur in the intransitive argument structure construction, there is no possibility that the transitive constructional meaning is overridden by the intransitive constructional meaning, which proved strongly associated to DAT with *aufsetzen auf*. Moreover, because no morphosyntactic factors were found to be statistically significant, it may seem as though there is no evidence that other sources of constructionally relevant divergences (particularly voice) play a role in the occurrence of DAT. However, we believe that the peculiarities of the case alternation with *aufnehmen in* are again amenable to a constructional analysis.

The main challenge for a coherent account of the data amounts to developing plausible explanations for the following three observations: What could motivate the preference for DAT of *aufnehmen in* in one of the conventionalized senses, viz. SHELTER? Even if the senses INCORPORATE and ALLOW (AS A MEMBER) strongly correlate with the expected ACC, what could account for the 9.5% of occurrences with DAT? And why is the preference for ACC less outspoken with the sense ASSIMILATE MENTALLY than with the senses INCORPORATE and ALLOW (AS A MEMBER)?

From a constructional point of view, there is again the striking observation that sentences in which the pattern of the transitive construction is fully realized alternate with sentences in which no PP is present. Compare (34)–(35) and (36)–(37):

- (34) *In einem Kleinstadtkrankenhaus der Region* nimmt man  
 in a small-town hospital.DAT of the region takes one.NOM  
*den Patienten auf.*  
 the patient.ACC PVPARTICLE  
 ‘They admitted the patient into a small-town hospital in the region.’
- (35) *Kurz vor Kriegende* musste der zuckerkrankte Löwit  
 shortly before end of war had to the diabetic Löwit.NOM  
*in die Klinik, schwer für einen Mann mit Judenstern.*  
 into the hospital.ACC, difficult for a man with Jews’ star.  
*Das Theresienkrankenhaus nahm ihn auf.*  
 The Theresien hospital.NOM took him.ACC PVPARTICLE  
 ‘Just before the end of the war, Löwit who suffered from diabetes had to go to the hospital, which was difficult for a man with a yellow badge. The Theresien hospital accommodated him.’
- (36) *Dabei helfen sich Hundebesitzer gegenseitig und*  
 thereby help REFL dog-owners.NOM each other and  
*nehmen für die Ferien einen weiteren Vierbeiner in der Familie*  
 take for the holidays a further pet dog.ACC in the family.DAT  
*auf.*  
 PVPARTICLE  
 ‘Owners of dogs help each other and adopt another pet dog into the family during the holidays.’
- (37) *der kleine Hund [...] wurde wohl von seinen Besitzern*  
 the little dog.NOM was probably by its owners  
*in Südeingland ausgesetzt, als sie dies merkten.*  
 in South-England dumped, when they.NOM that noticed.  
*Eine Familie nahm ihn auf.*  
 A family.NOM took it.ACC PVPARTICLE  
 ‘the little dog was probably dumped in the south of England by the owners when they noticed that. A family adopted it.’

Not only (34) and (36) but also (35) and (37) realize the conventionalized sense SHELTER. In (35) and (37), the pattern without a PP realizes this sense with a

subject argument that is typically destined to show up as the PP in the pattern with a PP, as in (34) and (36).

In order to measure the correlation between the presence or absence of a PP and each of the four different conventionalized senses we have identified, we compiled a separate data set (N = 119) of sentences with *aufnehmen* on the basis of DeReKo. The occurrence rate of each sense was then put against the rates in our main data set of sentences with the PV *aufnehmen in*. The resulting ratios are as follows:

**Table 7:** Occurrences of the different senses of *aufnehmen in* with and without a PP.

conventionalized sense	without PP (N)	with PP (N)	ratio	PP with DAT(%)
SHELTER	100	38	2.63	63.2%
ASSIMILATE MENTALLY	6	47	0.13	27.7%
ALLOW (AS A MEMBER)	10	170	0.06	11.2%
INCORPORATE	3	199	0.02	8.0%

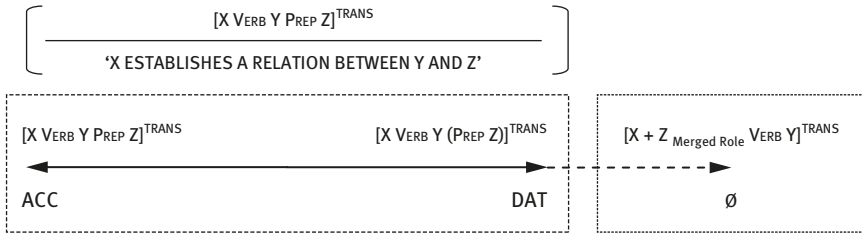
The figures in Table 7 indicate that the sense SHELTER is much more often realized in the pattern without a PP than the other three conventionalized senses. This finding is consistent with the assumption that the case of the PP is influenced by the position one can assign to a constructional pattern on a continuum of interrelated patterns, as already illustrated in Figure 6 with respect to the transitive construction with *aufsetzen auf*. The stronger the evidence that the pattern at the left end of the cline is instantiated, the stronger the motivation for ACC to be chosen. This entails that the PP tends to have full complement status. By contrast, the more the instantiation tends to the right end of the cline, the greater the possibility that DAT is chosen. This is to be expected, given that the PP gradually loses its complement status when proceeding from left to right on the cline, being a less profiled phrase in the pattern

[X VERB Y (PREP Z)]<sup>TRANS</sup>

and an adjunct or altogether dispensable in the pattern

[X VERB Y]<sup>TRANS</sup>.

Sentence pairs such as (34)–(35) and (36)–(37) show that when the conventionalized sense SHELTER is realized, the place of shelter is preferably designated as the subject of the sentence ([35] and [37]) or else by means of a DAT PP ([34] and [36]). In the pattern without a PP, the X and Z roles merge in the subject argument; schematically:



**Figure 8:** Subconstructional patterns of the transitive prepositional argument structure construction with *aufnehmen in*.

Note that we again do not posit a clear cut-off point on the cline which marks whether a PP is either a complement or an adjunct. This is in line with the view expressed in Section 2.1. A constructional account of argument structure constructions with complex PVs explicitly acknowledges the possibility that a PP is in-between a complement and an adjunct rather than that a strict boundary can be maintained. Other occurrences with the PV *aufnehmen in* in our data set confirm this view. For example, in the large majority of the sentences in which *aufnehmen in* takes on the sense ALLOW (AS A MEMBER), ACC is used. In only 19 out of 170 sentences DAT occurs. (38) below is an example with DAT:

- (38) *Im Jahr 1957 nahm die Gesellschaft*  
 in the year 1957 took the association.NOM  
*den damals 21-Jährigen in ihren Reihen auf.*  
 the then 21-year.old.man.ACC in their ranks.DAT PVPARTICLE  
 ‘In 1957, the association received the then 21-year-old man as a member.’

Recall that in Duden (2007) a strong conceptual hypothesis is put forward about the case alternation with *aufnehmen in* (see Section 2.2). Our findings do not support this hypothesis. It is hard to see how one can avoid circular reasoning when trying to align the case alternation with the conceptual difference between a ‘permanent’ (ACC) and a ‘temporary’ (DAT) inclusion of a person or object. Compare:

- (39) *Papst Benedikt XVI. hat jetzt vier Bischöfe aus dieser Gruppe*  
 Pope Benedict XVI.NOM has now four bishops.ACC from this group  
*wieder in die Kirche aufgenommen.*  
 again in the Church.ACC PV:taken  
 ‘Pope Benedict XVI has now allowed four bishops from this group back into the Church.’



- (40) *Folglich* wird es in Zukunft erforderlich sein,  
 consequently will it in future required be,  
**im Kaufvertrag** für Gebrauchtwagen  
 in the purchase agreement.DAT for second-hand goods  
*eine Zustandsbeschreibung der Ware* aufzunehmen.  
 a description.ACC of the conditions of the goods on-to-take  
 ‘Consequently, it will henceforth be necessary to include a description of the  
 conditions of the goods in the purchase agreement for second-hand goods.’

It might be argued that in (39), the four bishops become lifetime members of the Catholic Church, and hence an integral part of it, which would explain ACC. Yet, the bond between the Church and the bishops is not necessarily permanent, given the fact that the bishops had previously been removed from the Church. Moreover, the assumed functions of ACC and DAT may be at odds with other cues in the sentence. In (40), for instance, the *Zustandsbeschreibung* ‘description of the conditions’ is to become an indispensable (*erforderlich*) part of the purchase agreement for second-hand goods in the future. ACC would thus be expected, but it is DAT that is actually used. These findings confirm our previous conclusion that the alternation of ACC and DAT with *aufnehmen in* cannot be accounted for on the basis of conceptual notions such as ‘permanent’ and ‘temporary’ inclusion without circularity (Section 2.2), and such conceptual explanations are ultimately unfalsifiable. It seems more plausible to explain the case variation by appealing to a constructional line of reasoning: with *aufnehmen in* the case marking of the PP aligns with its status on a cline, ACC meshes with full complement status and the profiling, or foregrounding, of the full constructional meaning ‘X ESTABLISHES A RELATION BETWEEN Y AND Z’. DAT, on the other hand, entails that the PP is backgrounded. Only the relationship between the Agent X and the Patient or Theme Y in the constructional meaning is in focus and the establishment of a relation between Y and Z is not profiled (cf. Figure 8).

Finally, as pointed out in Figure 7, in our data the conventionalized sense ASSIMILATE MENTALLY correlates with ACC in 34 out of 47 sentences. The fact that the preference for ACC is less outspoken with the sense ASSIMILATE MENTALLY than with the senses INCORPORATE and ALLOW (AS A MEMBER) is illustrated by the following pair of sentences:

- (41) “*Es war eine Welt, die ich nie in mir*  
 it was a world.NOM, that.ACC I.NOM never in me.DAT  
*aufnehmen konnte*”, *sagte der Erfolgstrainer.*  
 on-take can, said the successful.coach.NOM  
 “‘It was a world that I could never fully grasp’, the successful coach said.’”

- (42) *“Es ist eine Welt, die ich nie in mich aufnehmen kann”, erklärte Trapattoni.*  
 it is a world.NOM, that.ACC I.NOM never in me.ACC  
 on-ake can, explained Trapattoni.NOM  
 ‘‘It’s a world that I can never fully grasp’’, Trapattoni explained.’

The two sentences are from different sources (‘‘Mannheimer Morgen’’ 14.04.1998 and ‘‘Rhein-Zeitung’’ 14.04.1998, respectively) and convey the same statement, but with two major differences in the phrasing: simple past and DAT in (41), simple present and ACC in (42). The original quote comes from Italian football manager and coach Giovanni Trapattoni, who was well-known for his broken German. Two different journalists apparently settled for either DAT or ACC according to their own preference. Only one journal (the ‘‘Rhein-Zeitung’’) cited the phrase with ACC, it was found in four other newspapers with DAT, always correlating with the past tense. Sentence (43) below shows that DAT also occurs with the present tense:

- (43) *Mozarts Musik bedeutet für mich die Möglichkeit, mit geradezu schwelgerischem Genuss seine Musik in mir aufzunehmen.*  
 Mozart’s music.NOM means for me.ACC the possibility.ACC,  
 with almost rapturous pleasure his music.ACC in me.DAT  
 on-to-take  
 ‘To me, the meaning of Mozart’s music is the possibility to absorb his music with almost rapturous pleasure.’

Although these examples do not contradict our constructional assumption that ACC correlates with a profiling of the full constructional meaning and the foregrounding of the PP, whereas DAT correlates with the backgrounding of the PP, it seems that the case variation with *aufnehmen in* in the sense ASSIMILATE MENTALLY pushes any analytical framework to its limits. Still, the following observations from a constructional perspective should be borne in mind. First, the sense ASSIMILATE MENTALLY is confined to a pattern of the transitive construction in which the PP is a reflexive pronoun, which entails that the referent is designated twice in the sentence. This creates a structure that to a certain extent is redundant, which may favour DAT as the case shown to be associated with backgrounding. Second, the majority of the occurrences of *aufnehmen in* with the sense ASSIMILATE MENTALLY had to be discarded from our data set because the case alternation is only overt in the first and second person singular; in all other persons, reflexive pronouns

are syncretic for ACC and DAT marking (e.g. 3rd person *sich*). As a matter of fact, most occurrences feature a syncretic pronoun form in the PP. In a random DeReKo sample of 200 occurrences of the pattern [X *aufnehmen* Y *in* Z]<sup>trans</sup> which realized the conventionalized sense ASSIMILATE MENTALLY and with Z surfacing as a reflexive pronoun, no less than 180 sentences (90%) had a syncretic pronoun form. Although this in itself does not account for why DAT is relatively more frequent with the sense ASSIMILATE MENTALLY, the high incidence of syncretic pronoun forms may have an effect on the case alternation, if only because a particular case is formally less entrenched than normally.

## 5 The constructional approach and Paul's (1920) account of the case alternation

To conclude our analysis, we briefly elaborate on the complementarity of the constructional approach presented in Section 4 and the account of the semantics of ACC and DAT with two-way prepositions provided by H. Paul in his *Deutsche Grammatik* (1920). For Paul, cases and prepositions are means to express dependency relations. With two-way prepositions, ACC is selected when a (spatial) relationship is being established, DAT when the relationship is conceived of as already established (“existing”) (Paul 1920: 5) (cf. Leys 1989 and Willems 2011a for discussion). The constructional meaning of the transitive prepositional argument structure construction shares many features with the meaning Paul assumes for ACC (cf. Hopper & Thompson 1980 for a discussion of transitivity parameters). The agentivity involved in ‘X ESTABLISHES A RELATION BETWEEN Y AND Z’ matches the assumption that ACC designates a relationship which is being established, the relationship between X and the ‘Ground’ Z is the goal of X’s action. By contrast, no agentivity is explicitly designated in the constructional meaning of the intransitive prepositional argument structure construction and ‘X/Y PROCEEDS IN RELATION TO Z’ fits in naturally with Paul’s assumption that DAT designates an already established relationship between Z and X/Y.

The complementarity of our constructional analysis and Paul’s explanation is furthermore reflected in our account of instances of exceptional case marking with *aufsetzen auf* and *aufnehmen in*. Paul (1920: 5) points out that case variation may be due to the fact that speakers have a certain amount of freedom of choice to interpret the contrast between ACC and DAT, for example, as when they choose DAT with PVs that normally take ACC. To the

extent that DAT designates an existing relationship, preference for DAT is likely when a speaker wishes to convey the relationship between the PP and the sentence argument(s) as a background of the message. Conversely, using ACC entails that this relationship is highlighted, or foregrounded, which is more probable when it is not conceived of as already established. Our constructional account of the ACC/DAT alternation and Paul's definitions of the meanings of ACC and DAT with two-way prepositions are therefore also compatible with the outcome of the discussion of the complement/adjunct distinction in the previous sections. Paul's definition of the DAT squares with the default case marking of prepositional adjuncts in German. The constructional meaning of the intransitive construction, 'X/Y PROCEEDS IN RELATION TO Z', bears out why the PP in the intransitive prepositional argument structure construction defaults to a case that designates an 'established relationship': the action or event expressed in the sentence is profiled against a background of an existing relationship, hence a preference for DAT in marking the 'Ground' Z. Paul's definition of the ACC squares with the agentivity of the transitive prepositional argument structure construction and its constructional meaning 'X ESTABLISHES A RELATION BETWEEN Y AND Z': the action or event initiated by the Agent aims at establishing a relationship between the Patient or Theme Y and the 'Ground' Z expressed in the prepositional object, which accordingly is likely to be a complement. We thus maintain that there is a constructional correlation between the designation of an established relationship (DAT) and the likelihood that the PP with a PV is construed as an adjunct, as well as a constructional correlation between the designation of a relationship that is being established (ACC) and the likelihood that the PP is construed as a complement.

Under the corpus-based constructional approach we advocate, Paul's account of the semantics of ACC and DAT with two-way prepositions has some important consequences for a deeper and more accurate understanding of the case alternation. The statistical findings show that the foregrounding and backgrounding of the PP may be lexicalized to different degrees, to the extent that a constructional pattern can be more or less specified for case at the item-specific level. For example, when *aufsetzen auf* is used in the conventionalized sense SET DOWN ON, the lexicalization pattern is largely in accordance with the default case marking of the PP: 90% of the transitive sentences have ACC PPs, 79% of the intransitive sentences have DAT PPs (see Figure 3). Conversely, when *aufsetzen auf* is used in the conventionalized sense LAND ON, the picture is very different, the observed preference for DAT being 100% for the intransitive construction and 91% for the transitive construction in our initial data set. This means that with this particular PV the relationship between an airplane and a landing

site (a ‘Ground’) is strongly lexicalized as an existing one, i.e. no relationship is being established as far as the language-specific resources are concerned. Exceptions with ACC (9% of the transitive sentences) are evidence that speakers may depart from the dominant idiosyncratic case marking for discourse reasons (see also the exceptional use of ACC in the intransitive sentence (32) from the control sample with the noun *Flugzeug* ‘airplane’). For us, such differences in lexicalization patterns show that there is no point in belabouring the dichotomy between ‘motion’/‘directionality’ and ‘location’/‘state’ which is pervasive in the literature on two-way prepositions and particle verbs, for instance as when Ágel (2000: 165) maintains that the transitive sentence *Der Pilot setzte die Maschine sicher auf die Piste auf* (‘The pilot put the plane down safely on the runway’) calls for ACC because the causative meaning of [X *aufsetzen* Y *auf* Z] would entail directionality, whereas the inchoative meaning of intransitive [Y *aufsetzen auf* Z] in *Das Flugzeug setzte auf dem Boden auf* (‘The plane landed on the ground’) would correspond to a locative PP and DAT. Not only is this explanation refuted by the data, it leaves little room to account for the observable case variation in naturally occurring transitive and intransitive sentences. By contrast, combining a corpus-based constructional approach with Paul’s (1920) account of the semantics of ACC and DAT with two-way prepositions allows for an approach that is both empirically adequate and theoretically flexible enough to accommodate the data.

## 6 Conclusions

In this chapter we have examined in what ways a constructional point of view allows one to capture the simultaneous effects of different factors that bear on the case alternation in argument structure constructions with PVs and two-way prepositions, in an attempt to steer clear of the traps of previous, essentially projectionist yet more speculative approaches to case meanings. We have applied a constructional framework to the findings of a quantitative study of prepositional argument structure constructions with two exemplary PVs, *aufsetzen auf* and *aufnehmen in*. A multifactorial, corpus-based approach allowed us to detect the influence of a number of morpho-syntactic and lexical-semantic factors. We used classification trees to gauge the effects of the factors on the case alternation and evaluated the quality of our fitted trees based on their predictive accuracy after cross-validation. We then explored the interlocking effects of the factors transitivity and conventionalized senses as they interact with various constructional patterns. We interpreted the findings according to

a “three-level” approach to meaning. This approach is based on the distinction between (i) the general systemic meaning of a PV as part of the lexicon, (ii) its conventionalized or default senses which pertain to “normal language use” and (iii) its unique, referential readings in particular contextualized occurrences. We hope to have shown that an accurate representation of the intermediary level of the conventionalized senses of the PVs is pivotal to a proper understanding of the mechanisms underlying the ACC/DAT alternation with two-way prepositions. At the same time, our findings are compatible with Paul’s (1920) account of the meaning of ACC and DAT with this subset of prepositions in present-day German.

A general conclusion we draw from our case study is that case preferences at the lexically non-specific “higher” level of constructional patterns and case preferences associated with prepositional verb-specific “lower-level” idiosyncrasies are potentially competing motivations. In the approach advocated here, it is assumed that with regard to prepositional argument structure constructions instantiated by two-way prepositions in German, ACC is the default case in the transitive construction and DAT the default case in the intransitive construction. However, motivations for ACC and DAT marking may enter into competition with one another. In particular, DAT occasionally wins out notwithstanding ACC being the default case in the transitive construction. We saw, for example, that the unification of transitive *aufsetzen auf* in the conventionalized sense SET DOWN ON with the general constructional meaning ‘X ESTABLISHES A RELATION BETWEEN Y AND Z’ prompts a (“structural”) ACC PP. On the other hand, if *aufsetzen auf* takes on the lexically more idiosyncratic sense LAND ON, then the default case marking of the PP of the general transitive construction is overridden by a preference for (“lexical”) DAT PP. This finding is in stark contrast to common assumptions about the direct relationship between the case marking of *aufsetzen auf* and the morpho-syntactic factor transitivity (e.g., Duden 2007: 116). The constructional framework also proves helpful in explaining occasional occurrences of ACC with conventionalized senses that normally co-occur with DAT, and vice versa. We have argued that exceptional case marking is the outcome of different possible sources, either the idiosyncratic case or the case that is motivated by a higher-level constructional pattern. For example, the ACC PP with transitive *aufnehmen in* in the sense SHELTER indicates that priority may be given to the transitive constructional pattern even though with this particular sense occurrences with DAT PP outnumber those with ACC PP in the data set.

Of particular importance is furthermore the focus on item-specific relationships between related constructional patterns. We observed, for instance, that the verb *aufsetzen* is frequently attested in sentences without PP in certain

conventionalized senses that are similar to the senses of the PV *aufsetzen auf* (in particular the idiosyncratic designation of a telic activity intended to boil, cook etc. a substance and the semantic incorporation of a landing site). This observation is important in understanding why in occurrences with the PV the PP is preferably marked in the DAT, signaling its role as a less profiled complement.

Linking the case variation to the relationship between different but related constructional patterns provides the instruments for an explanation of the variation that does not rely on ultimately unfalsifiable assertions about the alleged ‘dynamicity’ of ACC and ‘staticity’ of DAT (compare, e.g., Smith 1995). The explanatory value of such concepts is more limited than is generally assumed (in particular, limited to semantically straightforward verbal constructions with unequivocal spatial meanings). Moreover, the focus on the role related constructional patterns play in the observed case variation with two-way prepositions ties in with a constructional account of the gradient distinction between complement and adjunct. We explicitly acknowledge that, whenever a particular constructional pattern is instantiated by a PV, the PP can be located on a cline ranging from full complement status over a less profiled (“backgrounded”) complement status to plain adjunct status. Under the assumption that complement status aligns with a tendency for ACC-marking and adjunct status with a tendency for DAT-marking with regard to the subset of PVs with two-way prepositions we have investigated, we were able to show that the case marking in one pattern may influence the case marking in another one. To what extent this correlation holds across the entire subset of PVs with two-way prepositions and case alternation remains an issue for future research.

The various formal and semantic relationships between interrelated (sub) constructional patterns described in Section 4 are key to the constructional account of the case alternation we have offered. However, in conclusion it must be stressed that, although patterns in their own right pairing form and meaning, constructions and subconstructions are to be seen as structured tendencies, not “rules” such as those familiar from core syntax (e.g., article placement, case marking of core arguments, verb morphology etc.). This proviso is in accordance with the stance we have taken in this study (Section 3.3 above): the formal and semantic regularities of constructional patterns in naturally occurring utterances are intimately linked to the level of normal language use (“Level 2” senses), to be analyzed in both a quantitatively and qualitatively adequate manner. The semantic representations at the level of the grammatical system of a language (“Level 1” meanings) have proven too general to allow us to achieve the level of granularity required to elaborate an explanation for the case alternation under scrutiny. Importantly, normal language use, although partly highly

conventionalized and as such an important source domain of concrete discourse practices, is always variable and subject to language change. Synchronically, this variability is conspicuously reflected in the more exceptional occurrences of ACC and DAT that do not conform to the most common or even default case marking as outlined in Section 4. It should be borne in mind, though, that the occurrences of DAT or ACC in a construction that normally shows a statistically significant bias towards the other case are not “outliers”, nor are they to be considered less grammatical or even ungrammatical because of their being few in numbers from a statistical point of view. They are, quite on the contrary, the observable manifestation of creative language use which is the driving force of language variation.

## References

- Ágel, Vilmos. 2000. *Valenztheorie*. Tübingen: Gunter Narr Verlag.
- Baayen, Harald. 2008. *Analyzing linguistic data. A practical introduction to statistics using R*. Cambridge: Cambridge University Press.
- Barðdal, Jóhanna. 2011. Lexical vs. structural case: a false dichotomy. *Morphology* 21. 619–654.
- Baten, Kristof. 2009. Die Wechselprepositionen im DaF-Unterricht. *Deutsch als Fremdsprache* 46. 96–104.
- Baten, Kristof & Klaas Willems. 2012. Kasuserwerb in der Präpositionalphrase vom Standpunkt der Verarbeitbarkeitstheorie (Processability Theory). *Deutsche Sprache* 40. 221–239.
- Boas, Hans C. 2008. Determining the structure of lexical entries and grammatical constructions in Construction Grammar. *Annual Review of Cognitive Linguistics* 6. 113–144.
- Boas, Hans C. 2009. Verb meanings at the crossroads between higher-level and lower-level constructions. *Lingua* 120. 22–34.
- Breiman, Leo, Jerome Friedman, Richard Olshen & Charles Stone. 1984. *Classification and regression trees*. New York: Chapman & Hall.
- Coene, Ann & Klaas Willems. 2006. Konstruktionelle Bedeutungen. Kritische Anmerkungen zu Adele Goldbergs konstruktionsgrammatischer Bedeutungstheorie. *Sprachtheorie und germanistische Linguistik* 16. 1–35.
- Coseriu, Eugenio. 1970. Bedeutung und Bezeichnung im Lichte der strukturellen Semantik. In: Peter Hartmann & Henri Vernay (eds.), *Sprachwissenschaft und Übersetzen*, 104–121. München: Max Hueber.
- Coseriu, Eugenio. 1975. System, Norm und Rede (Spanish original 1952). In: Eugenio Coseriu, *Sprachtheorie und allgemeine Sprachwissenschaft*, 11–101. München: Wilhelm Fink.
- Coseriu, Eugenio. 2001. *L'homme et son langage*. Louvain & Paris: Peeters.
- Crawley, Michael J. 2007. *The R book*. Chichester: Wiley.
- Croft, William. 2003. Lexical rules vs. constructions: A false dichotomy. In: Hubert Cuyckens, Rene Dirven & Klaus-Uwe Panther (eds.), *Motivation in language*, 49–68. Amsterdam & Philadelphia: John Benjamins.
- Dal, Ingerid. 2014. *Kurze deutsche Syntax auf historischer Grundlage*, 4th rev. edn. Berlin & New York: W. de Gruyter.



- De Backer, Maarten & Ludovic De Cuypere. 2012. The interpretation of masculine personal nouns in German and Dutch: a comparative experimental study. *Language Sciences* 34(3). 253–268.
- Duden. 1999. *Das große Wörterbuch der deutschen Sprache*, 10 vols. Mannheim: Dudenverlag.
- Duden. 2006. *Die Grammatik* (7th edn.). Mannheim: Dudenverlag.
- Duden. 2007. *Richtiges und gutes Deutsch* (6th edn.). Mannheim: Dudenverlag.
- Eisenberg, Peter. 2006. *Grundriss der deutschen Grammatik*. Vol. 1: *Das Wort* (3th edn.). Stuttgart/Weimar: J.B. Metzler.
- Fillmore, Charles J. 1988. The mechanisms of 'Construction Grammar'. *Berkeley Linguistics Society* 14. 35–55.
- Fried, Mirjam & Jan-Ola Östman. 2004. Construction Grammar. A thumbnail sketch. In: Miriam Fried & Jan-Ola Östman (eds.), *Construction Grammar in a cross-language perspective*, 11–86. Amsterdam & Philadelphia: John Benjamins.
- Goldberg, Adele. 1995. *Constructions: A Construction Grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, Adele. 1997. The relationship between verbs and constructions. In: Marjolijn Verspoor, Kee Dong Lee & Eve Sweetser (eds.), *Lexical and syntactical constructions and the construction of meaning*, 383–398. Amsterdam & Philadelphia: John Benjamins.
- Goldberg, Adele. 2003. Constructions: a new theoretical approach to language. *Trends in Cognitive Sciences* 7. 219–224.
- Grice, H. P. 1989 (1967). Logic and conversation. In: H. P. Grice. *Studies in the way of words*, 22–40. Cambridge, MA: Harvard University Press.
- Gries, Stefan Th. 2003. *Multifactorial analysis in corpus linguistics: a study of particle placement*. London & New York: Continuum Press.
- Gries, Stefan Th. & Anatol Stefanowitsch. 2004. Extending collocation analysis: A corpus-based perspectives on 'alternations'. *International Journal of Corpus Linguistics* 9. 97–129.
- Hopper, Paul J. & Sandra A. Thompson. 1980. Transitivity in grammar and discourse. *Language* 56. 251–299.
- Klappenbach, Ruth & Wolfgang Steinitz (eds.). 1978. *Wörterbuch der deutschen Gegenwartssprache*. Berlin: Akademie Verlag.
- Lakoff, George. 1987. *Women, fire, and dangerous things: What categories reveal about the mind*. Chicago/London: University of Chicago Press.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar*, Vol. I: *Theoretical prerequisites*. Stanford, Ca.: Stanford University Press.
- Langacker, Ronald W. 1999. Assessing the cognitive linguistic enterprise. In: Theo Janssen & Gisela Redeker (eds.), *Cognitive Linguistics: foundations, scope, and methodology*, 13–59. Berlin & New York: Mouton de Gruyter.
- Levinson, Stephen C. 2000. *Presumptive meanings. The theory of Generalized Conversational Implicature*. Cambridge: MIT Press.
- Leys, Odo. 1989. Aspekt und Rektion räumlicher Präpositionen. *Deutsche Sprache* 17. 97–113.
- Lindemann, Robert. 1998. Bedeutungserweiterungen als systematische Prozesse im System der Partikelverben. In: Susan Olsen (ed.), *Semantische und konzeptuelle Aspekte der Partikelverbbildung mit ein-*, 105–148. Tübingen: Stauffenburg Verlag.

- Olsen, Susan. 1996. Pleonastische Direktionale. In: Gisela Harras & Manfred Bierwisch (eds.), *Wenn die Semantik arbeitet. Klaus Baumgärtner zum 65. Geburtstag*, 303–329. Tübingen: Niemeyer.
- Paul, Hermann. 1920. *Deutsche Grammatik*, Vol. IV, Teil IV: *Syntax (Zweite Hälfte)*. Halle: Max Niemeyer.
- Rhebein, Ines & Josef Van Genabith. 2006. German particle verbs and pleonastic prepositions. In: Boban Arsenijevic, Timothy Baldwin & Beata Trawinski (eds.), *Proceedings of the third ACL-SIGSEM workshop on prepositions*, 57–64. Trento: EACL.
- Rostila, Jouni. 2011. Wege zur konstruktiven Kritik der Konstruktionsgrammatik. Eine Replik auf Leiss (2009a,b). In: *Zeitschrift für Germanistische Linguistik* 39. 120–134.
- Rys, Jonah, Klaas Willems & Ludovic De Cuypere. 2014. Akkusativ und Dativ nach Wechselpräpositionen im Deutschen: eine Korpusanalyse von *versinken*, *versenken*, *einsinken* und *einsenken in*. In: Irene Doval & Barbara Lübke (eds.), *Raumlinguistik und Sprachkontrast: Neue Beiträge zu spatialen Relationen im Deutschen, Englischen und Spanischen*, 217–234. München: Iudicium.
- Serra-Borneto, Carlo. 1997. Two-way prepositions in German: image and constraints. In: Marjolijn Verspoor, Kee Dong Lee & Eve Sweetser (eds.), *Lexical and syntactical constructions and the construction of meaning*, 187–204. Amsterdam & Philadelphia: John Benjamins.
- Smith, Michael B. 1995. Semantic motivation vs. arbitrariness in grammar: toward a more general account of the dative/accusative contrast with German two-way prepositions. In: Irmengard Rauch & Gerald F. Carr (eds.), *Insights in Germanic linguistics I: Methodology in transition*, 293–323. Berlin & New York: Mouton de Gruyter.
- Stefanowitsch, Anatol & Stefan Th. Gries. 2003. Collocations: Investigating the interaction between words and constructions. *International Journal of Corpus Linguistics* 8. 209–243.
- Sylla, Bernhard. 1999. Zum Problem der Kasuswahl nach Wechselpräpositionen. *Deutsch als Fremdsprache* 36. 150–155.
- Tyler, Andrea and Vyvyan Evans. 2003. *The semantics of English prepositions: spatial scenes, embodied meaning, and cognition*. Cambridge: Cambridge University Press.
- Tagliamonte, Sali & Harald Baayen. 2012. Models, forests, and trees of York English: Was/were variation as a case study for statistical practice. *Language Variation and Change* 24(2). 135–178.
- Van der Gucht, Fieke, Klaas Willems & Ludovic De Cuypere. 2007. The iconicity of embodied meaning. Polysemy of spatial prepositions in the cognitive framework. *Language Sciences* 29. 733–754.
- Vanderschueren, Clara & Ludovic De Cuypere. 2013. The inflected/non-inflected infinitive alternation in Portuguese adverbial clauses. A corpus analysis. *Language Sciences* 41, Part B. 153–174.
- Willems, Klaas. 2001. Produktivität, syntaktische Struktur und Norm. Deskriptive Normregularitäten nominaler Wortbildungsmuster und kontrastive Wortbildungsforschung. *Zeitschrift für Germanistische Linguistik* 29. 143–166.
- Willems, Klaas 2011a. The semantics of variable case marking (Accusative/Dative) after two-way prepositions in German locative constructions. Towards a constructionist approach. *Indogermanische Forschungen* 116. 324–366.
- Willems, Klaas 2011b. Meaning and interpretation: The semiotic similarities and differences between Cognitive Grammar and European Structural Linguistics. *Semiotica* 185. 1–50.

- Willems, Klaas. 2013. The linguistic sign at the lexicon-syntax interface: Assumptions and implications of the Generative Lexicon Theory. *Semiotica* 193. 1–55.
- Wunderlich, Dieter. 1983. On the compositionality of German prefix verbs. In: Rainer Bäuerle, Christoph Schwarze & Armin von Stechow (eds.), *Meaning, use and interpretation of language*, 452–465. Berlin & New York: De Gruyter.

Wolfgang Imo

# Valence patterns, constructions, and interaction: Constructs with the German verb *erinnern* ('remember' / 'remind')

## 1 Introduction

The German verb *erinnern* ('remember' / 'remind') is a special verb in German because it offers two different valence patterns: One which allows for two semantic readings (*remind* vs. *remember*), and one which only allows for only one reading (*remember*). In the first pattern, *erinnern* can be combined with a noun phrase in the accusative case, usually realized as a pronoun (quite often a reflexive pronoun coding the person who remembers something) together with a prepositional phrase or prepositional adverb coding the 'thing' or event that is remembered. Unlike in English, *erinnern* can be used both reflexively (*Ich erinnere mich an das Konzert* ('I remember the concert.') / lit. I remember myself of the concert.) and as an ordinary transitive verb (*Ich erinnere ihn an das Konzert.* ('I remind him of the concert.') / lit. I remember him of the concert.). While in English there is a difference between an active reading (*remind* = 'doing reminding') and a passive one (*remember* = 'remembrance happens'), in German there is only one verb, coding both meanings. The only reason why *Ich erinnere mich an das Konzert* is not interpreted in an active way is the implausible semantics of *?I remind myself of the concert.*<sup>1</sup> When used reflexively, the subject and the accusative object are co-referential. When used with a noun phrase in the accusative case that is not a reflexive pronoun, the subject codes the person or instance 'doing' or triggering the reminding and the accusative object the person being reminded (e.g. *Ich erinnere ihn an das Konzert* ('I remind him of the concert') or *Dieses Spiel erinnert mich an meine Kindheit* ('This game reminds me of my childhood').

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<sup>1</sup> The fact that this reading is implausible does not mean that it cannot nevertheless be evoked, for example in comic circumstances or when someone is talking to himself. Some kind of contextualization cue is necessary in those cases, though.

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In the second pattern, *erinnern* can be used together with a noun phrase in the accusative which then codes the event (*Ich erinnere das Konzert. lit.: 'I remember the concert.'*) and where only the reading of *remember* is possible, not the reading of *remind*. This use is still largely treated as non-standard in German and it is often said that the structure has emerged as an analogous form of the English construction (i.e. as a calque), although there is no definite proof of this hypothesis. Others claim that it is a regional phenomenon (to be found in North and Middle Western Germany, according to the online edition of the valence dictionary of German verbs *VALBU*).

The aim of this paper is to analyze instances of *erinnern* ('remember', 'remind') in three German corpora which contain interactional data (short messages via SMS, WhatsApp etc., chat and spoken language). The reason for focusing on interactional corpora has to do with the fact that the theoretical approach chosen here is that of Interactional Construction Grammar, a combination of Construction Grammar and Interactional Linguistics (see Section 2). Interactional Construction Grammar aims at describing syntactic structures in the context of their functions in authentic dialogic interaction. The corpus-driven approach, the special behavior of *erinnern* in terms of its valence pattern and the theoretical framework of Interactional Construction Grammar lead to two central questions concerning the data.

The first important question when using a corpus-driven approach is how to interpret co-occurrences of certain words, in this case co-occurrences of the verb *erinnern* with such phrases that have traditionally been described as its arguments or as demanded by its valence. As Jacobs (2008, 2009) and Welke (2009a, 2009b) point out, it would be possible either to treat valence patterns completely apart from constructions (this is Jacobs' view) or to integrate valence patterns completely into constructions (as is often done in Construction Grammar) or to combine both approaches (favored by Welke 2009a, 2009b). One of the aims of this paper is to find out which of these approaches is most useful.

The second question concerns the discourse functions of constructions involving *erinnern*. Interactional Construction Grammar places a high priority on the interpretation of syntactic structures as a means for managing interaction. Furthermore, its interest is in the description of the interactions between syntactic patterns and larger structures such as sequential patterns or genres. Therefore, it will have to be asked for what purposes speakers and writers use constructions with *erinnern* in their interactions and what the functions of these constructions are in relation to the interactants' activities.

## 2 The theoretical framework: Interactional Construction Grammar and valence-based approaches

Since the beginnings of Construction Grammar (Fillmore 1988; Fillmore and Kay O'Connor 1988; Langacker 1987), there have emerged so many different extensions, adaptations and re-workings of its basic ideas that it seems to be more fitting to speak of Construction Grammars – as Fried and Östman (2005) do – which form a network of more or less closely related approaches in terms of a family resemblance. Accordingly, Fischer and Stefanowitsch (2006: 3; my translation) define Construction Grammar(s) as a “family of theories that all share the conviction that human language consists of signs (i.e. form-meaning pairings) on all linguistic levels”. At least this basic definition of constructions is indeed shared by most approaches and, therefore, they also share a common motivation, which Kay (2002: 1) describes as “the need to develop a system of grammatical description in which the marked constructions (more or less ‘idiom-like’ forms of expression) are represented in the same formal system as the regular ‘core’ patterns or rules.” It is a concept that ‘explicit’ Construction Grammar approaches (e.g. Croft’s (2001) *Radical Construction Grammar*, Bergen and Chang’s (2005) *Embodied Construction Grammar*, Sag’s (2011) *Sign-based Construction Grammar* or van Trijp’s (2008) and (Steels’) 2011 *Fluid Construction Grammar*<sup>2</sup>) as well as many approaches within Cognitive Grammar subscribe to. Approaches within the latter field lead to an even further diversification of theoretical varieties of construction grammar. Not only construction grammarians such as Fillmore (1988: 36) or Croft (2002: 21) but also cognitive grammarians such as Langacker (1987) or Taylor (2002) stress the fact that language is sign-based. In Taylor’s (2002: 20–21) view, for example,

*Cognitive Grammar* is driven by the idea that language is essentially and inherently symbolic in nature. Linguistic expressions symbolize, or stand for, conceptualizations. I shall refer to this basic assumption as the symbolic thesis. [...] The symbolic thesis actually amounts to little more than the claim that language is in essence a means for relating sound and

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2 Quite obviously, what is missing here is the ‘traditional’ strand of Construction Grammar as proposed by Fillmore (1988), Fillmore, Kay and O’Connor (1988), Goldberg (e.g. 1995, 1996, 1997, 1998, 2005), or Boas (2010, 2011). Croft and Cruse (2004) and Croft (2005: 273–275) call this approach “vanilla construction grammar” to stress the fact that this is the ‘basic’ flavor while other, newer approaches stand for more ‘exotic’ flavors of Construction Grammar. In this paper, I will mainly rely on Goldberg’s approach to Construction Grammar in order to keep the complexity of the different ‘Construction Grammars’ manageable.

meaning. [...] What is special about the *Cognitive Grammar* approach is that syntax itself is regarded as inherently symbolic, and is therefore handled in terms of symbolic relations between phonological and semantic structures.

In much the same vein, Croft (2009: 8) defines constructions – the building blocks of language – as follows:

Constructions are symbolic units, a pairing of form and meaning, where both form and meaning are construed broadly: the former including morphology, syntax and even phonology and prosody, and the latter including semantics, information structure / discourse function, and also social parameters of use.

The strong emphasis both Cognitive and Construction Grammar<sup>3</sup> put on the sign as the basic unit of language as well as the fact that those signs do not just consist of form and meaning but of form and meaning or function, the latter including information structure, discourse functions, registers, typical communicative constellations or genres etc. (e.g. Croft 2009: 8; Goldberg 1996: 96), have made Construction Grammar an attractive approach for empirical linguists. For them, most theories of syntax are problematic because of their emphasis on context-free – and usually ‘form only’ – descriptions of phenomena. Construction Grammar, in contrast, allows them to include any relevant aspect that may turn up in quantitative (e.g. collocational or usage-based information as in Stefanowitsch (2007, 2009); Stefanowitsch and Gries (2003); Speelman et al. (2009)) or qualitative analyses. Especially within the qualitative approaches of Conversation Analysis and Interactional Linguistics there has been great interest in using construction grammar as a theoretical framework. As early as in 2005, Fried and Östman highlighted the close affinities of Conversation Analysis and Construction Grammar:

The premise that grammatical knowledge is organized through relatively complex conventional patterns and that grammar also includes knowledge of communicative patterning invites a comparison between the analytic methods used by a construction grammarian and the ways in which a systematic study of interaction is carried out in dialogical approaches. Within the latter, Conversation Analysis (CA) suggests itself as a particularly appropriate candidate for a meaningful comparison, since CA – and especially its further development of Interactional Linguistics – is the closest to CxG in its interactional objectives and interests. (Fried and Östman 2005: 1754)

In a detailed survey of the aims and methods applied in Construction Grammar and Interactional Linguistics, Deppermann (2011: 225; my translation), too, concludes that Construction Grammar is the “most likely” candidate for a theoretical

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<sup>3</sup> This affinity in fact makes some proponents of either Construction or Cognitive Grammar treat both terms as interchangeable, e.g. Goldberg (1998: 205) or Langacker (2009). See Jacobs (2008) for a critical evaluation of the view that all of language is sign-based.

framework for qualitative approaches. He lists the following converging interests, methods and assumptions of Interactional Linguistics and Construction Grammar (Deppermann 2011: 215):

- Both are usage-based and stress the importance of corpora (although only Interactional Linguistics is consistently corpus-driven, while Construction Grammar more often is corpus-based and sometimes even works without referring to corpora)<sup>4</sup>;
- Both are surface-oriented and do not assume deep structures or movements;
- Because of the inclusion of functional and activity-based entries, constructions are quite similar to the concept of practices, which are central to Interactional Linguistics;
- While Construction Grammar stresses the psychological entrenchment of linguistic units, Interactional Linguistics stresses the development of empirically attested routines in interaction – both aspects could in fact be treated as two sides of the same coin;
- Both approaches are sensitive to idiosyncratic linguistic structures and not just to core grammatical aspects.

The close affinities between Conversation Analysis or Interactional Linguistics and Construction Grammar have led to a growing body of literature and to a further branch – or ‘family member’ – of Construction Grammar which Imo (2014) proposes to call *Interactional Construction Grammar*. Works by Auer (2006), Auer and Pfänder (2011), Barth-Weingarten (2007), Birkner (2008), Bückler (2011), Deppermann (2006a, 2011), Fischer (2006, 2008, 2010), Günthner (2006 a,b,c, 2007, 2008a, b, c, 2009), Günthner and Imo (2006), Imo (2006, 2007 a,b, 2008, 2009, 2011a,b, 2012), Linell (2005) and Zima and Brône (2011) have shown that both Interactional Linguistics and Construction Grammar may profit from a combination of their theoretical and methodological assumptions.

What has emerged by the name of *Interactional Construction Grammar* is an approach that can be characterized by its interest in analyzing syntactic structures under a perspective of their interactional functions. This, of course, also leads to a special choice of corpora, namely such corpora that include data of authentic – i.e. not experimental, elicited etc. – as well as dialogic interactions.

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<sup>4</sup> For a detailed discussion of the terms *corpus-driven* (all hypotheses are developed on the basis of the data in the corpora) and *corpus-based* (hypotheses may be formed in advance and then tested with the help of corpora) see, among others, Tognini-Bonelli (2001: 65–100). From a conversation analytic point of view, Bückler (2011) shows how corpus-driven and corpus-based approaches can be used for constructional analyses.



Dialogic means that there have to be at least two partners in an interaction who react to each other more or less quickly.<sup>5</sup> This is important because according to the tenets of Interactional Linguistics, the recipients' reactions as well as the general sequential structure of an interaction are the main sources to build analyses on.

So far, the interest in interactional functions has led to a focus on constructions that are typical for interactional language and which have been neglected by traditional grammatical analyses.<sup>6</sup> Among these constructions are projector constructions and discourse markers (Auer 2006, Günthner 2008a, Günthner b, Günthner c, Günthner and Hopper 2010, Imo 2007a, 2012, Pekarek-Doehler 2011), constructions that are connected to practices such as telling and dramatizing stories ("dense constructions"; Günthner 2006b, 2011), constructions and speech genres (Günthner 2006c, Imo 2010, Östman 2004), interjections and routines of formulation (Birkner 2006, 2008; Imo 2007, 2009, 2011c), and increment structures (Auer 2007; Ford, Fox and Thompson 2002; Imo 2008, 2011a).

From an Interactional Linguistic point of view, there has not been much research up to now on constructions that are part of the 'core grammar' – despite the fact that Fischer (2010: 187) shows "that core grammatical structures are grounded in interaction". When describing such 'core' structures of grammar, the description has to take into account both traditional grammatical assumptions (valence patterns of verbs, for example) as well as interactional factors. Among those researchers who have been working within the paradigm of valence and dependency grammar, two – Jacobs (2008; 2009) and Welke (2009a; b) – have shown much interest in Construction Grammar and have tried to assess the advantages and disadvantages that both approaches have.

Valence and Construction Grammar approaches have different views when it comes to the explanation of co-occurrences of some types of units, most of all of verbs and their complements. From an empirical point of view, i.e. the result of a corpus analysis, the raw data tell nothing more than that there are typical combinations of, for example, a certain verb and noun phrases in certain cases. The question now, as Jacobs (2009: 491; my translation) states, is whether "such

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5 So far, most of the analyses mentioned above have equated *dialogic* with *spoken* and consequently based their analyses on spoken interactional data. This bias has to do with the historical genesis of Interactional Linguistics out of Conversation Analysis. As is shown by Imo (2013), Interactional Linguistics is in fact also very well suited for written interactional data, such as SMS, Instant Messaging, chat or even e-mail.

6 Here, the interest of both Conversation Analysis and Construction Grammar for structures outside of the traditional 'core' grammar surfaces again.

a regular co-occurrence of X and Y is to be explained by the fact that X is bound to Y via its valence or whether it can be treated as the result of the integration of X and Y into a complex syntactic construction” which simply demands that X and Y co-occur. In other words, the constructional approach starts from the construction and then goes down to the head of a phrase, while the projectionist valence approach starts from the head of a phrase and then goes up to the whole pattern, i.e. the construction. So while a valency grammarian takes a verb and then fills in its argument slots, a construction grammarian would typically take the construction and fill its open slots, including the verb, according to Welke (2009a: 84; 2009b: 515 and Jacobs 2009: 496).<sup>7</sup> This, of course, is a view to which not all construction grammarians would subscribe. It would be more accurate to say that the entries of the lexical construction of the verb are fused with that of the schematic construction it is inserted in and, furthermore, that there are no hierarchies, i.e. that lexical constructions are on a par with more abstract syntactic ones. In Construction Grammar it is so far unclear, though, how to account for such a merging of constructions.

An open question is whether valence information has constructional status. Valency grammarians would rather opt against it, saying that valence is a universal, overarching feature of verbs (as well as a few other parts of speech) and can thus be described universally and yield maximally general valence patterns and valence rules. In contrast, construction grammarians would include the valence information in the lexical entry of a verb (this has been done in a detailed fashion by Wildgen (1990: 74–84)). The question of which approach might be better is difficult to answer: Welke (2009a: 84; my translation), for example, stresses that whether verbs determine their environments or environments determine the verbs is “a choice of perspective that is not supported by direct observation”. One solution is proposed by Jacobs (2009), who opts for a differentiation between what he calls “v-co-occurrences” – i.e. valence-based co-occurrences – and “c-co-occurrences” – i.e. construction-based co-occurrences (Jacobs 2009: 496; my translation). In Jacobs’ view, v-co-occurrences are not constructions (i.e. signs) but need to be analyzed by traditional valence-oriented concepts. This means that the majority of co-occurrences need to be analyzed traditionally. Only for “sayings, idioms or semantically non-transparent phrases” (Jacobs 2009: 496; my translation) should constructions (c-co-occurrences) be assumed. Jacobs (2009: 503) tries to support this view by listing typical properties of v-co-occurrences vs. c-co-occurrences and shows that the latter are much more open than

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<sup>7</sup> The idea of case frames is closer to the constructional approach in this respect than to the valency approach.

the first. Even for the aforementioned sayings, idioms and fixed expressions, though, Jacobs (2008) is in favor of relying as much as possible on valence-based analyses in order to avoid overgeneralizations. On the one hand, a valence-only approach would be unable to explain fixed expressions (the “projectionist Scylla” of having to explain unforeseen co-occurrences ad hoc), while on the other hand a construction-only approach would result in an almost endless list of possible constructions (the “constructionist Charybdis of an inflation of complex constructions”), as Jacobs (2008: 37–38; my translation) claims. A combination of Valency Theory and Construction Grammar should provide the middle way between these two extremes.

While Jacobs is very cautious about accepting constructional explanations of the data, Welke (2009a, b) is much more open towards an integration of both approaches. He does not try to separate the two approaches and relegate Construction Grammar to an explanation of more or less fixed expressions but votes for a consistent combination of Valency Theory and Construction Grammar: “This means nothing else than that the lexeme-based and the construction-based approach should not be placed in opposition in an absolute fashion. The fusion (of verbs and constructions; W.I.) has to be licensed from both sides” (Welke 2009a: 97).<sup>8</sup> To be asked to prefer one approach over another is a “chicken-and-egg problem”, because

information about valence patterns at the same time is information about the constructions a verb can occur in and constructions in which a verb can occur contain information about the types of verbs that can be inserted into these constructions. Speakers construct sentences with regard to specific verbs and they choose verbs with regard to specific constructions. Listeners build up expectations word-by-word regarding the most probable construction that a speaker produces and use this knowledge to infer what the possible verbs might be. (Welke 2009a: 96; my translation)

A result of this peaceful coexistence of both Valency and Construction Grammar is that analyses which combine both approaches may gain a power of explanation which none of the approaches would have on their own (Welke 2009b: 515). Therefore, Welke (2009b: 541) opts for an integration of concepts. The advantage would be that changes in the valence pattern of a verb, for example, could be much better explained: Sometimes, changes in the construction in general may lead to changes in the valence patterns of verbs. On the other hand, valence patterns may take quite a big load in explaining co-occurrences of verbs with

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**8** This, of course, also means that the concept of valence also has to provide a certain amount of flexibility, as Welke (1999b: 517) demands.

noun or prepositional phrases that have argument status. Furthermore, valence patterns may come in useful in those instances where no ‘function’ or ‘meaning’ of a tentatively posited extremely abstract construction can be made out in spite of extensive quantitative and qualitative research (see also Stefanowitsch 2009 on such purely formal patterns).

In Construction Grammar, the exact status of valence, or, to be more specific, of participant roles, is rather unclear.<sup>9</sup> Goldberg (1995: 44) tries to posit tests such as inserting a verb into the gerundial frame of “No \_\_\_\_\_ing occurred” in order to find out what the participant roles of a verb are. It remains unclear, though, how she arrives at one, two or three participants for the verbs *sneeze*, *kick*, and *give*, although all of these can be inserted into the gerundial frame. On the other hand, it also remains unclear what exactly is made of the fact that some verbs such as *put* need additional complements in order to be realized within that frame. Furthermore, such tests never work unambiguously: Does *remember* need complements or not, i.e. can we say “No remembering occurred”, “No remembering of the things occurred” or “No remembering of the things by the person occurred”? In fact, valence (or case frame) information is usually treated as a matter-of-fact phenomenon that is simply taken for granted as part of the lexical structure of a verb. The reason is that Goldberg (1995; 2005) or Michaelis (2002; 2005) are more interested in such cases where the valence information of the verb is not compatible with that of a superordinate construction and, thus, coercion effects can be seen. In such cases, as in the novel construal of an active sense of *to bore someone* in sentences such as *We bored them right out of the game* in a Peanuts cartoon (Michaelis 2002: 274), abstract constructions are needed to explain how the verb can be coerced into accepting a causative or movement reading. As the data will show, though, in the cases involving *erinnern* there are no such striking mismatches between the verb and the construction or sentence pattern it is realized in. Therefore, the general and generalizable concept of valence patterns can explain these cases much more easily (and in a maximally general way) than a Construction Grammar approach. The discussion of the data will show that an interplay of valence and construction-based features might indeed best suited to describe the occurrences of *erinnern* in the data.

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<sup>9</sup> See, for example, Michaelis (2010), who discusses the problematic interplay between valence entries of verbs and argument structures provided by other schematic constructions. It has to be kept in mind, though, that up to now working generalizations based on valence structure (e.g. the hierarchical ordering of semantic roles) have not been developed. Insofar, both Valency Theory and Constructions Grammar still have to show which approach works better.

### 3 The data

As mentioned in Section 2 above, the goal of Interactional Construction Grammar is to focus on language which is used (a) in spontaneous interactions, and (b) in settings that are characterized by dialogic constellations between the interactants, i.e. settings where spoken or written utterances are addressed to persons who are expected to react to them.

Unfortunately, there are not many publicly accessible corpora which contain German dialogic interactions. Therefore, in order to get a big enough collection of dialogical data, three corpora were chosen: First, the *Dortmunder Chat-Korpus* ([www.chatkorpus.tu-dortmund.de](http://www.chatkorpus.tu-dortmund.de)), second, two databases compiled at the universities of Münster ([cesi.uni-muenster.de/~SMSDB](http://cesi.uni-muenster.de/~SMSDB)) and Essen (<http://mocoda.spracheinteraktion.de/>), containing communication via various short messaging services (for example SMS, WhatsApp, Viber etc.) and third, the *linguistische Audio Datenbank lAuDa* (<https://audiolabor.uni-muenster.de/lauda>), which contains spoken interaction. The advantage of using these corpora is that they provide both spoken and written spontaneous interactional data. The chat corpus contains data of typical “internet-based communication” (Beißwenger, Hoffmann and Storrer 2004), i.e. chat files of internet relay chats including different genres of chat communication. The short message corpora, too, contain written data of computer-based communication. The interactants use their mobile phones to communicate. All of the short message sequences in the two databases are informal interactions, usually between students or between students and their families or friends. The *linguistische Audio Datenbank* contains only spoken interactions ranging from extremely informal face-to-face or telephone conversations between friends or family members to unscripted mass media interactions such as radio phone-in formats or reality shows. All corpora were searched for occurrences of the verb *erinnern* (‘to remember’). The total number of all instances of *erinnern* in the chat, short message and audio corpora is 108 tokens. Of course, it would be nice to have more tokens, but as this is an analysis that is framed within Interactional Linguistics with a strong emphasis on full and detailed analyses including sequential position, contextual information, genre, prosody etc., it was not possible to expand the number of tokens. Furthermore, all of the instances of *erinnern* in the three corpora were taken into account. Future research needs to expand the analysis to other (maybe non-interactional) corpora. The detailed distribution of the tokens within the corpora is presented in the following sections.

### 3.1 *erinnern* in the Dortmunder Chat-Korpus

The Dortmunder Chat-Korpus contains log files of a broad range of different genres of chat. Among these genres are rather formal chat situations such as seminar chats, expert chats and counseling chats as well as less formal ones such as interview chats and very informal ones such as ‘chat chats’. The whole Dortmunder Chat-Korpus contains about 140,000 chat messages, of which only a part, the release corpus, is accessible. The release corpus contains 59,559 chat messages (548,067 words). The reason for making only a sample of the whole Dortmunder Chat-Korpus accessible for researchers is that some of the chat log files (e.g. psychological counseling sessions) cannot be made public because of privacy reasons. The Dortmunder Chat-Korpus contains both professional chats (39,336 chat messages and 429,369 words) as well as private chats (20,222 chat messages and 118,698 words). A total of 47 instances of *erinnern* occur in the chat corpus. Table 1 lists the distribution of these instances within the different chat types.<sup>10</sup>

What is remarkable about the distribution of the tokens of *erinnern* throughout the different chat log files is the fact that about half of all instances (21) occur in the moderated Swiss interview chats, although these chats contribute less than a third (30.7%) of the total number of words in the release corpus. Equally striking is the fact that about another quarter of all instances (10) is provided by the informal chats of the students’ magazine Unicum, although these only contribute about an eighth (12.9%) of the total number of words.

The question then is why *erinnern* occurs so often in exactly these chats. In order to answer this question it is necessary to show, first, what types of constructions *erinnern* is used in and, second, what the function of these constructions is in regard to the communicative situation the chats are embedded in. This will be discussed in detail in Section 4.

### 3.2 *Erinnern* in the short message databases

The short message corpora are spread over two structurally identical databases. The first of these was implemented in Münster in 2010, the second in Essen in 2012. Both databases only contain private short message communications which were collected by students. Therefore, most messages were written by students between 20 and 30 years of age. Some short message sequences were between students and their parents, brothers or sisters, non-studying friends or colleagues at work.

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<sup>10</sup> The numbers in the left column refer to the identification numbers used in the Dortmunder Chat-Korpus (<http://www.chatkorpus.tu-dortmund.de/files/releasehtml/index.html>).

**Table 1:** Distribution of *erinnern* within the chat corpus.

Identification numbers	Type of chat	Number of log files (and words)	Occurrence of <i>erinnern</i>
1101000a	Blended learning seminar	6 (20,576)	0
1102000a	Virtual seminar (chat seminar)	29 (28,860)	2
1103000	Expert chat in the context of a seminar	2 (1,702)	1
1104000a	Chat quiz in the context of a seminar	5 (20,799)	0
1105000a	Expert chat in the context of a seminar	1 (4,073)	0
1106000a	Expert chat in the context of a seminar	3 (8,225)	0
1107000	Expert chat in the context of a seminar	1 (4,598)	1
1202000	Student counseling via chat (University of Bochum)	16 (81,680)	0
1203000	University library information desk per chat (University of Dortmund)	200 (21,089)	0
1301000	Moderated political chats provided by <i>politik-digital</i>	5 (12,490)	0
1302000	Accompanying chat to the TV reality show <i>Big Brother</i>	1 (1,015)	0
1303000	Moderated chat following the TV talk program <i>Sabine Christiansen</i>	3 (46,707)	6
1304000	Chat accompanying the newscast program <i>tagesschau.de</i>	1 (3,750)	0
1305000	General topic chats provided by the TV station ZDF	2 (5,218)	1
1306000	Moderated interview chats (Swiss online portal <i>bluewin.ch</i> )	83 (168,587)	21
2102000	Unmoderated user chats on <i>politik-digital</i>	4 (24,253)	0
2103000	Unmoderated chats hosted by TV presenter <i>Sabine Christiansen</i>	3 (16,749)	3
2221000	Unmoderated informal 'chat chats' hosted by the students' magazine <i>Unicum</i>	12 (70,825)	10
2222000	Unmoderated flirt chat	1 (1,716)	0
2223000	unmoderated hobby chat (by <i>degu</i> lovers)	1 (5,155)	0
<b>total:</b>		<b>376 (548,067)</b>	<b>45</b>

All of the data contain information about the age, gender and profession of the writers as well as the relation to each other (friends, boyfriend or girlfriend, parent etc.), the text input mode of their mobile phones (no automatic corrections, T9 predictive text technology or smart phone with automatic text correction) and the reason for the communication (making an appointment, love talk, quarrel etc.). The short message sequences are presented in columns. The left column is for the first sender of the message (writer 1), the right column for writer 2. All messages are numbered consecutively and the date and time of the messages are listed.

The database at the University of Münster contained 1,630 short message sequences at the time of the search (July 2012), with a total number of 6,936 single messages, and the one at the University of Essen 472 short message sequences with 2,148 single messages. The total number of tokens for *erinnern* is 11. Four instances occurred in the smaller Essen database and seven instances in the larger Münster one.

### 3.3 *Erinnern* in the linguistische Audio Datenbank

The linguistische Audio Datenbank (IAuDa) is a password-protected, not publicly accessible database for researchers at the University of Münster. It contains about 55 hours of spoken language in different communicative and medial settings, transcribed according to the Gesprächsanalytische Transkriptionssystem GAT 2 (Couper-Kuhlen and Barth-Weingarten 2011). Radio and TV talk shows and interviews comprise a minority of the contributions, while TV reality shows, radio phone-in programs and private conversations – both face-to-face and by telephone – between family members or friends comprise the majority. The total number of tokens of the verb *erinnern* in the audio database is 52. Table 2 lists the distribution of *erinnern* within the sub-corpora:

**Table 2:** Distribution of *erinnern* within the spoken language corpus.

Communicative situation	Length of audio material (in hours and minutes)	Number of tokens of <i>erinnern</i>
Private communication (family, friends etc.)	17 h, 2 min	15
Radio phone-in formats (radio talk, psychological counseling formats)	13 h, 43 min	15
Radio / TV interviews	2 h, 31 min	3
TV talk formats	5 h, 51 min	7
Reality TV formats	15 h, 9 min	12
<b>Total:</b>	54 h, 16 min	52



In terms of the distribution of *erinnern* across these data, no striking inequalities can be seen. Quite uniformly, there is about one instance of *erinnern* for every hour of conversation, no matter whether private or mass media conversation.

## 4 Analysis: constructions with *erinnern*

This section seeks answers to the following two questions: First, in what types of constructions does the verb *erinnern* occur in? Second what is special about these constructions, i.e. what are their meanings and interactional functions and to what extent are they connected to certain communicative settings or genres?

In what follows, all of the instances of *erinnern* have been sorted into larger activity-based patterns, as activities are central to interactional approaches to linguistics: First, in Section 4.1, instances involving statements (or, on a formal level, *main clauses*) are discussed. Most of the instances of *erinnern* (76 tokens) are realized as statements. The second largest group (19 tokens) is that of questions (section 4.2). Three smaller groups involve requests (six tokens), fixed hedging formulae (three tokens) and inflective constructions (four tokens) (discussed in Sections 4.3 to 4.5). While the choice of “fixed formulae” and “inflectives” is motivated by the fact that these are ‘noticeable’ phenomena which differ from expected uses of *erinnern*, the grouping of the instances of *erinnern* into statements, questions, and requests was motivated by the fact that a preliminary analysis of the data revealed that the interaction of *erinnern* with those activities is indeed an important factor to explain the different uses of *erinnern* and as such it helps with structuring the data.

### 4.1 Statements involving *erinnern*

The verb *erinnern* is a special case, because it has two distinct valence patterns. The first pattern is called valence pattern I and it looks as follows:

$$\text{NP}_{\text{nom}} + \textit{erinnern} + \text{NP}_{\text{acc}} + \text{PP}_{\text{an} + \text{NP}} / \textit{daran}$$

The NP in the nominative case is the subject, either coding the person who actively ‘does remember’ something or some instance that causes someone to remember something. The NP in the accusative case codes the person who remembers or is reminded of something and the ‘thing’ to be remembered is coded either by a prepositional phrase with the preposition *an* (‘of’) or with the prepositional adverb *daran* (‘of it’), which works as an anaphoric or cataphoric pronoun. The

person who ‘does the remembering’ and the person who remembers can either be different persons (e.g. *Ich erinnere dich an das Treffen* ‘I remind you of the meeting’) or the same person. In the latter case, the NP in the accusative is a reflexive pronoun: *Ich erinnere mich an das Treffen* (‘I remember the meeting’, lit.: I remind myself of the meeting). This structure does not occur in English but is the traditional, grammatically ‘correct’ way of expressing in German what in English would be coded by a different verb (*remind* vs. *remember*).

The second pattern, which is called valence pattern II, differs in that there is only an accusative object coding the ‘thing’ to be remembered:

$$\text{NP}_{\text{nom}} + \textit{erinnern} + \text{NP}_{\text{acc}}$$

The NP in the nominative case codes the person who remembers and the NP in the accusative case the ‘thing’ to be remembered. This valence pattern is not (yet) accepted as a standard German form and it is still much less common than valence pattern I. Because there is only one argument, the NP in the accusative, *erinnern* can only be used the same way as *to remember* is used in English: *Ich erinnere das Treffen* (‘I remember the meeting’).

The following questions have to be discussed:

- How many instances of valence patterns I and II occur in the data?
- Can they be explained by functional differences?
- Which of the arguments are realized (i) always, (ii) sometimes, and (iii) seldom and why can some arguments be dropped?
- What are the functions of the different realizations of the valence patterns?
- How do valence patterns and argument realizations combine with constructions?

The first question can be answered quickly: Valence pattern I is by far the most common in the data. Only four out of 108 instances of *erinnern* are realized in valence pattern II,<sup>11</sup> in spite of the fact that all of the data are recent data, i.e. they ought to document a possible language change quite well (the data in the chat corpus were collected between 2003 and 2009, in the audio corpus between 1990 and 2012 and in the short message database between 2010 and 2012). The low number of instances of valence pattern II makes it difficult to answer any questions concerning functional differences. The instances realized in valence pattern II will therefore be discussed at the end of the chapter.

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<sup>11</sup> Three instances occur as main clauses, i.e. statements, and one as a question, which will be discussed in Section 4.2.

The total number of *erinnern* with valence pattern I as statements (i.e. in the form of a main clause) is 69; another 3 instances are realized in valence pattern II.

Concerning valence pattern I, there are 24 instances where all arguments are realized and a PP is used to code the ‘thing’ remembered, 13 instances where the prepositional adverb *daran* (‘of it’) (usually realized in the colloquial form *dran*) is used instead as an anaphoric pronoun and another 11 instances where the adverb is used as a cataphoric pronoun followed by a subordinate clause. Nineteen cases are realized elliptically and two are ‘other’ instances such as *zurückerinnern* (‘remember back’). The distribution of these instances across the three communicative settings (short messages, chat, spoken language) is even; there are no noticeable tendencies towards any one of these settings.

The choice between (i) *erinnern* + PP, (ii) *erinnern* + *daran*, and (iii) *erinnern* + *daran* + subordinate clause is driven by contextual factors, most of all information structure. Whenever the ‘thing’ to be remembered or reminded of is new, pattern (i) is used, as in the following instance, where V and S are playing with marbles, trying to hit their own marbles with other marbles in order to push them to the goal line.

#### Example 1:

- 352 V wir müssen probieren da REIN zu treffen.  
‘we have to try to throw them in’
- 353 S ja oKAY.  
‘yes okay’
- 354 ((V and S throw their marbles and laugh; 8 seconds))
- 355 V → das erinnert mich an die FRÖsche weißte?  
‘that reminds me of those frogs, you know?’
- 356 S ja (-) wo\_de hinten auf den (-) DINGS knippst.  
‘yes where you push this thing at the back’

In the middle of the game, speaker V says that the game reminds her of another game where plastic frogs have to be pressed and released to jump forward. The subject *das* (‘that’) codes the incident that ‘does the reminding’, the accusative object codes the person being reminded and the prepositional phrase codes the ‘thing’ the person is reminded of. The PP is necessary because *die FRÖsche* (‘the frogs’) is new information.

If the ‘thing’ being remembered or reminded of is already present, only the prepositional adverb *daran* is used as an anaphoric pronoun. In the following transcript S claims that she is always the first to get up and the last to go to sleep. J refutes this claim:

## Example 2:

- 983 S *ich bin sonst die Abende die lEtzte und mOrgens  
die Erste gewesen.*  
'all the time I have been the last one in in the  
evenings and the first one up in the mornings'
- 984 J *das WAR mal,*  
'that has been'
- 985 *das is LANGE her,*  
'that is long ago'
- 986 → *da kann ich mich gar nich mehr dran erINnern.*  
'I absolutely cannot remember it'
- 987 *[Abends die lEtzte (-) das stImmt.]*  
'the last one in in the evenings (-) that is  
right'
- 988 S *[das war bevor sie ( )]*  
'that was before they ( )'
- 989 J *aber morgens is doch bei dir der (-) der LACK ab.*  
'but in the mornings the bloom is really off the  
rose with you'

J says that S indeed got up early and went to sleep late but that this was so long ago that he cannot remember it. Again, the NP in the nominative case codes whoever is 'doing' the remembering or reminding and the NP in the accusative case what is being reminded. In this case, both are the same, i.e. J remembers (lit: he reminds himself). As the 'thing' being remembered has just been mentioned by S in line 983, it need not be repeated in a prepositional phrase. The prepositional adverb *dran* is enough and works as an anaphoric pronoun.

If a new topic is introduced which is too complex to be realized as a simple noun phrase, the third pattern is used, as in this short message:

## Example 3:

*Hey!wollte dich nur daran erinnern,dass heut die anmeldung für den hsp ist!glg ;-)*  
'Hey! just wanted to remind you that today is registration day for the university  
sports courses! Greetings'  
message #1 - 13.10.2011 - 19:33:14

The writer wants to remind her friend of the registration date for the sports courses of their university. The 'thing' to be remembered is realized as a copula clause. The reason is that it would be rather awkward to realize it in another form such as a prepositional phrase, which would become rather complex (e.g. *I wanted to*

remind you of today's registration date for the university sports courses).<sup>12</sup> So far, three sub-patterns can be defined:

- (a) People use statements with *erinnern* (main clauses) and a PP to bring up new topics to be talked about. These topics – i.e. the ‘things’ remembered – can either be ‘things’ that the persons who are speaking or writing remember themselves or they remind other people of ‘things’. In that case, the PP is used to introduce the ‘thing’ being remembered or reminded of.
- (b) People use statements with *erinnern* (main clauses) and the prepositional adverb *daran* (*of it*) to refer back to a topic already introduced. Again, the statement can both be about the talker's/writer's own remembrance or about that of one of the interactants (for example, *sofern du dich DARan überhaupt noch erinnern kannst* ‘provided that you can still remember that’) from the Münster corpus of spoken interaction).
- (c) If a new topic is introduced which is too cumbersome to be realized as a noun phrase (complex circumstances such as the fact that that day is the day the registration for university sports courses starts, etc.), the pattern involving the prepositional adverb *daran* (‘of it’), which is used as a cataphoric pronoun, and a following subordinate clause is used. First, the prepositional adverb *daran* is realized and at the end of the clause the ‘long’ proposition appears, which semantically ‘fills’ the cataphoric adverb.

It does not make sense, though, in my opinion, to posit three constructions. The reason is that in all cases an abstract main clause construction (if indeed one wants to call this a construction and not just a sentence pattern, as, for example, Stefanowitsch 2009 proposes) is fused with the valence entry of the verb *erinnern* (valence pattern I). It is difficult to see how abstract constructions ought to be responsible for these patterns in the style of analysis proposed, for example, by Michaelis (2010). The difference between the prepositional phrase, the prepositional adverb (anaphoric use), and the prepositional adverb (cataphoric use) can be explained by general processes, too, and are not restricted to constructions with *erinnern*: Many German prepositional phrases have an equivalent

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<sup>12</sup> The reason that there is no subject is the combination with an elliptic structure Auer (1993) calls “eigentliche Verbspitzenstellung” (true verb-first positioning). This construction is often used if the subject either codes the speaker/writer or something that has just been mentioned. In other words, either *ich* (‘I’) or *das* (‘that’) can be omitted in informal language. It is not necessary to assume a new construction for the four cases (two in spoken language, one in short message and one in chat communication) in which this has happened as it can be explained by a simple fusioning of the main clause construction with the “uneigentliche Verbspitzenstellung construction”.

prepositional adverb which is used as a shortened, anaphoric form (*mit X* → *damit*; *an X* → *daran*; *auf X* → *darauf*, *neben X* → *daneben* etc.).<sup>13</sup> As Jacobs (2008, 2009) points out, a purely construction-based analysis would yield very many – possibly too many – constructions. A combination of valence and construction-based analyses reduces the amount of constructions one has to posit as valence-based approaches allow for maximally general explanations.

The next question asks what happens if the valence patterns are not completely realized. As has already been mentioned above, one of the arguments that can be omitted easily is the subject, whenever it refers to the speaker as a first person pronoun. Besides the deletion of the subject, there are also many instances where *erinnern* is used together with a subordinate clause but without the cataphoric prepositional adverb *daran* or without the NP in the accusative case coding *who* is being reminded. I found a total of 19 examples in the data, 12 in the spoken data and seven in the chat data:

Example 4:

- 050 S *.h wenn man das im zeitverlauf (-) beGREIFT, .h*  
 `h if you consider the temporal development'  
 051 *(-) hm (-) ähm-*  
 `(-) hm (-) erm-,  
 052 *kann man wahrscheinlich SCHO:N von von-*  
 `you probably indeed can'  
 053 *revolutionIERenden veränderungen sprechen;*  
 `speak of revolutionary changes'  
 054 → *ich kann mich erINnern, (-)*  
 `I can remember'  
 055 *dass die ZAHlen- (.)*  
 `that the numbers'  
 056 *zu FREI:em journalismus die in den achziger*  
*jahren gehandelt wurden,*  
 `concerning free journalism that circulated in  
 the eighties'  
 057 *(-) SEHR niedrig lagen,*  
 `were very low'

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**13** The prepositions are: *with, of/on, on, next to*. Most of the parallel adverbial forms do not exist in English. One of the rare instances would be *of X* → *thereof*.

Example 5:

*57Steipilzli\_m*

*hoi anita. bisch du das wo bis vor chorzem am morgue  
u 5 vor 5i wie en wecker gnau a üsem block in zug dore  
„gsecklet“ isch?*

‘Hello Anita. Is that you who until recently every morning at five minutes to five like clockwork ran from the building to the train?’

*58anita\_weyermann* →

*Ich kann mich nicht erinnern, wann ich letztmals so  
früh laufen ging!*

‘I cannot remember when I last went running so early.’

In example 4, which is taken from an interview, the speaker realizes all necessary arguments demanded by valence pattern I: The person who remembers (*ich* ‘I’), the person who is reminded (*mich* ‘myself’) and the ‘thing’ that one remembers (*dass die Zahlen...* ‘that the numbers...’). The same is true for the chat example, where the subordinate clause coding the ‘thing’ remembered is introduced not by the neutral subordination *dass* (‘that’) but by a temporal one (*wann* ‘when’).

Again, the question is whether this pattern might qualify as a construction of its own and, again, the tentative answer is *no*. The reason is that it is not possible to detect any special functions – neither interactional functions nor any other – that may be used to argue for a separate construction – at least based on the data discussed here. Instead, this pattern can be explained by general factors of contextual language use and information structuring (see Ratitamkul, Goldberg and Fischer (2004) for a detailed discussion of the role of discourse context for triggering the omission of arguments): In all cases nothing has yet been mentioned that might be remembered, so it is clear that the ‘thing’ remembered has to be delivered *after* the finite verb, even if there is no cataphoric prepositional adverb pointing to it. The same pattern can work the other way round, i.e. the anaphoric prepositional adverb can be omitted if it is contextually clear what the ‘thing’ remembered is, i.e. when it was mentioned before<sup>14</sup>: Utterances such as *jetzt erinnere ich mich* (‘now I remember’) (chat

<sup>14</sup> Of course, this could also be transformed into Construction Grammar terminology. Goldberg (2005: 25) introduces a “Principle of Omission under Low Discourse Prominence” that allows for the deletion of patient arguments of causative verbs, for example: “Omission of the patient argument is possible when the patient argument is construed to be deemphasized in the discourse vis à vis the action. That is, omission is possible when the patient argument is not topical (or focal) in the discourse, and the action is particularly emphasized (via repetition, strong affective stance, contrastive focus, etc.)” (Goldberg 2005: 29). One might now posit a range of further

corpus), *ich hab ihn schon immer mal erinnert* ('I have reminded him every now and then') (spoken language corpus), or a very reduced form also involving subject deletion, *erinnere mich* ('remember') (chat corpus) show various constellations where the 'thing' to be remembered was mentioned shortly before and, consequently, neither *daran* ('of it') nor the prepositional phrase *an X* ('of X') is needed. It is also possible to delete the pronoun coding the person being reminded if it is contextually clear. In the following example from the chat corpus the chatters critically discuss the 2002 Russian operation when armed forces stormed the Dubrovka theatre, where terrorists were holding 850 hostages. One chatter accused the Russians of undue violence and another sarcastically remarks, e.g. *Man hätte an die bevorstehende Weihnachtszeit erinnern müssen...* ('One should have reminded them of the coming of Christmas...'). As the chatters have been talking about terrorists all the time, it is clear *whom* the Russians should have reminded, namely *sie* ('them') or *die Terroristen* ('the terrorists').

None of these instances discussed so far need a separate constructional description except for the assumption of quite general schematic constructions such as *main clause* (if indeed one wants to assume that this is a construction and not just a formal pattern, as Stefanowitsch 2009 claims). Instead, they can quite well be explained via a combination of valence and contextual or information structure information. The advantage is that these explanations are maximally general and can account for any kind of valence pattern. There is a prototypical valence pattern of *erinnern* (valence pattern I) involving three arguments. Some of those arguments can be deleted in certain contexts: Subject pronouns can be deleted whenever the subject codes the speaker or writer, object pronouns can be omitted if they would otherwise be realized as anaphoric pronouns and cataphoric pronouns can be omitted if it is contextually clear that a subordinate clause will follow. All three patterns are regular patterns of German and of the general working of valence and interactional requirements.

A second result of the fact that the corpora only consist of interactional data is that one pattern does not occur which is featured quite prominently in the valence dictionary of German verbs. The valence dictionary states that *erinnern* "can also be used as a communication verb in the sense of 'to say something in a reminding fashion'" as in '*Wir wollten doch zusammen ausreiten*', *erinnerte Hans von Backer*. ('Didn't we want to ride out together?', Hans von Backer reminded')

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"principles of omission" until every eventuality is covered. The advantage of valency-oriented approaches, though, is that they have described such processes of omitting arguments in a much more general way and, therefore, have a much greater explanatory power.



(VALBU: my translation). This structure is quite typical for – quite probably older – literary forms such as novels and does not occur in interactional everyday language.

The last pattern to be discussed here is valence pattern II. Only four instances occur in my data (three statements and one question format), indicating that this pattern is not very common, despite the fact that in the valence dictionary it is featured side by side with valence pattern I. Furthermore, two of these instances were produced by the same speaker (examples 6 and 7 below). One instance of valence pattern II will be discussed in Section 4.2 (*questions*); the other three are listed below:

#### Example 6:

- 808 G *.hhh (.) äh: tja DOping sich dopen mit einem  
stück wenn mans laut laut genug hört h;  
' .hhh erm well doping to dope yourself with a  
piece of music if you listen to it loud enough'*
- 809 G *ä:m äh is sicherlich nicht verBOTen? [((lacht))]  
'erm erm that is certainly not forbidden  
((laughs))'*
- 810 I *[((lacht))]  
'((laughs))'*
- 811 G → *ich h° (-- ) erinnere eine besondere situation h  
(.)euROpameisterschaft;  
'I remember a certain situation European  
Championship'*
- 812 G *(---) in MALmö;  
'in Malmö'*

#### Example 7:

- 1032 G *.h zum beispiel gemeinsam auch äh (.)  
WETTKämpfe .hh äh vorbereitet und auch  
praktiziert,  
'for example together we prepared and held  
tournaments, too'*
- 1033 G *mit studenten studentTINnen zusammen-  
'together with male and female students'*
- 1034 G *zum [beispiel interessante .hh äh dinge äh  
MEHRkämpfe .h stAffelläufe-  
'for example interesting .hh erm things erm  
decahlons .h relay races'*

- 1035 I            [h=hm, ]  
                  `mhm`
- 1036 G → *ich erinnere .h dass wir einmal (-) auch HIER  
lokale laufevents beschickt haben mit-*  
          `I remember .h that once we took part here,  
too, in local running events with`
- 1037 G            (-) *ich glaub (.) sechs vier mal  
einhundertMEterstaffeln?*  
          `I think six four times one hundred meters  
relay racing teams`

Example 8:

- 850**system** → *Lita\_Jente erinnert dunkel, mit oz geschattet zu haben*  
                  `Lita\_Jente darkly remembers having chatted with oz`

As can be seen here, the only difference between constructs involving valence pattern I and valence pattern II is the fact that valence pattern II only needs a subject (the person remembering) and the ‘thing’ remembered, which can be realized as a noun phrase (example 6), an anaphoric pronoun (discussed in Section 4.2), a subordinate clause (example 7) or an infinitive clause (example 8).

Because there are so few examples it is not possible to say anything about functional differences between both valence patterns.<sup>15</sup> The reason for the development of the second valence pattern may have to do with analogy: Quite a few German *verba dicendi et sentiendi* – such as *sagen* (‘say’), *finden* (‘think’), *glauben* (‘believe’), and *meinen* (‘mean’) – are realized in a similar pattern as valence pattern II of *erinnern*, i.e. NP<sub>nom</sub> + verb + NP<sub>acc</sub>/subordinate clause (*ich glaube seine Geschichte* ‘I believe his story’; *ich glaube das* ‘I believe that’; *ich glaube, dass das richtig ist* ‘I believe that that is correct’). What may have happened is that *erinnern* by analogy assumed this pattern. If this is indeed the case, a constructional approach may explain better how this process worked than a purely valency-based approach: Whenever verbs such as *glauben* are realized, they occur in constructs such as *Ich glaube seine Geschichte* (‘I believe his story’). Even though it is not necessary to actually assume a construction such as NP<sub>nom</sub> + *glauben* + NP<sub>acc</sub> because the valence information is enough, repeated use of actual constructs with *glauben* in this pattern assumes a construction-like quality

<sup>15</sup> This does not mean that they do not exist but just that four cases are not enough to detect them. If Boas (2010: 58) is right, meaning differences in the verbs ought to be discovered. It may also be, though, that a functional differentiation has not yet emerged.

which may have triggered the insertion of *erinnern* within that pattern: NP<sub>nom</sub> + *erinnern* + NP<sub>acc</sub>. If this is repeated often enough – as mentioned above, the valence dictionary claims that it is a common North and Middle Western German use – *erinnern* finally may develop a second valence pattern and the auxiliary constructional pattern is not needed any more.

## 4.2 Questions involving *erinnern*

Of the 21 instances of *erinnern* in the context of a question, only three were found in the short message corpora, six in the spoken language corpus and 12 in the chat corpus. The first regular pattern involving *erinnern* and a question format is quite special and occurs in the context of interviews (see example 9 below). This accounts for the high number in the chat corpus: Eleven out of 12 questions were such interview questions. Two further interview questions occurred in the spoken data. The high number of instances in the chat corpus has to do with the fact that a significant proportion of it (about 30%) consists of Swiss interview chats where prominent persons answer questions posed by chatters. This results in the marked sequential structure of a tight pattern of *question–answer* with almost no exchanges longer than these two steps and with new questions usually containing new topics and not tying back to a topic already mentioned before (the reason is that there are many chatters who wait in line to ask their own questions and who therefore do not react to previous chatters' questions nor to the answers of the interviewees).

The most prominent pattern of interview questions, which might claim construction status, consists of the combination of a question format in the second person singular or the politeness form (the latter is untranslatable into English; it corresponds to the older English distinction between *you* and *thou*). It can claim construction status because there is also a marked preference for the inclusion of *noch* ('still') into the pattern as well as a routinized function attached to the pattern, namely that of introducing a new topic. The following example illustrates this pattern:

Example 9:

69 **Kenny**

*Beat, wirst Du uns auch bald verlassen und nach  
Deutschland abhauen? (Wie Mr. Rima!)*

'Beat, will you also leave us soon and abscond to  
Germany (Like Mr. Rima!)?'

70 **Beat Schlatter**

*nein, mir gefällt es zwischen biel und schaffhausen*

'No, I like it in the area between Biel and Schaffhausen'

- 71 **BeatderPutzmann** → *erinnerst du dich noch an radio32 ??*  
 ‘do you still remember radio32??’
- 72 **Beat Schlatter** *war das dort, wo ich zu spät ins interview kam?*  
 ‘was that the place where I came too late to an interview?’
- 73 **zip** *Isch denn dä jack stoicker mit diar verwandt, sicher gell.....*  
 ‘Is Jack Stoicker related to you, he is, isn’t he.....’

The typical interview pattern can be observed quite well here. In line 69, Kenny asks Beat Schlatter, a Swiss comedian, whether he intends to leave Switzerland for Germany. Schlatter says no. In line 71, chatter “BeatderPutzmann” asks a completely unrelated question about an incident at a radio station. Beat Schlatter does not know exactly what “BeatderPutzmann” means and counters with a clarifying question. This question is never answered; another chatter, “zip”, asks a new and unrelated question and for the rest of the interview “BeatderPutzmann” does not send another message (or cannot get through) again. The realization of *erinnern* with valence pattern I is functional here from an information structuring and interactional perspective. In such a setting, where no contextual cues help the interviewees identify what the interviewers refer to, all arguments are needed. In this case, it is the address (*du* ‘you’; *dich* ‘yourself’) and either a prepositional phrase (*an X* ‘of X’) or a subordinate clause (e.g. *Kannst du doch noch erinnern, als du in Münsterlingen am Grümpeltturnier warst??* (‘Can you still remember when you were in Münsterlingen at the Grümpel tournament?’) (chat 1306059)) which refers to the ‘thing’ to be remembered.<sup>16</sup> A second aspect is the inclusion of the adverb *noch* (‘still’). This, too, can be explained by the fact that there is almost no context and the questions are very abrupt. Therefore, *noch* (‘still’) indicates that, on the one hand, a new topic or communicative constellation is activated but, on the other hand, it is

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<sup>16</sup> The pattern can either be realized only with the full verb *erinnern* (*erinnerst du dich noch...* [‘do you still remember’]) (three instances) or together with the modal verb *können* (*kannst du dich noch ... erinnern* [‘can you still remember...’]) (four instances). This realization can best be explained by a fusion of the interview question construction with an abstract modal construction, the result being a more polite question. There is no need to posit an autonomous interview question with modal verb *können*; the structure can be explained by the fusion of two constructions, as could be argued for if one adopts Croft’s (2001: 25) view: “Any quirk of a construction is sufficient to represent that construction as an independent node”. If one took that seriously, this would result in a plethora of constructions.

implied that the interviewer assumes that the interviewee is able to remember what the interviewer is referring to.

The more external context is established, the less likely the interview question format becomes. There are only two instances of this format in the spoken data, the reason being that usually interviews show at least some kind of progression and do not consist of completely unrelated questions. The following transcript is taken from a radio interview. The interviewer (I) has a prominent comedian (Co) as a guest in his studio, whom he first interviews on his own about his role as a caretaker in the comedy show *WWF Club*. After the initial interview, listeners to the radio program are invited to call (caller C) and ask the comedian questions:

**Example 10:**

- 270 I *als HAUSmeister im wwf club.*  
 'as caretaker in the WWF Club'
- 271 Co *mhm;*  
 'mhm'
- 272 I *äh (.) wie lang LIEF der?*  
 'erm (.) how long was that running'
- 273 Co *der lief äh-*  
 'this was running erm-'
- 274 I *der lief SEHR lange;*  
 'this was running very long'
- 275 *[aber du warst FRÜher] weg.*  
 'but you left before'
- 276 Co *[der lief ACHT jahre-]*  
 'it was running for eight years'
- 277 *und ICH bin nach drEI jahren weggegangen.*  
 'and I left after three years'
- 278 I *hast du da ([Name der Anruferin]) ich guck auf dein A:Lter, (.)*  
 'have you ([Name of Caller]) I'm looking at your age (.)'
- 279 *DREIundzwanzig bist du?*  
 'you are twenty-three'
- 280 *[äh ] erINNERst,*  
 'erm do you remember'
- 281 C *[ja:?]*  
 'yes'
- 282 I → *erINNERst du dich noch gut an?*  
 'do you still remember well the'

283 C ä:hm ja: ich WAR mal-  
 `erm yes I once was-'

Throughout the preceding interview with the comedian, the topic – the comedian playing a caretaker in the well-known comedy show *WWF Club* – is already set, so when the interviewer welcomes the first caller to the program (lines 278–279), he can only hint at the ‘thing’ to be remembered and leave the prepositional phrase incomplete (a possible completion of the free-standing *an [of]* might be *an den WWF Club* [‘of the WWF Club’]). The caller understands what is referred to and talks about her remembrance of the comedy show.

The more probable it is that the interviewee does indeed remember what the interviewer refers to, the less likely the inclusion of *noch* (‘still’) is. In five cases (four in the chat data, one in the spoken data) there is no *noch*. In all of these cases the ‘thing’ to be remembered has an extremely high chance of indeed actually being remembered by the interviewee, either because it refers to a topic already talked about, a recent event which the interviewee therefore must remember, a proper name which is unambiguously identified or an open question (i.e. *What part of your hockey career do you remember best?* from the chat data) which the interviewer knows the interviewee can answer. An account of the formal and functional features of interview questions involving *erinnern* could look like the one presented below. The style of the presentation of the possible features of the construction is based on Imo (2007) and purposely does not orient itself to any established notational conventions for constructions, because no formalization is intended:

Semi-specific<sup>17</sup> construction: *interview question with erinnern*

Morphology	2nd person singular or politeness form singular
Inner syntax	question format; all arguments realized; preference for combination with <i>noch</i> (‘still’) <i>noch</i> (‘still’) can be left out if the chance is high that the interviewees will identify the ‘thing’ they are asked to remember
Outer syntax	link to the following abstract valence pattern of <i>erinnern</i> : $NP_{\text{nom}} + erinnern + \text{reflexive pronoun}_{\text{acc}} + PP_{\text{an } X}$ / subordinate clause (i.e. pattern I)

<sup>17</sup> The term “semi-specific” refers to Croft’s (2001: 17) distinction between specific constructions, where the lexical components are fixed completely, and schematic ones, where there are lexically unspecified slots. “Semi-specific” constructions, then, have some ‘open’ slots as well as some lexically specified ones.

	combination with modal verb construction involving <i>können</i> ('can') is possible
Function	introducing a new topic in an interview; implying that the interviewee ought to be able to identify what the interviewer is referring to
Sequential position	sequence-initial: the question introduces a new topic and / or a new communicative constellation
Genre	interviews

A second group of tokens (four instances; see below) shows a tendency to be realized in spoken language. One instance occurred in the short message corpora, and three instances in the spoken language corpus. What these instances have in common is that they are part of an interactive work of trying to maintain intersubjectivity, i.e. to identify something, to help each other understand something or to clarify whether a piece of information is correct or wrong.

In a short message exchange, for example, one of the interactants asks the other whether she could also invite a common friend, Anna, to a party: *Du kannst ja vllt Anna auch fragen, denn ihr seht euch doch Mi immer, od erinner ich das falsch?* ('Maybe you can ask Anna, too, because you meet each other every Wednesday, or do I remember wrong?'). Here, the writer of the short message uses the post-positioned clause *od erinner ich das falsch?* ('or do I remember wrong?') as a kind of tag question to clarify whether she indeed remembers right. What is interesting here is that valence pattern II is used. This may be explained by the fact that this pattern is much shorter (there is no need to include a reflexive pronoun) and a simple anaphoric demonstrative pronoun (*das* 'that') is enough to identify the 'thing' to be remembered.

Another instance in the spoken data is *erinnerst du dich nicht?* ('don't you remember?') in the context of a longer identification sequence, where one of the interactants talks about a video film shooting she had participated in and the other one does not remember:

#### Example 11:

259 L voll COOL am ähm: am samstag voll lustig ein  
 freund von mir ähm:- (-)  
 'quite cool on erm on Saturday really funny a  
 friend of mine erm'

260 aus KREfeld,  
 'from Krefeld'

261 mit dem ähm das hab ich dir erzählt mit diesem  
 Videodreh ne?

- 'with that erm I told you about it with that  
video film haven't I'
- 262 J ne:-  
'no'
- 263 L→ *erINnerst du dich nicht, (.)*  
'don't you remember'
- 264 *ähm: also ein freund von mir der studiert hier  
WIRTschaft aber der ist jetzt fERTig quasi,*  
'erm well a friend of mine studies economics here  
but he has almost finished now'

After J negates that L has talked about the video film shooting, L implicitly insists that she did talk about it and then goes on to tell J again. Another instance is *kannst DICH dran erinnern* ('can you remember'): A caller in a radio phone-in format refers to a topic that has been talked about two weeks before and asks the host of the radio talk show if he remembers it. After the host affirms that he remembers, i.e. the intersubjectivity is maintained, the caller goes on to talk about that topic.

These formats are too heterogeneous to be called constructions in their own right. Instead, it would make much more sense to assume that the verb *erinnern* – with its valence patterns I or II – is fused with a generic question construction. The interactional functions are achieved not because of constructional values themselves but because of the sequential position of these questions as well as the fact that semantically the 'thing' to be remembered is something that is relevant for the progress of the talk and is 'checked' or asked to be ratified by the question. An interactional analysis reveals that in some given context such a question is used to maintain intersubjectivity, but it does not make sense to include this information into some potential construction.

The same holds true for another variant of *erinnern* in a question format. Here, the question is used as a complaint or reproach. There are only two instances of this use, one in the short message and one in the spoken language corpora. The writer of the short message forgot to tell her friend her new telephone number after she had moved to another city: *Oh schreck, ich hab dich in aller hektik ganz vergessen! wieso hast du mich nich nochma dran erinnert...meine festnetznummer ist die 01234567890* ('Oh my god, I completely forgot about you in all that rush! Why didn't you remind me again of it? My land line number is 01234567890'). The writer reproaches her friend for waiting too long before she asked her for her telephone number.

A second instance occurred in the spoken data. The interactants are playing the game *Ludo* (AE *Parcheesi*) and one of the interactants just forgot to move



one of his figures: *ich hab immer vergessen dass ich hier HOCHsetzen könnte; könnt ihr mich nich dran erINnern?* ('I always forget to move it up here; can't you remind me of it?'). The problem with describing these instances as constructions is that reproaches or complaints are highly context-sensitive and rely on contextualization cues such as prosody to be identified. Even then, as Günthner (1999, 2000) shows, reproaches and complaints in question formats still remain ambiguous and can always be reinterpreted as 'simple' questions. Therefore, it does not make sense to assume a special construction "reproach-question involving *erinnern*". The same holds true for teasing. In an example in the chat corpus one chatter, "lita", claims to remember vaguely that she had already chatted with another chatter and another chatter then teases her by asking *lita kann sich erinnern?* ('lita can remember?'). In all of these cases it is more appropriate to assume that *erinnern* with one of its valence patterns is combined with an abstract question construction and that the interactional functions of complaining, reproaching or teasing emerge via the co-textual and contextual settings.

### 4.3 Requests involving *erinnern*

One very small group of constructions is formed by the combination of the verb *erinnern* with the imperative or a deontic infinitive construction, yielding a request. Only six such requests occurred in the data. Three of them can be grouped closely together because they share a range of features: All three only occurred in the short message data, they include the adverb *nochmal* ('again') and their function is to ask the partner in the interaction to remind oneself of a plan or agreement or appointment just made. The three instances are: *erinner mich aber nochmal dran* ('but remind me of it again'), *Erinner mich an dem Tag nochmal dran* ('remind me of it again on the day'), and *aber erinnere mich morgen nochmal dran* ('but remind me of it again tomorrow').

The fact that in two instances there is also the conjunctive adverb *aber* ('but') indicates that the function of this construction is to show that, despite the fact that something has just been agreed upon by the writer of the message, he or she needs to be reminded again because the agreement has been unforeseen and unplanned, and, therefore, might be forgotten. This is also true for the use of the prepositional adverb *dran* instead of a full prepositional phrase; as the arrangement has just been made, it is still so 'fresh' in the interactional memory that the anaphoric adverb is enough to refer to it.

This also explains why these requests only occur in the short message data. Short messages are a means of communication often used for last-min-

ute requests or arrangements and, furthermore, short message communication is often followed up by other communication (face-to-face or by telephone). Therefore, a second round of communication can be expected, making the request for a reminder a natural thing. Of course, this structure may also be used in face-to-face, telephone, e-mail communication etc., whenever agreements are made there. Such communicative activities are not part of the spoken and chat corpora used here, though, and consequently do not occur in my data.

Semi-specific construction: *request for reminding of a previously made arrangement*

Morphology	verb in the imperative mood
Inner syntax	typical collocations: <i>aber</i> ('but'), <i>nochmal</i> ('again')
Outer syntax	combination with schematic imperative construction full realization of valence arguments: personal pronoun in the accusative case ( <i>mich / me</i> ) and prepositional adverb <i>d(a)ran</i> ('of it')
Function	implicit confirmation of an arrangement just made; referral to the unexpectedness and therefore potential threat of forgetting of the agreement by <i>aber</i> ('but') and referral to follow-up communication by <i>nochmal</i> ('again')
Sequential position	after an arrangement has been made
Genre	communicative situations where agreements are made (usually one-to-one communicative constellations)

A closely related structure can be seen in the request of a teacher in a seminar chat (1102013a) who warns his students that he may be a bit unstructured that day because some of his colleagues are away and he may lose track of all the questions:

Example 12:

2510:17 **Teacher2** for all *falls es daher zu Fehlleistungen meinerseits kommt...*  
'if I make some mistakes because of it'

2610:17 **Teacher2** for all (*dass ich Fragen vergesse usw.*)..  
'(that I forget questions etc.)..'

2710:17 **Teacher2** for all *habt bitte Nachsicht und erinnert mich einfach...*  
'please have patience and just remind me'

Here, Teacher 2 asks the other chatters not to remind him of an agreement but he generally requests them to remind him whenever he forgets to answer a question.

This structure is quite a regular combination of *erinnern* with an imperative construction; the only remarkable feature is the missing argument (prepositional phrase or prepositional adverb) coding *what* the students should remind him of. This missing argument can be explained as a situational ellipsis here without any problems.

The fifth example is different. It is taken from spoken data and the accusative object is not provided by a pronoun coding the first person but the second person. In an interview, a well-known actress has just been asked whether she was not terribly nervous to be on stage as a small child:

Example 13:

- 096 M *oh GOTT,*  
           ‘oh God’
- 097 *die UNbekümmertheit wenn [du in dem al]ter*  
       *bist,*  
       ‘this carefree attitude when you are at that  
       age’
- 098 B *[ja, ne? ]*  
           ‘yes, isn’t it’
- 099 M → *bitte erINner dich,*  
           ‘please remember (lit.: please remind  
           yourself)’
- 100 *da HATte man doch- .hh (.)*  
       ‘there one had’
- 101 *konnte man doch vor kraft nicht LAUFen;*  
       ‘could hardly walk for power’

Here, *bitte erINner dich* (‘please remember’) is used more like a fixed formula. As there is only one instance in the corpus, it has to remain open whether this analysis would hold, i.e. whether it really constitutes a specific construction or not.

The last case is a combination of *erinnern* with a so-called deontic infinitive (Deppermann 2006b). Deontic infinitives can be used as a more polite form to express an order or request because they leave out the person addressed. In English, this distinction is not obvious, because there are two verbs for *erinnern*, an active and a passive one (*remind* and *remember*). Therefore, while in German the request with a finite form of *erinnern* would involve the person addressed – *erinnere dich zurück an die Kindheit* (lit. ‘remind yourself back to your childhood’) – in English the verb *remember* would automatically remove the addressee: *remember back to you childhood*. To achieve the same addressee-less

form in German, the deontic infinitive can be used: *an die Kindheit zurückerinnern* (lit. ‘to remember back to your childhood’).

In example 14, taken from a TV talk show, T and L are talking about computer games:

Example 14:

- 557 T die EINFachsten dinge,  
‘the most simple things’
- 558 wie bei wheel of kataMAri,  
‘as with Wheel of Katamari’
- 559 wo man mittem ball äh eben irgendwelche  
GEgenstände aufrollt,  
‘where you roll up erm some things with a ball’
- 560 kommen meist am ALLerbesten an;  
‘are those that have the most success’
- 561 (1,0)
- 562 L → .h vielleicht sich einfach mal zuRÜCKerinnern  
an die kindheit,  
‘maybe just remember back to the childhood’
- 563 wo man Eben;  
‘where you just’
- 564 (.) COUNTERstrike is ja im prinzip nichts  
anderes als äh:-  
‘Counterstrike in principle is nothing but erm’
- 565 im virtuellen geWAND erwachsen gemacht,  
‘made appear grown up in a virtual design’
- 566 RÄÜber und gendArm;  
‘cops and robbers’
- 567 B SCHÖN ne,  
‘nice, isn’t it’

T states that it is often not innovative games that have the most success but very simple ones. L takes up this argumentation and, by requesting T to remember his childhood, implies that simple game structures such as playing cops and robbers make for ideal games. The pattern responsible for this token does not need to be described as a construction of its own. As its basis, it has the deontic infinitive construction, which demands that the verb be realized in the infinitive and that the subject (i.e. the role involving the addressee) needs not be realized while the rest of the arguments be realized. The verb *erinnern* is combined with this construction and keeps all of its arguments.

#### 4.4 Formulaic expressions with *erinnern*

*Verba dicendi et sentiendi* seem to be a preferred source for the development of fixed formulae (Imo 2007a). The verb *erinnern* is no exception. A fixed formula – a specific construction in the terms of construction grammar – has indeed evolved around *erinnern*. It consists of a combination of the verb *erinnern* with a subordinate conditional clause introduced by the subjunction *wenn* (‘if’): *wenn ich mich recht/richtig erinnere* (‘if I remember correctly’). This conditional clause is not a ‘real’ conditional clause, though, as it is not used in a bi-clausal pattern providing the condition and the outcome, in the event that the condition is met. Instead, the clause is a formulaic expression which allows for little formal variation and is used as a discursive hedge (Lakoff 1973), marking an utterance as “true or close to truth” (Lakoff 1973: 473) and thus implicitly requesting the recipients not to take this utterance completely at face value, i.e. to accept that it may – but also may not – be absolutely true. From a specifically dialogical point of view, Barden, Elstermann, and Fiehler (2001) call such structures “operators”. Their function is to provide for meta-comments on the modality of an utterance, the stance of the producer of the utterance to it, the certainty of an utterance etc. These “operators” – examples are words and short phrases or clauses such as *unfortunately*, *in truth*, *to be honest*, *providentially* etc. – are autonomous because they can be placed at different positions in relation to the utterance they are modifying and they do not belong to it propositionally.

The fact that the *wenn*-clause involving *erinnern* is independent, too, and can thus be described as an “operator” is supported by the observation that it can be embedded directly anywhere within the possibly problematic utterance part, as in the following example taken from a TV talk show. The discussants talk about the high salaries of bankers and what could be done to reduce the immoral and unsocial aspects of such high incomes. Speaker A introduces a proposal he attributes to some politicians whom he does not name in detail:

##### Example 15:

- 477 A *aber manchmal muss man ja einfach zu DRASTischen  
maßnahmen greifen.*  
'but sometimes one simply has to resort to  
drastic measures'
- 478 C *RICHTig.*  
'right'
- 479 A *äh einige poLItiker haben im letzten jahr,*  
'erm some politicians last year have'

- 480 → *wenn ich mich recht erinnere .h geFORdert,*  
 ‘if I remember right .h demanded’
- 481 *dass die bezüge von vOrständen an die schaffung*  
*von Arbeitsplätzen [gekoppelt WER (-) dEn. ]”*  
 ‘that the salaries of executives be linked to  
 the creation of jobs’
- 482 B *[hehe das is ja QUATSCH.]*  
 ‘hehe that is nonsense’

The formulaic clause *wenn ich mich recht erinnere* (‘if I remember correctly’) is embedded parenthetically into the larger syntactic structure. Its function is to hedge the utterance of A. By indicating that he may have trouble remembering correctly he preemptively saves himself from clarifying and detailing questions (e.g. who these politicians were, when exactly and in what context they put forward this proposal, etc.).

A total of three of these constructions occurred in the data. Two of them were realized as embedded structures (both occurred in the spoken data) and one was realized as an initial clause and occurred in the chat database in one of the interviews (1103002). The interviewee, a stage director, was asked how much he controlled the actors and how much freedom they had on the set to express themselves: *wenn ich mich recht erinnere, habe ich sie eher zu mehr körperlichkeit ermuntert als welche weggenommen...* (‘if I remember right, I rather encouraged them to show more physicalness than to reduce it’).<sup>18</sup> The entries of the specific construction *wenn ich mich recht/richtig erinnere* can be described as follows:

Specific construction: *wenn ich mich recht/richtig erinnere*

Morphology 1st person singular

Inner syntax fixed structure: *wenn + ich + mich + recht/richtig*<sup>19</sup> +  
*erinnere*

<sup>18</sup> Günthner (1999) and Wegner (2010) discuss in much detail pre-positioned *wenn / if* clauses and come to the conclusion that some of them are used interactionally as so-called “projector constructions”, introducing further utterances pragmatically but being autonomous in terms of propositional structure. These “projector constructions” can be seen as a special case of “operators” with projective power (see also Imo 2011 for a detailed discussion of “projector constructions” and “operators”).

<sup>19</sup> As three instances are not enough to provide any indication as to whether there is a functional differentiation between *recht* and *richtig* (both to be translated as *right*), I looked for further instances of both variants on the internet. I was not able, though, to make out any functional

Outer syntax	link to the following abstract valence pattern of <i>erinnern</i> : NP <sub>nom</sub> + <i>erinnern</i> + Reflexive Pronoun <sub>acc</sub> + PP <sub>anX</sub> <sup>20</sup>
Function	“hedging” of an utterance (indicating potential problems with remembering all details right; indicating the truth of the utterance as “true or close to truth”)
Sequential position	may be positioned at any place (utterance-initial, -medial or -final); if placed utterance-initially, strong connections to interactional “projector constructions” are established
Genre	no restrictions; preferentially used in argumentative constellations

In my data there are only instances of the specific construction involving *erinnern* with the ‘traditional’ standard grammar valence pattern. Some research on the internet showed, though, that this formula also exists with the valence pattern of *ich erinnere das/es* (‘I remember that/it’). The following example is taken from an internet blog where the blogger posted a picture of a statue taken in a museum and wrote *Wenn ich es recht erinnere, eine Skulptur von Auguste Rodin* (‘If I remember it right, a sculpture by Auguste Rodin’) ([www.myheimat.de/berlin/kultur/wenn-ich-es-recht-erinnere-eine-skulptur-von-auguste-rodin-m1842548,2350414.html](http://www.myheimat.de/berlin/kultur/wenn-ich-es-recht-erinnere-eine-skulptur-von-auguste-rodin-m1842548,2350414.html)). Other than the change in the valence pattern the function and distribution of this pattern (namely that of hedging) is exactly the same as with the ‘traditional’ valence pattern.

This might constitute an argument in favor of the combination of Valency Theory and Construction Grammar, as proposed by Jacobs (2008, 2009) and Welke (2009a, b). Quite obviously, the two varieties of *wenn ich mich recht erinnere* and *wenn ich es recht erinnere* are manifestations of the same construction, although the verb used in that construction has two different valence patterns, i.e. the above mentioned construction ought to be expanded in terms of its inner syntax to *wenn + ich + mich/es + recht/richtig + erinnere*.

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reason for the choice of either *recht* or *richtig*. It might have to do with idiosyncratic, personal choice but not with functional differentiation.

<sup>20</sup> No prepositional phrases (or prepositional adverbs) are used in the formulae in my data, although it is possible to add them, as instances of this construction on the internet show (although this structure is much less common).

## 4.5 Infinitival constructions with *erinnern*

In all of the data, there were only two ‘traditional’ infinitival constructions involving *erinnern*. One of these has been discussed as a combination of *erinnern* with the deontic-infinitive-construction in Section 4.3 involving requests (*vielleicht sich einfach mal zuRÜCKerinnern an die kindheit* (lit. ‘maybe yourself simply just remember back to the childhood’) and the other one in Section 4.1 involving statements (*Ich meine mich zu erinnern, dass Du am 29. September pro Rot-Grün argumentiert hast* (‘I think to remember that you argued in favor of red and green on the 29th of September’). Both of these phenomena are not special constructions of their own but simply combinations with other schematic constructions, i.e. the deontic-infinitive construction in the first case and a matrix-verb-cum-infinitive-clause construction in the second one.

There is one class of tokens, though, where the constructional status is less clear. All of these tokens only occur in the chat database. They are realized as instances of a schematic construction that has been called *inflective* (Teuber 1998; Schlobinski 2001), but the data show that inflectives involving *erinnern* show some idiosyncrasies compared to other, more common inflectives. The inflective construction is new in German; the first tentative forms only occurred in cartoon language in the second half of the 20th century. Up to then, all forms of German verbs were always inflected. Even infinite forms have their own morphological infinitive marking. The verb *lachen* (‘to laugh’), for example, consists of the verb stem *lach* and the infinitive marking *-en*, the first person present tense of *lach + e*, second person *lach + st*, past tense first person *lach + te* etc. For the first time in the history of German verbs, in cartoon language and, to a much larger degree and productivity, in chat communication (Schlobinski 2001: 206), verbs without any ending are used. Inflective constructions, therefore, are very strongly restricted to special genres and forms of communication. Even in short message or e-mail communication they are much less common than in chat communication. Often, these inflective forms are set within asterisks in order to mark them off as meta-comments: *\*lach\** (‘\*laugh\*’).

The formal structure of inflective constructions is that the verb is placed at the final position while the “arguments of the verb and / or the adjuncts such as verbal particles are ‘prefixed’ and more or less strongly incorporated into the inflective form” (Schlobinski 2001: 206; my translation). The subject usually is not realized because of the fact that in almost all of the cases where an inflective is used, the subject is the writer himself or herself: “Because of the egocentric perspective of the speaker and the fact that the role of the speaker is unambiguous and can be identified by all participants unequivocally, the speaker role (i.e. subject; W.I.) need not be coded formally or realized at all” (Schlobinski 2001:



208; my translation). Typically, a sentence such as *Ich decke den Tisch* ('I am setting the table') is transformed into the following inflective form: *den Tisch deck* ('the table set').<sup>21</sup> The subject is not coded here; the default interpretation would be to assume the writer to be the one who is the subject.

The interesting case with *erinnern* is that it does not 'lose' just the subject when it is realized as an inflective construction, but also its reflexive pronoun and prepositional phrase (if one takes valence pattern I as a starting point) or accusative object (if one takes valence pattern II as a starting point). The result is a complete loss of arguments, where only the verb stem *erinner* itself remains. A total of five instances of inflective constructions with *erinnern* were found in the data. All of these are set off in asterisks and four of them only consist of the form "*erinner*" while in one instance the negating particle *nicht* (*not*) is added, yielding "*nicht erinnern...*" ('not remember...'). There are two possible reasons for this loss of arguments:

First, if one takes valence pattern I as a starting point, the accusative object would have to be realized as a reflexive pronoun in all of the instances, yielding a structure where the accusative object is co-referential to the subject. Because of the fact that the subject is generally not realized in the inflective, it follows that the co-referential reflexive pronoun also need not be realized.

Second, the reason why the prepositional phrase (regarding valence pattern I) or the accusative object (regarding valence pattern II) need not be realized in some cases may also have to do with the fact that chat communication is highly context-sensitive. The prepositional phrase (valence pattern I) or accusative object (valence pattern II) always code the 'thing' that is remembered – something that has usually been talked about just before in chat communication and is therefore identifiable. Nevertheless, the loss of arguments can only be explained in an ad hoc fashion and cannot be predicted before, a in favor for calling the argument-less inflective form *\*erinner\** a construction. This, of course, is only hypothetical because in order to be sure that the loss of all arguments is indeed something that is restricted to only a few verbs – and, therefore, that these verbs have to be coded as constructions – or that it is a pattern which occurs regularly – in that case *\*erinner\** would then be no construction in its own right – an extensive analysis of inflectives would be necessary, which so far does not exist.

The following example (chat number 2221005) illustrates the typical use of *\*erinner\**. The chatters were talking about German soccer clubs and in line 241

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<sup>21</sup> Sometimes, inflective constructions are incorporated, yielding instances such as *den-tischdeck* ('the table set'). The shorter the combination of argument and verb are, the more probable it is that they are incorporated (Schlobinski 2001: 211).

chatter “Weswolf” quotes a famous line from the well-known film “Das Boot”, where the submarine staff is told the bad news that the soccer club “Schalke” lost a match:

Example 16:

- 241     **Weswolf**     *das geile ist ja auch: „das Boot“*  
                           “‘what’s really great is “Das Boot””
- 242     **Weswolf**     *„Scheiße!“*  
                           “‘Shit!””
- 243     **Weswolf**     *„schlechte Nachrichten, Männer!“*  
                           “‘bad news, chaps””
- 244     **Weswolf**     *„schalke hat verloren!“*  
                           “‘Schalke (a German soccer club) lost””
- 245     **Emon**            \*!\*
- ((...))
- 247     **Emon**            *stimmt*  
                           ‘true’
- ((...))
- 249     **Weswolf**     *„das war’s dann wohl mit der Meisterschaft“*  
                           “‘so that’s goodbye to the championship””
- ((...))
- 251     **Emon**         →    \*erinner\*  
                           ‘\*remember\*’

User “Emon” first comments on the quote by “Weswolf” with an emoticon (line 245) and an assenting signal (*stimmt* ‘true’). Then he uses the inflective construction “\*erinner\*”. All of the arguments within the valence pattern of *erinnern* can be fetched from the context, i.e. it is “Emon” who remembers and it is the scene of the film which he remembers. The function of “\*erinner\*” is to signal to “Weswolf” that his quote has been properly understood and that “Emon” knows what “Weswolf” is referring to. Only a few lines later, chatter “zora” uses a negated version to show that she does not remember the scene:

Example 17:

- 259     **zora**           →    \**nicht erinnern weil ... weil .. weil man sowas nicht*  
                           *wissen muß\**  
                           ‘\*not remember because ... because .. because one  
                           does not have to know such things\*’
- 260     **Weswolf**     *nein, aber lustig halt*  
                           ‘no but just funny’
- 261     **Emon**            \*!\*@zora
- ((...))

264 **Weswolf** *Männer und Frauen bevorzugen andere sachen*  
 ‘men and women prefer different things’

In line 259, Zora not only claims that she does not remember the scene, but she also gives a reason, namely that she thinks that one does not have to remember film scenes at all. With the negated version it is possible either to indicate that one has not understood a previous message – implicating that one needs further information – or that one is not interested in it. By following the inflective construction with an explanation, “zora” activates the second reading. This interpretation is supported by “Weswolf’s” reaction: First he justifies himself by saying that in spite of the fact that one does not have to know film scenes, they are *lustig halt* (‘just funny’) (line 260), and then he comments on “zora’s” reaction in general by claiming that intersubjectivity is impossible to achieve in this case anyway because *Männer und Frauen bevorzugen andere sachen* (‘men and women prefer different things’) (line 264). Because of the fact that \**erinner*\* is not just a combination of the verb *erinnern* with the abstract inflective construction – in that case, one would expect that its valence pattern remains intact, i.e. its arguments are realized (e.g. \**michanXerinner*\* ‘\*myselfofXremind\*) with valence pattern I or \**Xerinner*\* (‘\*Xremember\*’) with valence pattern II) a specific construction for \**erinner*\* might be argued for, although this construction is highly hypothetical, because one would have to compare *erinnern* to other, similarly structured verbs in terms of their valence in order to find out whether the non-realization of the arguments could not be explained by quite general mechanisms and are not unique to *erinnern*<sup>22</sup>:

Specific construction: \**erinner*\*

Morphology	verb stem without morphological markings
Inner syntax	fixed structure: * <i>erinner</i> * or * <i>nicht erinnern</i> *
Outer syntax	combination with schematic inflective construction, but: complete loss of overt valence patterns of <i>erinnern</i> ; arguments reduced to first person (person who remembers). ‘Thing’ that is remembered has to be retrieved from the context of the chat sequence.

<sup>22</sup> Deppermann (2006: 249–250) noticed the same reduction of valence in what he called “deontic infinitives”. The reason for this reduction is that the activity that the verb is expressing is focused and profiled. The same is very probably true for the inflectives here: The complete loss of the arguments leads to a focusing and profiling of the activity of remembering which ties in with the general function of inflectives in chat communications as a kind of action marker.

Function	Reduction of arguments focuses on the verb and thus profiles the activity of remembering supportive function when in the affirmative (* <i>erinner</i> *): some previous message is positively affirmed, intersubjectivity is provided and the chat can go on problematizing function when negated (* <i>nicht erinnern</i> *): some previous message is marked as either not successful or as not desired; further elaboration, justification etc. may follow to provide for intersubjectivity
Sequential position	reactive position to some previous message
Genre	largely restricted to (informal) chat communication

## 5 Conclusion

The analysis of constructs involving *erinnern* in interactional corpora has shown that an extension of Construction Grammar is advantageous. Constructions, valence patterns and interactional structures are interleaved and it is often difficult to decide which of these factors are best used to explain how a given construct is realized.

First, valence patterns prove useful in a mix of different analytical approaches. The advantage of valence entries is that these may explain a wide range of distributional patterns which under a Construction Grammar view would lead to an unnecessary proliferation of constructions. Valence patterns can easily explain a wide range of possible variations of the constructs with *erinnern*, as has been shown in Section 4.1. The most important aspect is the coding of participant roles, i.e. the coding of meaning in a very abstract way. In other words, the valence patterns of a verb ‘do a lot of work’ when it comes to realizing actual constructs. This view is of course not incompatible with Construction Grammar. Valence patterns might – from a diachronic perspective, which has yet to be tested – be described as extremely routinized constructions which have ceased to be constructional patterns but have more or less merged with the verbs to become their lexical entries. Valence patterns in that sense are ‘sunken constructions’. But there is more to valence patterns: What is special is that it is possible to describe sets of very general rules describing the workings of valence which have a high power of description exceeding that of a mere construction-based approach (e.g. Ágel 2000). Valence patterns may help explain, too, for example, why in certain circumstances not all of a verb’s arguments need to be realized. Of course, it would

be possible to capture all valence-oriented information solely with constructional entries. What would get lost, though, is the strongly generalized, ‘cross’- or even ‘meta’-constructional quality valence patterns provide in contrast to (even highly abstract) constructions.

Second, constructional entries are necessary, too, because valence patterns alone cannot explain the emergence of more or less fixed patterns which include information other than that included in the valence pattern (i.e. lexical entry) of the verb. Goldberg (1997: 384) claims that “[s]entence patterns of a language are not reliably determined by independent specifications of the main verb.” The interview questions of the type *erinnerst du dich noch an X* (‘do you still remember X’) with their function of introducing a new ‘next topic’, the requests to be reminded of an appointment or arrangement (*erinner mich aber nochmal dran* (‘but remind me of it again’), the fixed formula *wenn ich mich recht/richtig erinnere* (‘if I remember right’) or the reduced inflective form *\*erinner\**, which cannot be predicted by a mere combination of the verb *erinnern* plus the abstract inflective construction, are examples that show the need for constructions. These patterns are highly regular and the valence of *erinnern* is not enough to explain the preference for *noch* (‘still’) in the interview questions, *aber* (‘but’), and *nochmal* (‘again’) in the requests, the fixed word order as well as the lexical material *wenn* (‘if’) and *recht/richtig* (‘right’) in the formulae and the loss of arguments with “\*erinner\*”.

All of these patterns listed in the previous paragraph can be called constructions, i.e. they can be described as combinations of a more or less fixed form with certain functions. Functions is the cue for the third factor that is needed to describe language use. As has been shown, the constructional entries are all related to interactional work that needs to be done: The requirement of asking questions in an interview which introduce a new topic leads to the emergence of the interview question construction, the requirement to ask the partner in an interaction to remind oneself of an arrangement just made and not foreseen leads to the request construction and the ubiquitous requirement for hedging one’s utterances leads to the *wenn ich es recht/richtig erinnere* (‘if I remember right’) construction.

What is needed as a third factor, then, is an account of the interactional structure the utterances are embedded in, i.e. what the interactants are doing at the moment, how they are related to each other, what has already been said, what still needs to be said and what can be left unsaid (see also Fischer 2010: 187) and what speech genre is activated. Sometimes, the latter information alone may explain the choice of certain constructions, e.g., the inflective construction in informal chat, which is an abstract construction that emerged out of the need to provide for meta-communicative information in chat communication which lacks the prosodic and visual channels often used for meta-communication. While many interactional

factors can be directly included in constructional entries, for example as functional entries in the wide sense of Construction Grammar, others remain outside the constructional pattern. As Günthner (2009: 403) shows, language-in-interaction relies on entrenched, routinized forms (i.e. constructions) on the one hand and emergent, dynamic and temporally flexible structures on the other. The latter cannot be conceptualized as constructions because they are too dependent on local context: It is impossible to decide when the ‘thing’ to be remembered is taken to be clear enough in a certain context by the interactants so that they choose not to realize the anaphoric pronoun referring to it. Neither is it possible to determine exactly when a subject pronoun is realized or not or when a cataphoric pronoun is used to refer forwards to a following subordinate clause or when it is not realized. These decisions are made ‘on the fly’ by the interactants and it is not clear what exactly triggers them. The same holds true for the interpretation of some utterances as reproaches or teasing activities; this is only possible in certain contexts and not fixed within any construction. Much of what goes on in interaction has the character of contextualization cues and cannot be ‘written into’ constructions.

Language in interaction therefore relies on different levels of entrenchment. Some structures, such as valence patterns, are so entrenched that they appear as part and parcel of a word. What is special about valence is the fact that it is governed by very general rules and that the patterns to be detected in the workings of valence not only cut across different verbs but also across different parts of speech that allow for valence in general. Some structures are less entrenched, the routinization via interactional needs can still be clearly seen and the patterns show some degree of openness, as the interview questions, the requests and the fixed formula show.

And, finally, some structures are extremely context-sensitive. They exist as options but there are no strict rules when to apply them and when not, as is the case with subject and object deletions, reproaches or teasing activities. Traditional grammar focused on the first, and, partly, the second set. Construction Grammar focused on the first and second set and Interactional Construction Grammar tries to focus on all three sets of structures that make language possible and one seems to need all three approaches to explain the working of language.

## References

- Ägel, Vilmos. 2000. *Valenztheorie*. Tübingen: Narr.
- Auer, Peter. 1993. Zur Verbspitzenstellung im gesprochenen Deutsch. *Deutsche Sprache* 21. 193–222.

- Auer, Peter. 2006. *Construction Grammar meets Conversation: Einige Überlegungen am Beispiel von 'so'-Konstruktionen*. In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 291–314. Berlin: Mouton de Gruyter.
- Auer, Peter. 2007. Why are increments such elusive objects? An afterthought. *Pragmatics* 17 (4). 647–658.
- Auer, Peter & Stefan Pfänder. 2011. *Constructions: Emerging and emergent*. Berlin: Mouton de Gruyter.
- Barden, Birgit, Mechthild Elstermann & Reinhard Fiehler. 2001. Operator-Skopus-Strukturen in gesprochener Sprache. In Frank Liedtke & Franz Hundsnurscher (eds.), *Pragmatische Syntax*, 197–232. Tübingen: Niemeyer.
- Barth-Weingarten, Dagmar. 2007. Prosody, Construction Grammar and Language Change. In Sabine Volk-Birke & Julia Lippert (eds.), *Anglistentag 2006 Halle. Proceedings*, 421–433. Trier: Wissenschaftlicher Verlag.
- Beißwenger, Michael, Ludger Hoffmann & Angelika Storrer (eds.). 2004. Internetbasierte Kommunikation. *Osnabrücker Beiträge zur Sprachtheorie* 68.
- Bergen, Benjamin & Nancy Chang. 2005. *Embodied Construction Grammar* in simulation-based language understanding. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction Grammars: Cognitive grounding and theoretical extensions*, 147–190. Amsterdam: John Benjamins.
- Birkner, Karin. 2006. (Relativ-)Konstruktionen zur Personenattribution: „ich bin n=mensch der...“. In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 205–238. Berlin: Mouton de Gruyter.
- Birkner, Karin. 2008. Was X betrifft: Textsortenspezifische Aspekte einer Redewendung. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II*, 59–80. Stauffenburg: Tübingen.
- Boas, Hans C. 2010. The syntax-lexicon continuum in Construction Grammar. *Belgian Journal of Linguistics* 24. 54–82.
- Boas, Hans C. 2011. Coercion and leaking argument structures in Construction Grammar. *Linguistics* 49. 1271–1303.
- Bücker, Jörg. 2011. Von Familienähnlichkeiten zu Netzwerkrelationen. Interaktion als Evidenz für Kognition. *Arbeitspapierreihe GIDI* 33, 1–50. ([http://audiolabor.uni-muenster.de/gidi/?page\\_id=6](http://audiolabor.uni-muenster.de/gidi/?page_id=6)); last access: October 24, 2017).
- Couper-Kuhlen, Elizabeth & Dagmar Barth-Weingarten. 2011. A System for Transcribing Talk-in-interaction: GAT 2. *Gesprächsforschung* 12. 1–51.
- Croft, William. 2001. *Radical Construction Grammar*. Oxford: Oxford University Press.
- Croft, William. 2005. Logical and typological arguments for Radical Construction Grammar. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction grammars: cognitive grounding and theoretical extensions*, 273–325. Amsterdam: Benjamins.
- Croft, William. 2009. Connecting frames and constructions. *Constructions and Frames* 1. 7–28.
- Croft, William & D. Alan Cruse. 2004. *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Deppermann, Arnulf. 2006a. *Construction Grammar – Eine Grammatik für die Interaktion?* In Arnulf Deppermann, Reinhard Fiehler & Thomas Spranz-Fogasy (eds.), *Grammatik und Interaktion*, 43–65. Radolfzell: Verlag für Gesprächsforschung.
- Deppermann, Arnulf. 2006b. Deontische Infinitivkonstruktionen: Syntax, Semantik, Pragmatik und interaktionale Verwendung. In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 239–262. Berlin: Mouton de Gruyter.

- Deppermann, Arnulf. 2011. Konstruktionsgrammatik und Interaktionale Linguistik: Affinitäten, Komplementaritäten und Diskrepanzen. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 205–238. Tübingen: Stauffenburg.
- Fillmore, Charles J. 1988. The Mechanisms of 'Construction Grammar'. *Proceedings of the annual meeting of Berkeley Linguistics Society* 14. 35–55.
- Fillmore, Charles J., Kay, Paul & Mary Catherine O'Connor. 1988. Regularity and Idiomaticity in Grammatical Constructions: the Case of Let Alone. *Language* 64. 501–538.
- Fischer, Kerstin. 2006. Konstruktionsgrammatik und situationales Wissen. In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 343–364. Berlin: Mouton de Gruyter.
- Fischer, Kerstin. 2008. Die Interaktion zwischen Konstruktionsgrammatik und Kontextwissen am Beispiel des Satzmodus in Instruktionsdialogen. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II*, 81–102. Tübingen: Stauffenburg.
- Fischer, Kerstin. 2010. Beyond the sentence: Constructions, frames and spoken interaction. *Constructions and Frames* 2. 185–207.
- Fischer, Kerstin & Anatol Stefanowitsch. 2006. Konstruktionsgrammatik: Ein Überblick. In Kerstin Fischer & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 3–18. Tübingen: Stauffenburg.
- Ford, Cecilia E., Barbara A. Fox & Sandra A. Thompson. 2002. Constituency and the grammar of turn increments. In Cecilia E. Ford, Barbara A. Fox & Sandra A. Thompson (eds.), *The language of turn and sequence*, 14–38. Oxford: Oxford University Press.
- Fried, Mirjam & Jan-Ola Östman. 2005. Construction Grammar and spoken language: The case of pragmatic particles. *Journal of Pragmatics* 37. 1752–1778.
- Goldberg, Adele. 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
- Goldberg, Adele E. 1996. Construction Grammar. In Keith E. Brown & Jim E. Miller (eds.), *Concise Encyclopedia of Syntactic Theories*, 68–70. New York: Elsevier.
- Goldberg, Adele E. 1997. The Relationships between Verbs and Constructions. In Marjolijn Verspoor, Kee Dong Lee & Eve Sweetser (eds.), *Lexical and Syntactical Constructions and the Construction of Meaning*, 383–389. Amsterdam: Benjamins.
- Goldberg, Adele E. 1998. Patterns of Experience in Patterns of Language. In Michael Tomasello (eds.), *The New Psychology of Language*, 203–219. Mahwah: Laurence Erlbaum.
- Goldberg, Adele E. 2005. Argument realization: The role of constructions, lexical semantics and discourse factors. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction grammars: cognitive grounding and theoretical extensions*. 17–44. Amsterdam: Benjamins.
- Günthner, Susanne. 1999. Wenn-Sätze im Vor-Vorfeld: Ihre Formen und Funktionen in der gesprochenen Sprache. *Deutsche Sprache* 3. 209–235.
- Günthner, Susanne. 2000. *Vorwurfsaktivitäten in der Alltagsinteraktion*. Tübingen: Niemeyer.
- Günthner, Susanne. 2006a. Grammatische Analysen der kommunikativen Praxis – 'Dichte Konstruktionen' in der Interaktion. In Arnulf Deppermann, Reinhard Fiehler und Thomas Spranz-Fogasy (eds.), *Grammatik und Interaktion*, 95–122. Radolfzell: Verlag für Gesprächsforschung.
- Günthner, Susanne. 2006b. Von Konstruktionen zu kommunikativen Gattungen: Die Relevanz sedimentierter Muster für die Ausführung kommunikativer Aufgaben. *Deutsche Sprache* 34. 173–190.



- Günthner, Susanne. 2006c. 'Was ihn trieb, war vor allem Wanderlust': Pseudocleft-Konstruktionen im Deutschen. In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 59–90. Berlin: Mouton de Gruyter.
- Günthner, Susanne. 2007. Zur Emergenz grammatischer Funktionen im Diskurs – wo-Konstruktionen in Alltagsinteraktionen. In Heiko Hausendorf (ed.), *Gespräch als Prozess*, 125–154. Tübingen: Niemeyer.
- Günthner, Susanne. 2008a. Projektorkonstruktionen im Gespräch: Pseudoclefts, *die Sache ist*-Konstruktionen und Extrapositionen mit *es*. *Gesprächsforschung – Online-Zeitschrift zur verbalen Interaktion* 9. 86–114.
- Günthner, Susanne. 2008b. Die 'die Sache/das Ding ist'-Konstruktion im gesprochenen Deutsch – eine interaktionale Perspektive auf Konstruktionen im Gebrauch. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II. Von der Konstruktion zur Grammatik*, 157–178. Tübingen: Stauffenburg.
- Günthner, Susanne. 2008c. 'Die Sache ist...': eine Projektorkonstruktion im gesprochenen Deutsch. *Zeitschrift für Sprachwissenschaft* 27. 39–72.
- Günthner, Susanne. 2009. Konstruktionen in der kommunikativen Praxis. Zur Notwendigkeit einer interaktionalen Anreicherung konstruktionsgrammatischer Ansätze. *ZGL* 37. 402–426.
- Günthner, Susanne. 2011. The construction of emotional involvement in everyday German narratives – interactive uses of 'dense constructions'. *Pragmatics* 21:4. 573–592.
- Günthner, Susanne & Wolfgang Imo (eds.). 2006. *Konstruktionen in der Interaktion*. Berlin: Mouton de Gruyter.
- Günthner, Susanne & Paul Hopper. 2010. Zeitlichkeit und sprachliche Strukturen: Pseudoclefts im Englischen und im Deutschen. *Gesprächsforschung – Online-Zeitschrift zur verbalen Interaktion* 11. 1–18.
- Imo, Wolfgang. 2006. 'Da hat des kleine *glaub* irgendwas angestellt' – ein construct ohne construction? In Susanne Günthner & Wolfgang Imo (eds.), *Konstruktionen in der Interaktion*, 263–290. Berlin: Mouton de Gruyter.
- Imo, Wolfgang. 2007a. *Construction Grammar und Gesprochene-Sprache-Forschung: Konstruktionen mit zehn matrixsatzfähigen Verben im gesprochenen Deutsch*. Tübingen: Niemeyer.
- Imo, Wolfgang. 2007b. Der Zwang zur Kategorienbildung: Probleme der Anwendung der Construction Grammar bei der Analyse gesprochener Sprache. *Gesprächsforschung – Online Zeitschrift zur verbalen Interaktion* 8. 22–45.
- Imo, Wolfgang. 2008. Individuelle Konstrukte oder Vorboten einer neuen Konstruktion? Stellungsvarianten der Modalpartikel *halt* im Vor- und Nachfeld. In Kerstin Fischer & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik II*, 135–156. Tübingen: Stauffenburg.
- Imo, Wolfgang. 2009. Konstruktion oder Funktion? Erkenntnisprozessmarker ("change-of-state tokens") im Deutschen. In Susanne Günthner & Jörg Bücker (eds.), *Grammatik im Gespräch* 57–86. Berlin: Mouton de Gruyter.
- Imo, Wolfgang. 2010. 'Mein Problem ist/mein Thema ist' – how syntactic patterns and genres interact. In Anja Wanner & Heidrun Dorgeloh (eds.), *Syntactic variation and genre*, 141–166. Berlin: de Gruyter.
- Imo, Wolfgang. 2011a. Ad hoc-Produktion oder Konstruktion? – Verfestigungstendenzen bei Inkrement-Strukturen im gesprochenen Deutsch. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Vom Forschungsparadigma zu Fallstudien*, 141–256. Tübingen: Stauffenburg.

- Imo, Wolfgang. 2011b. Die Grenzen von Konstruktionen: Versuch einer granularen Neubestimmung des Konstruktionsbegriffs der *Construction Grammar*. In Stefan Engelberg, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*, 113–148. Berlin: Mouton de Gruyter.
- Imo, Wolfgang. 2011c. Clines of subordination: constructions with the German ‘complement-taking predicate’ *glauben*. In Ritva Laury & Ryoto Suzuki (eds.), *Subordination*, 165–190. Amsterdam: Benjamins.
- Imo, Wolfgang. 2012. Wortart Diskursmarker? In Björn Rothstein (ed.), *Nicht-flektierende Wortarten*, 48–88. Berlin: Mouton de Gruyter.
- Imo, Wolfgang. 2013. *Sprache-in-Interaktion: Analysemethoden und Untersuchungsfelder*. Berlin: Mouton de Gruyter.
- Imo, Wolfgang. 2014. Appositions in monologue, increments in dialogue? On appositions and apposition-like patterns and their status as constructions. In Ronny Boogaart, Timothy Coleman & Gijsbert Rutten (eds.), *Extending the Scope of Construction Grammar*, 323–353. Berlin: Mouton de Gruyter.
- Jacobs, Joachim. 2008. Wozu Konstruktionen? *Linguistische Berichte* 213. 3–44.
- Jacobs, Joachim. 2009. Valenzbindung oder Konstruktionsbindung? Eine Grundfrage der Grammatiktheorie. *ZGL* 37. 490–513.
- Kay, Paul. 2002. An Informal Sketch of a Formal Architecture for Construction Grammar. *Grammars* 5. 1–19.
- Lakoff, George. 1973. Hedges: A Study in Meaning Criteria and the Logic of Fuzzy Concepts. *Journal of Philosophical Logic* 2. 458–508.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar (2 vol.)*. Stanford: Stanford University Press.
- Langacker, Ronald W. 2009. Cognitive (Construction) Grammar. *Cognitive Linguistics* 20. 167–176.
- Linell, Per. 2005. *The written language bias*. London: Routledge.
- Michaelis, Laura A. 2002. Headless Construction and Coercion by Construction. In Elaine J. Francis & Laura A. Michaelis (eds.), *Mismatch: form-function incongruity and the architecture of grammar*, 259–310. Stanford: CSLI.
- Michaelis, Laura A. 2005. Entity and event coercion in a symbolic theory of syntax. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction grammars: cognitive grounding and theoretical extensions*, 45–88. Amsterdam: Benjamins.
- Michaelis, Laura A. 2010. Complementation by Construction. In Michael J. Houser (ed.), *Proceedings of the Thirty-Second Annual Meeting of the Berkeley Linguistics Society*, 247–271. Berkeley: Berkeley Linguistics Society.
- Östman, Jan Ola. 2004. Construction Discourse: A prolegomenon. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction grammars: cognitive grounding and theoretical extensions*, 121–144. Amsterdam: Benjamins.
- Östman, Jan Ola & Mirjam Fried (eds.). 2005. *Construction Grammars: Cognitive grounding and theoretical extensions*. Amsterdam: John Benjamins.
- Pekarek-Doehler, Simona. 2011. Clause-combining and the sequencing of actions: Projector constructions in French talk-in-interaction. In Ritva Laury & Ryoko Suzuki (eds.), *Subordination in Conversation*, 103–148. Amsterdam: Benjamins.
- Ratitamkul, Theeraporn, Adele E. Goldberg & Cynthia Fisher. 2004. The role of discourse context in determining the argument structure of novel verbs with omitted arguments. In Eve V. Clark (ed.), *Proceedings of the Stanford Child Language Research Forum*, 12–19. Stanford: CSLI.

- Sag, Ivan A. 2012. Sign-based Construction Grammar: An informal synopsis. In Ivan A. Sag & Hans C. Boas (eds.), *Sign-based Construction Grammar*, 39–170. Stanford: Center for the study of language and information.
- Schlobinski, Peter. 2001. \*knuddel – zurueckknuddel – dich ganzdollknuddel\*. Inflektive und Inflektivkonstruktionen im Deutschen. *ZGL* 29. 192–218.
- Speelman, Dirk, José Tummers & Dirk Geeraerts. 2009. Lexical patterning in a construction grammar. *Constructions and Frames* 1. 97–118.
- Steels, Luc (ed.). 2011. *Design Patterns in Fluid Construction Grammar*. Amsterdam: Benjamins.
- Stefanowitsch, Anatol. 2007. Konstruktionsgrammatik und Korpuslinguistik. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 151–176. Tübingen: Stauffenburg.
- Stefanowitsch, Anatol. 2009. Bedeutung und Gebrauch in der Konstruktionsgrammatik. *ZGL* 37. 565–592.
- Stefanowitsch, Anatol & Stefan T. Gries. 2003. Collostructions. Investigating the interaction of words and constructions. *International Journal of Corpus Linguistics* 8. 209–234.
- Teuber, Oliver. 1998. fasel beschreib erwähn – Der Inflektiv als Wortform des Deutschen. *Germanistische Linguistik* 141. 7–26.
- Taylor, John R. 2002. *Cognitive Grammar*. Oxford: Oxford University Press.
- Tognini-Bonelli, Elena. 2001. *Corpus linguistics at work*. Amsterdam: Benjamins.
- VALBU (Valenzwörterbuch deutscher Verben): Online resource (<http://hypermedia2.ids-mannheim.de/evalbu/index.html>; <http://hypermedia2.ids-mannheim.de/evalbu/index.html>)
- van Trijp, Remi. 2008. Argumentstruktur in der Fluid Construction Grammar. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II. Von der Konstruktion zur Grammatik*, 223–246. Tübingen: Stauffenburg.
- Wegner, Lars. 2010. Unverbundene WENN-Sätze in der deutschen Gegenwartssprache. *Studentische Arbeitspapiere SASI* 17. ([http://noam.uni-muenster.de/sasi/Wegner\\_SASI.pdf](http://noam.uni-muenster.de/sasi/Wegner_SASI.pdf); last access: October 24, 2017).
- Welke, Klaus. 2009a. Valenztheorie und Konstruktionsgrammatik. *ZGL* 37. 81–124
- Welke, Klaus. 2009b. Konstruktionsvererbung, Valenzvererbung und die Reichweite von Konstruktionen. *ZGL* 37. 514–543.
- Wildgen, Wolfgang. 1990. Konstruktionsgrammatik. In Karl-Heinz Wagner & Wolfgang Wildgen (eds.), *Studien zur Grammatik und Sprachtheorie*, 65–84. Bremen: Institut für allgemeine und angewandte Sprachwissenschaft.
- Zima, Elisabeth & Geert Brône. 2011. Ad-hoc-Konstruktionen in der Interaktion: eine korpusbasierte Studie dialogischer Resonanzzeugung. In Alexander Lasch & Alexander Ziem (eds.), *Konstruktionsgrammatik III: Aktuelle Fragen und Lösungsansätze*, 155–174. Tübingen: Stauffenburg.

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## **Part II: Comparing constructions in German and English**



Thomas Hoffmann

# Comparing Comparative Correlatives: The German vs. English construction network

## 1 Introduction

Comparative correlatives (CC) (McCawley 1988; Michaelis 1994; Culicover & Jackendoff 1999; Borsley 2004; Den Dikken 2005; Sag 2010; Cappelle 2011; Kim 2011) are biclausal constructions that exhibit several idiosyncrasies<sup>1</sup>:

- (1) [the [more]<sub>comparative phrase1</sub> Ben ate,]<sub>C1</sub> [the [fatter]<sub>comparative phrase2</sub> he got]<sub>C2</sub>
- (2) [je [mehr]<sub>comparative phrase1</sub> Ben aß,]<sub>C1</sub> [desto [fetter]<sub>comparative phrase2</sub> wurde er]<sub>C2</sub>

In both English (1) and German (2), the construction consists of two clauses (C1: *the more Ben ate* / C2: *the fatter he got*; C1: *je mehr Ben aß* / C2: *desto fetter wurde er*) of which the second clause C2 can be interpreted as the dependent variable for the independent variable specified by C1 (cf. Goldberg 2003: 220; e.g. *the more Ben ate* → *the fatter he got*; *je mehr Ben aß* → *desto fetter wurde er*; cf. Beck 1997; Cappelle 2011). Moreover, the construction consists of fixed, phonologically-specified material ([ðə ...]<sub>C1</sub> [ðə ...]<sub>C2</sub> / [je: ...]<sub>C1</sub> [desto ...]<sub>C2</sub>) as well as schematic, open slots which can be filled freely by the speaker to create novel utterances (cf. *the more she slept, the happier she felt; the richer the man, the bigger the car* / *je mehr sie schlief, desto glücklicher war sie; je reicher der Mann, desto größer das Auto*).

On top of that, the construction also shares properties with a number of other constructions: just like WH-questions (5) or relative clauses (6), comparative correlatives have a clause-initial phrase (the so-called ‘filler’) that in declaratives would be realised in post-verbal position (cf. *tired* in [3], whose position is marked by a co-indexed ‘gap’ in [4–6]).

- (3) Declarative clause:  
Ben was [tired].  
Ben war [müde].

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<sup>1</sup> Throughout this paper, I provide English examples followed by the corresponding German sentences. Paraphrases of the German examples are only given, when no such correspondence exists.

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## (4) Comparative Correlative construction:

[The more tired]<sub>i</sub> Ben was <sub>-i</sub>,  
 [Je müder]<sub>i</sub> Ben war <sub>-i</sub>,

[the more mistakes]<sub>i</sub> he made <sub>-i</sub>  
 [desto mehr Fehler]<sub>i</sub> machte er <sub>-i</sub>

## (5) WH-question:

[What]<sub>i</sub> was Ben <sub>-i</sub>?  
 [Was]<sub>i</sub> war Ben <sub>-i</sub>?

[What]<sub>i</sub> did he make <sub>-i</sub>?  
 [Was]<sub>i</sub> machte er <sub>-i</sub>?

## (6) WH-relative clause:

A pilot shouldn't be tired,  
 [which]<sub>i</sub> Ben was <sub>-i</sub>  
 Ein Pilot sollte nicht müde sein,  
 [was]<sub>i</sub> Ben war <sub>-i</sub>

The mistakes  
 [which]<sub>i</sub> he made <sub>-i</sub> ...  
 Die Fehler, [die]<sub>i</sub> er <sub>-i</sub> machte ...

In mainstream Generative Grammar (e.g. Chomsky 1977, 1981, 1995, 2000, 2001), the structural similarities of (4–6) are explained by a single transformational operation (which has e.g. been called A-bar movement or WH-movement). Consequently, in this approach the mental representation underlying comparative-correlatives is maximally abstract and completely independent of the argument structure of the main verb (e.g. the transitive verb *make/machen* as well as the predicative verb *be/sein* in [4–6]).

As Sag (2010) pointed out, the various structures accounted for by A-bar/WH-movement (which he labels ‘Filler-Gap constructions’) are characterized by great variation across a number of other parameters (presence of a WH-element, syntactic category of the filler phrase, grammaticality of subject-verb inversion, etc. [Sag 2010: 490]). This leads Sag to postulate construction-specific formal representations (for interrogatives, relatives, comparative-correlatives as well as other Filler-Gap constructions) in addition to an abstract Filler-Head construction (Sag 2010: 536) that captures the common structural properties of these phenomena. Yet, while Sag (2010) presents a fully formalized analysis, his account still assumes that the constraints of the CC construction operate independently of Argument Structure constructions: for CCs, he postulates only two abstract constraints underlying the construction: (1) a ‘The-clause construction’ (Sag 2010: 537) that licences instances of C1 and C2 and (2) a ‘Comparative-Correlative construction’ (Sag 2010: 537) that combines the two clauses (and computes the complex semantics of the resulting output; cf. also Section 2 for details).

In contrast to this, Culicover and Jackendoff provide a constructional analysis (1999: 567; see also Fillmore, Kay and O’Connor 1988 and McCawley 1988) that does not assume that the two CC clauses are licensed separately:

(7) [*the* [ ]<sub>comparative phrase1</sub> (clause)]<sub>C1</sub> [*the* [ ]<sub>comparative phrase2</sub> (clause)]<sub>C2</sub>

In (7), both CC clauses are included in a single constructional template, but as the schematic slots labelled '(clause)' indicate, this analysis also does not refer to any specific Argument Structure construction since the latter are taken to be realised independently of (7).

As I will argue in this paper, authentic corpus data show that Culicover and Jackendoff's analysis is empirically more adequate than Sag's constructional analysis. On top of that, however, there is also evidence that particular Argument Structure Constructions (henceforth: ASCs) and CCs interact in a non-compositional way: For example, it is well-known (cf. McCawley 1988; Zifonun et al. 1997; Culicover and Jackendoff 1999; Borsley 2004) that CCs which include a Predicative Argument Structure construction with BE/SEIN allow for the optional deletion of the main verb in both German and English for further deletion phenomena in CCs, see Section 2:

- (8) a. The greater the demand **is**, the higher the price **is**.  
 b. The greater the demand **is**, the higher the price **is**.  
 c. The greater the demand **is**, the higher the price **is**.  
 d. The greater the demand **is**, higher the price **is**.
- (9) a. Je größer die Nachfrage **ist**, desto höher **ist** der Preis.  
 b. Je größer die Nachfrage **ist**, desto höher **ist** der Preis.  
 c. Je größer die Nachfrage **ist**, desto höher **ist** der Preis.  
 d. Je größer die Nachfrage **ist**, desto höher **ist** der Preis.

This deletion process is not entirely unconstrained (for details cf. Culicover and Jackendoff 1999: 554; Borsley 2004: 5), but what is even more interesting is that this type of *be*-deletion would be completely ungrammatical in Standard English and German declarative clauses (cf. *\*The price is higher.* / *\*Der Preis ist höher.*) and is also not possible in other Filler-Gap constructions (cf. *\*What is-he?* / *\*Was ist er?* or *\*the price which was higher* / *\*der Preis, der höher war*). Such an interaction of a Filler-Gap construction with a specific Argument Structure construction obviously raises questions as to how the phenomenon is stored in the speakers' mental construction network.

The present paper will address this issue adopting a usage-based Construction Grammar approach (Lakoff 1987; Croft 2001; Goldberg 2003, 2006; Bybee 2006, 2013), which emphasises the fact that the mental grammar of speakers is shaped by the repeated exposure to specific utterances and that domain-general cognitive processes such as categorization and cross-modal association play a crucial role



in the mental entrenchment of constructions. In contrast to complete-inheritance approaches, which aim at providing non-redundant analyses that only draw on the minimal number of constructions needed to license a specific construct, usage-based approaches thus hold that sufficient frequency of a form-meaning pairing can also lead to the storage of a construction (Croft and Cruse 2004: 276–278). As a result, while complete inheritance approaches only postulate one or two CC constructions (Culicover and Jackendoff 1999; Sag 2010), the number of constructions in a usage-based analysis, *inter alia*, depends on the frequency with which a speaker is exposed to various form-meaning pairings. In order to empirically assess this frequency, usage-based approaches often draw on authentic corpus data as a heuristic for the input that speakers are exposed to (Bybee 2013; Gries 2013). In the present study, I use corpus data from the BROWN corpus family for English and their German equivalent, the LIMAS corpus, to assess the frequency with which speakers encounter various types of the CC construction. As a statistical analysis of these data shows, English and German actually differ significantly as to the degree to which they have entrenched the deletion structures in (8) and (9). Moreover, the results indicate that deletion or retention of the copula in C1 and C2 are not independent phenomena. In addition to that, I shall also look at other central features of the CC construction (the order of C1 and C2 as well as the syntactic category of the filler phrase) and discuss the repercussions of the empirical results for the English and German construction networks.

After this introduction, Section 2 will give a more detailed discussion of the features of the CC construction that were the focus of the present study. Section 3 will provide information on the data sources as well as the statistical tools used for the empirical analysis. The results of the corpus study are reported in Section 4, and a usage-based Construction Grammar analysis of the findings is given in Section 5.

## 2 Syntactic properties of the CC construction

CCs have received ample attention in the syntactic literature and several important properties of the construction have been identified (cf. McCawley 1988; Michaelis 1994; Zifonun et al. 1997; Culicover and Jackendoff 1999; Borsley 2004; Den Dikken 2005; Sag 2010; Cappelle 2011; Kim 2011). In the present paper, I will not address all of these since many of them are so infrequent that they do not occur in the selected corpora at all (such as optional zero imperative morphology in C2 in *I demand that the more John eats, the more he pay(s).*; from Culicover and Jackendoff 1999: 548). This is not to say that these are unimportant or irrelevant

for the description of CC constructions, but simply that these features – due to the lack of corpus evidence – are better analysed by future introspection-based experiment studies.

Instead, the present paper focuses on the following aspects of the CC construction, which I shall discuss in detail below:

1. Clause order:  
Does C1 precede or follow C2?
2. Filler type / displaced element:  
Which syntactic phrases occur as displaced fillers?  
Are there any entrenched substantive filler-filler pairs across C1 and C2?
3. Deletion phenomena:  
How often is a copula verb deleted or not?  
Are there any other deletion phenomena and what is their frequency?
4. Variety:  
Are there any differences between English and German CCs with respect to the above features?

All of these issues are addressed by the quantitative corpus study presented below and various statistical tests will be used to identify those factors that play a significant role in the CC construction network of English and German. In addition to that, it will be explored to which degree these features indicate an interaction of Argument Structure and CC constructions.

One important difference between German and English concerns the elements that introduce a CC clause as well as the order of C1 and C2 (cf. e.g. Zifonun et al. 1997; Culicover and Jackendoff 1999: 549):

- |      |   |  |
|------|---|--|
| (10) | a. [The more you think about it] <sub>C1</sub>  | [the more interesting it becomes] <sub>C2</sub>        |
|      | b. [It becomes more interesting] <sub>C2</sub>  | [the more you think about it] <sub>C1</sub>            |
| (11) | a. [Je mehr man drüber nachdenkt] <sub>C1</sub> | [desto/umso/je interessanter<br>wird es] <sub>C2</sub> |
|      | b. [Es wird umso interessanter] <sub>C2</sub>   | [je mehr man drüber nachdenkt] <sub>C1</sub>           |

English usually has the iconic order C1 → C2, which mirrors the semantic cause-effect interpretation of C1 acting as an independent variable on the dependent variable C2 (cf. above). In this version of the CC construction, both clauses are introduced by a *the*-filler (10a). As (11a) shows, the corresponding German structure (11a) has three different lexical items that can introduce C2 (*desto*, *umso* and *je*), of which only one (*je*) is employed in C1. Moreover, verb placement in the German CC construction clearly indicates that C1 functions as a subordinate

clause, while C2 is the main clause (since the former has the finite verb in clause-final position, while it follows the filler phrase in the latter<sup>2</sup>).

On top of that, English also has an alternative structure in which C2 precedes C1, as in (10b). This structure has been labelled CC' construction (by Culicover and Jackendoff 1999: 549) and has the comparative phrase at the end of C2 (*more interesting*) often without *the*, while C1 retains its *the*-filler. Again, German has a similar structure as in (11b), the only difference being that the comparative phrase in C2 is introduced by *umso* (*je* and *desto* are not considered possible in this order: cf. \*[Es wird je interessanter]<sub>C2</sub> [je mehr man drüber nachdenkt]<sub>C1</sub> and \*[Es wird desto interessanter]<sub>C2</sub> [je mehr man drüber nachdenkt]<sub>C1</sub>; cf. Zifonun et al. 1997).

In line with Hawkins' Competence-Performance Hypothesis (2004), it can be expected that the iconic C1 → C2 order is cognitively preferred over the alternative CC' construction C2 → C1, since the former structure mirrors the semantic interpretation of the two subclauses and should therefore be easier to process. This in turn should lead to a greater use of the CC construction, a hypothesis that can be tested by investigating the frequency of the two structures in authentic performance data, i.e. corpora. On top of that, however, the Principle of No Synonymy (Goldberg 1995: 67–8) and the related concept of pre-emption (Tomasello 2003: 300; Goldberg 2006: 94–98) predict that CC and CC' should not be fully synonymous: if a speaker has a choice between two (or more) similar constructions, then a hearer will assume that the use of one variant on a given occasion reflects a functional difference between the two structures. In the long run, this may then lead to the functional differentiation of the two alternatives if these contextual associations are strengthened by similar usage events. Finally, there will be contexts in which one construction strongly pre-empts the other alternative, which in effect also minimises constructional synonymy.

Now, a comparison of (10a) with (10b) and (11a) with (11b) suggests that CC and CC' constructions are semantically synonymous. In line with Goldberg's Corollary A (1995: 67), which states that two constructions that are syntactically distinct and semantically synonymous, cannot be pragmatically synonymous, this would imply some kind of pragmatic difference in the usage constraints of the two constructions. Evidence for this comes from the distribution of focus particles (Sudhoff 2010) such as *even/sogar*:

- |         |   |   |
|---------|---|---|
| (12) a. | [The more you think about it] <sub>C1</sub> | [the more interesting it (? <b>even</b> ) becomes] <sub>C2</sub>                                    |
|         | b.  | [It becomes <b>even</b> more interesting] <sub>C2</sub> [the more you think about it] <sub>C1</sub> |

<sup>2</sup> This distinction is less straightforward for English (cf. Culicover and Jackendoff 1999: 546–553).

- (13) a. [Je mehr man drüber nachdenkt]<sub>C1</sub> [desto/umso/je interessanter  
wird es (**?sogar**)]<sub>C2</sub>  
b. [Es wird **sogar** umso interessanter]<sub>C2</sub> [je mehr man drüber  
nachdenkt]<sub>C1</sub>

As (12a,b) and (13a,b) indicate, in both English and German the use of a focus particle in C2 is more acceptable in CC' constructions, indicating that this variant is preferred when the comparative phrase of C2 is focused. Thus, while they are semantically synonymous, CC and CC' constructions differ with respect to their information structure properties. These informational structural differences, however, appear to be independent of any argument structure phenomena.

Focusing on the more frequent CC construction again, there is at least one other variable that interacts with Argument Structure constructions in a straightforward way, namely the syntactic type of filler phrase. As several studies have pointed out, English CC constructions licence the following filler phrase types: adjective phrases (AdjP; [14a]), adverb phrases (AdvP; [15a]), noun phrases (NP; [16a]), certain idiomatic prepositional phrases (PP; [17a]), and a so-called "Special Construction" [18a]) (cf. e.g. McCawley 1988; Borsley 2004; Den Dikken 2005; Fillmore et al. 2007: 20–22; Sag 2010: 493). Besides, as the examples in (14b–18b) show, apart from the "Special Construction", German displays a similar range of possible filler phrases:

- (14) a. [the [older]<sub>AdjP</sub> the man got,]<sub>C1</sub> [the [happier]<sub>AdjP</sub> he became]<sub>C2</sub>  
b. [je [älter]<sub>AdjP</sub> der Mann wurde,]<sub>C1</sub> [desto [glücklicher]<sub>AdjP</sub> wurde er]<sub>C2</sub>
- (15) a. [the [longer]<sub>AdvP</sub> she slept]<sub>C1</sub> [the [faster]<sub>AdvP</sub> she could run]<sub>C2</sub>  
b. [je [länger]<sub>AdvP</sub> sie schlief]<sub>C1</sub> [desto [schneller]<sub>AdvP</sub> konnte sie laufen]<sub>C2</sub>
- (16) a. [the [less money]<sub>NP</sub> we earned]<sub>C1</sub> [the [more problems]<sub>NP</sub> we encountered]<sub>C2</sub>  
b. [je [weniger Geld]<sub>NP</sub> wir verdienten]<sub>C1</sub>  
[umso [mehr Probleme]<sub>NP</sub> bekamen wir.]<sub>C2</sub>
- (17) a. [The [more under the weather]<sub>PP</sub> you are,]<sub>C1</sub> [the [more in pain]<sub>PP</sub> you are]<sub>C2</sub>  
b. [je [mehr in Rage]<sub>AdvP</sub> er sich redete]<sub>C1</sub>  
[desto [weniger im Zaum]<sub>AdvP</sub> konnten Sie ihn halten]<sub>C2</sub><sup>3</sup>
- (18) a. [The [braver a soldier]<sub>SpecialConstruction</sub> you are,]<sub>C1</sub>  
[the [bigger of a<sub>indef</sub> threat]<sub>SpecialConstruction</sub> you become.]<sub>C2</sub>

3 'The more he talked himself into a fury, the less she could keep him in check.'

- b. \* $[Je [mutiger\ ein\ Soldat]_{SpecialConstruction}\ Du\ bist,]_{C1}$   
 \* $[desto [größer\ von\ einer]_{indef}\ Gefahr]_{SpecialConstruction}\ wirst\ Du.]_{C2}$

AdjPs (14), AdvPs (15), NPs (16) and PPs (17) are all perfectly acceptable filler types in both languages, though, as I will show below, they are not equally prototypically associated with the CC construction. The predicative Special Construction  $[Adj_{comparative}\ (of)\ NP_{indefinite}]$ -filler (Fillmore et al. 2007: 20–30), however, seems only fully grammatical in English (cf. [18a] vs. the ungrammatical German equivalent structure [18b]).

The syntactic type of filler phrases is usually considered independent of the Argument Structure construction that is unified with a Filler-Gap construction. As I will point out below, however, AdjPs are by far the most prototypical fillers that speakers encounter in CC constructions, while NPs are clearly disfavoured. On top of that, note that these two phrase types are also associated to different degrees with different ASCs: NPs can, e.g., fill the three non-verbal slots in the Ditransitive construction (Subj V Obj1 Obj2/[‘Subj CAUSES Obj1 TO RECEIVE Obj2’]; Goldberg 1995: 3, 2006: 73; Boas 2013: 235–239; e.g. *Brad<sub>NP</sub> gave Angie<sub>NP</sub> [a kiss]<sub>NP</sub>, She<sub>NP</sub> sent him<sub>NP</sub> [a letter]<sub>NP</sub>, etc.). In contrast to this, AdjPs are preferred in Predicative constructions (Subj BE XP/[‘Subj is XP’]) (*Brad is rich<sub>AdjP</sub>, Angie is happy<sub>AdjP</sub>, etc.). From a usage-based perspective, this entails that certain types of ASCs (here the Predicative construction) can become more closely associated with a Filler-Gap construction (here CCs) than previously assumed, a hypothesis that will be explored in more detail below.**

The specific, lexical instantiation of the fillers in CC constructions also raises important questions concerning the internal structure of this construction, in particular the relationship of C1 and C2. As mentioned earlier, complete-inheritance analyses (Borsley 2004; Sag 2010) propose constructional templates in which C1 and C2 are licensed independently of each other. Yet, even these approaches would accept that there are idiomatic uses of the construction that are stored holistically in a speaker’s mental constructicon (cf. also Fillmore, Kay and O’Connor 1988: 506; Croft and Cruse 2004: 234):

- (19) a. The more    the merrier  
       b. Je oller    desto doller  
       (‘The older, the bolder’ / ‘There’s no fox like an old fox’<sup>4</sup>)

This view would entail that speakers have entrenched two types of CC constructions, a fairly schematic constructional template that they use to create novel

<sup>4</sup> Source: <http://m.digitaljournal.com/article/33711?doredir=0&noredir=1> [last access: October 23, 2017].

instances and a set of fully substantive constructions such as (19). Yet, from a usage-based point of view, it is far from obvious that speakers should only have entrenched these two types of constructions (an assumption that has the flavour of a clear-cut, pre-Constructionist lexicon-syntax dichotomy). In the present study, I therefore also investigated whether there are any filler-filler associations in fully creative CC constructs that might warrant the postulation of intermediate partly substantive and partly schematic constructions. In order to identify such patterns, I tested for substantive filler-filler co-occurrences (such as *older-happier* / *älter-glücklicher* in [14]) as well as abstract filler type associations (such as AdjP-AdjP in [14]).

As mentioned earlier, both English and German allow for the optional deletion of main verb BE/SEIN in CCs with Predicative ASCs (cf. (8) *The greater the demand is, the higher the price is.*; (8) *Je größer die Nachfrage ist, desto höher ist der Preis.*). On top of that, in CCs with all types of ASCs it is also possible to truncate both comparative correlative clauses down to just their filler phrase (Zifonun et al. 1997; Huddleston 2002: 1136):

- (20) a. [the [less money]<sub>NP</sub> ~~you earn~~]<sub>C1</sub>  
       [the [more problems]<sub>NP</sub> ~~you will encounter~~]<sub>C2</sub>  
       b. [je [weniger Geld]<sub>NP</sub> ~~man verdient~~]<sub>C2</sub>  
       [desto [mehr Probleme]<sub>NP</sub> ~~bekommt man.~~]<sub>C2</sub>

So far, no study has addressed the question of how often the main verb BE/SEIN is actually deleted in CCs in German and English. Moreover, no information was available as to the frequency of truncation phenomena such as (20). The present corpus study investigates these issues, also taking into account the possibility of cross-clausal parallelisms in C1 and C2.

Finally, English CC constructions already exhibit a greater parallelism between C1 and C2 than German CCs (with respect to e.g. the lexical items that introduce the subclauses, cf. *the-the* vs. *je-je/umso/desto*, and word order). The parallel word order in C1 and C2 in English CCs can obviously be attributed to the general diachronic change that lead to SVO word order in both main and subordinate clauses. At the same time, this additional parallelism in surface structure can also be hypothesized to facilitate and strengthen the storage of constructional C1C2 templates. This hypothesis was also investigated in the empirical study.

### 3 Data and methodology

The main database for English used in the present study was the BROWN family of corpora:

- the BROWN corpus (representative of 1960s written American English [AmE]; Francis and Kucera 1979),
- the Lancaster-Oslo/Bergen corpus (LOB; 1960s written British English [BrE]; Johansson, Leech and Goodluck 1978),
- the Freiburg-Brown Corpus of American English corpus (FROWN; AmE / 1990s; Hundt, Sand and Skandera 1999) and
- the Freiburg-LOB Corpus of British English corpus (FLOB; BrE 1990s; Hundt, Sand and Siemund 1998).

The German data was extracted from the LIMAS corpus (<http://www.korpora.org/Limas/>), a corpus consisting of written 1970s German texts which is modelled on the design of the BROWN/LOB corpora. These are all, by modern standards, fairly small corpora with only 1 million words each, but they enabled me to fully retrieve all relevant instances of the CC construction (as well as the CC' construction), which for the present pilot study was considered a considerable advantage. In particular so, since CC constructions are not tagged as such in any corpus, and it therefore becomes necessary to use lexically-based queries that lead to a great number of false positives (and doubled results) which have to be manually checked and discarded. (The English corpora were queried for the strings “the more” / “the less” / “the worse” and “the \*er”; the German corpus was queried for “je”, “um so”, “umso”, “desto”.)

In light of the discussion in Section 2, the data were coded for the variables presented in Table 1.

Finally, the data were then subjected to a “hierarchical configurational frequency analysis” (HCFA; cf. Bortz, Lienert and Boehnke. 1990: 155–157; Gries 2008: 242–254), in order to test the association of various categorical variables. HCFA

**Table 1:** Variables for which the corpus data were coded.

Factors	Levels
LANGUAGE	English, German
ORDER	C1C2 ('CC construction'), C2C1 ('CC construction')
INITIAL WORD [for German only]	<i>je, um so, desto</i>
FILLER TYPE [for both C1 and C2]	AdjP, AdvP, NP, PP, SpecialConstruction
LEXICAL FILLER TOKEN [for both C1 and C2]	<i>older, älter, more money, mehr Geld, etc.</i>
DELETION [for both C1 and C2]	full clause (without auxiliary), <i>BE/SEIN</i> -retained, <i>BE/SEIN</i> -deletion, truncated

is a powerful statistical method that performs a goodness-of-fit test for each factor combination of a data set. Unlike standard goodness-of-fit chi-square tests, HCFA can also be applied to data sets with three or more factors. For the present study this analysis was carried out with the R 2.7.1 for Windows software (R Development Core Team 2008) using Gries's HCFA 3.2 script (Gries 2004a). HCFA 3.2 employs exact binomial tests, which are more robust than simple chi-square tests, and adjust the significance of all tested factor associations (so called 'configurations') for multiple testing (using the Bonferroni method; see Gries 2008: 245–246 for details). Following standard practice, the  $p$ -values of configurations presented in this paper accepted as significant are  $p < 0.05$ ,  $p < 0.01$  and  $< 0.001$  (which will be indicated in column "Dec" in the tables below as follows "∗"  $\cong p < 0.05$ , "∗∗"  $\cong p < 0.01$  and "∗∗∗"  $\cong p < 0.001$ ). Finally, since  $p$ -values are affected by sample size, HCFAs also include a parameter called "coefficient of pronouncedness" ("Q"), which is a sample size-independent measure of effect size ranging from 0 to 1 (thus equivalent to  $r^2$ ; cf. Bortz, Lienert and Boehnke 1990: 156; Gries 2008: 252).

On top of that, Stefanowitsch and Gries's covarying-collexeme analysis (2005: 9–11) was used to identify specific lexical filler collocations across C1 and C2 (such as *the sooner ... the better*). This analysis was performed drawing on the Coll.analysis 3 for R script (Gries 2004b), which employs a Fisher-Yates Exact test to detect significant collocational patterns (and is therefore fairly robust even in the case of low frequency tokens).

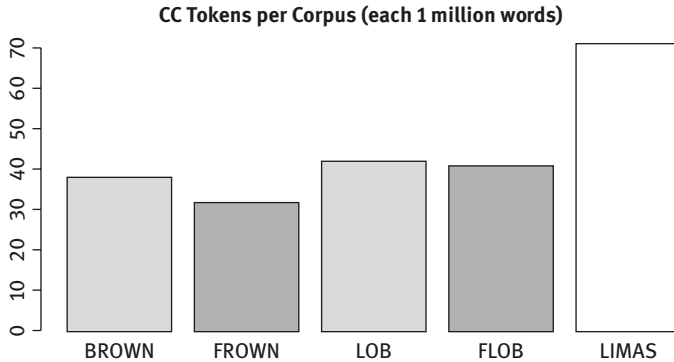
## 4 Results

The corpus study yielded 153 English and 71 German tokens. While this may seem at first sight as if CC and CC' constructions are more frequent in English, it should be remembered that the English data came from four different corpora. In fact, once the data are broken down by corpus (Figure 1), it becomes clear that the constructions occur far more frequently in the German LIMAS corpus.

A chi-square test confirms this impression: the data contain significantly more LIMAS tokens than any of the English corpora ( $\chi^2 = 20.51$ , 4df,  $p < = 0.001$ ). Consequently, it seems as if the data imply that the constructions are more deeply entrenched in German (a hypothesis I will return to below).

Next, focussing more closely on German CC constructions, the data confirm the above discussed constraints on word order and initial word: all 71 tokens have a C1 clause that is introduced by *je*. Furthermore, while all three types of initial

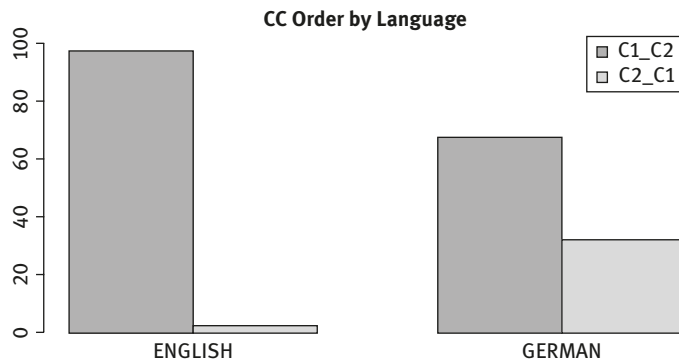




**Figure 1:** CC tokens across corpora (just canonical CCs).

words can be found in the 48 C1C2-tokens (26-*desto*, 19 *umso*-, and 3-*je* tokens), 22 of the 23 C2C1 tokens have *umso* in their C2 (1 token had no initial word<sup>5</sup>).

While this result might appear more like a random idiosyncratic feature of German CCs, it should be noted that the strong tendency to employ different initial words for C1 and C2 also appears to influence the frequency of the less canonical C2C1 order.



**Figure 2:** CC order by language (in %).

As mentioned above, German displays a preference for the canonical C1C2 order but only by a ratio of about 2:1 (48 vs. 23 tokens). As Figure 2 shows, on the other hand, English, which employs the same initial word (*the*) in C1 and C2 (and has

<sup>5</sup> [*Ihre Leistungen und Ihr Erfolg steigen sogar immer rascher*]<sub>C2</sub>, [*je intelligenter Sie werden.*]<sub>C1</sub> (LIMAS source Nr. 492/section 15.22:169) ‘Your performance and your success always increase even quicker, the more intelligent you become.’

**Table 2:** Clause order of C1 and C2 by language.

LANGUAGE	ORDER	Freq	Exp	Cont. chisq	Obs -exp	P.Adj Holm	Dec	Q
English	C1C2	149	134.56	1.55	>	2.76e-02	*	0.107
German	C2C1	23	8.56	24.37	>	7.89e-05	***	0.067
English	C2C1	4	18.44	11.31	<	1.07e-04	***	0.070
German	C1C2	48	62.44	3.34	<	3.40e-02	*	0.089

**Table 3:** Type of filler phrase for C1 and C2.

FILLER TYPE C1	FILLER TYPE C2	Freq	Exp	Cont. chisq	Obs -exp	P.Adj Holm	Dec	Q
AdjP		98	74.33	7.54	>	1.24e-03	**	0.159
AdvP		90	74.33	3.30	>	1.66e-02	*	0.105
NP		35	74.33	20.81	<	6.63e-09	***	0.265
	AdjP	140	55	131.36	>	6.08e-33	***	0.515
	Special Construction	1	55	53.02	<	7.27e-26	***	0.327
	NP	25	55	16.36	<	6.97e-07	***	0.182
	AdvP	54	55	0.018	<	4.74e-01	ns	0.006

SVO in both clauses), has a much stronger preference for the C1C2 order (with a ratio of about 37:1; with the data comprising 149 C1C2 tokens and only 4 C2C1 tokens). As the HCFA analysis in Table 2 reveals, this difference is statistically significant ( $\chi^2 = 40.57$ , 4df,  $p < 0.001$ )<sup>6</sup>.

Table 2 confirms the impression that English strongly favours the canonical C1C2 order, while it disfavours the alternative C2C1 order. German, in contrast to this, has significantly more C2C1 tokens than expected by chance.

No significant interactions between the two clauses or any language-specific effect were identified by the analysis of the syntactic type of filler phrase. Here only the following main effects for C1 and C2 were found.

As Table 3 shows, AdjPs are the most frequent and most preferred type of filler phrase in both C1 and C2. The second most frequent filler type is AdvPs (which

<sup>6</sup> Note that here and in all following HCFA tables, I use light grey shading to highlight configurations that occur statistically significantly more often than expected by chance (and dark grey shading for those that occur less often than expected by chance).

**Table 4:** Interaction of deletion type across C1 and C2 and languages.

LANGUAGES	ELLISION C1	ELLISION C2	Freq	Exp	Cont. chisq	Obs -exp	P.Adj Holm	Dec	Q
German	<i>be</i> retained	<i>be</i> retained	15	2.51	62.05	>	0.001	***	0.057
English	<i>be</i> deletion	<i>be</i> deletion	20	4.99	45.18	>	0.001	***	0.069
English	truncated	truncated	7	0.83	45.56	>	0.001	***	0.028
English	full	full	70	46.24	12.21	>	0.004	**	0.134
German	<i>be</i> deletion	full	0	8.50	8.50	<	0.049	**	0.048

are at least favoured in C1). In contrast to this, all other phrases, particularly NPs, are disfavoured in C1 and C2. In fact, the corpora contain only one instance of the Special Construction (*the better the artist, the [poorer the autobiographer]* Special Construction *he is likely to prove* [FROWN G]) and no tokens with a PP filler.

In addition to this, with respect to the deletion of BE/SEIN and truncation phenomena, the data uncovered an interesting interaction across the two clauses and the two languages ( $\chi^2 = 235.77$ , 24df,  $p < 0.001$ ):

Table 4 highlights that English has a much greater preference for parallel deletion or retention structures in C1 and C2: the HCFA identifies three English configurations in which the structure of C1 is significantly mirrored in C2 (when *be* is deleted in C1, it also tends to be deleted in C2; when C1 is truncated, then C2 is also truncated; and when C1 is a full clause, C2 is likely to be a full clause as well). In contrast to this, German only favours a parallel structure in which *sein* (coded as *be* in the HCFA only for the sake of comparability) is retained and not deleted in C1 and C2. (Moreover a pairing of *sein* deletion in C1 and a full clause in C2 seems dispreferred in German.)

Finally, moving on to the identification of significant substantive filler-filler pair collocations, I present the results of the covarying-collexeme analysis. Note that this significance test, as many other statistical tests, will yield a greater number of significant results as sample size increases. Now, since the data of the present study contained more English tokens than German ones (simply due to the fact that four times as many English corpora were used), the data had to be pooled in a way to ensure that the results are comparable across languages. To achieve this, the British and American tokens were pooled together by decade. Consequently, the following tables present independent covarying-collexeme analyses for 1960s English (BROWN & LOB = 80 tokens), 1990s English (FROWN & FLOB = 73 tokens) and 1970s German (LIMAS = 71 tokens)<sup>7</sup>.

<sup>7</sup> Note, furthermore, that the effect of single tokens can be overestimated by a covarying-collexeme analysis, which is why I only present significant results of patterns with at least two observations.

**Table 5:** Significant filler-filler pairings in BROWN & LOB (1960s English / N = 80).

word1	word2	freq. w1	freq. w2	obs. w1w2	exp. w1w2	relation	coll. strength
greater	greater	8	10	6	1	attraction	4.75 ***
sooner	better	5	13	5	0.81	attraction	4.271 ***
less	better	2	13	2	0.32	attraction	1.608 *
more	more	16	11	5	2.2	attraction	1.422 *

**Table 6:** Significant filler-filler pairings in FROWN & FLOB (1990s English / N = 73).

word1	word2	freq. w1	freq. w2	obs. w1w2	exp. w1w2	relation	coll. strength
finer	less	2	4	2	0.11	attraction	2.641 **
greater	greater	3	5	2	0.21	attraction	1.955 *
more	better	2	10	2	0.27	attraction	1.766 *
outrageous	more	15	10	5	2.05	attraction	1.587 *

**Table 7:** Significant filler-filler pairings in LIMAS (1970s German / N = 71).

word1	word2	freq.w1	freq. w2	obs.w1w2	exp.w1w2	relation	coll.strength
kleiner	größer	2	4	2	0.11	attraction	2.617 **

From a statistical point of view, the sample size of the present study is fairly small, which leads to fairly low expected frequencies for all of the above filler pairs and means that the results should be taken with a grain of salt. Nevertheless, it is interesting to see that in both English corpus sets (for the 1960s and 1990s) four significant filler-filler collocations can be identified (two of which come up in both sets, namely *the greater ...*, *the greater ...* and *the more ...*, *the more ...*), while the German data only yields one significant pair (cf. Table 7). Thus, German generally exhibits a greater type frequency of the CC constructions (cf. Figure 1 above), while the frequency of specific significant filler-filler tokens remains fairly low.

## 5 Discussion

As mentioned in Section 2, previous introspection-based, complete inheritance research has shown that English and German can be claimed to possess fairly

abstract and schematic CC and CC' constructions that license a wide range of possible creative constructs. Building on Culicover and Jackendoff's (1999: 567) representation of the formal side of the CC construction and paraphrasing Sag's (2010: 537) formalist notation of the CC construction's meaning pole, constructional templates for these structures can be given as in (21, 22) and (23, 24) (for English and German, respectively):

## (21) Abstract English CC construction

FORM:  $[\delta\partial [ ]_{\text{comparative phrase1}} (\text{clause}_1)]_{C1}$   
 $[\delta\partial [ ]_{\text{comparative phrase2}} (\text{clause}_2)]_{C2}$

MEANING:

'[As the degree of comparative phrase1 increases/decreases with respect to  $\text{clause}_1$ ]<sub>independent variable</sub>  
 [so the degree of comparative phrase2 increases/decreases with respect to  $\text{clause}_2$ ]<sub>dependent variable</sub>  
 in a monotonic way'

## (22) Abstract English CC' construction

FORM:  $[(\text{clause}_2) (\delta\partial [ ]_{\text{FOCUS=comparative phrase2}})]_{C2}$   
 $[\delta\partial [ ]_{\text{comparative phrase1}} (\text{clause}_1)]_{C1}$

MEANING:

'[As the degree of comparative phrase1 increases/decreases with respect to  $\text{clause}_1$ ]<sub>independent variable</sub>  
 [so the degree of [ $\text{comparative phrase2}$ ]<sub>FOCUS</sub> increases/decreases with respect to  $\text{clause}_2$ ]<sub>dependent variable</sub>  
 in a monotonic way'

## (23) Abstract German CC construction

FORM:  $[j\epsilon: [ ]_{\text{comparative phrase1}} (\text{clause}_1)]_{C1}$   
 $[\{j\epsilon:|\text{d}\epsilon\text{sto}|\text{umso}\} [ ]_{\text{comparative phrase2}} (\text{clause}_2)]_{C2}$

MEANING:

'[As the degree of comparative phrase1 increases/decreases with respect to  $\text{clause}_1$ ]<sub>independent variable</sub>  
 [so the degree of comparative phrase2 increases/decreases with respect to  $\text{clause}_2$ ]<sub>dependent variable</sub>  
 in a monotonic way'

## (24) Abstract German CC' construction English

FORM:  $[(\text{clause}_2) (\text{umso}) [ ]_{\text{FOCUS=comparative phrase2}}]_{C2}$   
 $[j\epsilon: [ ]_{\text{comparative phrase1}} (\text{clause}_1)]_{C1}$

## MEANING:

‘[As the degree of comparative phrase<sub>1</sub> increases/decreases with respect to clause<sub>1</sub>]<sub>independent variable</sub>  
 [so the degree of [comparative phrase<sub>2</sub>]<sub>FOCUS</sub> increases/decreases with respect to clause<sub>2</sub>]<sub>dependent variable</sub>  
 in a monotonic way’

As pointed out above, CC and CC’ constructions are semantically synonymous, but differ with respect to their information structure properties in that the latter have focus on the comparative filler phrase of C2. From a usage-based perspective, these information structure properties are also part of the entrenched meaning of the construction. In (21) and (23) this property is therefore encoded on the meaning-level (by labelling the comparative phrase as [contrastively] focussed: [comparative phrase<sub>2</sub>]<sub>FOCUS</sub>). On the formal side, this difference in information structure properties between CC and CC’ constructions is obviously signalled by a difference in form. In addition to that, however, the syntactic position of the comparative phrase<sub>2</sub> also has to be marked as focussed on the formal level, since this phrase will phonetically be realised with a prosodic focus pitch contour (again a feature that will be entrenched by speakers due to repeated exposure to this intonational contour on the comparative phrase<sub>2</sub> in CC’s).

On top of that, the corpus analysis confirmed that in both English and German the canonical C1C2 order of CC constructions is strongly preferred over the alternative C2C1 order of CC’ constructions. At the same time, the overt, formal difference between the initial words in German C2 (*umso*) and C1 (*je*) obviously allows hearers to identify independent and dependent variable more easily in CC’ structures. Since English only uses *the* [ðə] to introduce both clauses, identifying the two semantic variables becomes more difficult, which might be considered a processing explanation for why English makes considerably less use of CC’ constructions.

Moreover, as usage-based approaches (cf. e.g. Barlow and Kemmer 2000; Bybee 2006, 2010, 2013) emphasize, speakers do not start out with maximally schematic constructions (sometimes also known as macro-constructions; Traugott 2008a, 2008b). Instead, exposure to specific, substantive constructs leads to increasingly schematic representations depending on type and token frequency: high token frequency, e.g., leads to the entrenchment of phonologically-filled constructions (Langacker 1987: 59–60; Croft and Cruse 2004: 292–293), while high type frequency, i.e. patterns that are observed with many different items, can lead to the emergence of more abstract schematic representations (provided the tokens also exhibit a high degree of variance in their semantic distribution; cf. Barðdal 2008, 2011). On top of that, all these constructions are assumed to be

stored in taxonomic networks (cf. Croft and Cruse 2004: 262–265; Goldberg 2006: 215), with more specific, substantive constructions being dominated by the superordinate more schematic constructions they give rise to.

As the statistical analysis of the corpus data revealed, German seems to have a higher type frequency of CC constructions (cf. Figure 1), while at the same time exhibiting fewer substantive filler-filler pairs than English (cf. Tables 5–7). This seems to indicate that in English partly substantive, partly schematic CC ‘meso-constructions’ (Traugott 2008a, 2008b) such as [ðə [mɔ:]<sub>comparative phrase1</sub> (clause<sub>1</sub>)]<sub>C1</sub>[ðə [mɔ:]<sub>comparative phrase2</sub> (clause<sub>2</sub>)]<sub>C2</sub> or [ðə [gɹeɪtə]<sub>comparative phrase1</sub> (clause<sub>1</sub>)]<sub>C1</sub> [ðə [gɹeɪtə]<sub>comparative phrase2</sub> (clause<sub>2</sub>)]<sub>C2</sub> seem to be more deeply entrenched and thus play a bigger role in the taxonomic construction network than in German (where the higher type frequency leads to a greater entrenchment of the abstract constructions [23] and [24]).

More importantly for the interaction of CC constructions and ASCs are the findings on the syntactic type of filler phrases: in both English and German, AdjPs are strongly favoured in both C1 and C2, while NPs are strongly disfavoured (and PPs and Special Constructions occur only rarely). On top of that, a closer inspection of the data reveals that all but one token<sup>8</sup> with an AdjP filler actually contain instances of the Predicative Argument Structure construction (Subj BE XP/[‘Subj is XP’] and Subj SEIN XP/[‘Subj ist XP’]). Thus, despite the fact that other potential ASCs with AdjPs exist in German and English,<sup>9</sup> prototypically both language associate Predicative Argument Structure constructions and CC Filler-Gap constructions. Moreover, despite these similarities, there are also important differences between the two languages with respect to these structures: as the statistical analysis showed, English strongly favours CC constructions in which the predictive element BE is deleted in both clauses (an omission phenomenon that is limited to CCs anyway), while German favors the retention of its equivalent predicative element SEIN in both clauses. Thus not only is there an interaction of Argument Structure construction and CC Filler-Gap construction, but there are also language-specific idiosyncrasies, which affect this association. Note that a statistically significant preference for a parallelism across the two clauses is generally stronger in English (which also favours truncation across C1 and C2), which supports the conclusion that the two clauses (and thus the construction as a whole) are stored more

<sup>8</sup> In *the higher a record is placed in the charts, the more media exposure it will obtain ...* (FLOB\_G), the first clause contains a passivized instance of the complex transitive pattern Subj V Obj [AdjP P NP]<sub>PP</sub> in which the AdjP actually would function as a specifier in the oblique PP.

<sup>9</sup> Cf. e.g. *the more she wiped the table clean, ... / je sauberer sie den Tisch wischte, ...* which includes a Resultative construction [Subj V Obj RP] – X causes Y to become ZSTATE (Goldberg 2006: 73).

holistically in English (while the German clauses exhibit more independence of each other). Effectively, this also seems to indicate that English relies more on meso-constructions such as the predicative template with *be*-deletion in C1 and C2 [ $\emptyset$  [ ]<sub>comparative phrase1</sub> NP<sub>1</sub>]<sub>C1\_predicative</sub> [ $\emptyset$  [ ]<sub>comparative phrase2</sub> NP<sub>2</sub>]<sub>C2\_predicative</sub> or the parallel truncation structure [ $\emptyset$  [ ]<sub>comparative phrase1</sub>]<sub>C1\_truncated</sub> [ $\emptyset$  [ ]<sub>comparative phrase2</sub>]<sub>C2\_truncated</sub> than German (for which the abstract templates [23] and [24] again appear more important).

## 6 Conclusion

One of the main tenets of Croft's Radical Construction Grammar approach (2001; 2013: 227–230) is that constructions are always language-specific: when similar meanings are expressed by constructions in different languages, certain similarities are expected due to their similar functions. Yet, according to Croft, “the particular elements in a grammatical construction are language-specific, construction-specific inferences from language use” (2013: 224). Consequently, he argues that the constructions of each language need to be analysed without imposing the description and analysis of similar constructions from other languages.<sup>10</sup>

However, as the papers in Boas (2010) have shown, it is nevertheless possible to take well-described English constructions and apply and extend their analysis to semantically equivalent constructions in other languages (such as Swedish, Thai, Finnish, and Russian; cf. also Iwata 2008). In a similar vein, the present study looked at English CCs and investigated the role of several of its well-known features (as a filler-gap construction that displays various deletion phenomena) in German CCs. At the same time, it adopted a usage-based approach that allowed me to detect similarities as well as significant subtle differences between the constructional networks of CCs in German and English.

As the results from the corpus study revealed, both English and German are subject to processing constraints that favour prototypical CC constructions over CC' constructions (though the latter were identified as having an additional information structure function of focusing the C2 filler phrase). Moreover, the more overt formal marking of semantic sub-elements – a clear example of a language-specific, construction-specific property – accounted for the higher instance of the cognitively less prototypical CC' in German.

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<sup>10</sup> I am grateful to an anonymous reviewer who suggested this topic for discussion in the conclusion of this paper.



In addition to this, it turned out that a major difference between English and German CCs did not concern the internal structure of constructions but the degree of entrenchment of various CC constructions in the taxonomic networks in the respective constructions: both German and English have similar types of CC micro-, meso- and macro-constructions. Yet, English seems to rely more on stored, partly substantive, partly schematic meso-constructions, while German has a more productive abstract macro-construction (22). This finding was also corroborated by language-specific idiosyncrasies affecting reduced CC constructions: again, both languages have similar deletion and truncation options in CCs. However, German only has only one significantly entrenched meso-construction (in which SEIN is retained in C1 and C2), while English possesses three meso-constructions (with significant parallelism of full clauses, BE deletion and truncation in C1 and C2).

The results from the present study thus illustrate the feasibility of the comparative, cross-linguistic approach advocated in Boas (2010). At the same time, however, they also provide strong evidence for fine-grained, significant differences between the constructions of two languages. As expected from a usage-based point of view, similar cognitive processes are going to result in similar constructional networks in different languages. Since the specific input situation<sup>11</sup> differs from one language to the next, it is the degree of entrenchment of the various micro-, meso- and macro-constructions that is expected to vary the most across closely-related languages.

Finally, returning to the status of Filler-Gap constructions, the present paper has argued that there exists at least one type, namely CC constructions, that is not fully independent of Argument Structure constructions. As the data analysis revealed, Predicative Argument Structures are by far the most preferred type of Argument Structure constructions in CCs. Yet, this phenomenon is also affected by language-specific variable constraints (with English favouring BE-deletion in both clauses and German favouring SEIN-retention). Future studies will therefore have to investigate whether other Filler-Gap constructions also exhibit such associations with other Argument Structure constructions and whether these two types of constructional families should be considered as independent of each other as has so far been assumed by mainstream (constructional) research.

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**11** This will also include the overall constructional system of a language (including language-specific constraints on e.g. the word order in subordinate clause constructions).

## References

- Barðdal, Johanna. 2008. *Productivity: Evidence from Case and Argument Structure in Icelandic*. (Constructional Approaches to Language 8.) Amsterdam: John Benjamins.
- Barðdal, Johanna. 2011. Lexical vs. structural case: A false dichotomy. *Morphology* 21.1.
- Barlow, Michael & Suzanne Kemmer (eds.). 2000. *Usage-based Models of Language*. Stanford, CA: CSLI Publications.
- Beck, Sigrid. 1997. On the semantics of comparative conditionals. *Linguistics and Philosophy* 20 (3). 229–271.
- Boas, Hans C. (ed.). 2010. *Contrastive Studies in Construction Grammar*. Amsterdam & Philadelphia: Benjamins.
- Borsley, Robert D. 2004. An approach to English comparative correlatives. In Stephan Müller (ed.), *Proceedings of the 11th International Conference on Head-Driven Phrase Structure Grammar*, 70–92. Stanford: CSLI Publications.
- Bortz, Jürgen, Gustav A. Lienert & Klaus Boehnke. 1990. *Verteilungsfreie Methoden in der Biostatistik*. Berlin et al: Springer.
- Bybee, Joan. 2006. From usage to grammar: The mind's response to repetition. *Language* 82. 711–733.
- Bybee, Joan. 2010. *Language, Usage and Cognition*. Cambridge: Cambridge University Press.
- Bybee, Joan. 2013. Usage-based Theory and Exemplar Representations of Constructions. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 49–69. Oxford: Oxford University Press.
- Cappelle, Bert. 2011. The *the...the...* construction: Meaning and readings. *Journal of Pragmatics* 43 (1). 99–117.
- Chomsky, Noam. 1977. On WH-movement. In Peter W. Culicover, Thomas Wasow, & Adrian Akmajian (eds), *Formal Syntax*. 71–132. New York: Academic Press.
- Chomsky, Noam. 1981. *Lectures on Government and Binding*. (Studies in Generative Grammar 9) Dordrecht: Foris Publication.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In Roger Martin, David Michaels & Juan Uriagereka, (eds.), *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, 89–155. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz, (ed.), *Ken Hale: A Life in Language*. 1–52. Cambridge, MA: MIT Press.
- Croft, William. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Croft, William. 2013. Radical Construction Grammar. In Thomas Hoffmann & Graeme Trousdale, (eds.), *The Oxford Handbook of Construction Grammar*, 211–232. Oxford: Oxford University Press.
- Croft, William. & Cruse, David A. 2004. *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Culicover, Peter W. & Ray Jackendoff. 1999. The view from the periphery: The English comparative correlative. *Linguistic Inquiry* 30. 543–71.
- Den Dikken, Marcel. 2005. Comparative correlatives comparatively. *Linguistic Inquiry* 36. 497–532.
- Fillmore, Charles. J., Paul Kay & May C. O'Connor. 1988. Regularity and idiomaticity in grammatical constructions: The case of *let alone*. *Language* 64. 501–538.

- Fillmore, Charles. J., Paul Kay, Laura A. Michaelis & Ivan Sag. 2007. Sign-based construction Grammar. Unpublished manuscript.
- Francis W. Nelson & Henry Kucera. 1979. *BROWN corpus manual: Manual of information to accompany A Standard Corpus of Present-Day Edited American English, for use with Digital Computers. Revised and Amplified version*. Providence, Rhode Island: Brown University. <http://clu.uni.no/icame/manuals/> (last access: October 23, 2017).
- Goldberg, Adele E. 1995. *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: The University of Chicago Press.
- Goldberg, Adele E. 2003. Constructions: A new theoretical approach to language. *TRENDS in Cognitive Sciences* 7. 219–224.
- Goldberg, Adele E. 2006. *Constructions at Work: The Nature of Generalisation in Language*. Oxford: Oxford University Press.
- Gries, Stefan Th. 2004a. *HCFA 3.2 – A Program for Hierarchical Configural Frequency Analysis for R for Windows*. <http://www.linguistics.ucsb.edu/faculty/stgries/research> (last access: October 23, 2017).
- Gries, Stefan Th. 2004b. *Coll.analysis 3. A Program for R for Windows 2.x*. <http://www.linguistics.ucsb.edu/faculty/stgries/teaching/groningen/coll.analysis.r> (last access: October 23, 2017).
- Gries, Stefan Th. 2008. *Statistik für Sprachwissenschaftler*. (Studienbuch zur Linguistik 13). Göttingen: Vandenhoeck & Ruprecht.
- Gries, Stefan Th. 2013. Data in Construction Grammar. In Thomas Hoffmann & Graeme Trousdale (eds.), *The Oxford Handbook of Construction Grammar*, 93–108, Oxford: Oxford University Press.
- Hawkins, John A. 2004. *Efficiency and Complexity in Grammars*. Oxford: Oxford University Press.
- Huddleston, Rodney D. 2002. Comparative constructions. In Geoffrey.K. Pullum & Rodney D. Huddleston (eds.), *The Cambridge Grammar of the English Language*, 1097–1170. Cambridge: Cambridge University Press.
- Hundt, Marianne, Andrea Sand & Paul Skandera. 1999. *Manual of information to accompany the Freiburg – Brown Corpus of American English ('Frown')*. Freiburg: Albert-Ludwigs-Universität Freiburg. <http://clu.uni.no/icame/manuals/> (last access: October 23, 2017).
- Hundt, Marianne, Andrea Sand & Rainer Siemund. 1998. *Manual of information to accompany the Freiburg – LOB Corpus of British English ('FLOB')*. Freiburg: Albert-Ludwigs-Universität Freiburg. <http://clu.uni.no/icame/manuals/> (last access: October 23, 2017).
- Iwata, Seizi. 2008. *Locative Alternation: A Lexical-constructional Account*. Amsterdam & Philadelphia: Benjamins.
- Johansson, Stig, Geoffrey N. Leech & Helen Goodluck. 1978. *Manual information to accompany the LANCASTER-OSLO/BERGEN CORPUS of British English, for use with digital computers*. Oslo: University of Oslo. <http://clu.uni.no/icame/manuals/> (last access: October 23, 2017).
- Kim, Jong-Bok. 2011. English Comparative Correlative Construction: Interactions between Lexicon and Constructions. *Korean Journal of Linguistics* 36 (2). 307–336.
- Lakoff, George. 1987. *Women, Fire and Dangerous Things: What Categories Reveal about the Mind*. Chicago: Chicago University Press.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar. Vol. I: Theoretical Prerequisites*. Stanford, CA: Stanford University Press.

- McCawley, James D. 1988. The comparative conditional construction in English, German, and Chinese. *Berkeley Linguistics Society* 14. 176–187.
- Michaelis, Laura A. 1994. A case of constructional polysemy in Latin. *Studies in Language* 18. 45–70.
- R Development Core Team. 2008. R: *A Language and Environment for Statistical Computing*. Vienna: R Foundation for Statistical Computing. [www.R-project.org](http://www.R-project.org) (last access: October 24, 2017).
- Sag, Ivan A. 2010. English Filler-Gap Constructions. *Language* 86 (3). 486–545.
- Stefanowitsch, Anatol. & Stefan Th. Gries. 2005. Covarying collexemes. *Corpus Linguistics and Linguistic Theory* 1. 1–43.
- Sudhoff, Stefan. 2010. *Focus particles in German: Syntax, Prosody, and Information Structure*. (Linguistik Aktuell/Linguistics Today 151.) Amsterdam: John Benjamins.
- Tomasello, Michael. 2003. *Constructing a Language: A Usage-Based Theory of Language Acquisition*. Cambridge, Mass.: Harvard University Press.
- Traugott, Elizabeth C. 2008a. Grammaticalization, constructions and the incremental development of language: suggestions from the development of degree modifiers in English. In Regine Eckhardt, Gerhard Jäger & Tonjes Veenstra (eds.), *Variation, Selection, Development: Probing the Evolutionary Model of Language Change* (Trends in Linguistics. Studies and Monographs 197.), 219–50. Berlin & New York: Mouton de Gruyter.
- Traugott, Elizabeth C. 2008b. The grammaticalization of *NP of NP* patterns. In Alexander Bergs & Gabriele Diewald (eds.), *Constructions and Language Change* (Trends in Linguistics. Studies and Monographs 194.), 21–43. Berlin & New York: Mouton de Gruyter.
- Zifonun, Gisela, Ludger Hoffmann & Bruno Strecker, (eds.). 1997. *Grammatik der deutschen Sprache: Band 3*. (Schriften des Instituts für deutsche Sprache 7.) Berlin & New York: Mouton de Gruyter.

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# Argument omissions in multiple German corpora

## 1 Introduction

In the past several decades, with the publication of results by Lehrer (1970), Mittwoch (1982), and Fellbaum and Kegl (1989), our understanding of the contextual factors that license null complements and constrain their interpretations – from constructions to genres to lexical classes – has vastly increased. As Fillmore (1986) made clear, null complementation, while motivated by such pragmatic drives as effort conservation, is linguistically constrained. As examples (1) and (2) show, semantically similar predicates differ in their ability to omit the presumably identical semantic role.<sup>1,2</sup>

(1) @jeb140 ah, ich verstehe ø. Gute arbeit!  
@jeb140 ah, I understand ø. Good job!  
'ah, I {understand} ø. good job!'

(2) \*@jeb140 ah, ich realisiere ø. Gute arbeit!  
\*@jeb140 ah, I realize ø good job!  
'ah, I {realize} ø. good job!'

At the same time, the phenomenon is more systematic than an approach based on lexical idiosyncrasy might suggest. It is well known that certain constructions such as the passive or the imperative allow the omission of a verb's semantic 'deep subject' role (cf. [3]–[4]). But further constructions and contexts exist that can license omissions. Goldberg (2006: 196–197) argues that the discourse prominence of participants explains why constructions like the English experiential

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**1** For the convenience of the reader, I insert the symbol  $\emptyset$  in order to indicate 'missing' elements. The symbol is not to be taken as an empty element in the grammar.

**2** A reviewer questioned whether *realisieren* had a sufficiently similar meaning to *verstehen*. The *duden.de* web-site lists a sense: (in einem Prozess der Bewusstmachung) erkennen, einsehen, begreifen 'recognize, comprehend, understand something (in a process of becoming conscious of it)' (accessed on May 3, 2013).

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perfect license argument omissions such as (5) that may not occur in episodic contexts. And Ruppenhofer and Michaelis (2010) illustrated the effect of genre on omissibility, as in the case of product label statements such as (6).

- (3) Eine Wasserader war zwar bereits gefunden  $\emptyset$   
 a water vein was ineed already found  $\emptyset$   
 'Indeed, an underground water course has already been {found}  $\emptyset$ ...' (Passive)
- (4)  $\emptyset$  Zeig mir Deine Chromosomen, und ich sag Dir wer  
 $\emptyset$  show me your chromosomes, and I tell you who  
 Du bist.  
 you are.  
 ' $\emptyset$  {Show} me your chromosomes, and I'll tell you who you are.' (Imperative)
- (5) Dieser Mann ist eine Gefahr! Er hat schon einmal  $\emptyset$  getötet ...  
 this man is a danger! He has already once  $\emptyset$  killed ...  
 'This man is dangerous! He has {killed}  $\emptyset$  once before.'<sup>3</sup>
- (6)  $\emptyset$  Unterstützt die Hautregeneration nach der Rasur.  
 $\emptyset$  supports the skin's regeneration after the shave.  
 ' $\emptyset$  {Supports} the skin's regeneration after shaving.' (Labelese; found on deodorant)

At the same time certain conundrums remain. One is, if generalizations are possible for lexically licensed omissions, will they hold only for specific languages such as English or do they, at least to some extent, apply across languages? Another issue is how well any generalizations hold up in the face of data from attested language use given that much research into argument omission was based on introspection or constructed data. Related to the previous point, most work on argument omissions has, implicitly, if not explicitly, focused on some core types of written language, in particular texts found in newspapers. One may wonder if other types of written language, especially ones that represent other communicative settings, offer omission affordances that are not (commonly) found in the written texts that are most often investigated, or if they at least use these affordances in distinct ways.

The remainder of this paper is structured as follows. Section 2 provides a typology of argument omission. Section 3 describes the data sources, which are

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<sup>3</sup> <http://www.blick.ch/news/ausland/auch-wir-wollen-die-wahrheit-wissen-id144800.html> (Experiential perfect)

used in this paper. Section 4 examines whether a generalization that Ruppenhofer (2004) proposed for English regarding the interpretation of omissions is plausible for German, too. In Section 5, I compare German data from social media and from spoken and written language to see how they differ in the omission types they admit, or at least in the frequency with which a given affordance is exploited. To this end, I will study the distributions of verb-initial constructions in the data as several of these involve argument omission. In section 6, I focus on the analysis of various kinds of topic-drop sentences that can be observed in the social media data. In section 7, I provide a discussion of the results and offer some conclusions.

## 2 Overview of null instantiation

Fillmore (1986) distinguishes lexically licensed omissions from constructionally licensed ones. With the former class, the argument-omission affordance is licensed by a particular lexical item, and nearly synonymous items may differ in omissibility of a given semantic role. The difference between *verstehen* ('understand') and *realisieren* ('realize') in examples (1) and (2) above illustrates lexical licensing.

With constructional omissions, it is the particular construction that determines the omissibility of a given argument, in a given syntactic role. For instance, *von*-phrase agents in passive predications can be omitted regardless of the lexical identity of the passive-form verb (cf. [3]). Likewise, all imperatives can omit their subjects, as in (4).

There also exist constructions that not only allow but actually require the omission of a verbal semantic role in the process of reconciling constructional and verbal requirements (Michaelis 2011: 269). For instance, some types of resultative constructions require omission of a theme argument under an existential interpretation. This is illustrated in examples (7) and (8), where no drink is specified but instead the resultative construction's own patient argument is provided.

- (7) Die verschwundene Mutter war lustig gewesen und feierte  
 the disappeared mother was funloving been and partied  
 gern;  
 gladly;  
 trank sich tot in zweiter Ehe ...  
 drank herself dead in second marriage ...  
 'The mother who disappeared was fun-loving and liked to party; {drank}  
 herself to death in her second marriage ...'

- (8) Aber Frau Professor konnte mich unter den Tisch trinken ...  
 but Mrs Professor could me under the table drink ...  
 ‘But Madame Professor could {drink} me under the table ...’ (deWaC)

Note that the omission-licensing constructions above are all general-language constructions. In addition to these, German also allows for genre-dependent omissions of the types discussed for English by Culy (1996), Bender (1999), and Ruppenhofer and Michaelis (2010). Sentence (9) illustrates the kind of object drop found in recipes; sentence (6) above is an instance of *labelese*.

- (9) ø. 1-2 Tage darin marinieren.  
 ø. 1-2 days therein marinate.  
 ‘{Marinate} ø in it for 1-2 days’ (Recipe object drop)

While I have so far considered cases where an argument can be optionally omitted, it is worth pointing out that there are lexical items that always suppress the expression of core participants of the event they encode. An example is the German verb *zubeissen* (‘bite’) in (10):

- (10) Der Hund hat (\*mich/in/auf/gegen/mit/zu/für mich) plötzlich  
 the dog has (\*me/in/on/against/with/to/for me) suddenly  
 zugebissen.  
 bit  
 ‘The dog suddenly {bit} [me].’ (constructed)

A second major aspect of argument omissions is the interpretation that the omitted argument needs to receive. In some cases, unexpressed arguments are merely existentially bound, in others specific antecedents must be resolvable from the linguistic context (or co-text) or the speech setting. The parameter interpretation type is orthogonal to the licensing parameter. The passive construction allows for the omission of an existentially bound argument, as seen in (3), but so do lexical items like *stricken* (‘knot’) in (11). Similarly, the imperative licenses a definite omission of the addressee, shown in (4), but so does the lexical item *verstehen* (‘understand’) in (1).

- (11) Es ist Juli, ich sollte lernen, aber ich stricke lieber  
 It is July, I should study, but I knit rather  
 ø #Omatweet  
 ø #Omatweet  
 ‘It’s July, I should be studying but I prefer {knitting} ø. #Omatweet’ (Twitter)



It is worth pointing out the differences between the typology introduced in the foregoing and the typology used, for instance, by Zifonun et al. (1997). Their category of *ellipsis* subsumes much, if not all, of what is discussed here and organizes it differently. Zifonun's (1997: 413–442) subtypes of ellipsis include the following:

- situational ellipsis: omitted referents are recoverable from the speech context (speaker, hearer, objects of joint attention, situations jointly observed)
- empratical ellipsis: predicates (usually) are missing that can be inferred based on the joint activity that speaker and hearer are engaged in
- phatic ellipsis: the speaker abandons their production, leaving it to the hearer to fill in the un-produced material
- structural ellipsis: omissions and ellipses licensed in specific text-types due to considerations of economy and condensation

Thus, unlike the notion of null instantiation, ellipsis encompasses cases of unexpressed predicates such as the example in (12):

(12) Hierher.

'(Over) here.' (instruction to furniture movers) (= Zifonun et al. 1997: 420)

In this study, I will only be concerned with argument omissions. I will not be specifically discussing whether they are, for instance, of the situational or the structural type in the sense of Zifonun et al. (1997), although this is clearly relevant for a detailed constructional analysis (Ruppenhofer and Michaelis 2010).

### 3 Data

I use several sources of data, as shown in Table 1. First, I use the Huge German Corpus (HGC) as my default corpus (Fitschen 2004). German examples in the text that bear no other identification of a source are taken from the HGC, which contains text from several German newspapers. I also use the deWaC German web-corpus (Baroni et al. 2009), which represents a wider range of written language. My third data set is a corpus of messages from the Twitter microblogging service, which exhibits some features of spoken language, despite being medially written.<sup>4</sup> As discussed, for instance, by Richling (2008), social media data combines aspects of spoken and written language and exhibits a good degree of what Koch and Oesterreicher (1985) call *conceptual* orality, even if it is *medially* written.

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<sup>4</sup> The Twitter dataset cannot be redistributed due to Twitter's terms of service.

**Table 1:** Corpora used.

Corpus	Tokens	Units
HGC	204.813.118	12.223.281 s
deWaC	1.627.169.557	92.395.25 s
Twitter	105.074.399	7.311.960 tw
Bundestag	5.756.188	278.160 s
CallHome	202.964	23.791 s / 19319 tu

The fourth data set I work with is a corpus of parliamentary speeches from the German Bundestag.<sup>5</sup> While the Bundestag data represents the spoken medium, it is conceptually more on the written end of the continuum between written and spoken language. The fifth and final data set are 80 transcripts from the CallHome German corpus, which contains telephone conversations between German students on exchange in the US and their family members or friends in Germany.<sup>6</sup>

A quantitative description of the corpora is given in Table 1. It should be noted that the units are not fully comparable across corpora. For Twitter, the unit is the individual tweet (tw) of up to 140 characters. For the CallHome corpus (Karin et al. 1997), I give two types of units, sentences (s) and turns (tu). For all other corpora, the unit is the sentence.

## 4 Testing the generalization regarding interpretation type

In this section I test Ruppenhofer's (2004) prediction that predicates in the same lexical class, defined in terms of FrameNet's frames, will omit a particular semantic role with the same interpretation type, if they can lexically license its omission at all.<sup>7</sup> Ruppenhofer's prediction was tested on English but, given that Frame Semantics / FrameNet aims to provide a more or less language-independent analysis of lexical meanings, it was also meant to apply to other languages.

<sup>5</sup> This data set was produced at the University of Stuttgart by Stefan Evert. An online version is available at <http://linglit193.linglit.tu-darmstadt.de/CQP/Bundestag/frames-cqp.html>. (last access: May 28, 2013).

<sup>6</sup> The corpus has 100 transcripts but because of the effort required to pre-process the data to make it queryable, I used only 80 of them.

<sup>7</sup> The prediction is not that all predicates in a particular lexical class will be able to omit a given semantic role. Clearly that would be untenable as, for instance, *ankommen* ('arrive') allows for an unrealized Frame Element Goal but *erreichen* ('reach') does not.

FrameNet seeks to implement in lexicographical practice the concepts of Frame Semantics (Fillmore 1982, 1985). The basic idea is that many words are best understood as part of a group of terms that are connected to a particular type of situation and the participants and ‘props’ involved in it. The classes of events are the semantic frames. Lexical units (LUs) are said to evoke the frames. The roles associated with an event are referred to as frame elements (FEs). This system of analysis applies not only to events but also to relations and states; the frame-evoking expressions may be single words or multi-word expressions, which may belong to any syntactic category. For each LU, example sentences are extracted from corpus data and annotated with the frame elements, and their phrase types (PTs) and grammatical functions (GFs) vis-à-vis the target word. The goal of annotation is to exemplify every attested combination of FE, GF, and PT.

I consider data from two sources. The first source is the second release of the German Salsa project (Rehbein et al. 2012), which applied frame-semantic annotation to all instances of selected lemmas in a German newspaper corpus, re-using the English FrameNet’s frames to the largest extent possible. Since the lemma coverage of Salsa is not as high as FrameNet’s for English, I also took random samples for additional predicates from the HGC. For these samples, I manually sense-disambiguated 200 lemma instances of the target predicates and recorded for each instance exhibiting the frame of interest how the semantic role of interest was realized. If the role was overtly expressed, I recorded whether the semantic role was morpho-syntactically definite or indefinite. If it was unrealized, I recorded its interpretation type, anaphoric or existential.<sup>8</sup>

Table 2 shows the results of this preliminary study.<sup>9</sup> The predicates marked with an asterisk are ones for which Salsa data was used. In the table, the row total for the predicates for which I took random samples is usually less than 200, the size of my random samples. The main reasons are polysemy (e.g. *ankommen* also has senses ‘depend (on)’ and ‘go down well (with)’); misspellings (e.g. *abreisen* ‘depart’ instead of *abreißen* ‘tear off’); and cases where a potential instance of a particle verb actually consists of the simple verb *reisen* ‘travel’ occurring with an unconnected instance of the particle or preposition *ab* ‘off’. (So as not to exclude cases where the particle occurred separate from the verb stem, the samples for particle verbs included not only cases where the two occurred together but also

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**8** For the purposes of the present study, as for Ruppenhofer (2004), the morpho-syntactic form of overt mentions serves as a proxy for their discourse status in accord with observations by Ariel (1988), Fraurud (1996), and Gundel et al. (1993) *inter alia* that the two are strongly correlated.

**9** The Frame *Create textile* is not an existing FrameNet frame; I posit it here for convenience.

**Table 2:** Morphosyntax of realizations of selected FEs in corpus data.

Verb	Frame	FE	Def	Indef	Zero	NI-type	N
<i>ankommen*</i>	Arriving	Goal	5	2	5	DNI	12
<i>eintreffen*</i>	Arriving	Goal	14	0	9	DNI	23
<i>zurückkehren*</i>	Arriving	Goal	36	5	16	DNI	57
<i>abreisen</i>	Departing	Source	25	2	137	DNI	164
<i>abfahren</i>	Departing	Source	26	0	22	DNI	48
<i>zustimmen*</i>	Agreeing	Content	43	23	5	DNI	74
<i>einwilligen</i>	Agreeing	Content	67	30	53	DNI	150
<i>Bruder*</i>	Kinship	Ego	29	0	8	DNI	44
<i>Mutter*</i>	Kinship	Ego	17	6	17	DNI	44
<i>Schwester*</i>	Kinship	Ego	5	0	2	DNI	19
<i>Vater*</i>	Kinship	Ego	27	4	23	DNI	56
<i>füllen</i>	Filling	Theme	10	60	63	INI	133
<i>schmücken</i>	Filling	Theme	55	62	18	INI	135
<i>sticken</i>	Create textile	Product	9	15	49	INI	170
<i>stricken</i>	Create textile	Product	4	22	36	INI	62
<i>häkeln</i>	Create textile	Product	2	23	23	INI	55
<i>backen</i>	Cooking creation	Produced food	18	54	20	INI	92
<i>kochen</i>	Cooking creation	Produced food	10	24	76	INI	110

all cases where a sentence contained the simple verb and an instance of the particle anywhere in the sentence.)

As can be seen, the regularity observed for English also seems to hold for German predicates belonging to the same lexical class. For instance, *abreisen* ('depart'), *abfliegen* ('fly away/off'), *abfahren* ('drive away/off') all require anaphoric interpretation of uninstantiated Sources, while *backen* ('bake') and *kochen* ('cook') require existential interpretation of omitted Produced food FEs.

The data in Table 2 also are compatible with Ruppenhofer (2004)'s observation that the interpretation type for omitted instances seems to correlate with the information status of overt instances. That is, if an omissible FE's overt instances tend to be given, as indicated by morpho-syntactic definiteness, its interpretation under omission will be anaphoric, if they tend to be new, as indicated by morpho-syntactic indefiniteness, its interpretation under omission will be existential. This correlation holds for all the predicates in Table 2.

Both of these generalizations, at least in their strongest form, are open to falsification by inspection of additional data. Since there exist, however, a great many predicates with some kind of argument omission affordance, it is not possible to exhaustively test the predictions across all of the German vocabulary in the context of the current study.

## 5 Constructional omission affordances: verb-initial utterances in German

In this section, I turn to the question whether social media data from Twitter differs from the classical written data found in newspaper corpora in the omission types that are found or the frequency with which different kinds of omissions occur. Since there are quite a few omission-licensing constructions that could be investigated, I focus on constructions that are verb-initial in order to keep the effort needed to identify the constructions under investigation manageable.

Word order in standard German is verb-second in finite main clauses and verb-final in finite subordinate clauses. Additionally, some verb-initial constructions exist. As discussed by Auer (1993: 195), one can subdivide these constructions according to whether the predicates realize all their core arguments or not. I begin by considering the first group, which Auer, following tradition, calls cases of proper V1 (*eigentliche Verbspitzenstellung*). The constructions of this type include some types of exclamatives (13); *yes/no*-questions (14); presentational constructions with a finite (typically, third-person) verb form such as (15), which are often found at the beginning of jokes; *wenn (if)*-less protases in conditional sentences (16); and what one may call contrast-inversions such as (17).

(13) Ist das schön.  
Is that nice.  
'Is that nice!'

(14) Steht jetzt eine neue Blamage ins Haus?  
Stands now a new disgrace into.the house?  
'Is a new disgrace imminent?'

(15) Kommt ein Mann zum Psychiater: „Herr Doktor, ich  
Comes a man to.the psychiatrist: “Mr Doctor, I  
habe ein Problem, alle übersehen mich.“ -  
have a problem, everybody overlook me.” -  
„Der Nächste bitte.“  
“The next please.”  
A man comes to see a psychiatrist: “Doctor, I have a problem, everybody overlooks me.” – “Next, please”.

(16) Kommt ein Beschluß durch, der die Verpflichtung zur  
Comes a decision through, which the obligation to.the

Offenbarung streicht, stehe ich nicht zur Verfügung.  
 disclosure strikes, stand I not to.the disposal.  
 'If a resolution passes that eliminates the need for disclosure, then I  
 won't serve/stand.'

- (17) Es ist mit Sicherheit eine der heikelsten Sequenzen in  
 It is with certainty one of.the most.delicate sequences in  
 Sally Potters Film. Kann doch Orlandos Hingabe mißdeutet  
 Sally Potter's film. Can though Orlandos devotion misinterpreted  
 werden als Zugeständis an die einzig mögliche Utopie, der  
 be as concession to the single possible utopia, that  
 von Mann und Frau.  
 of man and woman.  
 'It is certainly one of the most delicate sequences in Sally Potter's movie  
 [given that/since] Orlando's devotion can be misinterpreted as a concession  
 to the only possible utopia, that of man and woman.'

A verb-initial construction type that is uncommon in standard written German and which Auer does not discuss, but which can be found quite frequently on Twitter, are apodoses/consequent statements of conditional constructions such as (18)–(19), where the conditional protasis (*wenn*-clause) is unexpressed.

- (18) Gehe ich halt ohne Hose los!  
 Go I just without pants off!  
 'So then I'll just go off without pants' (Twitter)

- (19) Dreh ich halt die #Musik auf . #1live #gotye  
 Turn I just the music up . #1live #gotye  
 'So then I'll just turn up the music.' (Twitter)

A further V1-construction-type is exemplified by cases where an expletive *da* seems to be omitted, as in (20).

- (20) Und da sage ich so, Peter saß mir schräg  
 And there say I so, Peter sat me diagonally  
 gegenüber, sage ich so, du da Peter, da  
 opposite, say I so, you there Peter, there  
 kommt raus aus dem Spüle. Guckt der ganz irre ja,  
 comes out out.of the sink. Looks that.one all crazed yes,

dem ging es heute den ganzen Nachmittag schon nicht so  
 that went it today the whole afternoon already not so  
 besonders, ne – guckt ganz irre, und dann gucke  
 special, no – looks all crazed, and then look  
 ich wieder hin und dann sehe ich, wie sich ganz  
 I again there and then see I, how itself all  
 langsam und stetig das Waschbecken mit aeh  
 slowly and continuously the sink with uh  
 Wasser füllt.  
 water fills.

‘And then I say, [blowing through lips], Peter was sitting kitty corner from me, and I say, hey you, Peter, it’s leaking out of the faucet. He looks real crazed, he wasn’t doing particularly well all afternoon today, right – he looks real crazed, and then I look at it again and then I see, how the washbasin fills up with water slowly and continually.’ (CallHome)

In the above verb-initial clause types, the utterance-initial predicates can have their full set of core semantic roles realized. In other constructions, the ones that Auer (1993) calls cases of improper or pseudo V1 (*uneigentliche Verbspitzenstellung*), one of the arguments is null-instantiated. Of these constructions, the most frequent type may be the imperative (4). Some other subject-drop constructions with a finite verb are found in written language, too. Among them are statements on product labels (6); representations of interior monologue (21) or of speech (22), and diary style (23).<sup>10</sup>

(21) **Halbfett.** Hinter dem Autorinnennamen. Einfach so, der  
 semi-bold after the author name. simply so, the  
 Name und ein Punkt. ∅ Kommt gut. Wirkt sicher.  
 name and a period. ∅ comes well. Appears certain.  
 Hat was von Definitivität.  
 Has something of definiteness.  
 ‘Semi-bold. Following the author name. Just like that, a name and a  
 period. ∅ {Comes} across nice. Looks assured. Looks definitive.’

(22) Statt dessen schlägt er den Abschluß eines Balles  
 instead that.of puts he the kicking one.of ball  
 vom Kopf vor. Ist Tell, sagt er. ∅ Kommt gut,  
 from head forward. Is Tell, says he. ∅ Comes well,

<sup>10</sup> Haegeman (1990) provides a discussion of omissions in diary style.

sagt er. Hammers? fragt Dahlmann. Nicht  
 says he. Have.we.got.it? asks Dahlmann. Not  
 ganz, sagt Kerner.  
 completely, sayst Kerner.

'Instead he proposes kicking a ball off somebody's head. Is Tell, he says {Comes} across nice, he says. We finished, asks Dahlmann? Not quite, says Kerner.'

- (23)  $\emptyset$  Bin immer noch beim Sichten, es werden immer  
 $\emptyset$  Am always still at.the screening, it become always  
 weniger verschiedene Stapel.  
 fewer different piles.  
 ' $\emptyset$  {Am} still sifting, the piles are getting fewer.'

In addition to the preceding subject-drop constructions, German also allows the null-instantiation of objects and clausal complements in verb-initial constructions, typically in the spoken variety. In (24), the bare infinitive complement of *wollen* ('want') is omitted, while in (25) an embedded question complement of *wissen* ('know') is omitted. (Alternatively, an anaphoric pronoun such as *das* ('that') may be taken to be omitted in (24) and (25).)

- (24) So viel Fußball wie in den letzten 5 Wochen hab  
 So much soccer as in the last 5 weeks have  
 ich noch nie verpasst.  $\emptyset$  Will ich auch nie  
 I still never missed. m Want I also never  
 wieder. Aber. 3 Wochen Berlin sinds noch.  
 again. But. 3 weeks Berlin are.it still.  
 'Never missed out on as much soccer as in the last 5 weeks. I don't {want}  
 $\emptyset$  ever again. But there's still 3 weeks in Berlin.' (Twitter)
- (25) Was ziehst du heute an? – Oehm  $\emptyset$  weiß  
 What pull you today on? – Ahem  $\emptyset$  know  
 ich nicht!  
 I not!  
 'What are you putting on today? – Ahem, I don't {know}  $\emptyset$ !' (Twitter)

Actually, if one assumes that an anaphoric *dann* is omitted from examples (18) and (19), then those examples could be said to exhibit topic-drop, too.



Auer (1993: 194) also lists other types of pseudo-V1. Among these are, for instance, parenthetical reporting clauses (26), and main clauses of sentences beginning with a subordinate clause (27).

(26) Freilich, sagte Eduard, hilft das Hin- und Widerdenken,  
Of.course, said Eduard, helps the to- and fro.thinking,  
das Hin- und Widerreden zu nichts.  
the to- and fro.talking to naught.  
'Of course, said Eduard, the thinking to and fro, the talking to and fro  
doesn't help at all.' (=Auer 1993: 194, example (vi) )

(27) Ja, wie er sie auf dem Papier sah, fing  
Yes, as he her on the paper saw, started  
er bitterlich an zu weinen.  
he bitterly up to cry.  
'Now, when he saw them on paper, he began to shed bitter tears.'

I will set these additional types aside here because they do not have the verb in sentence-initial position and extracting them automatically is not trivial. Generally, for my purposes I use the label V1 in a very surface-oriented way: I will speak of all of the above types of omissions where the finite verb seems to be appear in the V1-position as V1-constructions, even though the topic-drop constructions in particular are treated as involving V2 in syntactic theories that assume empty elements (Schalowski 2009).

## 5.1 Frequency of verb-initial utterances

Since the automatic tagger<sup>11</sup> that I use is likely to make a considerable number of mistakes on the Twitter data due to, for instance, unusual punctuation as in (28) and since tweets contain elements that are not directly part of utterances, I hand-checked a set of 200 tweets selected at random from the full corpus. In looking for verb-initial utterances, I also accepted cases where the first token in the post was a form of address marked by “@” (cf. [29]) or a topic marking hashtag (28). In the end, I found 16 tweets with an initial verbal form. 6 of them were *yes/no*-questions, the remaining 10 were cases of subject pro-drop such as (29).

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<sup>11</sup> It is a version of the TreeTagger (Schmid 1994) with a slightly adapted lexicon, kindly provided to me by my colleague Ines Rehbein.

**Table 3:** Percentage of verb-initial units.

Twitter	8%
CallHome	3.5%
Bundestag	2.5%
deWaC	1.5%
HGC	1%

(28) #offline :) ∅ Schlaft gut c :  
 #offline :) ∅ sleep well c :  
 '∅ Sleep well'

(29) @nwpXOdi ∅ Klingt gut. Wenns Wetter passt bin ich  
 @nwpXOdi ∅ sounds good. if.the weather fits am I  
 dabei .  
 therewith .  
 '@nwpXOdi ∅ {Sounds} good. If the weather's fine, I'll come along.'

The share of verb-initial sentences in my Twitter data thus is about 8%. To see how this compares with the rate of verb-initial sentences in other corpora, I repeated the exercise by hand-checking samples of 200 randomly sampled sentences.<sup>12</sup> The results are shown in Table 3. As can be seen, Twitter has the highest rate of verb-initial units by far among the five corpora.

## 5.2 Construction types in a sample of verb-initial sentences

Table 4 shows the distribution of V1-constructions random samples of size N=100 from my five data sets. All samples were extracted by specifying a verbal form as the first token in the sentence. The first column, Type, classifies each con-

<sup>12</sup> An important caveat about the analysis of the tweets is that my sample is somewhat biased: some tweets consist of more than one sentence but I always considered only the first sentence in the tweet. The decision to look only at the first sentence of the tweet is motivated by the fact that automatic sentence splitters perform poorly on Twitter data. So rather than also perform the sentence splits by hand, I decided to only look at the first sentence in a tweet. In tweets with more than one sentence, the first sentences may have different semantic-pragmatic characteristics than later sentences and so I am likely not getting the same rate of verb-initial sentences as I would have, had I been able to access all sentences in the Twitter data.

**Table 4:** Frequencies of verb-initial constructions.

	Type	HGC	deWaC	Twitter	Bundestag	CallHome
Conditional/concessive inversion	P	22	32	2	4	0
Exclamative	P	2	0	2	2	0
Apodosis stranding	P	0	1	0	0	1
Formulas	I/P	0	1	0	0	12
Reporting inversion	P	0	0	0	0	2
<i>da</i> -drop	P	0	0	0	0	4
Presentational inversion	P	0	0	3	0	0
Contrast inversion	P	4	0	0	0	0
Yes-No-questions	P	53	22	31	45	32
Formal imperative	P	0	10	1	32	0
Infinitive imperative	P	0	0	1	0	0
Hortative/Optative	P	0	4	0	16	0
Informal Imperative	I	9	12	13	0	4
Subject topic-drop	I	8	15	34	1	25
Subject expletive drop	I	0	4	6	0	3
Cataphoric subject drop	I	2	0	2	0	0
Object topic-drop	I	0	0	5	0	17
Total		100	100	100	100	100

struction as either belonging to the proper (*eigentliche*) V1-constructions or to the improper (*uneigentliche*) set.

The constructions in Table 3 have all been exemplified above except for what I called formulas. This basically refers to two items, *sag(e) mal* ('say') and *weißt Du* ('you know'), used sentence-initially but of somewhat doubtful status as matrix-clause predicates. In the interest of surface-oriented analysis and because they seem to function in a distinct way as interactive units in the sense of Zifonun et al. (1997: 62), I counted these items as separate cases of V1 rather than include them under their related form-types, the informal imperatives and the *yes/no*-questions.

Unsurprisingly, the interactive units *sage(e) mal* ('say') and *weißt du* ('you know') are most distinctive for the spoken CallHome corpus, which also has the highest proportion of personal and demonstrative pronouns, response particles, and references to the here (*hier*) and now (*jetzt*), in line with its representing synchronous, though not face-to-face communication. Note that interactive units do occur in the other data sets, too. They just happen not to be represented in my particular random samples of V1-constructions. Other constructions that are distinctive for the spoken CallHome corpus include subject- and object-drop constructions, which according to Zifonun et al. (1997)'s

typology are instances of situational ellipsis, relying on speaker-hearer synchrony. Object-drop occurs only in the CallHome and, with lesser frequency, in the Twitter samples. On the other hand, subject drop is even more common in the Twitter sample than in the CallHome sample. Altogether this suggests that Twitter data has characteristics of spoken conversation. Of course, the use of drop constructions on Twitter may also be motivated as a kind of structural ellipsis in a medium with constraints on message-length. It is also interesting to note that drop-constructions do not figure much at all in the Bundestag corpus, which is medially oral but conceptually written. With regard to omissions, the parliamentary speeches seem more ‘written’ than the HGC newspaper corpus.

In addition, the CallHome sample is the only one that contains instances of *da*-drop and reporting inversion, shown in (30), which one might consider a subtype of *da*-drop.

- (30) Ich habe schon gesagt Mensch, ich habe zum Klaus gesagt,  
 I have already said Man, I have to.the Klaus said,  
 ich habe es ihm vorgespielt, habe gesagt,  
 I have it to.him played, have said,  
 sage mal hat die Rosi einen traurigen Ausdruck oder  
 say again has the Rosi a sad expression or  
 aufgeregt. Sagt er nee, ganz normal. Sage  
 irritated. Says he no, totally normal. Say  
 ich, so ungewöhnlich, keiner hat Geburtstag,  
 I, so unusual, nobody has birthday,  
 nix fällt an.  
 nothing falls on.  
 ‘I said, man, I said to Klaus, I played it for him, I said, say, doesn’t Rosi look  
 sad or irritated. Says he, no, totally normal. I say, so unusual, it’s nobody’s  
 birthday, there’s nothing coming up.’

*Yes/no*-questions are most common in the HGC corpus sample, followed by the Bundestag sample, and then Twitter and CallHome. It remains to be investigated what functional roles these questions play in the various corpora. A similar question arises with respect to the various types of imperative constructions found in the corpora. They are particularly frequent in the Bundestag data, where the large subset of optatives/hortatives is notable. The conversational CallHome corpus by contrast contains very few instances of imperatives, even though these constructions are hearer-oriented and, thus, very much compatible with synchronous conversation.

Inversions in conditional protases (cf. [16]) are (almost wholly) absent from the Twitter and CallHome samples, which is not surprising since these constructions typically go along with considerable sentence-length.

I return now once more to the drop-constructions. In the Twitter and deWaC data, ‘dropped’ initial constituents were not always topics: I found quite a few cases of expletives being dropped (see Section 6.1). Also, some of the V1-formulations that I found alternate with overt versions where a cataphoric pronoun would precede the verb, as in (31).

- (31)  $\emptyset$  Bleibt nur zu hoffen, daß angesichts der  
 $\emptyset$  Remains only to hope, that in.the.face.of the  
 ausgeprägten Debattierfreudigkeit der Abgeordneten  
 pronounced debate-happiness the.of representatives  
 nicht plötzlich ein Streit über die Frage entbrennt,  
 not suddenly a dispute over the question flares.up,  
 warum der Schwarzwald nicht vertreten ist?  
 why the black.forest notw represented is?  
 ‘[It] {remains} to be hoped that, given the extensive debate-happiness of  
 the representatives, there won’t arise a dispute about the question why the  
 Black Forest is not represented?’ (HGC)

In addition, the distribution of the different drop-constructions differs between the corpora. Subject drop is more common in the Twitter data than in the other samples, while object drop is most common in the CallHome sample. Moreover, in the case of subject drop, the samples differ not only in the relative frequency but also in the person feature of the dropped subject referents, as shown by Table 5.

The dropped subject topics in the HGC are always 3rd person referents, while in the Twitter data they are somewhat more likely to be 1st person referents than 3rd person referents. This difference may just reflect the fact that 1st person subjects in general are much rarer in the HGC than in the Twitter data: in a sample

**Table 5:** Person feature of dropped subject referents.

	HGC	deWaC	Twitter	Bundestag	CallHome
1 <sup>st</sup> Ps.	0	10	19	0	0
2 <sup>nd</sup> Ps.	0	0	2	0	4
3 <sup>rd</sup> Ps.	8	9	13	1	41
Total	8	19	34	1	45

from the HGC of 200 verbal predicates, there were only 3 cases of overt first-person subjects, while in a parallel Twitter sample there were 31. In the deWaC sample, the distribution is overall similar to that found in the Twitter sample. The most surprising finding is the fact that the CallHome sample patterns most closely with the written HGC corpus: its omissions predominantly concern 3rd person referents and there were no 1st person cases at all.

Finally, I note that the cases of object-drop in the Twitter data all concern 3rd-person referents, which matches Schalowski (2009)'s finding for the instances of object-drop in a corpus of online forum posts. Similarly, according to a chi-square test, the distribution of person features among the dropped subject referents in the Twitter data in Table 5 cannot be distinguished from the distribution that Schalowski (2009) found for the dropped subjects in his social media data set.

To sum up: the types of V1-constructions are distributed very differently across the corpora. Some types such as conditional inversion seem to be largely restricted to the newspaper data, while others such as topic-drop occur mostly in the spoken corpus. However, no overall clear picture emerges based on my 5 data sets with respect to which data sets are most similar to each other. What does seem clear is that the Bundestag corpus is the corpus that is most different from all the others with respect to the patterning of V1-constructions. And Twitter is the corpus that uses the largest share of improper V1-constructions that are accompanied by argument-drop. Taken together with the fact that Twitter also has the highest V1-rate, as shown above in section 5.1., it seems that the constraints of the medium with respect to message-length are reflected in a higher use of improper V1-constructions that allow greater information density through omission of recoverable material.

I conclude the section with a quantitative caveat. The counts derived from the five samples may suggest that some constructions figure in only one or two of the two corpora. For instance, cases of contrast inversion were found only in the HGC sample; conditional inversion is mostly a feature of edited written language; instances of presentational inversion were only found in the Twitter sample. While one can be fairly confident about the distribution of conditional inversion where I found relatively large numbers in relation to the small sample size, one cannot be so sure about the other two constructions that have much lower frequencies: Would the differences between corpora showing up in my samples stably reappear in larger samples? Minimally one has to keep in mind that my corpora do not represent the totality of the respective text or media types involved. To see this, one just has to recall that, for instance, the HGC *does* contain instances of presentational inversion – after all, example (15) is taken

from that corpus – or that Auer (1993) and Günthner (2000: 15–19) have shown that presentational V1-constructs play important roles in spoken language (such as creating cohesion with prior context or providing for more lively/dramatic narration).

## 6 Argument drop in active-form declarative clauses

In this section, I specifically consider sentences in which an argument is omitted by construction in a finite active-form declarative clause. The general question that I ask is whether all such omissions result from a single unitary topic drop construction or whether there are different types of constructions at play. I first consider cases in which the dropped elements are expletives, that is, syntactic arguments only, but without a semantic role. Afterwards, I examine what constraints exist on such omissions and what kind of grammatical analysis should follow from them.

### 6.1 Expletive-drop in the Twitter data

Expletives are defined to be non-referential nominals that serve to fill certain structural requirements, in particular one for a clausal subject to be present. Given their non-referring status, expletives should not be able to be targeted by topic drop, and this claim is in fact made by Fries (1988: 34). Fries is, however, aware that some omissions of expletives can be found but explains them away as cases that may be acceptable to speakers (though still not grammatical) because topic-drop is a phenomenon at the margins of German grammar where judgments are expected to be less crisp.

I will not adopt such a view and instead treat expletive drop as an ordinary construction of (conceptually) spoken German, especially since in the Twitter data one does encounter omitted expletives quite frequently. Table 6 shows the subject realizations of five verbs denoting precipitation events in the Twitter data set. While the number of instances is small, one can see that expletive drop is attested with all of the verbs, though it may be more common with one of them (*regnen*) than with the others.<sup>13</sup>

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<sup>13</sup> Note that the results for *schneien* ('snow') are from a newer Twitter data set. The corpus used throughout the paper was collected during the summer of 2012 and therefore contains no mentions of snow and snowing.

**Table 6:** Realization of expletive with weather predicates.

Form	<i>regnen</i>	<i>pissen</i>	<i>nieseln</i>	<i>schiffen</i>	<i>schneien</i>
	'rain'	'rain hard'	'drizzle'	'rain hard'	'snow'
zero	11	1	1	10	1
das	3	2	1	2	1
es/'s	23	61	41	33	96
other	0	1	0	0	0
Total	37	64	42	45	98

I also looked for the verb *regnen* in my other corpora, inspecting 200 random instances (fewer, if fewer were available in the corpus). Basically, I found almost no zero-realizations in the samples from the Bundestag (0/5), Call-Home (0/11), deWaC (1/200), and the HGC (0/200). However, since there are very few instances of the predicates involved in the CallHome and the Bundestag data, I cannot come to any confident conclusions about expletive-drop with *regnen* there.

Returning now to the analysis, one may ask whether expletive-drop behaves like topic drop or not. One important aspect in which it does behave like topic drop is the fact that it seems acceptable only if there is nothing occupying the pre-field. While in (32) the canonical versions (a) and (c) are acceptable, dropping the expletive is only acceptable in (b) but not in (d).

- (32) Today it's {raining} cats and dogs.
- |          |        |        |            |               |
|----------|--------|--------|------------|---------------|
| a) Es    | regnet | in     | Strömen    | heute.        |
|          | It     | rains  | in streams | today.        |
| b) ∅     | Regnet | in     | Strömen    | heute.        |
|          | ∅      | Rains  | in streams | today.        |
| c) Heute | regnet | es     | in         | Strömen.      |
|          | Today  | rains  | it in      | streams.      |
| d) #     | Heute  | regnet | ∅          | in Strömen.   |
|          | #      | Today  | rains      | ∅ in streams. |

The unacceptability of (d) is unexpected if expletive drop is owed to a different, independent licensing mechanism from topic drop: if expletive drop has nothing to do with discourse status, why should sentence position matter?

It is also my impression that expletive drop is associated more with spoken language than with written language, as is the case for topic drop. In the written language, one does not tend to find cases of missing expletives, as noted above.



One example contained in the deWaC, though not part of the sample examined above, occurs in a literary quote from Döblin's *Berlin Alexanderplatz*, which, suggestively, involves interior monologue:

- (33) Raus auf die Straße! Luft! ø Regnet noch immer.  
 Out onto the street! Air! ø Rains still always.  
 Was ist nur los? Ich muß mir ne andere nehmen.  
 What is only up? I must me an other take.  
 Erst mal ausschlafen. Franz, wat is den mit dir los?  
 First once out.sleep Franz, what is then with you up?  
 'Out into the street! Air! ø Still {raining}. Just what is going on here? I have to find another one. First a good night's rest. Franz, what is the matter with you?' (HGC)

However, without a larger database I cannot verify how frequent subject-less expletives are with weather predicates in conversational language.

## 6.2 Constraints on topic drop

In section 5.2 we saw that the HGC, Twitter and CallHome data contain instances of topic drop for subject and object arguments. Of the two kinds of arguments, subject drop was much more common for the HGC and Twitter data, but less pronouncedly so in the conversational CallHome corpus.

Although topic drop is assumed to be motivated by high accessibility – in Schalowski (2009)'s words, topic drop targets familiarity topics – it seems unable to apply to arguments other than subjects and objects whatever their accessibility. Notably, indirect objects seem not to be droppable; a failed attempt of omitting a third person indirect object is given in (34).<sup>14</sup>

- (34) # ø Hilfe ich morgen bei den Hausaufgaben.  
 # ø help I tomorrow with the homework  
 'I'll help ø [them] tomorrow with their homework.'

Twitter data that I inspected for verbs such as *helfen* ('help'), *schenken* ('give as gift'), *spenden* ('donate') did not yield any instances that were recognizable as

<sup>14</sup> It is possible to drop the indirect-object in some cases: *Hilft beim Abnehmen* ('Promotes weight loss')[lit. Helps with losing weight]. However, this seems to be limited to generic statements, especially ones about the efficacy of means and instruments.

topic drop. The finding that indirect objects cannot be dropped is very surprising given that indirect object referents are generally coded in a way that suggests very high accessibility.

Similarly, it has been held that prepositional phrase arguments cannot usually be dropped. While I did not find an instance in the Twitter data, I was able to find an example in a web forum. In (<http://www.gtrp.de/archive/index.php/t-1152.html>), the Content argument of the verb *erinnern* ('remember') in user Eki's reply is omitted with the verb in utterance initial position and the subject and reflexive object realized, which suggests that the construction used is topic drop.

(35) **Chakra**<sup>15</sup>

So, habe jetzt meinen Tommi Mäkkinen IA1  
 So, have now my Tommi Mäkkinen IA1  
 Endurance von 9 Stunden mit "Genau mein Ding" überboten  
 Endurance of 9 hours with "Just my thing" exceeded  
 -you remember, Eki-  
 -you remember, Eki-  
 Die Kombo macht 'nen Riesenspaß, obwohl ich mich  
 That combination makes a lot-of-fun, though I myself  
 irgendwo immer verfranse: rolleyes:  
 somewhere always entangle: rolleyes:  
 Ja, Flinx, kann mir gut vorstellen, daß Du 1:31 schaffen  
 Right, Flinx can myself well imagine, that you 1:31 make  
 kannst, bzw. als virtuelle lap-time schon hast :) Bin  
 can, resp. As virtual lap-time already have :) Am  
 jedenfalls gespannt.  
 in.any.case on.tenterhook.

'So, I've now outdone my Tommi Mäkkinen IA1 Endurance record of 9 hours with 'Just my type of thing' –you remember, Eki. That combination is a lot of fun, though I always get tangled up somewhere. Right, Flinx, I can well imagine that you can make 1:31 or have already done so as a virtual lap-time ;) In any event, I'm on tenterhooks.'

**Eki**

∅ Erinner ich mich gut; jaja, der Tommy.  
 ∅ Remember I myself well; yes-yes the Tommy.  
 'I {remember} ∅ well; yes, yes, Tommy . ...'

<sup>15</sup> <http://www.gtrp.de/archive/index.php/t-1152.html>

While the above example seems like a very clear case, there are additional instances that could arguably be seen to involve topic drop of a prepositional argument. In (36), the verb (*darauf*)*kommen* in the relevant sense ('think of/hit on') requires an *auf*-PP encoding a Content semantic role. However, when the Content semantic role is anaphorically accessible, the anaphoric form *darauf*, which fuses the preposition with a demonstrative pronoun, is standardly used, as in (37). An anaphoric element *da* can also be fronted in a kind of reduplicative construction (cf. [38]). The sentence in (36) could thus be seen as involving the dropping of the initial *da* found in (38).

- (36) Die vierte frage konnte ich leider nicht  
 the fourth question could I unfortunately not  
 beantworten, da ich mir nicht Sicher war was sie  
 answer because I myself not sure was what it  
 meinte und bevor ich Blödsinn antworte, lieber sage:  
 meant and before I nonsense reply, rather say:  
 ∅ {Komme} ich gerade nicht drauf, tut mir Leid!  
 ∅ Come I just.now not thereupon causes me pains!<sup>16</sup>  
 'Unfortunately, I couldn't answer the fourth question because I wasn't  
 sure what she meant and rather than reply with some nonsense, I prefer  
 to say "I can't {think} ∅ [of it] right now, sorry! "

- (37) Ich komme gerade nicht darauf/drauf.  
 I come just.now not thereupon.  
 'Just now I can't think of it.'

- (38) Da komme ich gerade nicht drauf/darauf.  
 There come I just.now not thereupon.  
 'Just now I can't think of it.'

Now, one might object that in (36) above, the anaphoric element is fully instantiated in the fused form and if anything is omitted sentence-initially, it might just be an adjunct. This objection would however not apply to cases like (39) below, where the verb *halten* ('to hold') occurs in a sense 'X holds Y in Z regard' that requires a *von*-PP encoding the evaluated entity. In standard written German, the sentence would have to be formulated as in (40), with an element fusing the preposition and the anaphoric element. In example (39), the anaphoric element is

<sup>16</sup> (<http://www.bundeswehrforum.de/forum/index.php?topic=23969.5;wap2>)

completely missing but has to be understood. Moreover, the initial position of the verb suggests again that a topic drop construction is being used. If that is correct, then it is an instance of topic drop that does not involve a subject or object. (For Fries (1988), the above examples are a special case of the phenomenon that he basically calls Pronoun Zap following Huang (1984). He refers to them as anaphor deletions.)

(39) @hertizworld Genau. Ein Spieler der abgestiegen ist, wird  
 @hertizworld Exactly. a player who descended is, will  
 uns weit nach vorne bringen. Ne,  $\emptyset$  halte ich  
 us far to forward bring. No,  $\emptyset$  hold I  
 nichts von. Weder so noch so.  
 nothing of. Neither so nor so.  
 ‘Exactly. A player who was relegated will take us forward. Nah, I don’t  
 {believe} in  $\emptyset$  [that]. Neither one way nor the other.’ (Twitter)

(40) Nein, Davon halte ich nichts.  
 No, thereof hold I nothing.  
 ‘No, I don’t consider it useful at all.’

Finally, I return to cases of protasis-drop, as seen in examples (18) and (19) above. Example (18) is repeated here for convenience:

(41)  $\emptyset$  Gehe ich halt ohne Hose los!  
 $\emptyset$  Go I just without pants off!  
 ‘ $\emptyset$  [So then] I’ll just go off without pants’ (Twitter)

A plausible analysis is that sentence (41) drops an anaphoric *dann*, marking the contextually given protasis. While temporal *dann* is ordinarily an adjunct, the *dann* in such a conditional context has to be seen as one of the two situation-denoting arguments of the conditional construction. On that analysis, sentence (41) also is a case of argument topic-drop, but of an argument with adverbial form. Neither Fries (1988) nor Schalowski (2009) discuss these cases in the context of topic drop.<sup>17</sup>

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<sup>17</sup> The description of the kind of usage found in (41) is probably still incomplete. For instance, it seems that the conditional consequent typically is used in an exclamative context, including a discourse marker such as *halt*.

### 6.3 Non-inflectional constructions

Twitter data, like other computer-mediated communication, also exhibits non-inflectional constructions, a stylistic device that is commonly found in comics (Schlobinski 2001). The prototypical instance of this kind of construction consists of a bare verb stem as in example (42).

- (42) Dann halt nicht schlafen. \*aufräum\*  
 Then just not sleep. \*tidy.up\*  
 ‘No sleeping then. \*Tidying up\*’
- (43) \*Bagelmampf\* sooo lecker :)  
 \*Bagel munch\* sooo good :)  
 ‘\*Munching bagels\* soooo good :-)’

In example (43), the uninflected verbal form is preceded by a verbal argument.<sup>18</sup> On Twitter, instances of this construction are usually marked by inclusion in a pair of asterisks. The verbal forms that occur in such contexts are commonly called *inflectives* following Teuber (1998), who discusses the place of these forms within the morphological paradigm of German. But as is shown by example (43), uninflected verb forms can also occur together with arguments or modifiers.<sup>19</sup> Following Bücking and Rau (2013), I will refer to the actual occurrences of uninflected verb forms together with any arguments and modifiers as non-inflectional constructs (NICs), which avoids confusion with the use of the term for the morphological property of being subject to inflection.

Based on my corpus work, it seems that the functional purposes of non-inflectional constructs, or a very similar set of purposes, can also be subserved by forms that are in fact inflected, as shown by (44), or that are not verbally headed at all, as shown by (45).

- (44) ... nun was das angeht ... öhm ... \*schaut sich nervös  
 ... now what that on.goes ... ah ... \*looks self nervously  
 um\* Ähm ... Oh seht mal, eine doofe Mitten im  
 around\* Ahem ... Oh look once, a stupid Middle in  
 Leben-Folge.  
 Life-episode.

<sup>18</sup> I will simply call the relevant verb forms *uninflected* rather than commit to a characterization as verb stems or zero-inflected verb forms.

<sup>19</sup> There is a question to what extent incorporation of such arguments or modifiers occurs in actual uses of non-inflectional constructs, correlated to some degree with spelling as a single word. I will not address this issue here (but see Schlobinski 2001).

‘well, with regard to that ... ahem \*looks around nervously\* ahem ... Oh look, a stupid episode of “In the Midst of Life”.’

- (45) @schattenbran Du weisst warum :D \*dreckiges lachen\*  
 @schattenbran You know why :D \*dirty laughter\*  
 ‘You know why :D \*dirty laughter\*’

I will reserve the term non-inflectional construct for cases headed by uninflected verbs. I will call cases such as (44) and (45) pseudo-non-inflectional constructs (PNICs).

What interests me about the verbal cases is their argument structure since normally non-inflectional constructs lack at least one of their semantic roles, the one that would be realized as subject in finite active-form sentences. To study the argument structures of non-inflectional constructs, I drew a random sample of 500 tweets. Each candidate tweet to inspect was initially identified based on the criterion that it contained a token starting with an asterisk. I checked all the candidate tweets by hand and excluded pseudo-non-inflectional constructs such as (44) and (45) above and cases where the asterisks are used for other purposes such as emphasis, as in (46), as well cases where it was not clear what the function of the asterisk was. For instance, in (47), it seems the writer might mark the playful use of a foreign word-phrase (French-English “le me”).

- (46) @BassLove\_ ja wenigstens durft ich kaya \*ich hab  
 @BassLove\_ yes at.least allowed.was I kaya I have  
 geheult als die karten da warn\*  
 cried when the tickets there were\*  
 ‘at least I was allowed to kaya \*i cried when the tickets got here\*’

- (47) \*Le me geht jetzt mal zum Briefkasten!  
 \*Le me goes now once to.the letterbox!  
 ‘Le me [the me] is going to the post box now.’

Regarding the function of non-inflectional constructs, Teuber suggested that they mainly serve to express a subjective response or appraisal. This applies to many examples but as (42) and (43) show, it is not always the case. Let us compare (43) above with the alternative formulation in (48).

- (48) (Ich) mampfe eine Bagel sooo lecker :)  
 (I) munch a bagel. sooo good :)  
 ‘Ø Munching a bagel. soooo good :-)’

It seems that by using the NIC formulation, the speaker asks the hearer to treat the information communicated by the non-inflectional construct as if they had observed it, rather than been told about it. Similarly, Bücking and Rau (2013: 85) characterize non-inflectional constructs as having a performative function: “they do not merely describe concomitant actions but present them as being in fact performed and thus despite factual distance accessible to immediate perception”. If these ideas are on the right track, use of NICs on Twitter serves to re-create a sense of face-to-face or multi-modal communication that distant communication by a broadcast medium like Twitter does not offer. The question is whether one should treat cases such as (42) and (43) as different from ones like (49), where the NIC references an emotional state or appraisal.

- (49) @R3b3ccaCran3 \*dich hass\* Wir sind extra um 6  
 @R3b3ccaCran3 \*you hate\* We are extra at 6  
 aufgestanden, damit wir sie schauen können <3<3<3 morgen  
 risen, so.that we them watch can <3<3<3 tomorrow  
 auch wieder  
 also again  
 ‘\*hating you\* We specially got up at 6 so we could watch them <3<3<3  
 same again tomorrow.’

(49) seems to be a case where the NIC very clearly conveys an internal state. However, one could still think of it as replacing missing multi-modal information: people in general are very good at recognizing emotion in others based, for instance, on facial expression and tone of voice. Bücking and Rau (2013) also assume a single analysis for all non-inflectional constructs.

I now turn to the analysis of the form and argument structure of the non-inflectional constructs in my sample. The 500 candidate tweets inspected contained 206 NICs. 9 of these cases had reduplicated uninflected verb forms of the type *freu-freu* (‘happy-happy’), *quietsch-quietsch* (‘shriek-shriek’), etc. All the NICs with reduplication were based on intransitive verbs. With the exception of example (50), all NICs were oriented towards a first-person subject.<sup>20</sup>

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<sup>20</sup> Of course, example (50) also involves the author of the tweet as an experiencer, though that role is not realized as a subject with the idiom *das Wasser im Mund(e) zusammenlaufen* ‘salivate [lit. the water is collecting in one’s mouth]’.

**Table 7:** Distribution of patterns with frequency greater than 1.

V	34
ObjNP-V	32
ObjNP-PartV	28
PP-V	16
Adv-V	7
ObjNP-PP-V	6
Adv-PartV	6
PartV	5
PP-PartV	4
ObjNP-PP-PartV	4
IndObjNP-ObjNP-PartV	4
Adj-V	4
PP-PP-V	3
ObjNP-V-Clause	2
NP-PartV	2
IndObjNP-ObjNP-PP-V	2
Adv-PP-V	2
Adv-ObjNP-V	2
Total	163

(50) Geil! \*Wasser im Mund zusammenlauf\* RT  
 Sweet! \*Water in.the mouth collect\* RT  
 @ChrissyRamone:  
 @ChrissyRamone:  
 La Fischtheke au Wissembourg.  
 La Fischtheke au Wissembourg.<sup>21</sup>  
 ‘Sweet! \*Salivating\* ’

Table 7 shows the distribution of patterns for the prototypical case, non-inflectional constructs based on a simple uninflected verbal form. It lists only the patterns with more than 1 instance. In addition to those patterns, there are 32 other unique patterns represented in the sample. In table 7, I distinguish particle verbs from simple verbs by the label PartV in order to draw attention to their high frequency among the NICs.

As shown by Table 7, most of the instances do not match Teuber (1998: 21)’s characterization as one-word sentences. While one-word instances consisting of just a predicate as in example (42) are frequent, instances where an uninflect

<sup>21</sup> <http://t.co/89qXIT3Q>



verb form occurs together with one or more non-subject complements or adjuncts are much more common. Schlobinski's (2001) data show many complex NICs, too. Further, many examples in my sample as well as many of the ones shown in Schlobinski (2001)'s work, contradict Teuber's (1998) analysis that NICs have a syntactically empty valence. An incorporation analysis would not work for cases where specifically referring NPs appear as arguments of uninflected verbs within non-inflectional constructs, as in (51).

- (51) @HoneyballCookie Ich war heute mit Papa lecker essen.  
 @HoneyballCookie I was today with dad good eat.  
 ^\_^ \*dir auch etwas rüberschieb\*  
 ^\_^ \*you.to also something over.slide\*  
 'Today I had a good meal out with dad. \*sliding some over to you, too \*'

In the majority of cases, the verbal form is placed at the end of the non-inflectional construct, which Schlobinski (2001: 206) attributes to the general fact that final position is the norm for non-finite forms in German. In my sample, the exceptions consist of cases where there is a clausal complement that is arguably shifted rightward because of its heaviness (cf. [52]).

- (52) @fhainalex Amt? Oha! \*Daumen drück,  
 @fhainalex Agency? Whoa! \*Thumb press,  
 daß alles einigermaßen gut läuft\*  
 that all passably well runs\*  
 'Agency? Whoa! \*Keeping fingers crossed that everything works out tolerably\*'

I turn now to the verbs that occur as the heads of the non-inflectional constructs. Within my 206 instances of NICs, a large variety of uninflected forms is represented. Only 6 verbs occur more than 5 times, namely:

- (53) *winken* ('wave') (6), *drücken* ('cuddle') (7), *reichen* ('pass'), (7), *freuen* ('be happy') (8), *rüberschieben* ('slide over') (10), *lachen* ('laugh') (11)

To provide some further abstraction over individual words, I labeled the verbs heading the non-inflectional constructs in my sample with their appropriate FrameNet-frame. Table 8 shows the frames that were evoked by the heads of NICs more than once. In addition, there are 54 other frames that occurred only once.

Compare Tables 7 and 8 with the following list, which contains the most frequent single-word NICs in all of the Twitter sample:

**Table 8:** Frames with frequency greater than 1 evoked in non-inflectional constructs.

Make_noise	20	Cause_impact	5	Experiencer_focus	3
Cause_motion	18	Cause_to_move	5	Being_attached	2
Body_movement	14	Hold_thumbs	5	Cause_bodily_experience	2
Perception_active	14	Placing	5	Departing	2
Emotion_directed	11	Cause_to_move_in_place	4	Manipulation	2
Giving	10	Communication_manner	4	Removing	2
Self_motion	7	Facial_expression	4	Taking	2
Hug*	6	Intentionally_act	4	Waiting	2
Becoming	5	Breathing	3		

(54) *g* ('grin'), *hust* ('cough'), *lach* ('laugh'), *freu* ('be happy'), *seufz* ('sigh'), *gg* ('grin a lot'), *lol* ('laugh(ing) out loud'), *gäh*n ('yawn'), *grins* ('grin'), *sing* ('sing'), *kicher* ('giggle'), *wink* ('wave')

It seems that when one considers all kinds of non-inflectional constructs, including the ones that consist of more material than just a simple uninflected verb form, the semantics of the occurring verbs appears more varied. Of course, the usual suspects, verbs such as *grinsen* ('grin') and *lachen* ('laugh'), are well represented among the frequent cases when looking at NICs of any length, but it is apparent that many other kinds of situations, especially ones involving motion (e.g. *Self\_motion*, *Cause\_to\_move*, *Cause\_motion*, *Cause\_to\_move\_in\_place*, *Giving*), are also common (cf. [51]–[52]).

I now consider the realization of arguments within non-inflectional constructs. First, it is the case that in all cases in the sample, the subject argument that is filled by the author referent is unexpressed. As noted by Schlobinski (2001: 208), the speaker role is pre-set as a “default” subject. More interesting is the question to what extent objects and indirect objects are realized or omitted. As pointed out by Schlobinski (2001: 210), within the right scenario, the addressee can also be omitted, as in (55).<sup>22</sup>

(55) @MiyaSekai @SenjoVal woa ich hoff ihr schafft das <>  
 @MiyaSekai @SenjoVal whoa I hope you manage that <>  
 \*anfeuer!\*  
 \*cheering on!\*

'Whoa I hope you manage it – \*cheering\*'

<sup>22</sup> Of course, reflexive objects co-referring with the authors, as in the frequent instances of *freu* ('be happy') is also possible.

It is notable that the non-realization of an argument role filled by the addressee is not only possible when the referent would appear as a direct object but also with certain indirect objects that normally resist omission in simple assertions in episodic contexts. An example of this is shown in (56).

- (56) @tobi\_SE ruhig blut ... \*massage geb\*  
 @tobi\_SE calm blood ... \*massage give\*  
 ‘calm down ... \*giving a massage\*’

It is an interesting idiosyncratic fact about argument omission within non-inflectional constructs that the high salience of the addressee seems sufficient to license omission where this same omission is *not* licensed by the lexical items or by general language constructions.

Although they are not proper non-inflectional constructs, I want to briefly consider the cases where inflected verb forms are used by Twitter authors within the asterisk-markup. One thing to notice is that while the word order is sometimes verb-final as in the case of non-inflectional constructs proper (cf. [57]), the inflected verb is in initial position in other cases such as (58), where there doesn’t seem to be a clear need for post-verbal placement of the modifier based on its weight.

- (57) @LederundSpitze Wer darf die neuen Worte denn alles  
 @LederundSpitze Who may the new words then all  
 lesen? \*unsicher schaut\*  
 read? \*uncertainly looks\*  
 ‘So who all is allowed to read the new words? \* looks uncertainly \*’

- (58) \*pfeift ganz laut\*  
 \*whistle all loudly\*  
 ‘whistles very loudly’

In terms of their function, the pseudo-NICs in my data still talk about the tweet-author. They are merely presenting information about the author as if there was an external viewer present (hence the third-person person feature). However, while the third person is the dominant option, it is not the only one within pseudo-NICs. One also finds some instances of first-person pseudo-NICs, as indicated by the verbal morphology.

- (59) @Ashqtara Ich habe was für dich, ich weiß nicht  
 @Ashqtara I have what for you, I know not  
 ob du das schon gesehen hast. \*lieber schnell flüchte\*  
 if you that already seen have. \*rather quickly flee\*  
 ‘I’ve got something for you, I don’t know if you’ve seen it yet. \*better run  
 away quickly\*’

Coming to firm conclusions about how pseudo-NICs behave is difficult since I had only 32 instances within my 500-tweet sample. In future work, I would like to test on a larger set of pseudo-NICs whether in terms of variety, complexity, and function, they are different from non-inflectional constructs proper or not.<sup>23</sup>

## 6.4 Analysis: a family of argument-drop constructions



What should one conclude about the grammar of argument drop based on the findings in Sections 6.1 and 6.2? First, I would argue that expletive drop is its own phenomenon: though it seems a lot like real subject topic drop on the surface, it cannot have the same functional/pragmatic motivation that needs to be part of the constructional analysis.

The second major question then is what one should do about the treatment of regular arguments. Before I make a proposal let us consider a bit more data. In (60), there is an uninstantiated first person referent in the subject function. If it were to be expressed explicitly, it would be realized as a personal pronoun. In (61) and (62), third person referents in the object role are uninstantiated. If they were to be explicitly realized in the fronted topic position, they would have the form of a demonstrative rather than a personal pronoun: the personal pronoun seems completely ungrammatical in (62) and the only acceptable reading for (61) with a personal pronoun would involve contrast, which, however, is not relevant in the context of the actual Twitter thread.

- (60) (Ich) Bin jetzt weg.  
 (I) Am now off.  
 ‘I {am} off now.’ (Twitter)

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<sup>23</sup> One might suspect that maybe pseudo-non-inflectional constructs are produced by authors who have not yet mastered the grammar of proper NICs, or produced automatically by a software auto-correct feature. While that cannot be ruled out for individual instances, it seems there are too many of them for them all to be just occasional errors.

- (61) Fady Malouf. (Den/?Ihn) Mag ich nicht.  
 Fady Malouf. That.one/?hime like I not.  
 ‘Fady Malouf. [that one/him] I don’t {like}.’ (Twitter)
- (62) @KellyKoksNuss öhm (Das/\*Es) weiß ich jetzt noch nicht   
 @KellyKoksNuss ahem (that(it) know I now still not   
 ‘ahem [that/it] I don’t know yet’ (Twitter)

Thus, it seems that the activation status requirements for subjects and objects are different. And actually, the activation status requirements for objects seem to be more like those of the omissible prepositional arguments in (36) and (39), whose overt counterparts also involve demonstrative forms with *da*. Not only that, but both types of omission also share the constraint on the person feature: fused forms consisting of *da* and a preposition can only be anaphoric to third person referents, and third person referents are also the only omissible referents in object drop.

Overall, it seems that one should favor an analysis that posits at least three different argument-drop constructions: one for expletive subjects; one for referring subjects; and one for referring objects and prepositional objects. While my discussion still does not explain the non-droppability of indirect objects, the constructional analysis could handle the facts right by paying attention to grammatical functions.

Finally, I note that topic drop may also be facilitated by structure-parallelism contexts, as discussed by Fries (1988). While in (63) the omitted element in the answer would have the same form (and semantic role), there is a change in form and role between B’s question in (64) and A’s two possible answers.<sup>24</sup>

- (63) In Köln ist viel Streß, und wie ist es in Tübingen?  
 In Cologne is much stress, and how is it in Tübingen?  
 ‘It’s a lot of stress in Cologne, what’s it like in Tübingen?’  
 A: ∅ Ist alles ziemlich lahm  
 A: ∅ is all quite lame  
 ‘It’s all pretty lame [there].’ (= Fries’ example [110])

<sup>24</sup> If one wanted to make the antecedent explicit, it would have the form *da* in both cases. However, that use of *da* would be as a real locative adverbial in contrast to its purely anaphoric uses seen above.

- (64) A: Also Berlin mag ich.  
 A: So Berlin like I.  
 ‘So I like Berlin.’  
 B: Und Köln?  
 B: And Cologne?  
 ‘And what about Cologne?’  
 A1: ??∅ Wohn/leb’ ich.  
 A1: ?? ∅ Reside/live I.  
 ‘I live [there].’  
 A2: ?? ∅ Spielt sich doch nichts ab.  
 A2: ?? M Plays itself though nothing off.  
 ‘There is nothing going on [there].’ (= Fries example [109])

The *in*-PP in (63) is neither a subject nor an object and it is not a regular prepositional complement. Still, the discourse context sets it up as a topic, which can be dropped in a sentence where the omitted constituent would play the same semantic and syntactic role. Crucially, structure parallelism is not generally necessary for topic drop, where, for instance, an aboutness-question can precede topic drop as in (65). This contrasts with example (64) where an aboutness-question regarding Cologne does not allow for the subsequent omission of a locative anaphor.

- (65) Gisbert mag dich, und was ist mit dem Sascha?  
 Gisbert likes you, and what is with the Sascha?  
 ‘Gisbert likes you, and what about Sascha?’  
 A: ∅ Mag er auch.  
 A: ∅ likes he too.  
 ‘∅ Likes him, too.’

Further investigation is needed to ascertain to what extent structural parallelism goes along with various kinds of topic drop for which it is not strictly necessary. Finally, non-inflectional constructs need to be handled by another independent construction. The word order found with the vast majority of verbal NICs is verb-final, which prevents us from treating them as a subtype of subject topic-drop. Moreover, they have a strict focus on the here and now and do not allow past tense or perfect forms reporting on past events or states, which subject-drop does. Finally, non-inflectional constructs can license omissions of arguments, especially indirect objects, which are not omissible through topic-drop.

## 7 Discussion and conclusion

In Section 4, I used corpus data to check the plausibility of the generalization proposed by Ruppenhofer (2004) that an omitted semantic role receives the same (anaphoric or existential) interpretation across *lexically* licensed omissions by the members of a particular lexical class. For the lexical classes that I considered here, the generalization was indeed found to hold.

In my second study, presented in Section 5, I was interested in *constructional* argument omissions, in particular various forms of argument drop. Comparing data from social media and from spoken and written corpora with respect to verb-initial constructions, we saw that they differed in the frequency with which the various constructional types occurred. Focusing on argument-drop cases in particular, we saw that generally subject topic-drop was more common than object-topic drop. Object drop was most frequent in the conversational CallHome data. In the Twitter data I also found object topic-drop to be less common than subject topic-drop, in line with findings by Schalowski (2009) for another social media set. In addition, we also encountered a less expected result, namely that expletives are dropped quite frequently and that expletive drop seems, in some respects, like topic-drop even though it arguably is not a subtype of the latter.

I also looked at non-inflectional constructions (NICs), determining that they have special properties different yet again from regular subject-drop. In the case of NICs, I did not systematically look for instances in my written corpus, the HGC. Queries for highly frequent verbal uninflected forms as found on Twitter e.g. *freu* ('be happy') and *guck* ('look') yielded no results, however.

Taking a broader perspective, the findings on the data considered here fit the analysis of Ruppenhofer and Michaelis (2010) for their data, namely that argument omission can be described in terms of "constraints on argument structure, as the relevant conventions target specific semantic and grammatical roles of verbs" (p. 160). Against this background, it is not surprising to observe that, although there are family resemblances among omission-licensing constructions, these constructions also exhibit idiosyncratic differences and limitations that simply call for individual, separate treatment.

Besides the need for specific grammatical treatment, the data also illustrates that not all omission constructions are motivated the same way. While topic drop may primarily be driven by high accessibility, measurable through frequent mention and short distance to a preceding co-referring mention, other constructions may be motivated by other notions of prominence. As discussed by Ruppenhofer and Michaelis (2010), in sentences from English match reports such as (66), the object of play (typically a ball) may go unexpressed simply because it is a globally prominent referent throughout the text via the overall scenario of the game.

(66) He hammered  $\emptyset$  wide of Gary Walsh's exposed net.

If this analysis is on the right track, then even the superficially similar cases of subject and object drop involve different degrees of accessibility and are not motivated in exactly the same way. In the case of non-inflected constructs, it is even clearer that they serve a special communicative function and have corresponding morpho-syntactic constraints.

Finally, let us consider the question what this study has to say about the relation between conceptually spoken language and argument omission affordances. As we saw, the conversational CallHome corpus clearly has a high incidence of improper V1-constructions licensing argument omission (cf. Table 4). The Twitter data actually shows an even higher incidence. As discussed in section 5.2, on Twitter the space constraints of the medium may provide additional motivation towards reduction, beyond what applies to spoken language.<sup>25</sup> All other corpora examined, which are more conceptually literal than the CallHome and Twitter, make much less use of anaphoric omissions enabled by improper V1-constructions. This might suggest that constructional omissions with anaphoric interpretation belong to the language of closeness (*Sprache der Nähe*) that is at the heart of conceptually oral language.

However, I think this point requires further study. First, one would need to accumulate more evidence that Twitter exhibits other features of oral language. And second, one needs to relate the observations here to the findings of Schwitalla (1988), who reports no significant differences in omission rates between spoken and written language. It is not quite clear, though, to what extent Schwitalla (1988)'s results are relevant. While I looked only at omissions constructionally licensed by improper V1-constructions, he may have included all types of omissions, including lexically licensed ones, in his analysis. In any event, studying the frequency of lexically licensed omissions is in itself relevant for forming a conclusion about whether argument omissions can serve as an index of the language of closeness. The idea makes sense to me in terms of the communicative conditions and implementation strategies that Koch and Oesterreicher's (1985) discuss. In terms of the code, the exploitation of omissions raises the information density of the text, making it more compact. In terms of the communicative requirements for omissions to succeed, some or all of the factors such as face-to-face interaction, involvement, dialog, familiarity, and situational interlocking that Koch and Oesterreicher (1985) mention do seem relevant to each of the anaphoric omission

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<sup>25</sup> In future work, I plan on studying a corpus of electronic text messages (sms) in order to verify if constraints on message-length have a similar effect on the frequency of anaphoric omissions there, too.



constructions. I therefore consider it a worthwhile topic for further research to see to what extent the frequency of anaphoric omission constructions correlates with conceptual orality.

## References

- Ariel, Mira. 1988. Referring and accessibility. *Journal of Linguistics* 24. 65–87.
- Auer, Peter. 1993. Zur Verbspitzenstellung im gesprochenen Deutsch. *Deutsche Sprache* 3. 193–222.
- Baroni, Marc, Silvia Bernardini, Adriano Ferraresi, & Eros Zanchetta. 2009. The WaCky wide web: A collection of very large linguistically processed web-crawled corpora. *Language Resources and Evaluation* 43. 209–226.
- Bender, Emily. 1999. Constituting context: Null objects in English recipes revisited. *Penn Working Papers in Linguistics* 6 (1). 53–68.
- Bücking, Sebastian & Jennifer Rau. 2013. German non-inflectional constructions as separate performatives. In Daniel Gutzmann & Hans-Martin Gärtner (eds.), *Expressives and Beyond. Explorations in Use-Conditional Meaning*, 59–94. Leiden: Brill.
- Culy, Christopher. 1996. Null object in English recipes. *Language Variation and Change* 8. 91–124.
- Fellbaum, Christiane & Judy Kegl. 1989. Taxonomic structures and cross-category linking in the lexicon. *Eastern States Conference on Linguistics*. 6. 93–104.
- Fillmore, Charles J. 1982. Frame Semantics. In Linguistic Society of Korea (ed.), *Linguistics in the morning calm*, 111–138. Seoul: Hanshin.
- Fillmore, Charles J. 1985. Frames and the semantics of understanding. *Quaderni di Semantica* 6 (2). 222–254.
- Fillmore, Charles J. 1986. Pragmatically controlled zero anaphora. *Berkeley Linguistic Society (BLS)* 12. 95–107.
- Fitschen, Arne. 2004. *Ein computerlinguistisches Lexikon als komplexes System*. Stuttgart: Institut für Maschinelle Sprachverarbeitung der Universität Stuttgart dissertation.
- Fries, Norbert. 1988. Über das Null-Topik im Deutschen. *Forschungsprogramm Sprache und Pragmatik* 3. 19–49.
- Fraurud, Kari. 1996. Cognitive Ontology and NP Form. In Thorstein Fretheim & Jeannette K. Gundel (eds.), *Reference and referent accessibility*, 65–67. Amsterdam & Philadelphia: John Benjamins.
- Goldberg, Adele E. 2006. *Constructions at work*. Oxford, UK: Oxford University Press.
- Gundel, Jeanette K., Nancy Hedberg, & Ron Zacharski. 1993. Cognitive status and the form of referring expressions in discourse. *Language* 69 (2). 274–307.
- Günthner, Susanne. 2000. Creating scenic moments: grammatical and rhetoric-stylistic devices for staging past events in everyday narratives. *Interaction and linguistic studies* 22. 1–23.
- Haegeman, Liliane. 1990. Understood subjects in English diaries: On the relevance of theoretical syntax for the study of register variation. *Multilingua* 9(2). 157–199.
- Huang, C. 1984. On the distribution and reference of empty pronouns. *Linguistic Inquiry* 15. 531–574.
- Krisjanis Karins, Robert MacIntyre, Monika Brandmair, Susanne Lauscher & Cynthia McLemore. 1997. CALLHOME German Transcripts. LDC97T15.

- Koch, Peter & Wulf Oesterreicher. 1985. Sprache der Nähe – Sprache der Distanz. Mündlichkeit und Schriftlichkeit im Spannungsfeld von Sprachtheorie und Sprachgeschichte (Langage de la proximité langage de la distance. L'oralité et la scripturalité entre la théorie linguistique et l'histoire de la langue). *Romanistisches Jahrbuch* 36. 15–43.
- Lehrer, Adrienne. 1970. Verbs and Deletable Objects. *Lingua* 25. 227–253.
- Michaelis, Laura A. 2011. Knowledge ascription by grammatical construction. In John Bengson & Marc A. Moffett (eds.), *Knowing How: Essays on Knowledge, Mind, and Action*, 261–279. Oxford: Oxford University Press.
- Mittwoch, Anita. 1982. On the difference between eating and eating something: Activities versus accomplishments. *Linguistic Inquiry* 13(1). 113–22.
- Rehbein, Ines, Josef Ruppenhofer, Caroline Sporleder & Manfred Pinkal. 2012. Adding nominal spice to SALSA–frame-semantic annotation of German nouns and verbs, In Jeremy Jancsary (ed.), *11th Conference on Natural Language Processing (KONVENS)*, 89–97. Vienna: ÖGAI.
- Richling, Julia. 2008. *Die Sprache in Foren und Newsgroups: eine Untersuchung der konzeptionellen Mündlichkeit und Schriftlichkeit im Wandel der Zeit*. Saarbrücken: VDM Verlag.
- Ruppenhofer, Josef. 2004. *The interaction of valence and information structure*. Berkeley, CA: University of California dissertation.
- Ruppenhofer, Josef & Laura A. Michaelis. 2010. A constructional account of genre-based argument omissions. *Constructions and Frames* 2(2). 158–184.
- Schalowski, Sören. 2009. *Über Topik-Drop im Deutschen: Untersuchung zum Einfluss der grammatischen Funktion und des Merkmals Person*. Berlin: Humboldt Universität zu Berlin Master's thesis.
- Schlobinski, Peter. 2001. \*knuddel – zurueckknuddel – dich ganzdollknuddel\*. Inflektive und Inflektivkonstruktionen im Deutschen. *Zeitschrift für Germanistische Linguistik* 29(2). 192–218.
- Schmid, Helmut. 1997. Probabilistic part-of-speech tagging using decision trees. In Daniel Jones & Harold Somers (ed.), *New methods in language processing*, 154–164. London, UK: UCL Press.
- Schwitalla, Johannes. 1988. Kommunikative Bedingungen für Ergänzungsrealisierungen. In Gerhard Helbig (ed.): *Valenz, semantische Kasus und/oder "Szenen"*, 74–84. Berlin: Akademie der Wissenschaften.
- Teuber, Oliver. 1998. fasel beschreib erwähn – Der Inflektiv als Wortform des Deutschen. *Germanistische Linguistik* 141/142. 6–26.
- Zifonun, Gisela, Ludger Hoffmann & Bruno Strecker. 1997. *Grammatik der deutschen Sprache*. Berlin & New York: Walter de Gruyter.



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## Part III: **Prepositional constructions in German**



Amir Zeldes

# The Case for Caseless Prepositional Constructions with *voller* in German

## 1 Introduction

This chapter presents the case for a unification based, underspecification analysis of case assignment in some prepositional phrases in German, by focusing on the behavior of a family of unusual constructions informally expressed as *X voller Y* ('X full of Y'). Specifically, I will be concerned with questions about the part-of-speech category of *voller* ('full of') and the behavior of the grammatical case of its internal argument *Y*, as found in usage data. The extent to which this seemingly marginal word is interesting can be gleaned from the fact that there is no simple answer to these questions, neither empirically in corpus data nor introspectively by consulting speakers, including trained linguists. The basic problem is that, in contradiction to traditional generative Case Filter or Visibility Condition analyses (Chomsky 1981: 49, 1986: 94; see Bobaljik and Wurmbrand 2009 for a recent overview) which postulate a single case governed by a head to be linked to a semantic role, *voller* occurs with forms which, taken together, are not compatible with any one case analysis:

- (1) *eine Badewanne voller (warmem) Wasser*      'a bathtub full of (warm) water'  
a    bathtub      full.of warm.DAT water-DAT?
- (2) *eine Stadt voller (netter) Kinder*      'a city full of (nice) children'  
a    city      full.of nice.GEN children.GEN?
- (3) *Menschen voller Aberglaube*      'people full of superstition'  
people      full.of superstition.NOM?

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Especially when adjectives (given in brackets above) are not present, it is far from clear which case form has been used in any particular example. I will be suggesting that this uncertainty results from the unique status of the originally de-adjectival construction containing *voller*: while not quite an example of an ordinary German prepositional phrase, *voller* itself comes closest to being a preposition, and while generally governing something like an oblique case (dative or genitive), the distribution of forms shows particular kinds of bias and, from a normative perspective, ‘errors’. Argument case and the choice of construction will be shown to depend on the number and gender of the object, its morphological class, as well as its syntactic environment (particularly the presence of modification through adjectives), factors which I will suggest can be captured in a constructional analysis.

A formal description of this phenomenon is problematic but at the same time highly interesting: arguments are not supposed to be able to ‘choose’ the case they are governed with based on their own properties or internal composition. However from the point of view of a constructional approach, there are little or no constraints on the arbitrary specification of the form side of a construction, a conventional pairing of meaning and form. Towards the end of this chapter a formalization of the construction’s behavior will be attempted using Sign-Based Construction Grammar (SBCG, Boas and Sag 2012). In the course of that effort, I intend to show that the construction can be seen as in effect ‘caseless’. What is meant by this is not that we find arguments with unique morphological forms corresponding to no known grammatical case, but rather that the construction resists ordinary case assignment analyses, in which we normally assume that a preposition or verb governs some particular case (or perhaps even different ones in different senses or registers), and this assignment applies to any applicable argument we choose. As we shall see, in certain environments necessitating an inconvenient case assignment, the construction is avoided unconsciously with significant frequency or in some cases even very clearly consciously. In other cases, conflicts in the assignments expected from different constructions involved in the formation of a complete phrase lead to behavior best explained if we postulate *voller* to make no deterministic case assignment by itself.

I will support my analysis with data from two sources. The primary source will come from corpora, including the largest sample of examples for the construction in adult use to date (over 20,000 cases drawn from a Web corpus), and supplemented with a small amount of qualitative data on child language use from specific corpora. The second source of evidence, which will turn out to be problematic but irreplaceable, is formed by speakers’ introspective data from online discussion forums about German grammar. This data will shed some light

on what speakers believe is right and how they may justify seemingly aberrant forms and their underlying structure.

The remainder of this chapter is structured as follows. Section 2 gives a brief overview of case in German prepositional phrases, the phrasal category closest in its behavior to the *voller* construction. Section 3 goes deeper into the question of *voller*'s part of speech, and consequently its phrasal category, by outlining theories about its etymology and discussing distributional criteria to determine its status as a (quasi-)preposition. Section 4 presents empirical corpus data and grammar forum discussions about the case forms governed by *voller* in bare noun arguments and arguments containing adjective modifiers. Section 5 presents the formal analysis using SBCG, and Section 6 discusses some consequences for this analysis and some of its alternatives.

## 2 *Voller* in the context of German prepositional phrases

German prepositions generally govern a DP in one of the three non-nominative cases: accusative (4), dative (5) or genitive (6).

(4) *ohne*     *den*     *Tisch*     ‘without the table’  
without    the.ACC    table.ACC

(5) *mit*     *dem*     *Tisch*     ‘with the table’  
with      the.DAT    table.DAT

(6) *statt*     *des*     *Tisches*    ‘instead of the table’  
instead    the.GEN    table.GEN

As in other Indo-European languages, locational prepositions can govern either the accusative for a dynamic interpretation (7) or the oblique dative for a stative interpretation (8) (see also Willems, this volume).

(7) *in*     *die*     *Stadt*     ‘into the city’  
in    the.ACC    city.ACC

(8) *in*     *der*     *Stadt*     ‘in the city’  
in    the.DAT    city.DAT



Some prepositions vary more or less freely between dative (9) and genitive (10) government in contemporary speech, with dative variants usually being considered more colloquial and the genitive remaining the written standard (see Petig 1997). A small number of these prepositions also exist as postpositions in very formal registers, as in (11).<sup>1</sup>

- (9) *wegen dem Tisch* 'because of the table (informal)'  
 because the.DAT table.DAT
- (10) *wegen des Tisches* 'because of the table (formal)'  
 because the.GEN table.GEN
- (11) *des Tisches wegen* 'because of the table (very formal)'  
 the.GEN table.GEN because

There is thus considerable variation in the case assignment behavior of German adpositions, but no sense of chaos or lack of fixed argument structure specification: the alternation between dynamic and stative government marks a distinction of meaning in truth value semantics, i.e. one of 'deep case' in terms of Fillmore's (1968) seminal paper. The alternation between dative and genitive (and possibly use of a postposition) expresses no difference in formal semantic meaning but corresponds to a difference in register, i.e. we are dealing with different 'surface' forms representing the very same semantic roles.

The word *voller* initially seems to conform to the pattern seen in (9) and (10) as far as case assignment is concerned. It requires a nominal argument to express the sense 'full of Y', with the Y argument often being a mass noun or indefinite plural without an article (since being full of something usually implies either a substance or a plurality, though see Section 3.2 below on unacceptability of determiners in the construction). Some frequent arguments seen in the construction can be interpreted as either in the dative (12) or the genitive case (13), much like (9) and (10) (see below for quantitative corpus data).

- (12) *eine Badewanne voller Wasser* 'a bathtub full of water'  
 a bathtub full.of water.DAT

---

<sup>1</sup> The latter construction is however becoming less productive, being used only rarely with non-lexicalized arguments, see Zeldes (2012: 106–114) for discussion.

- (13) *eine Stadt voller Kinder*      ‘a city full of children’  
 a      city      full.of      children.GEN

As it will turn out, it is not all that certain that the case glosses in (12)–(13) are correct, since syncretism of case forms often makes it impossible to be certain what the case of a German noun is, and more so in the case of the bare nouns that tend to occur in the construction. For the arguments *Wasser* ‘water’ and *Kinder* ‘children’ (both neuter, the former singular and the latter plural), there are only two possible forms:

*Wasser*<sub>{NOM,ACC,DAT}</sub>      :      *Wassers*<sub>{GEN}</sub>  
*Kinder*<sub>{NOM,ACC,GEN}</sub>      :      *Kindern*<sub>{DAT}</sub>

It therefore appears that we can only be certain that the form in (12) is not a genitive and the form in (13) is not a dative, but not much else.<sup>2</sup> One of the best indications that we are dealing with dative and genitive arguments is at this point precisely the analogy to cases such as (9)–(10), though we will come to more complex and infrequent argument phrases with adjectives which give us more information further below. Before approaching these, it is worth considering whether the analogy to prepositions like *wegen* ‘because of’ is justified. Is *voller* actually a preposition?

### 3 The grammatical category of *voller*

#### 3.1 Etymology

The word *voller* is derived from the Indo-European adjective root *\*plh<sub>1</sub>* carrying the basic meaning ‘full’, and more specifically from its *-n-* suffix derivate *\*plh<sub>1</sub>-n-os* ‘full’, cf. Sanskrit *pūrṇa-* ‘full’, Old Church Slavonic *plъnъ* ‘full’, Gothic *fulls* ‘full’ (from Proto-Germanic *\*fulnaz*, cf. Beekes 1995: 146, 251). The adjective *voll* ‘full’ remains a regular adjective in Modern German used similarly to its English counterpart. It can be used as in (14) without arguments in the inflected attributive form as in (14a) or as a predicative or adverbially used adjective form as in (14b,c) without inflectional suffixes, much like any German adjective.

<sup>2</sup> Many other cases are even less clear, particularly feminine nouns which distinguish no case forms at all (e.g. *voller Freude* ‘full of joy’ or plural *voller Überraschungen* ‘full of surprises’).

- (14) a. *Das volle Glas* ‘the full glass’  
 b. *Das Glas ist voll* ‘the glass is full’  
 c. *Das Geld reicht voll aus* ‘the money is fully sufficient’ (lit. ‘suffices fully’)

A possible complement generally appears in the genitive, equivalent to the English complement with an *of* phrase, cf. (15). However some inconsistencies in its behavior with regard to the case of the complement are remarked on already by Hermann Paul (1959 [1919]: 330), who cites literary examples with the dative (16a, b) next to the genitive. Klaus (2004: 180) adds to this forms which she views (introspectively) as accusative as in (16c), though in principle they are indistinguishable from nominative forms (see also Section 4 for further discussion). She also notes the absence of dative plural forms, which fits Paul’s largely singular examples in the dative (notwithstanding some mixed examples below; see also Sahel 2010 for similar corpus results on the lack of dative plurals after *voll*, which largely reiterate Klaus’s introspective findings, of which he seems unaware).

- (15) *Herzen voll Gefühls* ‘hearts full of feeling’ (genitive)
- (16) a. *voll göttlichem Tiefsinn* ‘full of godly profundity’ (dative)  
 b. *voll ziemlich saurem Wein* ‘full of quite sour wine’ (dative)  
 c. *voll bunte Murmeln* ‘full of colorful marbles’ (accusative/nominative)<sup>3</sup>

Acceptability of the accusative form seems to be questionable, at least for some speakers, and clear forms of this sort are rare in the data presented here (Section 4). If we disregard the final form, the examples suggest, at least for *voll*, a similar complementation behavior to that of genitive/dative prepositions discussed in the previous section. Taking all patterns together, however, we find a more flexible case assignment behavior than that of any German preposition.

The construction involving *voller* shown in (12)–(13) above seems to have been lexicalized from a special case of the construction involving *voll*. A popular etymology derives *voller* from a fusion of *voll* with a following article *der*, which is used with feminine singular objects in the dative and genitive and genitive plural objects of all genders: *voll + der + NP > voller NP*. An early appearance of this theory is found in Heyse (1849: 176): “*It apparently arose from a hasty pronunciation of voll der [...] admittedly also in places where the definite article der is not*

<sup>3</sup> A reviewer postulates that this example may be dialectal and in fact stand for an *n*-less dative adjective form; however the form is presented by Klaus (2004: 179–180) as accusative and possible in standard usage. See below on the rarity of such examples in corpus data.

*permissible*".<sup>4</sup> The supposed reanalysis is shown in (17). It begins with a structure analogous to that of (15) but with an added article, which is then grammaticalized to produce something like (13), repeated here as (17b).

- (17) a. *eine Stadt voll der Kinder* 'a city full of children'  
 a city full the.GEN children.GEN  
 b. *eine Stadt voller Kinder* 'a city full of children'  
 a city full.of children.GEN

This etymology is currently believed to be false and is probably based, among other things, on common phrases such as *voll der Gnade* ('full of grace'), which do have the suggested structure from (17a) (Paul 1959: 95; Hentschel and Weydt 2003: 220; this false etymology will be important for some of the introspective evidence below). The more generally accepted etymology is that *voller* is the strong inflected form of a postposed adjective qualifying the preceding noun, originally in particular when this was nominative masculine singular (see Paul 1959: 95 and 2007: 322, Hentschel and Weydt 2003: 220, Kieffer 1977: 379, to name a few). Just as the addition of an argument to *voll* causes the extraposition of the attribute from its position in (18a) to that in (18b), the same process is said to apply to *voller* in (19a) instead of the conceivable but ungrammatical structure in (19b).

- (18) a. *Ein voller Becher* 'a full cup'  
 a full-NOM.SG.MASC cup  
 b. *Ein t<sub>i</sub> Becher [voll Wassers]<sub>i</sub>* 'a cup full of water'  
 a cup full water.GEN  
 (19) a. *Ein t<sub>i</sub> Becher [voller Wasser]<sub>i</sub>* 'a cup full of water'  
 a cup full water  
 b. *\*Ein [voller Wasser] Becher* 'a full of water cup'  
 a full water cup

The difference between *voller* and *voll* is therefore that of a strongly inflected attributive form and an uninflected adjective, usually used as a predicative or adverbial form.<sup>5</sup>

<sup>4</sup> My translation. The original reads: "*Sie ist allem Anschein nach durch flüchtige Aussprache aus voll der entstanden [...] freilich auch da, wo der bestimmte Artikel der nicht statthaft ist*".

<sup>5</sup> Some support for this view can be found in older examples which have other suffixes, e.g. the following found via Google Books: *wie das Meer volles Waffers ift* 'as the sea is full of water' (Pauli, *Extract oder Auszug aus der Postill*, 1584), or *die ort / fo man vormals hett gewandelt / find*

The same process is said to be responsible for the appearance of other frozen postnominal forms in *-er*, such as *selber* ‘oneself’ in (20).

(20)	a.	<i>der selbe</i>	<i>Mann</i>	‘the same man’
		a self.NOM.SG.MASC	man.NOM.SG.MASC	
	b.	<i>der Mann</i>	<i>selber</i>	‘the man himself’
		a man.NOM.SG.MASC	self	
	c.	<i>die Frau</i>	<i>selber</i>	‘the woman herself’
		a woman.NOM.SG.FEM	self	

Although the *-er* suffix is originally masculine, the form *selber*, much like *voller*, is synchronically used to modify any gender, as shown in (20) above. Hermann Paul refers to this form as ‘inflectionless’ (German *flexionslos*, Paul 1959: 95–98). From this etymology we may expect that *voller* should behave just like *voll* and may consequently have the same grammatical category: an attributive adjective, albeit postposed, with a flexible genitive/dative argument much like its progenitor. However as we shall see below, this categorization will turn out to be inadequate.

### 3.2 Distributional analysis

The grammatical category of *voller* has rarely been discussed in the literature, but the apparently simpler form *voll* has enjoyed some more attention in this context (see Klaus 2004 for an overview). As we have seen, *voll* is etymologically an adjective, but possibly because of the frequent complementation, which creates a heavy constituent, ends up being placed after its noun. Its un-inflectable status is regular for postposed adjectives in Modern German, which are, however, rare. For example, adjectives like *pur* ‘pure’ in the following example are also uninflected if placed after the noun:<sup>6</sup>

(21)	a.	<i>pur</i>	<i>Realismus</i>	‘pure realism,’ adjective inflects ( <i>-er</i> )
		pure.NOM.SG.MASC	realism.NOM.SG.MASC	

---

*vollen waffer* ‘the places which one formerly walked are full of water’ (Caspar Hedio [ed.], *Chronica der Alten Christlichen Kirchen*, 1558). Paul (2007: 322) gives as possibly the earliest example of non-congruence, already in 1290, Heinrich von Meißen’s *Frauenleich* (55,6): *ihr tât[?] ist voller sūchen* ‘their deed is full of searching’.

<sup>6</sup> For multiple subtypes of postnominal adjectives in German and some semantic differences between the two constructions, see Dürscheid (2002).

- b. *Realismus*                      *pur*    ‘pure realism,’ no inflection  
       realism.NOM.SG. MASC    pure

In this respect there is nothing unusual about *voll* or *voller*. The fact that the two words take complements is also not unique within the adjectival domain. As the following examples show, adjectival arguments can be realized using case marking (but are then usually preposed) or even a connector in (22), as well as by forming a compound:

- (22) a. *einem Tisch ähnlich*    ‘similar to a table’ (‘a table’ is dative)  
       b. *ähnlich wie ein Tisch*    ‘similar to a table’ (lit. ‘similar like a table’)  
       c. *tisch-ähnlich*            ‘similar to a table’ (lit. ‘table-similar’)

However, *voll* has been considered to be something other than an ordinary adjective in some previous studies. Klaus (2004: 175–176) surveys 11 grammars of German, two of which indicate that the classification of *voll* may be problematic, being classified as an adjective in some environments and as a preposition in others (specifically Sommerfeldt and Starke 1998: 146 and Weinrich 2003; to these we may add Hentschel and Weydt 2003). The standard reference dictionary of German ‘Duden’ classifies *voll* and the alternative form *voller* together as an adjective (Müller 1985: 727), though the Lexicon of German Prepositions (Schröder 1990: 194–195) also lists *voll* and *voller* together in the same entry as a preposition. According to Klaus (2004), it is primarily the following properties which lead to *voll* in the construction [(DP) *voll* DP] being regarded as a preposition:

1. It is indeclinable.
2. It governs the case of the following, subordinate DP.
3. It sets up a relationship between two things.

The point is not explained fully, but it appears that the idea is that what the first DP is ‘full of’ is information directly about that DP and not just a modification of *voll* (in frame semantic terms, they are members of a single frame together, cf. Section 5). At the same time, the adjectival characteristic of comparability (Klaus 2004: 177–178) is seen as evidence that *voll* is also an adjective, as in the following example:

- (23) *Am Büffet lud er sich den Teller noch voller als sein Nachbar*  
       ‘at the buffet he loaded up his plate even **fuller** than his neighbor’ (Klaus 2004: 177)

The form *voller*, by contrast, cannot form a comparative *\*vollerer*. Note that this restriction is not immediately obvious from the meaning of the construction: a

comparative with an argument is quite conceivable with the appropriate meaning, cf. English ‘a glass even fuller/more full of wine’ etc.

With regard to the construction in which *voll* serves to modify another DP (as an adjunct or predicative) with a subsequent DP giving the ‘filling’ role, Hentschel and Weydt (2003: 220) raise a possible objection that unlike other prepositions, *voll* can also take a PP complement itself, as in the (24a). However this objection does not apply to *voller*, cf. (24b):

- (24) a. *voll von/mit Wein*                    ‘full of/with wine’  
       b. *voller (\*von/\*mit) Wein*        ‘full of wine’

*Voller* is therefore very similar in distribution to a preposition and much more so than *voll*.

Nevertheless, we can find one important deviation between the syntax of *voller* and that of other prepositions: the argument it takes must have the form of a bare noun, with possible adjuncts. In a DP analysis (following Abney 1987 etc.), this means that the argument of *voller* is an NP and not a DP, unlike with other German prepositions:

- (25) a. *ein Handy voller (\*dem/\*deinem/\*diesem) [Schnickschnack]<sub>NP</sub>*  
       ‘a cell phone full of (\*the/\*your/\*these) bells and whistles’  
       b. *ein Handy mit [(dem/deinem/diesem) Schnickschnack]<sub>DP</sub>*  
       ‘a cell phone with (the/your/these) bells and whistles’

As we can see, any determiner is compatible with an ordinary preposition, while *voller* categorically rejects any form of determination (though adjective attributes are possible, see Section 4.2 below). Note again that the restriction has no semantic or pragmatic explanation: it is perfectly conceivable to speak of something being full of ‘my’, ‘your’ or ‘this wine’, but the construction rejects these possibilities for no obvious reason. The construction is therefore provisionally better described as [(DP) *voller* NP], where the initial DP may be dropped if understood from context or appearing elsewhere (non-adjacently) when the construction is used predicatively (e.g. *X ist voller Y* ‘X is full of Y’).

If we adhere to a strict interpretation of distributional criteria, as advocated by Croft (2001), we must see *voller* as something other than an ordinary preposition, which we can call a quasi-preposition for the moment, for lack of a better term.<sup>7</sup>

<sup>7</sup> I make no claims for cross-linguistic applicability for this term, and we may treat this as an *ad hoc* proper name for now. I will forgo a special proper name notation as in Radical Construction Grammar, *pace* Croft.

Taking an approach more like Goldberg's (2006: 45) 'lumpers' we may just decide to treat *voller* as a subtype of preposition that rejects determiners. But on some level, opting for a Construction Grammar analysis makes us 'splitters': in order to learn that *voller* is incompatible with determiners, the speaker must acquire idiosyncratic knowledge about this construction. It therefore seems that we must treat *voller* at least on some level of the analysis as a structural *sui generis*. In Section 5 I will attempt to solve this dilemma in an inheritance-based analysis within the framework of SBCG.

## 4 Case assignment

Having seen that the [(DP) *voller* NP] construction is most like a prepositional one (though not quite), it is reasonable to ask whether it adheres to PP government patterns elsewhere in the language. Klaus (2004) already notes that *voll* has a mixed, rather odd profile of government, allowing dative, genitive and even accusative government under different conditions (though as we shall see below, these vary in acceptability among speakers, as does usage data). Since the case for *voller* is somewhat more complex than for *voll*, and some of the case tests involving determiners cannot be repeated for it, I will not repeat her analysis in detail, referring instead to pertinent points as they arise. Hermann Paul notes that aside from various canonical case forms, *voller* is accompanied by what he terms 'an inflectionless form' ("*flexionslose Form*"), as in (26a), or even forms designated a 'strange mixture' ("*merkwürdige Mischung*") in (26b) and (26c), which combine apparently dative adjective forms (the *-n* suffix in this case) with non-dative noun forms (plural forms with no case suffix, which can be anything *but* a dative):

- |  |                            |
|--|----------------------------|
| (26) a. <i>voller Duft</i>               | 'full of fragrance'        |
| b. <i>voller andern Fehler</i>           | 'full of other errors'     |
| c. <i>voller rachsüchtigen Anschläge</i> | 'full of vengeful attacks' |

Paul's examples are limited to older literary attestation, which may give some credence to a possible acceptability of these forms (especially [26a], which is probably acceptable to most German speakers). But they do not give us any quantitative information – are these just single aberrations or systematic phenomena? When do they occur and how often? Also, as some of the problematic forms can only be detected in the presence of an adjective (b and c above would appear to be normal genitive complements, if not for the adjective forms in *-n*), it may be worth considering the two configurations separately at first. The next two subsections



therefore survey empirical data on bare objects and objects with attributive adjectives respectively. The third subsection adds qualitative corpus data from German speaking children to give a perspective on the difficulties in acquiring a consistent interpretation of the *voller* construction.

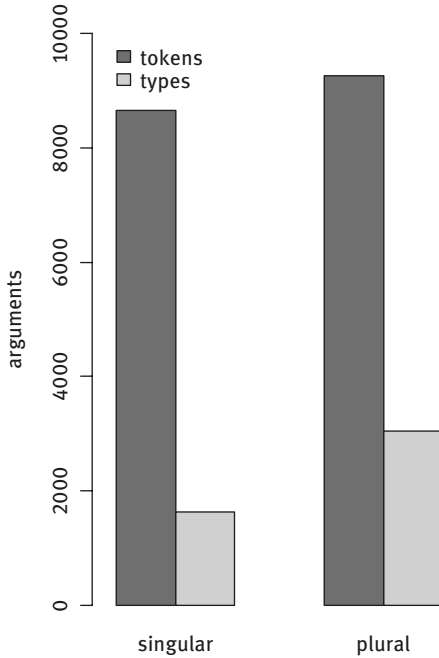
## 4.1 Bare noun objects

To get some empirical data on the forms occurring as arguments of *voller* we require a rather large and ideally unedited source which is less likely to edit away or paraphrase questionable forms consciously. The construction is rather rare and tends not to occur in literary language (at least of some corpora examined by this author), but is quite frequent on the Internet. I therefore use data from the deWaC Web corpus (1.63 billion tokens of German from the Web, see Baroni et al. 2009), searching for the form *voller* following any noun (based on the STTS part-of-speech tag NN as tagged with the freely available Tree-Tagger; see Schiller et al. 1999 for the tagset and Schmid 1994 for the tagger).<sup>8</sup> The search resulted in around 21,000 hits, which were then manually filtered based on the form of the nearest noun which follows *voller*. Over 5,600 argument types were filtered manually in this way, resulting in the elimination of 181 types with 230 tokens of spurious hits which were then discarded (an error rate of only about 1%). The arguments were tagged with the RF tagger (Schmid and Laws 2008) for gender and number, and the output was manually corrected and enriched with manually assigned inflectional classes during the error filtration process. Of the entire remaining dataset, which contains some 20,500 tokens and 5,350 types, around 17,900 tokens or over 87% of the data were bare nouns, immediately following *voller* and not modified by an adjective. These will be the subject of the current section; for the remaining cases with modified nouns see the next section.

Looking at the distribution of gender and number in the attested bare arguments, we can get a first idea about the ways in which the construction is used. As shown in Figure 1, the bare argument tokens are divided rather equally into singular nouns (48%), likely to be non-count or mass nouns, and plural (count) nouns (the remaining 52%). However, the type counts (in grey) tell a different

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<sup>8</sup> The search therefore only includes adnominal and adverbial cases in non-verb-final clauses, though predicative cases are also found in subordinate clauses. Finding all cases where there is no noun immediately preceding *voller* is difficult, since the surface form *voller* is most often an inflected form of *voll* in those contexts, and does not represent the *voller* construction.



**Figure 1:** Distribution of bare singular and plural argument types and tokens for *voller*.

story: there are almost twice as many types of plural nouns (about 65% to 35%), meaning the singular nouns tend to be more common and repetitive, whereas the plural nouns may form a more productive class of arguments.<sup>9</sup>

The plural lexemes cover a wide variety of meanings, but the singulars tend to follow two main patterns: substances in the broadest sense such as ‘water’, ‘lead’, ‘garbage’ etc. and abstractions like ‘courage’, ‘hate’ and others. Table 1 gives the top arguments in each class together with their frequencies in the sample.

In a ‘substance’ class which can be interpreted rather liberally we can find not only the expected liquids like ‘water’ or ‘blood’, but also other more or less concrete quantities such as ‘money’, ‘energy’ (which can perhaps also be interpreted as abstract) and ‘music’ (though not tangible it is non-abstract in some sense). The abstractions typically include emotions and mental states. Interestingly, these are substantially more frequent than the corresponding top substance arguments.

<sup>9</sup> Generally speaking, a high type count and a high proportion of rare items are indicative of a productive construction, cf. the overview in Baayen (2009) for word formation and Zeldes (2012) for syntactic argument selection.

**Table 1:** Top 5 singular (substance / abstract) and plural arguments of *voller*.

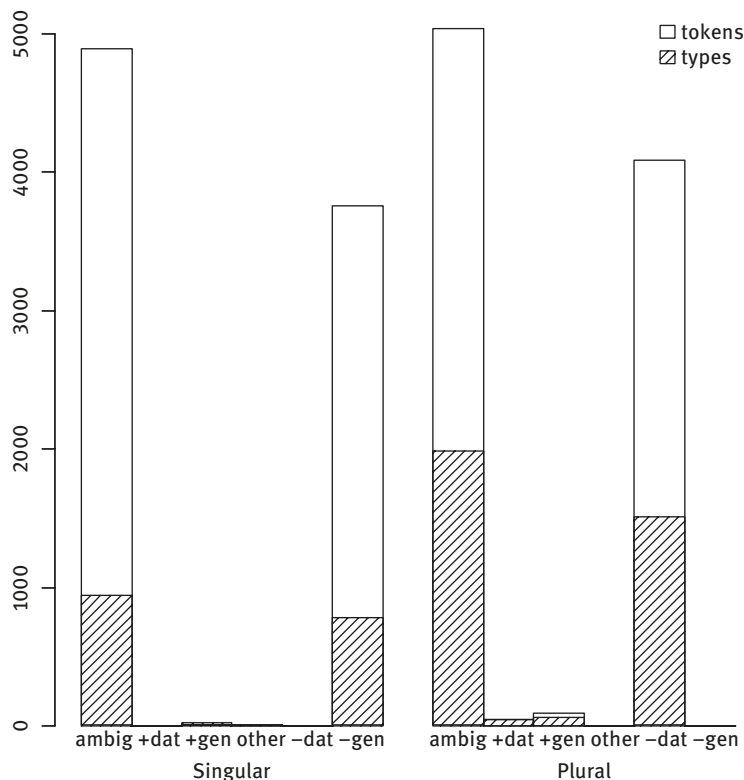
	<i>singular</i>		<i>plural</i>		
<b>'substance'</b>		<b>'abstraction'</b>			
<i>Geld</i> 'money'	134	<i>Freude</i> 'happiness'	230	<i>Überraschungen</i> 'surprises'	174
<i>Energie</i> 'energy'	90	<i>Liebe</i> 'love'	174	<i>Menschen</i> 'people'	156
<i>Blut</i> 'blood'	80	<i>Spannung</i> 'suspense'	156	<i>Widersprüche</i> 'contradictions'	139
<i>Wasser</i> 'water'	73	<i>Stolz</i> 'pride'	150	<i>Rätsel</i> 'riddles'	123
<i>Musik</i> 'music'	70	<i>Hoffnung</i> 'hope'	141	<i>Geheimnisse</i> 'secrets'	122

Finally the plurals include more or less tangible concepts, but all are of course countable: if something is full of 'riddles' it contains multiple singular riddles, etc.

Looking at the forms of the objects in Table 1 we can already observe the lack of case marking of the forms. Both the singular and the plural nouns all lack any case suffixes where these are possible: no genitive *-s* on singular masculine or neuter nouns and no dative *-n* in the plurals (except nouns whose plural already contains *-n* in all cases). Looking at all bare noun arguments together, we can observe the distribution of case markings in Figure 2 below (token and type bars have been juxtaposed to save space).

As we can see, most bare noun arguments are completely ambiguous, giving no indication of the case governed by *voller* whatsoever. But in both singular and plural, somewhat less than half the cases (in both tokens and types) give one negative hint: either that the object is not genitive (last column in the singular) or that it is not dative (the penultimate column in the plural). Taking these two groups together and notwithstanding the remaining small (almost invisible) groups of exceptional cases to be discussed below, the vast majority of arguments happen to be noun forms that carry no case suffixes: the argument simply has the form of the noun's uninflected lemma in the singular, or the form with the plural suffix only (but no additional case marking) in the plural.

What can we make of this distribution? Coupled with the evidence from the tall bars, the Case Theory assumption that overt arguments carry exactly one abstract case leads to the possible conclusion that *voller* governs either the nominative or the accusative, two cases which take no overt marking for the vast majority of singular and plural nouns in German. Neither genitive nor dative is compatible with the second-tallest bars on both sides at once. However a young German speaker learning the language has additional knowledge about the behavior of case in their language that does not fit with this conclusion: nominative is generally not governed by prepositions, remaining reserved for verbal subjects and nominal predicates of copula verbs, and accusative usually carries a



**Figure 2:** Case marking on bare noun arguments. Bars represent token counts, shaded areas give the type counts.

dynamic directedness towards the object as mentioned in Section 2. If the hearer is disinclined to accept these options, they might come to the following alternative rule based on the evidence: “use dative forms in the singular and genitive forms in the plural.” This would certainly be unusual behavior, as no preposition (or adjective) in German has such a rule – generally a certain sense corresponds to only one case, or there is variation that corresponds to a register distinction across both number categories (genitive versus dative in singular and plural, as discussed in Section 2).

Some evidence for this conflict, or at the least ‘inconvenient situation’, is given by the exceptional cases not belonging to either bar. The dative plural has an unambiguous marking *-n* in almost all nouns whose plural form does not end in *-n* to begin with. This translates to most masculine and neuter nouns, as feminines are generally pluralized with *-(e)n*. In bare nouns we conspicuously

find occurrences of unambiguous plural datives only with non-feminines and feminines with non-*n* plurals (e.g. *Hände* [‘hands’]), as illustrated in the following examples. Dative forms of feminine plurals ending with *-n* can only be identified in the presence of attributive adjectives (see the next section).<sup>10</sup>

- (27) *Zum “Unterricht” liest ein Arzt im weißen Kittel einem Saal **voller Männern** politische Nachrichten aus der Zeitung vor.*

‘For the “class”, a doctor in a white coat reads political news out of the newspaper to a hall **full of men.**’ [deWaC, position 682192145]

- (28) *Warum haben wir dann nicht eine ganze Stadt **voller Insektenleuten**?*

‘So why don’t we have a whole city **full of insect-people?**’  
[deWaC, position 55748421]

Such cases are a tiny minority (only 48 bare token cases, but spread out across 41 types, suggesting the form is not limited to a few lexicalized exemplars). The amount of examples like the above suggests that this is no accident or collection of typos (there are no occurrences with a letter other than *-n* in this position). As I will argue below using evidence from accompanying adjectives, this may be the analogical extension of a dative interpretation of the singular forms, which were only identifiable as non-genitive.

A second group of cases has a clear genitive case marking. The genitive plural case is not marked on ordinary nouns, but it is on adjectives, and therefore also on deadjectival nouns. There are 94 hits belonging to 51 types of bare plural nominalized adjectives, which have a distinct genitive plural form with the suffix *-r*. The following examples give the two most common types and a hapax legomenon, which is not likely to be lexicalized in this form.

- (29) a. *in einer dunklen stinkenden Herberge voller Fremder*  
in a dark smelly hostel full.of strangers.GEN  
‘in a dark smelly hostel full of strangers’ [deWaC, position 941120582]  
b. *Ein Land voller Krimineller?*  
A country full.of criminals.GEN?  
‘A country full of criminals?’ [deWaC, position 14902733]

<sup>10</sup> In (27) it is worth noting that the modified noun *Saal* (‘hall’) is itself in the dative, so that attraction or even an appositional reading may be called upon to explain the form (I thank Berry Claus for commenting on this point). However there are many examples where this is not the case, as shown e.g. in (28). See also Section 4.3 for similar examples produced by children.

- c. *Ein Viertel voller Hyperengagierter*  
 A neighborhood full.of hyper-dedicated.GEN  
 ‘A neighborhood full of hyper-dedicated people’ [deWaC, position 223879763]

However there are also exceptions to this rule, with some nominalized plural adjectives showing a seemingly nominative/accusative form ending with *-e*, even though the same lexemes are also attested with unambiguous genitive *-r*:

- (30) a. *in einer Welt voller Verrückter*  
 in a world full crazy.GEN.PL  
 ‘in a world full of crazy people’ (lit. ‘crazies’) [deWaC, position 595738544]
- b. *Da ist dann aber noch der Auftragskiller das “Biest”, zwei weitere Killer, der Hof voller Verrückte, die taffe Vermieterin und und und ...*  
 ‘But then there are also the hit man the “beast”, two more killers, the yard full of crazies?, the tough landlady, and so on’ [deWaC, position 1199532242]

Taken alone, such cases may be suspected as typos, but as we shall see in the next section, it is possible to find cases of NPs with full nominative/accusative congruence (including adjectives and nouns) and some speakers defend such forms explicitly in grammar forums.

Finally, there are some non-deadjectival nouns belonging to the special class of so called *n*-stems or weak masculines, which show an *-n* suffix in all forms except the nominative singular (see Köpcke 1995 for a detailed discussion). These can be found both with the non-nominative *-n* or in forms without the *-n*, which at least formally appear to be nominative:

- (31) a. *Eine Zeit voller Aberglaube*  
 a time full.of superstition.NOM  
 ‘a time full of superstition’ [deWaC, position 1266294482]
- b. *ein buntes Land voller Lebenswille*  
 a colorful country full.of will.to.live.NOM  
 ‘a colorful country full of will to live’ [deWaC, position 834121522]

There is only a handful of cases, as *n*-stems are relatively few, and fewer still represent non-count nouns that can plausibly appear in the singular after *voller*. In total, only 10 tokens from 5 lexical types are attested, all having one of two morphological heads: *Glaube* (‘belief, faith’), also forming *Aberglaube* (‘superstition’);

and *Wille* ('will'), also found in *Lebenswille* ('will to live') and *Widerwille* ('aversion'). While it is difficult to draw conclusions from such a small sample, it is worth noting that 8 cases occur without *-n*, but only 2 with *-n*, despite the fact that *any* case other than the nominative should require the *-n*. In the case of *Glaube* it should also be noted that there is an alternative form *Glauben* ('belief, faith'), which has the *-n* suffix in the nominative as well (with no difference in meaning), yet clearly some speakers prefer the form without the suffix in the environment following *voller*, despite the alternative way of eschewing the problem. Although the lack of the *-n* suffix may seem unusual in this environment, it does have one thing in common with the vast majority of cases above: it represents a form of the noun with no case suffixes attached.

To sum up, it seems that speakers are very systematic about the 'easy' cases: they choose a form that is not genitive in the singular and not dative in the plural almost all of the time. But when forced to make a clear, unambiguous choice by the morphology of an unusual noun, such as deadjectival nouns or *n*-stems, variation crops up. All other things being equal, two interpretations seem possible: either the argument is accusative all of the time (or nominative, as suggested by some of the *n*-stems), or it is (strangely) dative in the singular but genitive in the plural. The occasional marked dative plural and genitive singular forms, as well as the general prepositional semantics of these two cases, may lead us to believe the latter option. But if singulars are really dative and plurals are really genitive, then speakers should have no qualms about modifying the object with an adjective in the appropriate case: dative singular and genitive plural. With this in mind, we can now turn to objects modified by adjectives, where ambiguity is strongly reduced even for regular nouns.

## 4.2 Objects with attributive adjectives

The situation for disambiguating the case of the object of *voller* becomes considerably simpler once an attributive adjective is used to modify the head noun. The reason is that case is only rarely marked on German nouns themselves, though it is marked on articles (which, as we have seen, are precluded for the object NP in the *voller* construction) and attributive adjectives. Even better, adjectives carry a more easily identifiable case marking if no article is used, i.e. the strong vs. weak adjective inflection distinction. Thus an adjective like *gut* 'good' has accusative, dative and genitive singular masculine/neuter *guten* if it follows an article, but distinguishes *gutem* for dative if no article precedes. Table 2 gives an overview of the relevant forms for the singular and plural with the masculine noun *Wein* ('wine') (the masculine gender shows the most overt case distinctions).

**Table 2:** Case endings for masculine singular attributive adjectives depending on article use.

<i>number</i>	<i>case</i>	<i>definite (weak)</i>	<i>indefinite (mixed)</i>	<i>bare (strong)</i>
singular	Nom	der gute Wein	ein guter Wein	guter Wein
	Acc	den guten Wein	einen guten Wein	guten Wein
	Dat	dem guten Wein	einem guten Wein	gutem Wein
	Gen	des guten Weins	eines guten Weins	guten Weins
plural	Nom	die guten Weine	gute Weine	
	Acc	die guten Weine	gute Weine	
	Dat	den guten Weinen	guten Weinen	
	Gen	der guten Weine	guter Weine	

As we can see, the noun itself only distinguishes the genitive case with the suffix *-s* in the singular (genitive *Weins*, all other cases *Wein*), and the dative case with the suffix *-en* in the plural (*Weinen* : *Weine*). In the weak and mixed declensions of any adjective modifiers, which occur for example after definite and indefinite articles respectively, the presence of the adjective allows us to make a further distinction in the singular: non-nominative forms have a suffix *-en*, while the nominative has a distinct form (*-e* or *-er*). However, since *voller* is not compatible with articles, adjectives will necessarily occur with bare nouns in the strong declension, so that we may also get a distinct form in the dative (*-em*), for masculine or neuter nouns. The result is a possible distinction of genitive and dative in the singular thanks to the presence of an adjective, except in feminine nouns, for which dative and genitive strong adjectives both take the suffix *-er*. In the plural, indefinite and bare nouns are identical (the null article is the plural indefinite marker, just as in English *wines*), and dative and genitive are again distinct.

Despite various syncretisms, it appears that between the adjective and the noun, it should be easy to discover the case governed by *voller* if we find some adjective modifiers in our sample. Fortunately, adjective attributes do in fact occur before the object noun some of the time. However before examining their forms it is worth noting that such adjectives occur unexpectedly rarely, as shown in Table 3 using data from deWaC.

Only a little over 12.5% of *voller* constructions have an attributive adjective before the object noun. For comparison, a preposition like *mit* ('with') has about 23% of objects with an adjective after the article, a highly significant difference ( $p < 2.2e-16$  in a two sample  $\chi^2$  test of equal proportions, and an odds-ratio of 2.086). It could be argued that the bare nouns that accompany *voller* are less likely



**Table 3:** Frequencies for bare and adjective modified nouns after *voller* compared with some other environments.

<i>adjective</i>	<i>Voller</i>	<i>voll + mit</i>	<i>mit + article + noun</i>	<i>mit + bare noun</i>	<i>all nouns</i>
no	17910	3111	436253	372157	45274442
yes	2581	721	131188	191826	12402922
total	20491	3832	567441	563983	57677364
% adjective	12.59	18.81	23.11	34.01	21.5

to be qualified (for example since they are often mass nouns). But searching for *mit* with bare nouns actually shows an increase in the proportion of qualified nouns: some 34% have an attributive adjective ( $p < 2.2e-16$ , odds-ratio 3.576). The proportion of nouns preceded by adjectives in general is about 21% ( $p < 2.2e-16$  and odds-ratio 1.9 compared to *voller*).

These differences can all easily be explained by differences in semantics: it is possible that *voller* is so rarely followed by adjectives because its meaning is not conducive to their use: for example, people might rarely feel the need to qualify the substances etc. with which something is full. If this were the case, we would expect an alternative like *voll mit* ('full with'), which has a clear, simple case assignment behavior (always dative), to have as many attributive adjectives in its objects as *voller*. This is however not the case: *voll mit* has 18.81% objects qualified by adjectives, quite significantly more than *voller* (12.59%,  $p < 2.2e-16$ , odds-ratio 1.608). In other words, the difference in the likelihood of adjectives between *voller* and *voll mit*, which are semantically interchangeable, is larger than the difference between either *voller* or *voll mit* and nouns at large. It therefore seems fair to say that *voller* is quite conspicuously avoided when adjectives are used, suggesting the beginning of a quantitative suppletion (if an adjective is to be used, prefer *voll mit* rather than *voller*).

The difficulty in incorporating adjectival modifiers into phrases serving as objects to *voller* can also be observed if we look at language forums.<sup>11</sup> For example, the discussion reproduced below was started by the question how the adjective

**11** One reviewer has objected to the inclusion of forum data as relevant evidence. However, I feel that it makes several unique contributions as a source of data, which will be shown below: it establishes that some aberrant forms are not merely typos, but are actually defended explicitly by some speakers; it makes it clear that speakers do not have a clear view of what the 'correct' form is (this would look very different for less controversial constructions); and it shows us some examples for speakers' attitudes to the different forms under the singular and plural conditions, together with some of the reasons why they prefer one form over the other.

*warm* ('warm') can be added to the argument *Wasser* ('water') after *voller* (in fact, the question itself is already a sign of the difficulty). As far as I can tell, all participants use correct native German, with the possible exception of D, who uses one form that conforms to no accepted case pattern (D otherwise uses fluent German though). My own comments and additions are in square brackets, and the translation is my own; the participants' user names have been replaced with letters for identification:<sup>12</sup>

[Topic:] Badewanne voller warmen Wassers [=Bathtub full of warm water-GEN]

A: [...] I'd like advice on the following expression. Is it right to write/say "Eine Badewanne voller warmen Wassers" [=genitive]?

B: Hm, I'm not sure. I would say "Eine Badewanne voll mit warmem Wasser" [=voll + mit + dative]. Without the adjective it would be "Eine Badewanne voller Wasser" [=non-genitive base form]. But how one gets the adjective in there – no idea.

C: I would say: voll warmen Wassers. [=voll + genitive]

[...]

D: [...] I think the following: Eine Badewanne voll warmen Wassers. [=voll + genitive] [or] ... voll Wasser [=non-genitive base form] [or] ... mit warmen Wasser [=??]. I see "voller" as a comparative form. Too full. What does fuller than full mean?

E: My suggestion: Eine Badewanne voll warmem Wasser. [=voll + dative]

F: No, they're both wrong. Either: Eine B. voll warmen Wassers. (more literary version) [=genitive] Or: ... voll mit warmem Wasser. (more colloquial) [=voll + mit + dative]

B's grammar seems to accept *voller* arguments without the adjectival modifier, but not with it ('no idea' how to form the requested phrase). B instead resorts to the (quantitative) suppletion strategy outlined above, using *voll + mit* (which clearly governs the dative, by virtue of the argument structure of *mit* ['with']). C also chooses an avoidance strategy, choosing *voll + genitive*. D's grammar does not contain the *voller* construction at all, interpreting it as a comparative of *voll*. This raises questions about D's native speaker status, though some 'scholarly' normative attitudes also reject it, as another website would have it:<sup>13</sup>

[A viewer] wants to know, how you use *voll* correctly in a predicate. Which of the following sentences is correct?

<sup>12</sup> Translated from <http://forum.pons.eu/en/forum-german-english/german-grammar/badewanne-voller-warmen-wassers-t2729.html>, last accessed on April 24, 2018.

<sup>13</sup> My translation from <http://www.belleslettres.eu/artikel/genitiv-adjektiv-voll-eingedenk-bar.php>, last accessed on April 24, 2018.

Sie war voller Tatendrang. [=she was full of the urge to act, *voller* with no suffix on noun]

Sie war voll Tatendrang. [=she was full of the urge to act, *voll* with no suffix on noun]

[The correct answer is] Sie war voll Tatendrang. Where *voll* occurs in the sentence doesn't matter [...] like all predicate nouns it stands in the nominative. Adjectives have no ending here.

The same site also continues to prescribe that the object noun's form (with *voll*) should be in the genitive. If we return to the forum discussion above, we find that E, who also avoids the construction with an adjective, contradicts this recommendation: unlike C and the writer of the website above, he chooses dative instead of genitive with *voll* as the construction of choice once an adjective is used. Finally forum user F avoids *voller* with an adjective as well and accepts either genitive complements with *voll* or else *mit* 'with' with the dative, again the suppletive strategy, which F labels as 'colloquial'.

On another forum we find a much higher acceptability of adjectives and a tendency to prefer genitive in all cases, possibly as a result of the genitive's status as prescriptively superior in other dubious cases in German grammar (cf. the high register of *wegen* + genitive in Section 2). Note that comments in round parentheses are in the original:<sup>14</sup>

[Topic:] voll / voller -> case?

G: Hello, Suppose someone wanted to write that there is a suitcase in which many evil horrors are hidden (whatever that may mean). Must it be called "Koffer voller böser Gräuel"? [=suitcase full evil horrors, genitive form]. If yes, why? If no, why not? How else? Thanks

H: It doesn't have to [be called that], but it can. [...] Because it sounds better, for my ears anyway. "voll" would probably be the less common alternative, I only know that from "eine Handvoll Dollar", [=a handful of dollars] which has degenerated to "eine Hand voll Dollar" in the meantime. [This etymology is incorrect, *voll* has existed independently from compound forms as an adjectival modifier]

I: [...] I would see it as a partitive genitive. For example in the European Cup in Vienna there was a "Stadion voller Nackter" [=stadium full of naked (people), genitive adjective inflection]

J: The term 'voller' means 'voll der' [full + genitive singular/plural(?) article], 'filled (with)' and is an undeclined adjective (!), which also cannot form the comparative; the noun following it is also not declined:

Maria ist voll der Gnade [=Mary is full of grace, genitive with article after *voll*]

Maria ist voller Gnade [=Mary is full of grace, *voller* and 'undeclined' argument]

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<sup>14</sup> My translation from <http://www.wer-weiss-was.de/theme143/article4659734.html>, last accessed on April 24, 2018.

Maria is who or what? Voll der Gnade. Voller Gnade. (= Predicative)

Der Koffer war voll der bösen Gräuel. [Genitive plural article and adjective after *voll*]  
 Der Koffer war voller böse Gräuel. [*voller* and an 'undeclined' nom./acc. adj. + noun]

The opinions are remarkably heterogeneous, but one thing is clear: attributive adjectives do not sit well in this construction with many speakers. It seems that people like A or G who hypothesize that *voller* should also be usable with an adjective, are responsible for the 12.5% of examples we did find above (and quite possibly some come from speakers denying the possibility as well). Some people, like H and I, find them fine or even recall attestations of the construction that they have seen. Nevertheless, people like B–F, who actively avoid the construction with adjectives, are the reason for the paucity of such examples. Finally, people like J believe that the argument following *voller* is 'not declined', leading to a nominative/accusative-like form in *böse Gräuel*. This behavior seems odd, but is actually consistent with the evidence from the overwhelming majority of bare noun cases and also fits with the evidence from the aberrant *n*-stems.

Returning to the corpus data, we may now examine the adjective forms that do occur after *voller* quantitatively. As syncretisms make it impossible to tell case unambiguously in all cases, we may begin by looking at the suffix forms that adjectives take. In the singular the possibilities are *-m* for dative non-feminine, *-n* for genitive or accusative non-feminine and *-r* for dative-genitive feminine (ambiguous) or nominative singular masculine. The conceivable suffix *-e* for nominative/accusative feminine singular is not attested. The suffixes exhibit the frequencies in Table 4, which shows a strong preference for *-r* in both numbers. Since *-r* is the feminine suffix for both dative and genitive, it could be expected to be half as frequent as *-m* and *-n* together (two cases of two genders), but in fact it is over three times as common.

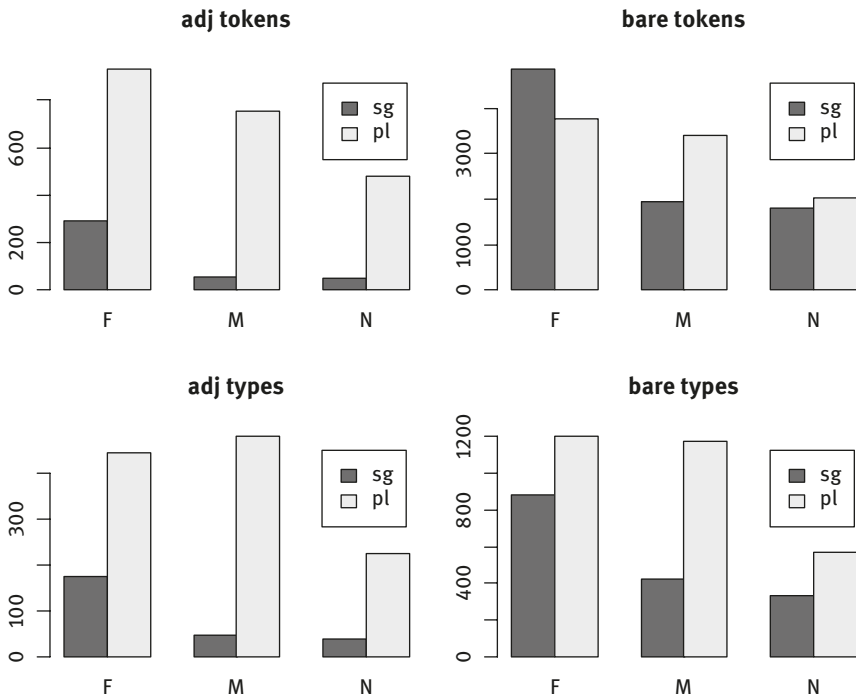
This is even more striking if we consider that *-m* and *-n* come from two separate genders (masculine and neuter), so that the strong preference for *-r* also suggests that feminine objects qualified by adjectives outnumber the other genders

**Table 4:** Frequencies for adjective suffixes in arguments of *voller*.

suffix	singular		Plural	
	tokens	types	tokens	types
<i>-m</i>	65	53	-	-
<i>-n</i>	27	23	23	23
<i>-r</i>	314	190	2138	1025
<i>-e</i>	-	-	2	2

very strongly. This could be due to general facts of morphology (if there are more feminine nouns in German), or due to semantics (things that fill other things happen to be signified more often by feminine nouns in German). But what we would not expect, all other things being equal, is that arguments with adjective attributes should have a higher proportion of feminine lexemes than bare arguments. Yet this is very clearly the case, as seen in the overview of the distribution of object genders with and without adjectives in Figure 3.

Two facts seem particularly striking in the data in Figure 3. Firstly, singular objects exhibit a dramatic drop in relative frequency compared with plural objects as soon as adjectives occur.<sup>15</sup> Secondly, feminine nouns are proportionally less affected by this drop, corresponding to the prevalence of the *-r* suffix in

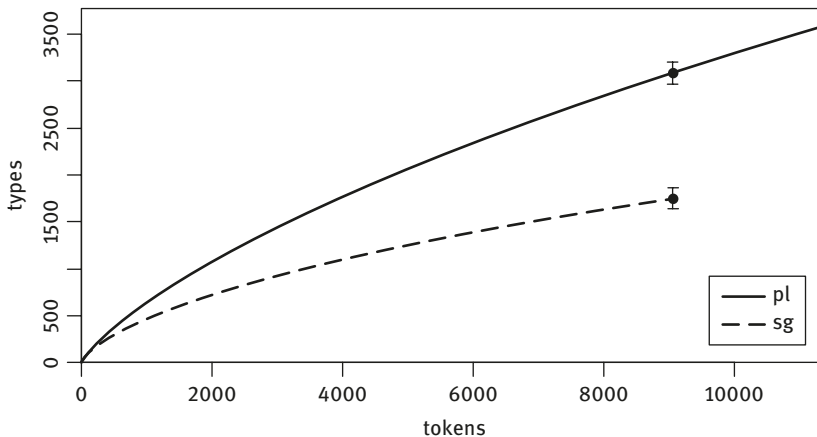


**Figure 3:** Type and token frequencies for objects of *voller* in each gender with and without attributive adjectives.

<sup>15</sup> Note that the absolute numbers for adjective-qualified objects on the left is much lower than for the bare objects on the right, but the issue here is the shape of the distribution: on the left hand side the singular bars are substantially smaller in relation to the plural bars.

Table 4.<sup>16</sup> This suggests that the forms being asked about by forum user A above are the most problematic (*Wasser* ['water'] is singular and non-feminine). The question posed by G is less problematic (*Gräuel* ['horrors'] is plural). It may therefore be more than coincidence that the respondents to G's question are less reluctant to accept adjectival modification in general.

But why are plural arguments less problematic? One possibility is that the genitive-compatible plural forms sound more correct because of the higher register associated with the genitive in prepositional phrases. This explanation is, however, not entirely convincing, since non-feminine singular forms in general are recognizable as non-genitive even without an adjective, so the problem should occur with bare nouns as well. A second possibility which I would like to suggest here is that singular arguments are less productive than plural ones in this construction, which leads to conservatism or an unwillingness to innovate or vary the form of the argument. We have already seen that there are fewer lexical types of bare singular objects. Figure 4 gives more detailed information on the productivity of *voller* arguments using a vocabulary growth curve (VGC, see Baayen 2001, Evert and Baroni 2007).



**Figure 4:** Vocabulary growth for singular and plural arguments of *voller* with 95% confidence intervals for the largest common sample size.

<sup>16</sup> An anonymous reviewer has suggested that phonetic parallelism may also be a factor in the preference of *-er* adjectives, since the preceding *voller* itself ends in *-er*. This possibility exists and is hard to disentangle from the morpho-syntactic explanation offered here, though this would imply the perhaps surprising suggestion that speakers should generally disprefer prepositional object phrases that are dissimilar to a given preposition. I am not aware of such results having been reported yet, but it is certainly an interesting suggestion which merits further study.

The x-axis gives the size of the sample of *voller* arguments which we observe, with one curve for singular arguments and another for plural arguments. Each curve rises along the y-axis each time a previously unseen argument noun is encountered, which becomes progressively less likely as more and more nouns are seen in the sample. As we can see, there is more data for plural arguments (the curve is longer). But a fair comparison between curves can only be performed at an equal sample size, since it gets progressively more difficult to find novel arguments the more data we have seen (cf. Gaeta and Ricca 2006, Säily 2011). The error bars shown in the figure give 95% confidence intervals for the difference between the two curves at the largest common sample size of 9061 items. At this point there are 3086 different plural arguments, but only 1751 singular ones, a highly significant and rather large difference in vocabulary ( $p < 2.2e-16$ , odds ratio = 1.762). Argument distributions that are more repetitive and exhibit fewer unique items lead to speakers preferring alternative constructions when a novel argument is to be used (see Zeldes 2012 and 2013 for more details). This may be at least partly responsible for the lower acceptability of adjectives in singular argument phrases.

### 4.3 Data from first language acquisition

A final point worth considering before moving on to a theoretical discussion of the data is how the odd behavior of *voller* witnessed above is acquired, and why speakers come to exhibit variation at all given the overwhelming prevalence of the largest group of cases found in Section 4.1. To do so, we may consult a further source of data: corpora of children's writing. As the *voller* construction is quite rare, it is difficult to find spontaneous cases in the smaller corpora of child speech that are available. The earliest attestation I have been able to find in a spoken corpus is the following from a six year-old girl:

- (32) (discussing why Wiener Street is called that)  
*oder is da alles um nur **voller metzger**?*  
 'or is everything around there only full of butchers?'  
 [DGD2 Folk corpus, FOLK\_E\_00011\_SE\_01\_T\_02]<sup>17</sup>

<sup>17</sup> For the corpus see the IDS Datenbank für Gesprochenes Deutsch (DGD2), accessible online from <http://dgd.ids-mannheim.de/>. Full lowercase transcription is from the original data.

Notwithstanding the preceding disfluency (change from *um* to *nur* ['only']), this is a classic example of the suffixless bare noun plural that characterizes the largest group of types for the construction. Treating the form as a genitive plural is likely unwarranted at this stage, as studies show that children up to the age of 7 are unreliable in recognizing case marking on non-pronominal NPs even for coding the very common categories of subject and direct object (e.g. Dittmar et al. 2008). Nevertheless, the construction is used correctly by placing an unmarked plural form after *voller*: the child does not need to know which case is present in order to use the construction just like adults.

In order to find more examples we must turn to larger, written corpora. A suitable corpus has been collected within the KESS project,<sup>18</sup> containing texts written by German school children of various ages. One of the assignments given to the fourth grade children's group (KESS4) was to write a story beginning with the sentence 'the children have found a mysterious suitcase', which fortunately lends itself to the appearance of the *voller* construction to describe the contents of the suitcase. Of 40 examples found in the corpus, 34 adhere to one of the common bare patterns (singular or plural bare objects). Two examples have adjectives with *-r*, one for a feminine singular (dative or genitive) and one for a feminine plural (genitive). The remaining examples contain accusatives and something like Hermann Paul's 'strange mixtures', three of which are given verbatim below (with errors).

- (33) *Der Koffer lag in einer Ecke die voller Spinnetze und anderen ekligen gruseligen Sachen* 'The suitcase lay in a corner which full of cobwebs [non dative] and other yucky gross things [dative]' [KESS4, KF10110214]
- (34) *da waren ales voller altes Geld* 'everything there were full of old money [nom./acc.]' [KESS4, KF10170116]
- (35) *in diesen Koffer war alle foller Gold, Platin, Diamanten und Silber, Juwelen und noch vieles mehr.* 'in this suitcase everything was full of gold, platinum, diamonds and silver, jewels [all unmarked, non-dative] and much more [nom./acc.]' [KESS4, KF11600113]

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**18** Kompetenzen und Einstellungen von Schülerinnen und Schülern 'Competences and Attitudes of Schoolgirls and Schoolboys', Landesinstitut für Lehrerbildung und Schulentwicklung, Referat Standardsicherung und Testentwicklung, Hamburg (<http://www.liq-projekte.de/kess-korpus/>). I thank Jasmine Bennöhr and Burkhard Dietterle for making the data available to me.



All of the examples contain grammar and spelling errors, and as a handful of qualitative examples they have limited relevance. But next to the evidence we have seen so far they illustrate how unclear a picture the data can give language learners, even at the relatively late fourth grade level.

In (33) we find a genitive-like (suffixless) *Spinnetze* ('cobwebs') coordinated with an apparently dative phrase headed by *Sachen* ('things'). Note, however, that *Sachen* ends in *-n* in all cases, meaning it is the bare unmarked form; it is possible that the dative adjective endings *-n* are chosen by way of attraction or subconscious consonance (in the literary sense). In (34), the noun *Geld* ('money') is unmarked but a nominative/accusative adjective form is chosen for *alt* ('old'). This can either be due to the understandable inference that *voller* governs the accusative, or simply a preference for a more frequent or entrenched 'chunk' form *altes Geld*. The latter explanation could equally apply to the final coordinated argument in (35), *vieles mehr* ('much more'), commonly seen in this nominative/accusative form in the frequent phrase *und vieles mehr* ('and much more, etc.'). as it stands, the data cannot be evaluated unequivocally, but it suggests that the case governed by *voller* is less than obvious for native speakers even in the late stages of first language acquisition.

## 5 A Sign-Based Construction Grammar Analysis

As we have seen, there is considerable variation in usage and introspective acceptability for different variant constructions with *voller*, and deriving 'the right rule' is anything but simple for speakers. Within the domain of standard, Case Theory conforming methods, the simplest uniform description of the evidence for adult usage so far is probably this: *voller* takes an NP argument (including possible adjective modifiers) with no determiner, in the dative case in the singular and in the genitive case in the plural. Notwithstanding the oddness of such a singular/plural split in case assignment for German, this is the most economic deterministic rule covering the most cases.

However, a number of facts remain unexplained by this description: why should attributive adjectives be rare in this construction, but much less so in the synonymous one with *voll mit*? Why should the effect be mitigated for feminine singulars? If case is robustly defined for both numbers (dative singular, genitive plural), why are adjectives felt to be difficult or questionable ('no idea' how to get them into the construction, cf. Section 4.2)? Why do we find deviant case forms in both numbers, including ones that are neither dative nor genitive (*voller böse Gräuel* ['full of evil horrors'], defended on a grammar forum as correct next to *voll*

with genitive)? Why are there signs of a preference to use the explicitly nominative form of *n*-stem nouns, such as (*voller*) *Glaube* ('belief, faith'), *Lebenswille* ('will to live') etc., and some attestation of nominative/accusative plural forms for deadjectival nouns? In the following I would like to suggest an analysis that accounts for these facts, making use of the additional mechanisms offered by the constructional approach and the formalism of Sign-Based Construction Grammar.<sup>19</sup>

The analysis hinges on the idea that the most important rule for the object of *voller* is based on prototypes such as the common *voller Freude / Wasser / Kinder* ('full of joy / water / children') etc., where the argument is identical to the uninflected lemma form or else the unmarked plural form, without additional case suffixes. These forms lead to the acquisition of the informally expressed constraint in (36).

- (36) The argument of *voller* should carry no suffix except for possible plural marking.

This rule can be made responsible for a wide range of facts: the choice of singular form (the apparently dative form is unmarked in all genders) and plural form (genitive plural carries no suffix beyond the plural suffix); the derivation of adjective forms compatible with other cases, as long as these are not marked (unusual examples like *böse Gräuel*); and the preference for the *n*-stem form without the accompanying suffix. As long as no adjective is used to qualify the nominal object, and in the absence of a determiner (which is impossible in the construction), I suggest that the argument noun is in fact unmarked for case, resulting in a 'caseless' prepositional construction. This is certainly a break with the assumptions of Case Theory, but it allows us to explain how one and the same head, *voller*, can require two different cases based on the number of its object, which in most non-constructional theories should not be visible to *voller* at all. In the present analysis, the argument of *voller* is not marked for case, resulting in the 'barest' possible form being preferred, without any stipulations about case assignment being made depending on properties of the object.

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<sup>19</sup> An anonymous reviewer has questioned the usefulness of a formalization in SBCG on the grounds that it does not capture the quantitative and prototypical usage-based aspects of the analysis above. This is without a doubt a *prima facie* limitation of many formalisms, though of course probabilistic models and data-driven grammar induction techniques can be applied to most formalisms all the same. Regardless of such endeavors, I believe that formalizations are a useful way of making our analysis explicit and comparable to other analyses, and that they do not detract from, but rather complement the quantitative data-based account.

The suggestion that there may be some nominal phrases in German which have no case is also by no means new, going back at least as far as the historical grammar of Erdmann and Mensing (1898). Some of the cases discussed include ‘formulaic’ expressions resisting inflection, as in (37), or the partitive genitive in so called ‘transparent nouns’ (cf. Fillmore and Sato 2002) giving units or quantities as in (38)–(39). Sommerfeldt and Starke (1998: 101) also discuss similar cases involving temporal expressions, as in (40). Note that in most plural cases, the unmarked form of the noun is again ambiguous between all non-dative cases as in (38), but in the singular the fluctuation between genitive -s (usually only in high registers) and a lack thereof can be observed in non-feminine nouns (39).

- (37) *zwischen Affe und Mensch* (‘between monkey and man’) (the nouns should be dative after the preposition *zwischen* and take a suffix -n, Erdmann and Mensing 1898: 118)
- (38) *eine Menge Leute* (‘a lot of people’) (‘people’ is any case but dative)
- (39) [*ein*] *Becher Wein/Weins* (‘a cup of wine’) (unmarked vs. archaic/literary genitive, see Erdmann and Mensing 1898: 102)
- (40) *Ende April /??Aprils* (‘end of April’) (the genitive -s is probably unacceptable to most speakers of German today, though cf. the genitive with a determiner: *Ende diesen Aprils* [‘end of this April’]).

The unmarked case forms found in all of these constructions are sometimes called *Gemeinschaftskasus* ‘common case’ or *monoflexiv* ‘monoflexive’ (cf. Sommerfeldt and Starke 1998: 101), though Admoni (2002 [1961]) discusses extensively the possibility that all of these cases exhibit special uses of the regular nominative. However this view does not explain all cases, as we can see in the alternations in (41)–(42). As soon as adjectives are introduced into the equation, explicit marking of the nominative is often avoided, especially in favor of the genitive which is missing in the unmodified case (Admoni 2002: 241 does not seem to feel that this undermines the analysis of the other cases as ‘nominative’) or else is restricted to poetic language (as in *Becher Weins* above).

- (41) *und wir sehen eine Menge junge Männer, die schon vor uns dort zusammengekommen sind* ‘and we see a lot of young men who already got together there before us’ (nom./acc.-like adjective form *junge* ‘young’) [deWaC, position 767233879]

- (42) *Diese Etablissements beschäftigen eine Menge junger Mädchen* ‘These establishments employ a lot of young girls’ (gen. form *junger* ‘young’) [deWaC, position 804176876]

This fact did not escape Mensing either, who writes: “*The genitive is necessary when the substance specification is connected with an adjective*” (Erdmann and Mensing 1898: 102).<sup>20</sup> More recently it has been suggested that the presence of adjectives interacts in a similar way with the possibility of dropping a variety of ‘weak’ case endings, including in the case of the *n*-stem nouns discussed above (see Gallmann 1996; for criticism and an OT analysis of the facts see Müller 2002).

What happens when an adjective is admitted into the construction with *voller*? Is our case of *voller* similar to the ones above? Key differences between *voller* and the latter cases are firstly that *voller* is productive (not limited to ‘formulaic’ prepositional phrases discussed by Mensing and Admoni), secondly that it rejects determiners and thirdly that both singular and plural arguments follow it regularly, creating the clash between dative and genitive readings of the unmarked noun form. An attributive adjective forces case marking to be realized in the object NP; no matter which case is chosen, it can no longer remain unmarked for case. It is my suggestion that this is precisely the decisive factor for the difficulty of integrating an attributive adjective: reconciling the adjective’s case marking with the unmarked nominal argument. If the difficulty in introducing an adjective is overcome and the construction including an inflected modifier is deemed acceptable, I suggest that the adjective form is chosen to accommodate the already pre-determined (bare) form of the noun. This is expressed informally in (43):

- (43) Attributive adjectives take a form that is reconcilable with their nouns.

This constraint is not specific to *voller*, as adjectives generally agree with the nouns they modify. What is unusual is that in the absence of clear case marking on the noun, the adjectives are left to select a form that is more or less ‘inoffensive’. While genitive fits this profile in the plural, in the singular it does not, causing the distribution of the case variation we have witnessed.

What the two rules thus far do not explain is why we do not see a preference for nominative/accusative forms in the adjectives (though certainly *voller böse Gräuel* ‘full of evil horrors’ embodies such a result). To answer this question we must return

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<sup>20</sup> In German: “*Notwendig ist der Genitiv, wenn die Stoffangabe mit einem Adjectivum verbunden ist*”. In fact one often finds non-genitive cases even with adjectives, as shown in the previous example above.

to a constraint already mentioned in the beginning of the discussion: German PPs (and other non-copular heads) do not generally govern the nominative, which is reserved for the marking of subjects and nominal predicates. The other option, the accusative, is governed by prepositions, but mostly with a lative sense of movement towards the object. The use of the genitive with *voll* in much the same sense as the partitive genitive in the archaic *Becher Weins* ('glass of wine') suggests that the semantics of filling may be at odds with the accusative. Additionally, if the bare form were more like the accusative and not just the form with the fewest possible suffixes, the appearance of bare *n*-stems, which are not compatible with the accusative, would be left unexplained. If the *voller* construction were a subtype of non-lative PP, we might therefore expect the following constraint to apply:

- (44) Avoid nominative case marking in PP arguments and also accusative case marking in a non-lative PP.

With these constraints in mind it is time to ask how we may capture the facts in a formal way, given that the *voller* construction behaves like a PP in some ways but not in others. To represent the constraints I use Sign-Based Construction Grammar, which has several useful properties in the present context, beginning with the mechanisms of inheritance and unification. The first task is to explain the position of *voller* with regard to prepositions in general. Clearly, in some ways *voller* behaves very much like a preposition: it has an overt obligatory argument, it can be used predicatively, adverbially and adnominally and it expresses relational semantics between an internal argument and the external phrase it modifies. In the context of case marking I have also suggested that the dispreference of a nominative/accusative case interpretation for the internal argument may be motivated by the behavior of other (non-lative) prepositions. These facts can all be captured using inheritance from a general construction common to all of these lexemes. At the same time, there are some crucial differences: most importantly, determiners are completely ruled out for the internal argument NP, unlike in other German PPs. Additionally, the case assignment behavior is complex and unusual, somehow depending on the form of the object phrase. Figure 5 offers an SBCG analysis of the inheritance of *voller* from a generalized non-lative preposition, where the lack of object determiner is an additional feature specified for the *voller* construction. The volatility of object case is only addressed in the inherited constraint against nom./acc. forms at this point.

The entry for *nonlat-prep-lxm* is relatively simple, containing few constraints. It has two arguments: the internal argument NP<sub>j</sub> corresponding to the object of the preposition, and an external argument, NP<sub>i</sub>, which is not saturated within the PP. The external argument codes an NP for the PP to modify, setting up typical

non-lative preposition lexeme (↑ preposition lexeme)

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**Figure 5:** SBCG entry for *voller* and its inheritance from non-lative prepositions.

relational semantics realized by prepositions, such as the ‘locative relation’ frame.<sup>21</sup> The internal argument must be overtly realized to produce a grammatical PP and forms part of the open valency list of the preposition. The preposition further constrains the case of its argument: it may not be nominative, a constraint inherited from the general preposition lexeme construction (not depicted), nor may it be accusative, a constraint more specific to German non-lative prepositions.

The *voller-lxm* matrix below inherits these constraints, which are repeated for convenience only, but adds specific information about its own lexical identity (a preposition of the form *voller*), the associated frame *fullness-fr*, and most importantly for the present discussion, two further constraints on the internal argument: a feature demanding the argument be ‘unmarked’ (+unmk) and a feature ruling out determiners.<sup>22</sup> The feature value specifying ‘unmarked’ marking has been put

<sup>21</sup> E.g. adnominal *A in B*, predicative *A is in B*, etc., where *A* corresponds to the frame-semantic FIGURE argument of the frame and *B* is the GROUND. Cf. the entry for the locative relation in FrameNet [https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Locative\\_relation](https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Locative_relation). See also Hole (2013) on some specific semantic properties of *voll/voller* and their arguments in German and some differences as compared to English.

<sup>22</sup> It would be equally possible to code the determiner constraint in the type hierarchy, by allowing *voller* to govern a different type of phrase. In a DP analysis following Abney (1987) etc.,

to different uses in SBCG as well as HPSG, relating mostly to definiteness marking and strong/weak adjective inflection (van Eynde 2006), but also comparative and equative marking (see Sag 2012: 86–87 for an overview). I will re-use this feature here to enforce the form of the noun discussed above: the head noun of the internal NP object is required to have no case marking affixes, such as the non-feminine genitive singular *-s* or dative plural *-n*.<sup>23</sup> To rule out determiners, a new feature will be required, which will be coded below simply as *DET*. This type of feature is non-trivial, since it allows us to ‘look into’ the NP from outside and check for determiners, but it is necessary if we maintain that *voller* is a type of preposition.<sup>24</sup>

With these constraints in place we may see what happens when we attempt to unify the features of *voller* with those of its argument NP, with and without an accompanying modifier. In the simple case of a bare noun argument, there is no conflict between the NP construction and the specification demanded by *voller*, as shown in Figure 6.

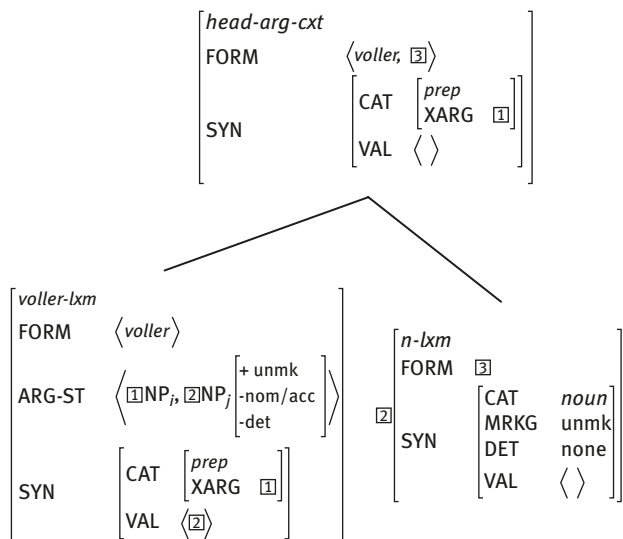
At this point, the head noun simply complies with the requirement to carry no marking and reject determiners. Note that since there has been no positive case marking constraint imposed by *voller*, no actual case is being assigned by the argument structure. Case instead arises ‘by elimination’ from the ruling out of nominative, accusative, and either genitive or dative depending on the number of the noun. Hence, we are dealing with a special type of ‘caseless PP construction’ in which

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this would be an NP instead of the DP argument taken by most PPs. However SBCG, just as HPSG, generally opts for NP analyses (see van Eynde 2006, Sag 2012), and this is actually a better fit for the analysis of *voller*: the distinction between DP and NP arguments would make a direct inheritance from the PP construction problematic. In the analysis above it is therefore possible to reconcile the idiosyncratic syntax of *voller* with its identity as a special type of preposition, and get the avoidance of nom./acc. arguments in the bargain.

**23** The sense of ‘unmk’ is extended here to specifically exclude inflectional suffixes, and not just the absence of definiteness information as in van Eynde (2006). Alternatively it is possible to use a new value of *MARKING* to code exactly this sense. An anonymous reviewer has suggested that this feature, unlike van Eynde’s and Sag’s *MARKINGS*, would have to be housed in *SYN|CAT|CASE* and not in *SYN* in order to be allowed to determine case forms. That is, however, not the intention of the present analysis: ‘unmk’ is not a case value, but a morphological stipulation, much like weak/strong inflection marking. The argument of *voller* may receive any grammatical case not at odds with its *CASE* feature, but if this then leads to affixation (which depends on the gender and morphological class of the noun, not on case *per se*), the features clash and the form is ruled out.

**24** An alternative would be to postulate that *voller* itself saturates a determiner *XARG* of the noun, much like fused preposition + article forms of the type *zum* (‘to the’) < *zu+dem* (I thank Stefan Müller for commenting on this point). A problem with this analysis is that the resulting argument is not interpreted as definite: *voller Wasser* (‘full of water’) need not imply some specific quantity of water. It is nevertheless possible to adopt this analysis as a purely formal device, but bringing the construction in line with fused article forms seems to me to misrepresent the difference between the two cases.



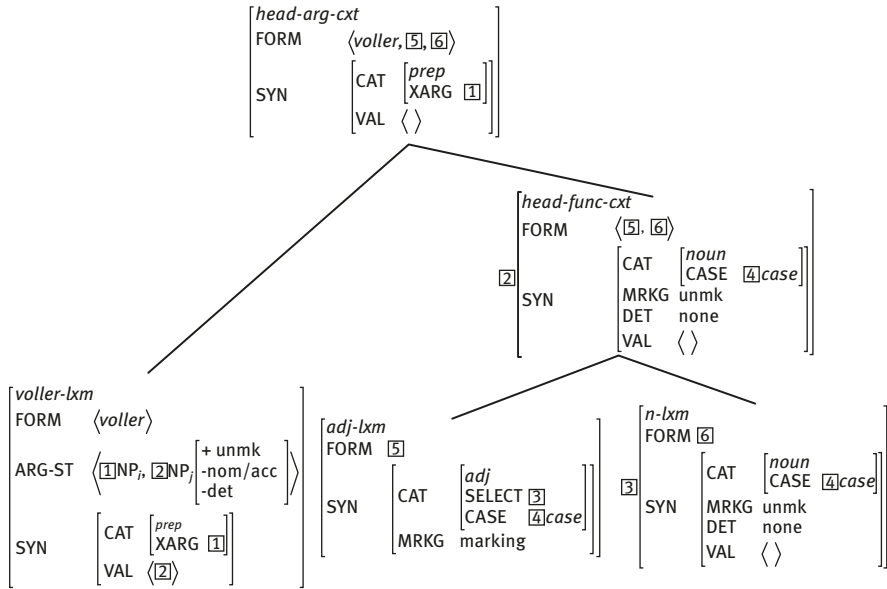
**Figure 6:** The *voller* construction with a bare argument.

case emerges indirectly. This part of the analysis may seem controversial, but the alternatives are all problematic themselves: either the number feature of the object changes the case imposed by its governing construction, in direct opposition to the normal notion of case assignment (in general, and in German in particular); or we are dealing with a nominative/accusative object, a solution which will cause exactly the same problem once we introduce an adjective into the construction. In that case the existence of an NP internal modifier ‘convinces’ the governing construction to demand a different grammatical case based on the internal constituent structure of its object. The suggestion that *voller* assigns no exact case seems odd at first, but intuitively it is hard to say which case it governs otherwise, just as in the case of transparent nouns like *eine Menge Leute* (‘a lot of people’) and *Ende April* (‘end of April’) above. This also fits the intuitive explanation offered by forum participant J in Section 4.2 above to the effect that objects of *voller* are simply not declined.<sup>25</sup>

The final step of the analysis involves combining the noun with an NP internal adjective modifier, which is sketched out in Figure 7.

<sup>25</sup> In fact, though it seems possible that speakers have no idea of a specific case being in evidence after *voller*, in the formal representation case is already determined by the negotiation of constraints, at least for non-feminine singulars: the case is implicitly dative or genitive to avoid suffixation. In feminine singulars, dative and genitive both do not confer suffixes, meaning truly underspecified case is conceivable.





**Figure 7:** Fusion of *voller* and an NP argument with an adjective modifier.

The fusion of the adjective in *adj-lxm* causes the first major problem for *voller*, which may be seen as a reason for the lower acceptability of adjective modified arguments found in forum discussions and also the significantly lower frequency of adjectives as compared to semantically equivalent competitors in Section 4.2. An attributive adjective in a determinerless NP is forced to take one of the strong forms discussed above, which have an explicit case marked suffix; this is mirrored by the MRKG value ‘marking’. An adjective’s case must agree with that of its noun (the co-indexed value 4), and as it is no longer possible for there to be no case marking at all, a form must be found that accommodates both the need of the adjective for marking and the need of the noun for the lack of marking.<sup>26</sup> At the same time, the *voller* construction is incompatible with nominative and accusative forms, which were ruled out as a result of its inheritance from *nonlat-prep-lxm*. The only possible result compatible with objects of all three genders is therefore dative in the singular and genitive in the plural, the distribution found in the overwhelming majority of cases.

<sup>26</sup> There are sadly no cases of adjective-modified *n*-stem nouns; the analysis of syntactically determined case morphology drop found in Müller (2002) suggests that we can expect a prevalence of *n*-marking in such cases, since the adjective marking will correspond to a marking on the noun.

As a final point for this analysis it is worth considering what happens in the unusual, minority cases. In those instances where a dative plural or genitive singular is marked on the noun as well, it seems reasonable to assume analogy to the other number category: speakers extend the case assignment inferred most often for plural or singular and apply it to singular or plural respectively. In these cases a usage-based account would postulate entrenchment of number-specific exemplars, which are used as prototypes for a schema assigning specific case: *voller* comes to govern the dative or genitive consistently for some speakers. If a speaker varies between both models (variable assignment and analogical/consistent assignment), it may be said that the schemas compete for dominance. This account is probably uncontroversial from a usage-based perspective, but is harder to put into formal terms. In a formalism like SBCG, we will have to stipulate further constructions for each behavioral scenario in a somewhat ad hoc manner, but these would then be able to compete, e.g. in a probabilistic implementation of a grammar.

The more interesting cases are perhaps those of unusual inflectional classes, such as the *n*-stems and nominalized adjectives discussed in Section 4.1. In both cases, I do not believe that the variability in the data requires a different analysis than the one above as such. The nominative-like absence of *-n* in *voller Aberglau**be* ('full of superstition') and *-r* in *voller Verrückte* ('full of crazy [people]') could be seen as a different interpretation of the generalization that the argument of *voller* should be 'unmarked' or suffixless. Some *-n* stems have generally developed alternative forms with *-n* (*Glaube(n)* ['belief, faith']), though in the nominative the contrast *-e/-en* is still used to distinguish number. It is also possible that a form like *Aberglau**be* is preferred because it emphasizes the singular number of the argument ('full of superstition', as opposed to a plural number of 'superstitions'). For deadjectival nouns, the question may also be to what extent the argument lexeme is still processed as an adjective, as the overwhelmingly more common *-r* form implies that these continue to require morphological marking even after the nominalization process. In the present analysis these are seen as different views on what 'unmarked' means. Both of these classes of arguments deserve further study, though perhaps in experimental settings, seeing as they are produced so rarely even in large amounts of spontaneous corpus data.

## 6 Conclusion

This chapter has surveyed data on an unusual family of constructions in German, involving the word *voller* ('full of'). As it turns out, *voller* is most similar to

a preposition, but has two anomalous properties with regard to the object it governs: it is incompatible with determiners of any kind, and it assigns a different grammatical case with differing frequency depending on properties of the object phrase itself: especially its number (dative singular vs. genitive plural) but to some extent also its morphological class and whether or not the head noun is modified by an adjective. We have seen both corpus data and introspective statements to the effect that adjectives do not ‘sit well’ in the construction, with some forms being clearly avoided. For example, even though non-feminine singular arguments are very frequent and compatible with a dative analysis for the most part, non-feminine nouns with dative adjectives are much rarer than they should be. This type of ‘differential object marking’ based on number is otherwise unknown in German and constitutes a substantial problem for traditional analyses of the Case Theory type. A constructional approach, by contrast, has fewer problems representing constructions with such a ‘form’ side, and a possible way of formalizing the analysis using the framework of SBCG has been suggested.

Section 4 above has also mentioned some other problematic German case phenomena briefly, which have been known for some time under the heading of *Gemeinschaftskasus* (‘common case’) or the term ‘monoflexive’, but have yet to receive sufficient attention from theoretical frameworks. These include especially the behavior of ‘transparent nouns’ or measure nouns for temporal and physical quantities. I believe that these cases all involve reflexes of prototype based learning of constructions, which, in a great majority of cases and in the absence of a determiner, do not mark any particular grammatical case on nouns. The behavior of both adult and child data in Section 4, and perhaps even more so the grammar forum discussions, suggest that speakers simply witness proportionally too many instances in which case is completely indiscernible to make a stable generalization of the type we might expect in a traditional analysis of the case-per-construction sort. Instead, case marking is only decided on once speakers are forced to choose a form, essentially almost only once adjectives come into play. The rest of the time, case marking is not required, and speakers presumably neither analyze it nor actively decide on it. They use the construction in a semantically appropriate way and use the generalization that the noun form should be its base form to generate output, which makes the construction productively available already to six-year-olds who have yet to master the case system of the language (Section 4.3).

As an explanation as to why usage consistently centers on the generalization ‘dative singular : genitive plural’, I have suggested that constraints imposed by the base-form nouns, strong adjective morphology and the semantics of case in German PPs coincide to produce a behavior which is reconcilable with the network of constructions available to the speaker. This type of analysis seems particularly suited to explaining why the accusative generalization is hardly ever made

(though it is also in evidence in the data). At the same time, it is superior to saying simply that speakers acquire the dative singular / genitive plural split exclusively from the data (e.g. just by hearing some unambiguous singular and plural cases with adjectives), since it accounts for the fact that other forms are occasionally found in the data, for some of the introspective explanations found in grammar forums and for the fact that we see no diachronic trend for government to drift into the accusative form, despite the fact that this would make the construction simpler in a way that is consistent with most prototypes.<sup>27</sup> Additionally, there are quantitative reasons to prefer this analysis, such as the paucity of adjective modifiers as compared to alternatives such as *voll mit* and the much higher frequency of feminine singular objects with adjectives, for which dative and genitive inflection are identical. There are therefore some grounds to entertain the idea that there are non-case assigning or ‘caseless’ prepositional constructions in German, and this notion is both consistent with and can be analyzed by a constructional approach.

## References

- Abney, Steven P. 1987. *The English Noun Phrase in its Sentential Aspect*. PhD Thesis, MIT.
- Admoni, Wladimir. 2002 [1961]. Das Problem des „Gemeinschaftskasus“ in der deutschen Gegenwartssprache [The problem of “common case” in contemporary German]. In *Sprachtheorie und Deutsche Grammatik: Aufsätze Aus Den Jahren, 1949–1975* [Language theory and German grammar: Papers from the years 1949–1975], 233–248. Tübingen: Niemeyer.
- Baayen, R. Harald. 2001. *Word Frequency Distributions*. (Text, Speech and Language Technologies 18.) Dordrecht, Boston and London: Kluwer.
- Baayen, R. Harald. 2009. Corpus linguistics in morphology: Morphological productivity. In Anke Lüdeling & Merja Kytö (eds.), *Corpus Linguistics. An International Handbook*. Vol. 2 899–919. Berlin: Mouton de Gruyter.
- Baroni, Marco, Silvia Bernardini, Adriano Ferraresi & Eros Zanchetta. 2009. The WaCky wide web: A collection of very large linguistically processed web-crawled corpora. *Language Resources and Evaluation* 43(3), 209–226.
- Beekes, Robert S. P. 1995. *Comparative Indo-European Linguistics. An Introduction*. Amsterdam/Philadelphia: John Benjamins.
- Boas, Hans C. & Ivan A. Sag (eds.). 2012. *Sign-Based Construction Grammar*. Stanford: CSLI Publications.

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<sup>27</sup> An anonymous reviewer remarks that the exact distribution of forms could very well be learnable from data alone using multifactorial methods. I fully agree that using enough data (including exceptional cases) a good approximation of speakers’ behavior can be reached; the main issue from my point of view is that a coarse generalization compatible with the vast majority of data, i.e. a simple dative/genitive : singular/plural split, would have very good accuracy and still miss some important linguistic generalizations.

- Bobaljik, Jonathan D. & Susi Wurmbrand. 2009. Case in GB/minimalism. In Andrej Malchukov & Andrew Spencer (eds.), *The Oxford Handbook of Case*, 44–58. Oxford: Oxford University Press.
- Chomsky, Noam. 1986. *Knowledge of Language: Its Nature, Origin, and Use*. (Convergence.) Westport, CT: Praeger.
- Chomsky, Noam. 1993 [1981]. *Lectures on Government and Binding*. Berlin and New York: Mouton de Gruyter.
- Croft, William. 2001. *Radical Construction Grammar. Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Dittmar, Miriam, Kirsten Abbot-Smith, Elena Lieven & Michael Tomasello. 2008. German children's comprehension of word order and case marking in causative sentences. *Child Development* 79(4). 1152–1167.
- Dürscheid, Christa. 2002. „Polemik satt und Wahlkampf pur“ – Das postnominale Adjektiv im Deutschen [“Polemik satt und Wahlkampf pur” – the postnominal adjective in German]. *Zeitschrift für Sprachwissenschaft* [German Journal of Linguistics] 21(1). 57–81.
- Erdmann, Oskar & Otto Mensing. 1898. *Grundzüge der deutschen Syntax: nach ihrer geschichtlichen Entwicklung* [Foundations of German syntax: according to its historical development]. Vol. 2. Die Formationen des Nomens (Genus, Numerus, Casus) [The formations of the nouns (gender, number, case)]. Stuttgart: Cotta.
- Evert, Stefan & Marco Baroni. 2007. Zipfr: Word frequency distributions in R. In *Proceedings of the 45th Annual Meeting of the Association for Computational Linguistics, Posters and Demonstrations Session*, 29–32. Prague.
- van Eynde, Frank. 2006. NP-internal agreement and the structure of the noun phrase. *Journal of Linguistics* 42(1). 139–186.
- Fillmore, Charles J. 1968. The case for case. In Emmon Bach & Robert T. Harms (eds.), *Universals in Linguistic Theory*, 1–88. New York: Holt, Rinehart and Winston.
- Fillmore, Charles J. & Hiroaki Sato. 2002. Transparency and building lexical dependency graphs. *Proceedings of the Berkeley Linguistics Society* 28. 87–99.
- Gaeta, Livio & Davide Ricca. 2006. Productivity in Italian word formation: A variable-corpus approach. *Linguistics* 44(1). 57–89.
- Gallmann, Peter. 1996. Die Steuerung der Flexion in der DP [The steering of inflection in the DP]. *Linguistische Berichte* [Linguistic Reports] 164. 283–314.
- Goldberg, Adele E. 2006. *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Hentschel, Elke & Harald Weydt. 2003. *Handbuch der deutschen Grammatik* [Handbook of German grammar]. 3. Auflage. Berlin: Walter de Gruyter.
- Heyse, Johann Christian August. 1849. *Ausführliches Lehrbuch der deutschen Sprache* [Exhaustive textbook of the German language]. In Karl Wilhelm Ludwig Heyse (ed.), Hannover: Hahn.
- Hole, Daniel. 2013. Der Himmel hängt voller Geigen – the German stative locative alternation. In *35. Jahrestagung der DGfS, Workshop ‘Perspectives on Argument Alternation’*, 313–314. Potsdam.
- Kieffer, Lucien. 1977. *Voll ou voller?* [voll or voller?] *Les langues modernes* [Modern languages] 71(4), 378–380.
- Klaus, Căcilia. 2004. *voll – ein Wort voll(er) Besonderheiten* [Voll – a word full of anomalies]. In Rolf Herwig (ed.), *Sprache und die modernen Medien* [Language and the modern media] (Linguistik International 14.), 175–185. Frankfurt am Main: Peter Lang.

- Köpcke, Klaus-Michael. 1995. Die Klassifikation der schwachen Maskulina in der deutschen Gegenwartssprache. Ein Beispiel für die Leistungsfähigkeit der Prototypentheorie [The classification of weak masculines in contemporary German. An example for the capacity of prototype theory]. *Zeitschrift für Sprachwissenschaft* [German Journal of Linguistics] 14(2). 159–180.
- Müller, Gereon. 2002. Syntaktisch determinierter Kasuswegfall in der deutschen NP [Syntactically determined case deletion in the German NP]. *Linguistische Berichte* [Linguistic Reports] 189. 89–114.
- Müller, Wolfgang (ed.). 1985. *Duden Bedeutungswörterbuch* [Duden sense dictionary]. 2nd edition. Vol. 10. Mannheim / Vienna / Zurich: Dudenverlag.
- Paul, Hermann. 1959 [1919]. *Deutsche Grammatik* [German grammar]. Vol. III. Teil IV: Syntax (erste Hälfte) [Part IV: syntax (first half)]. Halle: Niemeyer.
- Paul, Hermann. 2007. *Mittelhochdeutsche Grammatik* [Middle High German grammar]. 25th edition. Thomas Klein, Hans-Joachim Solms, Klaus-Peter Wegera, Ingeborg Schöbler & Heinz-Peter Prell (eds.), Tübingen: Niemeyer.
- Petig, William E. 1997. Genitive prepositions used with the dative in spoken German. *Unterrichtspraxis* 30(1) [Teaching practice]. 36–39.
- Sag, Ivan A. 2012. Sign-based Construction Grammar: An informal synopsis. In Hans C. Boas & Ivan A. Sag (eds.), *Sign-Based Construction Grammar*, 69–202. Stanford: CSLI.
- Sahel, Said. 2010. Kasusreaktion durch das Lexem *voll*. Kasusvariation, aber kein Genitivschwund [Case government by the lexeme *voll*. Case variation but now loss of genitive]. *Zeitschrift für germanistische Linguistik* [Journal of German Linguistics] 38(2). 291–313.
- Säily, Tanja. 2011. Variation in morphological productivity in the BNC: Sociolinguistic and methodological considerations. *Corpus Linguistics and Linguistic Theory* 7(1). 119–141.
- Schiller, Anne, Simone Teufel, Christine Stöckert & Christine Thielen. 1999. *Guidelines für das Tagging deutscher Textcorpora mit STTS* [Guidelines for tagging German Text Corpora with STTS]. Technical Report, Universität Stuttgart, Institut für maschinelle Sprachverarbeitung and Universität Tübingen, Seminar für Sprachwissenschaft.
- Schmid, Helmut. 1994. Probabilistic part-of-speech tagging using decision trees. In *Proceedings of the Conference on New Methods in Language Processing*, 44–49. Manchester, UK.
- Schmid, Helmut & Florian Laws. 2008. Estimation of conditional probabilities with decision trees and an application to fine-grained POS tagging. In *Proceedings of COLING 2008*. Manchester.
- Schröder, Jochen. 1990. *Lexikon deutscher Präpositionen* [Lexicon of German prepositions]. Leipzig: Verlag Enzyklopädie Leipzig.
- Sommerfeldt, Karl-Ernst & Günter Starke. 1998. *Einführung in die Grammatik der deutschen Gegenwartssprache* [Introduction to the grammar of contemporary German]. Tübingen: Niemeyer.
- Weinrich, Harald. 2003. *Textgrammatik der deutschen Sprache* [A textual grammar of German]. 2. Auflage. Hildesheim: Olms.
- Zeldes, Amir. 2012. *Productivity in Argument Selection. From Morphology to Syntax*. (Trends in Linguistics: Studies and Monographs 260.) Berlin & Boston: De Gruyter.
- Zeldes, Amir. 2013. Productive argument selection: Is lexical semantics enough? *Corpus Linguistics and Linguistic Theory* 9(2). 263–291.

Marc Felfe

# Constructions, compositionality, and the system of German particle verbs with ‘an’

## 1 Introduction

If, as is shown in Felfe (2012), in approximately 50% of cases the form and meaning of German transparent particle verbs with *an* (‘on’) can be generated in a rule-based way from minimal argument structures of verb and particle, then it seems appropriate to look for an alternative analysis that is able to account for the remaining 50%. In my view, such an approach should be possible, using a construction-grammatical approach. There is no shortage of such proposals: Goldberg (1995), Chang (2008), Knobloch (2009), and Welke (2009), among others, see in the holistic analyses of particle verbs a chance to grasp formal and semantic aspects better than in algebraic models. Jackendoff (2002) develops a schematic particle-verb construction, but grounds this only formally. Gorfach (2004) presents a sign-based analysis of resultative phrasal verbs. Gerdes (2016) investigate the productivity of German particle verbs as phrasemes (phraseological units). Plank’s (1981: 250–251) relational semantic-syntactic or semantic-morphological frames (*Begriffsschemata*) and leading forms for analogical extension can in principle be designated as construction-grammatical.

In Felfe (2012), all recurrent formation patterns with the verb particle *an* (‘on’) are investigated in a construction-based way. The data were gathered from the 1056 verb types with *an* found in the Deutsches Referenzkorpus (DeReKo) (‘German Reference Corpus’) of the Institute for the German Language in Mannheim and in the Digitales Wörterbuch der deutschen Sprache (DWDS, ‘Digital dictionary of the German language’) of the Berlin-Brandenburg Academy of Sciences and Humanities as well as in Internet forums. The particle verbs were ordered according to event types and argument structures. The aim of the work was to show that there is a clear connection between the argument structure of particle verbs and the event type expressed by them, irrespective of the default use of the corresponding simplex verbs. The results of this research provided the basis for the present paper, in which different aspects of the analysis will be discussed as follows.

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In Section 2, I outline the arguments for a construction-grammatical analysis of particle verbs with *an*, and the advantages in comparison to algebraic models will be demonstrated. Here, the main focus is on the formal and semantic properties of particle verbs compared to the default use of the corresponding simplex verbs. Section 3 deals with the format of analysis and the degree of abstraction of the constructions. On the one hand, the correlation between the form and meaning of the particle-verb constructions with *an* will be outlined. On the other hand, the strength of the connection between simplex verbs and a few argument constructions with *an* will be discussed. Section 4 addresses the semantic interplay between verb and construction meanings. The principle of compositionality is modeled using a frame-semantic approach. Finally, in Section 5 I present the relationships between the various constructions with *an*. These are described using the terms ‘family resemblance’ and ‘schema-instance relationship.’

## 2 Arguments for a construction-based analysis

The argument structure and the meaning of particle verbs (hereafter PVs) often cannot be predicted. Herein lies a simple reason for a holistic analysis. In Felle (2012) I show that, of the 1056 investigated PV types with *an*, 113 exhibit idiomatized meanings. That is the case, for example, with *etw. anfangen*, *jdn. angreifen*, *sich etw. anschaffen* (‘begin sth., attack sb., get oneself sth.’). In addition, 17 PVs with *an* exhibit argument structures that cannot be ascribed a recurrent pattern, such as, for example, *mit etw. angeben* (‘show off about sth.’). Idiosyncrasies of this kind must be holistically stored as such to be able to be processed. In what is probably the most well-known early version of the concept of construction, that of Goldberg (1995: 4), the necessity for holistic analyses serves almost as a *definiens*. Here, C is only a construction when C is a form-meaning pair and when a formal and/or semantic aspect of C cannot be predicted from its components or from already existing constructions. However, this only relates to opaque formations, which in modular models are likewise stored as constructs in the lexicon and are thus strictly delimited from transparent formations.

Consequently, two fundamentally different processing systems are often assumed: grammar for regular patterns and the lexicon for idiosyncrasies.<sup>1</sup> In this

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<sup>1</sup> Bloomfield ([1933] 1973: 274) designates the lexicon as an “appendix of the grammar, a list of basic Irregularities.” Di Sciullo & Williams (1987: 3) write: “If conceived of as the set of listemes, the lexicon is incredibly boring by its very nature. It contains objects of no single specifiable type



spirit, Jacobs (2009: 510f), for example, tends towards a construction-based analysis of PVs whose meaning cannot be deduced compositionally, and/or with which the particle cannot be analyzed as a verbal argument. Be that as it may, the fundamental concern of Construction Grammar is precisely to describe both regular and idiosyncratic phenomena in one format.<sup>2</sup> Thus, Goldberg (2006: 5) extends her understanding of a construction with a decisive point: “In addition, patterns are stored as constructions even if they are fully predictable as long as they occur with sufficient frequency.”

Decisive for the analytical bridging between opaque and transparent formations is the fact that non-compositionality is a gradual phenomenon.<sup>3</sup> If we compare *jdn. anrufen* (‘call sb.’) with *jdn. anschreien* (‘shout at sb.’) and *sich etw. anschaffen* (‘get oneself sth.’) with *sich etw. antrainieren* (‘to learn sth.’), it becomes apparent that although the meanings of the simplex verbs within complex verbs can be partly or entirely opaque, this is not the case with the connections between the argument structure and the expressed event type. Both *jdn. anrufen* and *jdn. anschreien* describe an activity directed towards an entity. *Sich etw. anschaffen* expresses the same agent-related obtaining of an entity as *sich etw. antrainieren*. Even the now completely opaque *etw. anfangen* (‘begin sth.’) can be compared to the metaphorically used *etw. anpacken* (‘set about sth.’) and the transparent *etw. anlesen* (‘start to/partially read sth.’) if we consider the Old High German expression *etw. anafâhan* with *fâhan*, in the sense of ‘grasp or seize’<sup>4</sup> and the metaphorical transformation of *Handanlegen* (‘laying on of the hand’) as the beginning of an activity. It is not idiosyncrasy per se that is a strong argument for Construction Grammar, but that, as Fillmore, Kay & O’Connor (1988: 505) write, there is a continuum between lexically fully fixed idioms and schematic constructions. Kay & Michaelis (2010: 2275) speak of a ‘gradient of idiomaticity-to-productivity’. Hence, the advantage of a construction-grammatical approach lies in the fact that entirely or partially idiomatic complex verbs and transparent formations are analyzed in one format. Stefanowitsch (2011) designates this as the logical-economical advantage of Construction Grammar in relation to modular models. A condition for the definition of abstract argument structure constructions with *an* is that we can assign event types to formal patterns that appear with different

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(words, VP, morphemes, perhaps intonation patterns, and so on), and those objects that it does contain are there because they fail to conform to interesting laws. The lexicon is like a prison – it contains only the lawless, and the only thing that its inmates have in common is lawlessness.”

<sup>2</sup> Cf. Knobloch (2009: 561).

<sup>3</sup> Cf. Lüdeling (2001: 57, 82), Goralach (2004: 33).

<sup>4</sup> Cf. Kluge, Friedrich (1999): *Etymologisches Wörterbuch der deutschen Sprache*, 23rd extended ed., revised by Elmar Seebold, Berlin and New York: de Gruyter, p. 39: ‘anfangen’.

verbs. Thus, although the meaning of *jdn. anrufen* (‘call sb.’) cannot be deduced purely compositionally, we can still analyze the total structure and replace *rufen* (‘call’) with verbs such as *sprechen*, *husten*, *zweifeln* (‘speak, cough, doubt’). In each case we find an expression of activity directed towards an entity.

Formally, the event type is clearly linked to the following recurrent pattern: [NPnom V NPacc *an*]. The simplex verbs are fused with the construction and can be more or less tightly linked with it. As a consequence, the meaning of the entire string can be more or less deduced compositionally. The PVs thus formed are instances of the construction. Even non-transparent instances of a construction can be (niche) schemas for the formation of new PVs when, for example, verbs associated with telephoning, such as *klingeln*, *läuten*, *wählen* (‘ring, dial’), are used instead of *rufen* in *jdn. anrufen*. The fluid transition between lexicalized and transparent formations is also accounted for by Lüdeling’s (2001) proposal within the modular model of Lexical Decomposition Grammar. However, she only refers to the formal identity between PVs such as *jdn. anrufen* and *jdn. anschreien*, and analyzes both in a consistent, regularly generated constituent structure (2001: 82). The difference is that with lexicalized formations the total meaning is listed, and all nodes are associated with phonological information, which is not the case for transparent formations of the same structure. However, this analysis creates another problem, which will be discussed below, and which can be addressed within Construction Grammar.

In projectionist models such as Generative Grammar, Lexical Functional Grammar, Lexical Decomposition Grammar, and Valence Grammar, it is assumed that the verbal argument structure stored in the lexicon or generated via rules is projected into the syntax. Whether one analyzes particle verbs morphologically like Stiebels (1996), syntactically like Lüdeling (2001), or both morphologically and syntactically like Zeller (2002), the particle together with its minimal argument structure is regularly integrated into that of the verbal head. Despite numerous theory-related differences, this gives rise to three key analysis formats for PVs with *an*. However, these are problematic, as I now show.

For PVs such as (1a) it appears as if the particle fulfills (Stiebels 1996: chap. 6) or includes (Langacker 1987: 243; Ágel 1993: 11–13) the role of the verbal argument *z* in (1b).<sup>5</sup>

- (1) a. *y anbinden*  
       *y* PART.tie  
       ‘tie *y*’

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<sup>5</sup> This corresponds to Broccias’ (2000: 44) and Gorlach’s (2004: 30, 61–64) assumption that phrasal verbs are resultative constructions.

## b. y an z binden

y PREP z tie

'tie y to z'

However, the process designated as functional application only explains the formation of 43% of the PVs with *an* for the expression of an establishment of contact analyzed in Felfe (2012: 36–38). If we consider the examples in (2), it becomes clear that neither the particle nor the second argument y can be automatically matched with the verbal argument structure.<sup>6</sup>

- (2) a. *Natürlich müssen Dämmung und Folien vernünftig angearbeitet werden.*<sup>7</sup>  
naturally must insulation and foils sensibly PART.worked

be

'Naturally, insulation and foils need to be applied sensibly.'

- b. *Millimeter für Millimeter wird die abbröckelnde Farbe*  
millimeter for millimeter is the flaking Paint

*mit einem Klebemittel besprüht und anschließend*

with a bonding-agent sprayed and subsequently

*mit einem kleinen Heißspachtel wieder angebügelt.*<sup>8</sup>

with a small hot.spatula again PART.ironed

'Millimeter for millimeter, the flaking paint is sprayed with a bonding agent before being flattened out again with a hot spatula.'

- c. *Bastelanleitung: Für die Beinchen kleine ovale Teile*  
craft.instructions: for the small.legs small oval Parts

*filzen und mit der Filznadel am Körper anstechen.*<sup>9</sup>

felt and with the felting.needle to Body PART.stitch

'Craft instructions: for the legs, felt small oval parts and attach to the body with the felting needle.'

(2a) contains a verb that is typically used intransitively. In (2b) the default argument of the verb is blocked, since normally it is not paint but textiles that are ironed. The PV in (2c) can be related neither formally nor semantically to the various uses of the simplex: the thorns of plants *stechen* ('prick'); insects *stechen*

<sup>6</sup> Kolehmainen (2007: 101) discusses the similar phenomena of verbs of sound emission with directional particles.

<sup>7</sup> Construction guide: <http://fachwerkhaus.historisches-fachwerk.com>

<sup>8</sup> *Frankfurter Rundschau*, 16.01.1998, p. 1.

<sup>9</sup> Craft ideas: <http://www.guetermann.com>

(‘sting’), too; they also *stechen* somebody; equally, something can be *gestochen* (‘poked’) into something. While sewing the needle is *gestochen* (‘pierced’) through the cloth, and in this way something can be attached. However, this knowledge is not contained in the minimalist semantic form.

For PVs such as (3a), Stiebels (1996: 45, 78–80), Lüdeling (2001: 156–157), and Zeller (2001a: 158–161) propose analyzing the particle as a modifier or functor that applies to the verbal argument structure. The particle occurs as an adjunct to V’ and marks the beginning or the premature termination (partiality) of the event implied by the verb via the lexical entry (3b).

- (3) a. *etw. anlesen*  
       sth. PART.read  
       ‘start to/partially read sth.’  
       b. *etw. lesen*  
       ‘read sth.’

In comparison to the simplex verbs, 22 PVs of the 114 transitive examples denoting partiality exhibit quantitative (4a) and/or qualitative (4b) changes in their argument structure. In these cases a pure functor definition of the particle that applies to the existing verbal argument structure is not possible. For *etw. anlesen* in (3) and the examples in (4) different operations need to be assumed, although these all involve transparent formations for the expression of the same event type.

- (4) a. *Nur wenn die Eier angebrütet werden, sind sie nicht*  
       only when the Eggs PART.incubated become are they No  
       *mehr genießbar.*<sup>10</sup> – Vs. intr. *brüten* (‘incubate’)  
       longer edible  
       ‘Eggs are no longer edible only when they have been incubated.’  
       b. *Menschen die eine kurze korrigierende Bemerkung antäuschen*  
       people who a short correcting remark PART.feint  
       *und dann ellenlang draufloslabern, [...].*<sup>11</sup>  
       and then at.length prattle.away - Vs. *jdn. täuschen*  
       (‘trick sb.’)  
       ‘People who claim to only want to make a short point, then can’t stop talking.’

<sup>10</sup> *Rhein-Zeitung*, 04.04.1996: ‘Wie viele Güteklassen hat das Ei?’

<sup>11</sup> *Hannoversche Allgemeine*, 31.05.2008, p. 6.

By means of functional composition, the formation of PVs is analyzed as in (5a). According to Stiebels & Wunderlich (1994: 950), the particle is linked with intransitive agentive verbs (5b), and thereby imports its own argument into the verbal argument structure.

- (5) a. jdn. anlächeln  
 sb. PART.smile  
 ‘smile at sb.’  
 b. lächeln  
 ‘smile’

Such an analysis is in fact possible for 53% of the 268 analyzed PVs expressing an activity directed towards an entity. For the remaining formations, however, the following problems occur. Occasionally, PVs of this pattern are not based on agentive verbs as in (6a). In some cases the selection properties change for the first argument as in (6b). In many cases, before being connected with the particle, the default argument of the verb has to be blocked, even when the corresponding verb is not normally used intransitively, as in (6c). In some cases, the verbal default argument is retained as in (6d), which would speak rather for an analysis of the particle in terms of a modifier.

- (6) a. *Schließlich will man nicht, dass es einen unvorbereitet*  
 Finally wants one not that it one unpreparedly  
*anregnet.*<sup>12</sup>  
 PART.rains  
 ‘Finally, one doesn’t want to get unexpectedly caught in the rain.’  
 b. *Sein Mintatem wehte mich an [...].*<sup>13</sup>  
 his mint.breath wafts me PART  
 ‘I get a waft of his mint breath.’  
 c. [...] *warum ich dich damals angeborgt habe?*<sup>14</sup>  
 why I you back.than PART.borrowed have  
 ‘[...] why did I borrow from you at the time?’  
 d. *Sie sieht ihn an.*  
 she sees him PART  
 ‘She looks at him.’

<sup>12</sup> <http://shop.oktoberfest.de/Bayern/Wetterhaus-Bayern.html>

<sup>13</sup> *Süddeutsche Zeitung*, 31.01.2001.

<sup>14</sup> Erik Neutsch, *Spur der Steine*, Halle (Saale): Mitteldeutscher Verlag 1964, p. 872.

Altogether, of the 1056 analyzed PVs with *an*, a consistent, rule-based generation of the argument structure through an algebraic comparison between verb valence and minimal argument structures of the particle is only possible in approximately 50% of cases.<sup>15</sup> Semantically, the problem can be formulated as follows. Is the normally intransitively used activity verb *lächeln* (‘smile’) really the head of the causative action when at a party one *sich jdn. anlächelt* (‘wins somebody through a smile’)? Structurally, the problem of the processes presented consists of the fact that transparent formations of a pattern such as *jd. ansprechen, anborgen, anhusten* (‘to address sb., borrow from sb., cough on sb.’) need to be formed differently since the simplex verbs used for their formation are normally used with very different argument structures: somebody speaks with somebody (about something); somebody borrows from somebody or borrows something from somebody; somebody coughs. Therefore, the formally and semantically identical PVs of a group need to be generated through very different operations.

A solution would be to assume that the simplex verbs enter quasi intransitively into regular formation processes such as the general operation of argument extension through the embedding of semantic templates proposed by Wunderlich (2000: 253–255) in the framework of Lexical Decomposition Grammar. Empirical evidence for this can be seen in the fact that many simplex verbs can be used in the corresponding co(n)texts intransitively. For particle and prefix verbs, which are normally used transitively, however, this variance hardly exists.<sup>16</sup> In my view, this is due to the fact that particle and prefix verbs are already instances of argument constructions. Nevertheless, Wunderlich follows the two-level model of Bierwisch (1987: 93–96) in which grammatical processes only have access to the minimal Semantic Form (SF). But what remains of verb meaning if before argument extension the verb is trimmed of its argument structure? What would be the motivation for the formation of linguistic structures if the results were tested regarding their acceptability only retrospectively at a non-linguistic conceptual level?

Without separating conceptual knowledge from semantic knowledge in a modular way, Müller (2002: 215), in the framework of Head-driven Phrase Structure Grammar, and Welke (2009), in the framework of Construction Grammar, also go back to the intransitive variant. Welke (2009: 111) writes in relation to resultative constructions such as *sich satt essen* (‘eat oneself full’) or *den Teller leer essen* (‘empty one’s plate by eating’): “Die Sprecher/Hörer können, wenn sie auf den intransitiven Gebrauch zurückgehen, die Karten sozusagen neu mischen und sich fragen, was

<sup>15</sup> Cf. Felfe (2012: 29–47) and with reference to particle verbs in general Knobloch (2009: 545–546).

<sup>16</sup> Zeller (2001b: 7) shows, albeit only on the basis of Helbig & Schenkel’s (1975) selection of the 500 most complicated verbs in relation to obligatory arguments, that 90% of the prefix verbs in contrast to 50% of the base verbs are obligatorily used transitively.

(welcher Nachzustand, welches Resultat) aus dem Essen in Bezug auf den Teller oder in Bezug auf den Esser (sich) folgt, unabhängig von den Selektionsbedingungen des Verbs in seinem transitiven Gebrauch.”<sup>17</sup> Such a train of thought seems plausible. However, given this view it would then be necessary to specify the conceptual-semantic level to show how semantic compositionality arises through an interplay between verbs and constructions. I will address this point in Section 3 below.

Besides the fact that with approximately half of the analyzed PVs with *an* the argument structure cannot be regularly generated from the assumed verbal argument structure, the following data support an analysis involving schematic argument constructions. Some PVs are instances of different homonymous or polysemous constructions. Even in the case of an instantiated verb, the meaning cannot be predicted merely on the basis of the syntactic form. Let us first consider the examples in (7).

- (7) a. [...] *Weil durch die Nase jede Menge*  
 Because through the nose a.large amount  
*Schmutzpartikeln mit jedem Atemzug angeatmet werden.*<sup>18</sup>  
 dirt.particles which each breath PART.breathed are  
 ‘[...] because, with each breath, you inhale a large number of dirt particles through the nose.’
- b. *Nach dem zweiten Blasversuch durfte der*  
 after the second blow.test was.allowed The  
*Verdächtige befreit auf und die Beamten*  
 suspect relieved PART and the officer  
*anatmen: Genau 0,78 Promille [...].*<sup>19</sup>  
 PART.breathe: precisely 0.78 mg/ml  
 ‘After the second test the suspect could breathe easily, and safely breathe on the officer: precisely 0.78 mg/ml [...].’

The utterance in (7a), just as in (7b), is based on a transitive argument structure of the form [NPnom V NPacc *an*]. In (7a) an agent-related establishment of contact is expressed. The utterance in (7b), on the other hand, expresses an activity directed at the second argument. The fact that one can transparently express

<sup>17</sup> Translation (MF): The speakers/hearers can, if they go back to the intransitive use, re-shuffle the cards, so to speak, and ask themselves what [resultant state] follows from the eating in relation to the plate or in relation to the eater, independently of the selection conditions of the verb in its transitive use.

<sup>18</sup> Health guide: <http://www.apomio.de>: ‘Krankheiten der Nase.’

<sup>19</sup> *Vorarlberger Nachrichten*, 20.02.1997, p. Y14.

different event types with the same transitive argument structure is shown clearly by means of the following zeugma test.

- (8) a. ??*Er schlug das Plakat und die Wand an.*  
           he   Hit       the   poster and the wall   PART  
           ‘He hit the poster and the wall.’
- b. ??*Sie dreht den Haken und die Heizung an.*  
           she   turned the hook and the heating PART  
           ‘She turned the hook, and turned the heating on.’
- c. ??*Die Buslinie A fährt das Zentrum und*  
           the bus.line A drives the center and  
           *viele Touristen zum Stadtfest an.*  
           many Tourists to.the city.festival PART  
           ‘Bus line A goes to the center and brings many tourists to the city festival.’
- d. ??*Er raucht die Zigarette und seinen Tischnachbarn an.*  
           he   smokes the cigarette and his table.neighbour PART  
           ‘He smokes the cigarette, and wafts smoke over to the person sitting next to him.’

Through the formal pattern [NP<sub>nom</sub> V NP<sub>acc</sub> *an*] at least four very different event types are expressed: change of place/establishment of contact, activities directed toward an entity, partiality, and putting into operation.<sup>20</sup> The phenomenon has already been mentioned under ‘an’ in the *Deutsches Wörterbuch* (1854–1960), and analyzed, since Hundsnurscher ([1968] 1997: 96, 124–125), as an object transposition (*Objektvertauschung*). To understand the utterances in (7a, b), the hearer is directed to the context. However, the speaker does not arbitrarily transpose the objects on account of lexical polysemy. That is only the case when a PV exhibits two different readings as an instance of a construction within a single event type, such as *die Leiter anstellen* (‘set up the ladder’) and the metaphorical, now lexicalized *jdn. anstellen* (‘hire sb.’). If it is a question of fundamentally different event types, such as in (7–8), the speaker must know what can be expressed as a

<sup>20</sup> If we do not differentiate more precisely between the different constructions with *an* for the expression of actions that lead to changes of place or state, then 25 simplex verbs with *an* are used for both the expression of causative actions and the expression of directed activities (*jdn. anschreiben* ‘write to sb.’ vs. *einen Satz schreiben* ‘write a sentence’). Eight simplex verbs express with *an* both actions of putting into operation and the establishment of contact (*das Radio anstellen* ‘turn on the radio’ vs. *die Leiter anstellen* ‘set up the ladder’). Six simplex verbs and the particle *an* express perfective procedures that lead to contact of the procedure carrier or express the beginning phase of the process (the finger vs. the wound *heilt an* ‘grows on/begins to heal’).



series of like formations with the corresponding form. This raises questions about the homonymy and/or polysemy of constructions.<sup>21</sup> In order for polysemous and/or homonymous analyses to have explanatory power in the area of syntactic constructions, it is crucial to determine how the different meanings are related to one another or have been related to one another through historical developments, which is the subject of Section 4 below.

Finally, following Goldberg (1995: 35) and Tomasello (2006: 182), I will look at evidence for argument constructions with *an* that can be elicited with formations with a nonsense verb such as *monken* in (9).

- (9) a. *Er hat sie die ganze Zeit angemonkt.*  
 he has her the whole time PART.monked  
 'He kept monking her the whole time.'
- b. *Innerhalb kürzester Zeit hatte er es angemonkt.*  
 within the.shortest time had he it PART.monked  
 'He monked it in no time at all.'

18 of the 20 native speaker participants I asked understood (9a) as a making contact (of which nine viewed it as harassment). 13 participants interpreted (9b) as a fastening action. Six understood (9b) as beginning to operate an appliance. When construing the utterances, attention was paid to using pronouns instead of auto-semantic words. These only allow the interpretation of categorial features, such as animate versus inanimate. In each case, one should also bear in mind the semantics of the time designation: While (9a) conveys durativity, (9b) conveys perfectivity.

However, this should not be sufficient to explain the very concrete associations. An obvious explanation is that the participants understood the corresponding event types on the basis of the three underlying homonymous abstract argument constructions with the form [NP<sub>nom</sub> V NP<sub>acc</sub> *an*]. As a series of like formations, these constructions express activities that are directed towards an entity (*jdn. anlächeln, ansehen*, etc. 'smile at, look at sb. '), acts of establishing contact (*etw. annähen, annageln*, etc. 'sew on, nail on'), and the beginning to operate an appliance (*etw. anschalten, andrehen*, etc. 'switch on, turn on').<sup>22</sup> Thus, I would

**21** A strict demarcation is often not possible. The deciding factor is whether the different meanings of a form are related to one another from a synchronic point of view, and, with regard to the argument constructions, whether those differences can be determined as forming a series. Cf. Kempcke (2001: 63–65) and Behrens (2002: 324–325).

**22** Such event types associated with the particle *an* have also been proposed by Adelung (1793: 260–266), Stiebels (1996: 303), and Rich (2003: 370). Dewell (2011: 18) includes the argument structure in the description of such event types. From the viewpoint of applied linguistics

argue that one associates more or less abstract event types with the utterances in (9). The only thing that remains unclear in the cases involving the nonsense verb *monken* is the exact way in which the corresponding events take place.

Before developing a format for argument constructions with *an*, I summarize the most important arguments in favor of a construction-based analysis, which allows a single format for consistently analyzing more or less lexicalized and transparent PVs. For many non-transparent PVs, although the reading of the verb is idiomatic, the expressed event type and the argument structure correspond to transparent formations. The connection between argument structures and event types, which PVs express as a series of like formations, can be understood holistically. There is no need for virtual operations to create the argument structures of PVs starting from the different minimal valences of the simplex verbs. On this view, verbs are fused with the respective argument structure constructions. The PVs generated this way are instances of more or less abstract constructions. The fact that some PVs apparently express different event types is not traced back to a virtual object transposition. A verb can be fused with different homonymous or polysemous argument constructions with *an*. This means that the interpretations of PVs with nonsense verbs can be traced back to the more or less abstract meanings of the argument structure constructions.

### 3 Form and meaning of constructions with *an* (‘on’)

In this section I present the format of argument structure constructions with *an* in order to account for the connection between the form and meaning of the argument structures with the verb particle *an* in a construction-based way. Subsequently the question of the degree of abstraction of the constructions will be explored.

I first consider the type frequency to determine the productivity of constructions. Of the 1056 PVs with *an* investigated in Felfe (2012), 1039 PVs can be assigned 22 recurrent, that is, series-forming formal and semantic patterns. Thus, utterances such as *er lächelt, sieht, spricht sie an* (‘he smiles at, looks at, speaks to her’) can be analyzed as instances of the transitive construction [NPnom V NPacc *an*]. This construction serves the expression of activities

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Torres-Martínez (2017: 9–11) treats phrasal verbs as instances of different argument structure constructions.



With the instantiation of the verb and its arguments, the construction in (10) licenses main clause patterns. For default positions with the verb in the leading position, I propose pragmatically motivated particle-verb or general preverb constructions in the left and right sentence bracket. However, the view held by Croft (2001: 196–197) and Goldberg (2006: 21), among others, that *all* position variants are based on independently existing constructions forces us to assume more than 14 constructions, as Müller (2007: 191–192) shows. In this context, Jacobs (2009: 496) speaks of technical problems whose solution is only a matter of time.

The assumption of schematic constructions as pairings of form and meaning stored in the lexicon still says nothing about the relationship between verbs and constructions. In principle, precise selectional properties of the arguments arise first of all through the interplay between constructions and verbs. Through use frequency and/or idiomaticization a construction can belong to the verbal lexical entry, or a PV can be stored holistically as an instance of the respective construction. Likewise, verbs can be fused ad hoc via implicature and/or analogy with constructions. The values of the frame evoked by the verb do not thereby have to agree with the roles of a construction’s arguments, or be profiled by these. I will discuss this point in the following section. As in the case of *etw. anbinden* (‘tie sth.’), the arguments of the particle construction can in addition be related directly to the default arguments or the default construction of the base verb, or passed on to these. In addition, the inverse path should be taken into consideration: verbs that are typically and frequently used with constructions for the transparent expression of event types belong to the entry of the construction itself and represent the condition for their schematization.<sup>24</sup>

Bybee (1985: 132–133) describes such a schematization process in the context of morphological structures. The more frequently a specific morphological marking is used with different lexemes (type frequency), the faster this is abstracted from the single lexeme and used productively as a schematic

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**24** On the statistical ascertainment of the relationship between a verb and a construction, I refer to Stefanowitsch & Gries (2003: 216–217). They ascertain the ‘collostructional strength’ on the basis of a corpus from the relation of the following factors: token frequency of a verb V1 in a construction C1, token frequency of V1 in other constructions, token frequency of other verbs in C1 and in other constructions, as well as the total number of constructions. If the ascertained frequency of V1 in C1 exceeds the general probability of its appearance calculated through chance, this speaks for a strong ‘attraction’ between V1 and C1. Nevertheless, Bybee (2010: 100–101) shows that the purely quantitative evaluation cannot account for possible relations of similarity between different verbs. That results in strong differences between a calculated weak relationship strength and a high acceptability judgment ascertained through the participants.

construction.<sup>25</sup> Conversely, the more often a lexeme is used with the same morphological marking (token frequency), the more this is looped in with the lexeme, irrespective of whether it is a matter of an idiosyncratic or a regular connection. Goldberg (2006: 76–77) assesses the language use of the mothers of children between 20 and 28 months and finds that fundamental argument structure constructions are primarily used with only a few central verbs. As a result of this ‘skewed input’ there is still no distinction between verb and environment. Both form a communicative chunk or a so-called item-based construction with variable slot(s). According to Goldberg, this is the condition for the fact that in the next phase the total meaning is transferred to the construction, which goes hand in hand with the incremental use of new verbs in the corresponding construction, finally leading to the latter’s schematization. Decisive for a usage-based approach is that the schematization and abstraction of a construction does not lead to its separation from the lexemes frequently used with it. Thus, Construction Grammar in no way abandons the idea of verbal valence. Langacker (1987: 494) speaks of a false conclusion when strict divisions are drawn between regularity and listing in favor of a maximal economy through the exclusion of double representations. He writes: “Speakers do not necessarily forget the forms they already know once the rule is extracted, nor does the rule preclude their learning additional forms as established units.”

Besides the possible connection of individual verbs with specific constructions and vice versa, it is also possible to posit larger categories. Thus, for example, cooking verbs as members of a semantic frame represent instances of the transitive construction for the expression of partiality, which should be noted as a use routine both in the corresponding frame and with the corresponding construction. Moreover, following Plank (1981: 250–251), one should assume, based on frequency, holistic leading forms for analogical extension. These should be determined construction-specifically.<sup>26</sup> Thus, among cooking verbs, *braten* (‘roast/fry/bake’) (3656 examples in the DeReKo) occurs most frequently as an instance of the transitive partial construction (for instance, *anbraten* [‘start to/partially roast/fry/bake’]), and can therefore be defined as a leading form. It is followed by *rösten* (‘roast’) (1197), *dünsten* (‘steam/braise’) (946), *bräunen* (‘brown’) (79), *schmoren* (‘stew/braise’) (75), *backen* (‘bake’) (51), and *kochen* (‘cook/boil’) (22).

<sup>25</sup> This idea can already be found in Paul ([1880] 2002: §77, §80), who argued that when different words are used more frequently in an inflectional paradigm, this process results in an abstract schema.

<sup>26</sup> Crucial is that these frequency-determined leading forms do not correspond to the general frequency of appearance of the corresponding simplex verbs. In this regard, *kochen* (‘cook’) with 41,440 and *backen* (‘bake’) with 30,967 examples take first place in the DeReKo.

One example can be found for *etw. anfrittieren* (‘start to/partially deep-fry sth.’). The low frequency and the transparency of *etw. anfrittieren* speak against having the verbal entry specifically mentioning the construction. Instead, I propose that both the belonging of *frittieren* (‘deep-fry sth.’) to the frame of Cooking as well as the leading form *etw. anbraten* are intermediate instances of the productive use of the construction with *frittieren*. The range of the possible frame-specific construction connections in this and many other cases (*jdn. anfaxen, ansimsen, anmailen, antwittern, anskypen*, etc. ‘fax, text, mail, tweet, skype sb.’) cannot, however, be explained in general terms. Thus, Engelberg (2009: 89–91), for example, shows that the frequent occurrence of certain verbs of sound emission for expressing locomotion with certain prepositions speaks for their valence connections, and thereby partly opposes Welke (2009: 106), who assumes a group-specific conceptual adaption of verbs of sound emission to a formally and semantically available schematic locomotion construction.

Rare or unique examples (*hapax legomena*) are indications of a construction’s productivity. For the transparent examples presented in (11), one should not assume that corresponding constructions belong to the verbal entry or, conversely, that the verbs point towards their corresponding constructions.

- (11) a. *Sein Mittel: Sich vor einer Reise einen kleinen*  
 His solution: himself before a journey a small  
*Nikotinvorrat anrauchen.*<sup>27</sup>  
 nicotine.supply PART.smoke  
 ‘His solution: to stock up on nicotine before the journey.’  
 (Single example in the DeReKo)
- b. *2002 hatte Murray sich genügend Selbstvertrauen*  
 2002 had Murray himself enough self.trust  
*angesungen, um eine Demoplatte aufzunehmen.*<sup>28</sup>  
 PART.sung to a demo.record record  
 ‘In 2002 Murray had mustered enough confidence to record a demo.’  
 (Single example in the DeReKo)
- c. *Anschlafen im Strohhotel: Saisonbeginn im*  
 PART.sleep in.the straw.hotel: season-begin in.the  
*Museumsgutshof Sonnekalb*<sup>29</sup>  
 Museum.farm Sonnekalb

<sup>27</sup> *Mannheimer Morgen*, 03.09.2007: ‘Reisende lässt Rauchverbot in Zügen kalt.’

<sup>28</sup> *Hannoversche Allgemeine*, 16.12.2008, p. 24.

<sup>29</sup> Ad in a local website, 17.03.09: <http://www.burgenlandkreis.de>

‘Sleep in the straw hotel: the season begins at the Sonnekalb farm’

(One example in Google)

d. *Mord im Pflegeheim ‘Gegen das Leiden antöten’.*<sup>30</sup>

murder in.the care.home ‘against the Suffering PART.kill

‘Murder in the nursing home: “killing against suffering.”’

(One example in Google)

All examples can be analyzed as instances of series-forming argument structure constructions with *an*.<sup>31</sup> However, the simplex verbs cannot be assigned in a frame- or verb-group-specific way to their corresponding constructions. This could be regarded as an indication for ad hoc merging (besides single-verb- and frame-specific reciprocal connections to argument structure constructions). The conditions for the corresponding ad hoc implicatures are the assumption of a processual semantics, the availability of a concrete, formally and semantically determined construction, the conceptual-semantic structure of the verb, the meaning-giving co(n)text linked with the maxim ‘be relevant,’ and, possibly, an intentional linguistic conspicuousness. In the next section I will address the interplay between the specific semantic roles of the verbal frame and the arguments of the constructions in terms of profiling. This will lead me to a discussion of the role of compositional analyses in Construction Grammar.

## 4 Compositionality of verbs and argument structure constructions with *an*

Perhaps the most fascinating discovery arising from the study of PVs with *an* is that only 594 simplex verbs form the basis of 1056 complex verbs. Hence, one verb is used for the formation of a number of PVs with *an*, which is illustrated by the examples in (12).<sup>32</sup>

- (12) a. *Während meine Schülerinnen allein auf der Tanzfläche*  
           while my students alone on the dance.floor

<sup>30</sup> *Spiegel Online*, 07.02.2006: <http://www.spiegel.de/panorama/justiz/0,1518,399490,00.html>

<sup>31</sup> For a detailed corpus-based analysis of neologism with ‘an’ I refer to Gerdes (2016: 154, chap. 4).

<sup>32</sup> Reference to further similar examples presented in Felfe (2012: chaps. 6.2–6.4).

*standen, haben die beiden jungen Männer*

stood have the two young men

*uns Lehrerinnen heftig angetanzt.*<sup>33</sup>

us teachers vigorously PART.danced

‘While my students stood alone on the dance floor, the two young men vigorously danced up on us teachers.’

b. [...] *die neue Vizechefin der deutschen Sporthilfe,*

the new vice.chief of.the Deutsche Sporthilfe

*die mit Hessens Ministerpräsident Roland Koch (50)*

who with Hesse’s Minister.President Roland Koch (50)

*den Ball antanzte [...].*<sup>34</sup>

the ball PART.danced

‘[...] the new Vice Chief of Deutsche Sporthilfe who provided the opening dance at the ball with Hesse’s Minister-President Roland Koch [...].’

c. *Zwischendurch darf man sich auf der Tanzfläche*

now.and.then may one oneself on the dance.floor

*Hunger antanzen.*<sup>35</sup>

hunger PART.dance

‘Now and then one can build up an appetite on the dance floor.’

d. *Thoss sitzt zwischen allen Stühlen und wird*

Thoss sits between all chairs and Will

*erst mal gegen eisigen Wind antanzen müssen.*<sup>36</sup>

first time against icy wind PART.dance need

‘Thoss is caught right in the middle and initially will have to face an icy wind.’

(12a) contains the expression of an activity directed toward an entity while (12b) contains an expression denoting an opening action. In (12c) the agent obtains something through the activity, and in (12d) a force-counterforce relation is expressed. In my view, the corresponding event types cannot be predicted straightforwardly from the default use of the verb *tanzen* (‘dance’). In other words, one should not assume corresponding entries for *tanzen*. This view is supported by the extremely small number of related examples compared to numerous other verbs that, in each of the examples, are more frequently used instead of *tanzen*. Nonetheless, it is a case of transparent formations. For the utterances

<sup>33</sup> *DIE ZEIT*, 12.10.2006: ‘Abi-Abschied’.

<sup>34</sup> *Hamburger Abendblatt*, 09.02.09: ‘Olympiasieger Steiner: Das ist meine neue Liebe’.

<sup>35</sup> *Berliner Zeitung*, 26.02.2005: ‘Kreuzberger Nächte’.

<sup>36</sup> *Mannheimer Morgen*, 13.03.2007: ‘Krieg um den Ballettchef’.



in (12), speakers and hearers have no problem matching and relating aspects of the stored verb meaning with aspects of the stored construction meaning, thereby constructing current meanings (transferred from the stored meanings). Thompson & Hopper (2001: 48), for example, assume an overwriting mechanism (coercion, override principle) occurring between the construction meaning and the verb meaning. This idea corresponds to a common metaphor according to which linguistic forms are seen as containers for meanings and, in the case of argument constructions, figuratively pulled over the verb.

In my view, such cases involve compositional processes in which central and peripheral values of the verbal frame (background) are profiled as arguments of corresponding constructions (foreground). A frame-semantic explanation of compositionality is theoretically postulated by Goldberg (1995: 24–26, 2010), but hardly specified. Kay & Michaelis (2010: 15) designate it as a desideratum of research. Discussing the distribution of motion verbs in resultative constructions, Boas (2006, 2008) shows how very fine-grained aspects of the semantics of a verb can, besides the classification into superordinate frames, be decisive for their use with constructions. In the following, I will outline the interplay between verb meaning and construction meaning for the examples in (12). First of all, however, let us determine the meaning of *tanzen* in terms of Frame Semantics.

Let us begin with the ascertainment of concrete semantic associations for *tanzen* ('to dance'). For this I asked 20 native speakers to explain to a fictive person from a different cultural sphere what is understood by *tanzen*. The explanations were to be arranged according to importance. They were then compared and matched with entries in the DWDS.<sup>37</sup> In a second step the participants were asked to participate in an inference test (following Schumacher 1986) asking them to supplement *x tanzt* with what is typical for them (regarding *x*). The extensions were to be limited to what is necessary for the understanding of the verb, but, unlike Goldberg's (1995: 43) test, by means of 'no <sub>verb</sub>ing occurred,' did not aim at minimal obligatory valency. I discuss expression patterns for corresponding associations in (13).

In addition to cultural and experience-related knowledge, frames always also contain linguistic knowledge. This is evoked by a lexeme such as *tanzen*, which on the basis of its appellative quality serves for the classification of very different events as *Tanzen*. Associated roles such as dancer and partner cannot be obtained from an ontologically structured world, but simultaneously represent culture-specific (we frequently dance with somebody) and language-specific ('he dances<sub>[finite active form]</sub> with sb.' = agent, partner) classifications.

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<sup>37</sup> <http://www.dwds.de/?qu=tanzen&view=1>

(13) *Tanzen*

- a. The rhythmic movement of one’s upright body, normally to music (steps, leaps, turns, movement of the arms, hands, hips)  
[NPnom V *zu* (to) NPdat : SELF-MOVER – EXTERNAL CAUSE]  
[NPnom V : SELF-MOVER] + [adv – MANNER]
- b. The movement can follow a standardized movement sequence (frequently a set made up of steps, turns, movements of the arms, hands, etc. = a dance)  
[NPnom V NPacc : SELF-MOVER – PATH / AGENT – PAT]
- c. Dancing typically occurs with partners, frequently with body contact  
[NPnom V *mit* (with) NPdat : SELF-MOVER – CO-MOVER]
- d. Dancing can be the expression of a frame of mind and/or create this (raising of the voice, freedom, abandon)
- e. Dancing normally takes place at organized events (ball, disco, party)  
[NPnom V PPloc : SELF-MOVER – EVENT/AREA]
- f. Dancing can be a professional artistic/sport discipline (ballet, entertainment, public, competition)

The different features listed in (13) are instances of superordinate schemas. Through the central self-motion component, *tanzen* is analyzed primarily as an instance of a Self-motion frame in (14), which in turn is an instance of a more abstract motion frame. The specific type of motion is linked with a part-whole schema, i.e. the body and its movable parts.

The associations listed in (13e) are instances of various ‘social event frames’ (organizer, occasion, participants, invitees, activities, etc.), just as (13f) is an instance of a competition frame (participants, prize, ranking/points, etc.) and of an Entertainment frame (venue, admission, artist, public, etc.). With regard to (13b), it is open to discussion whether the bringing about of a dance is to be defined as an instance of a general CREATE schema, or whether it is a derivation of the path component typical for self-movement verbs. A dance is brought about through the traveling of a path. The similarity to *einen Traum träumen* (‘dream a dream’) and *eine Lüge lügen* (‘lie a lie’) speaks for the fact that such a bringing-about is directly associated and expressed by means of a construction from the family of the argument pattern with inner objects, as proposed by Engelberg et al. (2011: 88–93).

Starting from the primary fine-semantic event determination, I ascertained on the basis of the Saarbrücken Lexical Semantics Acquisition project (SALSA)<sup>38</sup>

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38 <http://www.clt-st.de/framenet/frame-database>

and the Berkeley FrameNet project<sup>39</sup> the super-ordinate frame of Self-motion with corresponding slots for semantic roles (14). For reasons of space I will forgo the recording of corresponding expression patterns. I intend to show below how the frame values are expressed as arguments of different constructions with *an*.

(14) Self-motion (frame)

- a. Default values: a living being moves of its own force (body) in a specific manner – frequently along a path and without a separate vehicle.
- b. Core frame elements:
  1. Self-mover: living being that moves of its own force
  2. Source: starting point of the self-motion (SM)
  3. Direction: direction of the SM
  4. Path: SM along a route
  5. Goal: goal/end of the SM
  6. Area: space within which the SM takes place
- c. Non-core frame elements:
  1. Coordinated event: co-event independent of the self-mover
  2. Co-mover/-theme: SM takes place with/after the self-mover
  3. Depictive: quality of the self-mover
  4. Distance: measurement of the path
  5. Duration: duration of the SM
  6. External cause: cause independent of the self-mover that triggers the SM
  7. Internal cause: cause lying within the self-mover (mental state, etc.) that triggers the SM
  8. Manner: how the SM proceeds
  9. Purpose: purpose of the SM
  10. Result: what results from the SM event
  11. Time: time in which the SM occurs

The superordinate frame in (14) represents a category for the formation of verb classes whose members are distinguished from one another through the respective fine semantics presented in (13). The profiling of single frame values occurs through their expression as arguments of constructions. Normally, frame values are expressed in the role in which they are noted in the verbal frame, as is the case with *mit jdm. tanzen* ('dance with sb.') in relation to (13c=14c2). The construction allows the profiling of a central 'co-player' in the role associated with the verb.

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<sup>39</sup> <http://framenet.icsi.berkeley.edu>

This profile can be understood against the background of the whole semantic frame, which is part of the verb and the semantics of the construction.

The situation is slightly different in cases in which *tanzen* is interpreted as an instance of different constructions with *an*. Here, too, we can speak of the profiling of frame values or the passing on of those values to the construction. However, the role stored in the frame and the argument role do not need to correspond to one another. The total meaning is produced via implicature against the background of two different frames – which will now be illustrated in relation to the examples in (12).

In (12a) (cf. *jdn. antanzen*) the construction profiles the SELF-MOVER as an AGENT and an entity towards which its activity is directed. The superordinate frame contains a slot for the direction of the movement (14b3), which is represented through the construction as the direction of an activity, but not of locomotion. The motivation for the formation of (12a) is grounded in the fine semantics of the verb. The knowledge that dancing typically takes place with partners (13c) allows for the profiling of the direction in terms of ‘toward somebody/a partner.’ Nevertheless, it is not necessarily a case of neutral profiling of the partner as the goal (so that he becomes a partner, as with *jdn. ansprechen* ‘address sb.’). It is part of our knowledge about places where one typically dances (13e) and the role of dancing in the expression and creation of feelings (13d) that it can be part of a flirtation scenario. However, this is not a purely experience-related association. The source of analogy for the formation of (12a) can be just as much the expressions of flirting (*anflirten*, *anmachen*, *angraben*, *anbaggern* ‘flirt with, hit on, fool around with, come on to’) as a constructional niche. Only the situation, the co(n)text, and the belonging of the hearer and speaker to specific groups make it possible to limit the potential number of interpretations.

In (12b) (cf. *den Ball antanzen*) an opening action is expressed. Here, the frame-specific role of SELF-MOVER is expressed through the construction as an AGENT. The social event (13e) is expressed construction-specifically as PATIENT. For this, knowledge from the superordinate frame of (13e) is necessary, namely, that social events such as balls are typically opened, that this often takes place with dancing, and that for this a construction is available.

In (12c) (cf. *sich Hunger antanzen*) a reflexive causative action is expressed through the construction. Within the construction the SELF-MOVER (dancer) from the verbal frame becomes the causer, who through his action obtains the second argument of the construction. That is available in the general form as a peripheral slot in the superordinate frame as RESULT (14c10). It is part of our knowledge that all events can lead to a result. The conceptual basis for the use of *tanzen* in the construction is constituted by an implicature, namely, that the

movement of a living being of its own force (13a=14a) leads to exhaustion and hunger. This is a basic physical experience.

In (12d) (cf. *gegen etw. antanzen*) the SELF-MOVER as the first argument of the construction is expressed as an AGENT that is struggling against something. On the one hand, it is part of our knowledge about self-motion that it requires an effort to pass from a state of rest to one of movement, and then moving towards a goal. On the other hand, we know that motion has to overcome physical counterforces such as wind or currents, which are designated as a CO-EVENT (14c1). We know from our protest culture, for example, that one can *antanzen* against the closure of a theater. However, none of these things occurs in (12d). From the fine-grained semantics we know that professional dancing can take place in front of an audience (13f) and that here the intention is to entertain, win over, or trigger something in this (13e). Only against such a network of relations, which can best be grasped frame-semantically, do we realize the literal meaning of ‘icy wind’ as a rejection or guardedness of the audience against which one *antanzt*.

Determining frames is difficult, but ultimately no more so than the assumption of minimal semantic cores. Their plausibility and their heuristic values are clearly shown in the above analysis.<sup>40</sup> The meaning of the base verb is not simply overwritten by the argument constructions when these do not correspond to the default use of the verb or its finite active form. The hearer/speaker profiles the semantic-conceptual roles of the verbal frame within the event type expressed by the construction. The current meaning is not based on a pre-established frame, but in the linguistic-conceptual transfer of the frame-specific role to the argument slot of another frame profiled through the construction arguments. The interpretation and structure space built up successively in the discourse is what Fauconnier (1985: 16) calls ‘mental space’ and Langacker (1987: 128) ‘construal relationship’ between speaker and hearer.

Speaking against the conception that argument constructions simply overwrite the meaning of verbs are cases in which specific features of the verbal meaning change specific features of the construction meaning. I propose that PVs such as *jdn. anlächeln, anschreiben, anhören* (‘smile at, write to, listen to sb.’) are instances of the imperfective construction [NP<sub>nom</sub> V NP<sub>acc</sub> *an* : x DO DIRECTED TO y]. Nevertheless, a number of instances of this construction, such as *die Tür anstreichen*

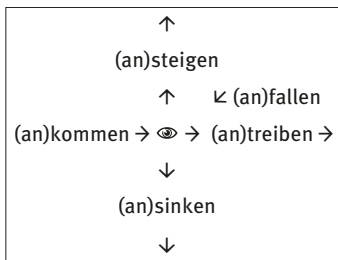
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<sup>40</sup> Ziem (2008: 107) writes that “jedes Modell, das gerade von diesen Wissenskontexten abstrahiert und eine invariante Komponentenstruktur zum Ausgangspunkt bedeutungstheoretischer Überlegungen macht, an der sprachlichen Realität vorbeitheoretisiert” [‘each model that just abstracts from these knowledge contexts and makes meaning-theoretical considerations into the starting point, theorizes away from the linguistic reality.’].

(‘paint the door’) express perfective events – and that is the case even though the event type is the same whether a wall is *angestarrt* (‘looked at’) or *angestrichen* (‘painted’). The explanation for this is that *streichen* implies the application of paint. This leads to the expression of a change of state of the second argument that is not contained in the construction meaning.

The assumption that the meanings of constructions are prototypes can also be taken to account for the change and the emergence of constructions.<sup>41</sup> Let us briefly consider PVs such as *ansteigen* and *anwachsen* (‘rise, accrue’). A number of authors, such as Rich (2003: 275, 370), paraphrase the meaning of the particle in these PVs as ‘reaching an altitude.’ However, PVs such as *ansinken* (‘sink’) are different. Following Kühnhold (1973: 114–115, 355), I treat PVs such as *ansinken* like *jdn. antreiben*, *anhetzen* (‘drive sb., set sb. on sth.’) denoting intensification (with a transitive and an intransitive construction). In my view, it is plausible to assume that *ansteigen* was originally an instance of the same perfective construction as *ankommen* (‘arrive’). In perspectival terms, however, there is no limit to either rising or sinking because one (deictic goal) is normally not in the place towards which something rises or sinks. What is important is that simplex verbs such as *steigen* and *sinken* have at their disposal a path component in their lexical meaning – one that is rather untypical for Germanic languages. Unlike *kommen* (‘come’) and *fallen* (‘fall’), *sinken* and *steigen* imply directions of movement that lead away from human living space, and hence also from the space of the viewer and that of conceptualization. This is visualized in Figure 1.

The eye in the center of Figure 1 symbolizes the perceiving or perspectively established endpoint of the events. It stands for the place of the hearer and speaker in an utterance or a recounted situation. Accordingly, it is primarily due to man’s perceptual perspective and the path component fixed in the corresponding verbs



**Figure 1:** Path component and perceptual perspective.

<sup>41</sup> Cf. Traugott (2008: 11) and Bybee (2010: chap. 6).

that PVs such as *ansinken* and *ansteigen* cancel out the endpoint of the locomotion that *an* established in terms of a construction. (While a train that has arrived cannot continue to arrive, share values that have climbed or declined, can certainly continue to climb or sink.) Regarding the template of *ansteigen*, other verbs with diffuse path components, such as *wachsen*, *schwellen*, and *wuchern* ('grow, swell, proliferate'), can then also be used.

On this view, one can argue that a new construction pattern has emerged on the basis of an existing construction, specifically through repeated and frequent metaphorical use. This new construction is only instantiated by eight verbs. The development of *jdn. antreiben* and *anhetzen* for the expression of urging and activating can be explained in an analogous way. As can be seen in the *Deutsches Wörterbuch*, these formations were originally only based on the expression pattern for causative movement actions (*antreiben* ['drive'] the cows = *an* ['to'] the pasture, *anhetzen* ['set'] the dog = *an* ['on'] the prey/enemy). Furthermore, *treiben* and *hetzen* contain in their lexical meanings a path component that leads away from those doing the driving. Thus, the endpoint of the movement action originally established categorially or deictically through the particle is cancelled in favor of the metaphorical expression of activation. Accordingly, the corresponding metaphor is based on a – due to the missing endpoint – intensifying movement (a *Vorantreiben* 'driving forth') of the second through the first argument.

Before dealing in more detail with the systematic connections between constructions and meaning groups, a further crucial aspect of the interplay between verbs and constructions should be mentioned. With instances of the transitive partial construction such as *etw. anbraten*, *anknicken*, and *anlesen* ('start to/partially roast, bend, read sth. '), either the weak resultant state of an action through its controlled termination is expressed, or the beginning of the action. The meaning of this construction cannot be described with abstract predicates. In my view, this is due to the fact that the meaning of the corresponding PV is in principle not only understood against the background of the verbal frame and the constructional meaning. If somebody *ankaut* ('chews') something, then he does not only chew it a little, or at some point stops doing it or begins doing it. To understand the meaning of transparent PVs such as *etw. anbrauchen*, *ankauen*, *anbrechen* ('put to use, chew, broach sth. '), related contrast concepts need to be known that are likewise expressed through preverb constructions, namely, *etw. auf-* or *verbrauchen* ('use up, waste sth. '), *etw. durch-* or *zerkauen* ('chew sth. through or up'), and *etw. kaputt-*, *ab-* or *zerbrechen* ('break-up, break-off, shatter sth. '). Compositionality arises here only against the background of corresponding contrast forms in the total system of preverb constructions.

## 5 Relationships between different constructions with *an*

Based on our discussion so far, the different constructions with *an* can be assigned to the eight meaning groups presented in (15).

- (15) a. Changes of place and state: *anwurzeln, ankommen, etw. ankleben, jdm. etw. antrainieren, sich einen antrinken* ('take root, arrive, stick sth., teach sb. sth., get drunk')
- b. Putting into operation: *etw. anschalten* ('switch sth. on')
- c. State of contact: *anliegen* ('fit tightly/lie flat')
- d. Intensification: *ansteigen, jdn. antreiben* ('rise, drive')
- e. Directionality: *anklopfen, jdn. anlächeln* ('knock, smile at sb.')
- f. Force-counterforce: *gegen etw. ankämpfen* ('struggle against sth.')
- g. Partiality (beginning, weak intensity, opening): *anrücken, etw. anlesen, anbaden* ('approach, start to/partially read, bathe')
- h. Perception of something in relation to somebody: *jdm. etw. ansehen* ('see sth. in sb.')

The systematic relation between the meaning groups does not consist of direct derivations based on an invariant form, but it is grounded in a network of family resemblances. The starting point (but not the direct extension basis) is formed by the basic meaning of the preposition *an* with the feature 'contact/less connection' (in contrast to *ab* 'separated from'). With Weinrich (2006: 50), I assume that the central contact meaning is based not on an abstract spatial model, but primarily on the physical experience of contact with the hand.

Among 77% of the PVs with *an*, the following event types are expressed: the establishment, the achieving, or the presence of contact, or else the direction of an action or a movement towards a (contact) goal, or away from it. In Germanic languages these are typically expressed outside of the verb lexeme in terms of prepositional phrases, particles, and prefixes. This is what Talmy (1985: 102) calls a 'satellite-framed construction'. If like Talmy (1991: 492) one understands the satellite model of movement expressions as a metaphorical template for the expression of perfectivity, then one can speak of a family of preverb constructions.

I now turn to the relationships between the remaining meaning groups. The meaning of the putting into operation sense (*etw. anschalten*) can be derived as a semantic compression from specific expressions of the establishment of contact between an entity and an energy source, such as *etw. ans Feuer stellen* ('put sth. next to the fire') or *Feuer an etw. stecken* ('set fire to sth.'). I propose that the meaning of single constructs with the original meaning of the establishment of



contact was transferred to the schematic construction and fixed as a part of it, which supports the existence of an independent construction. The meaning of this construction would be compressed so far within the particle that it is used like adjectives predicatively and attributively, which is shown by the following example taken from an Internet forum: “kommen mücken nur bei aufem (PART as declined adj.) fenster und anem (PART as declined adj.) licht [...]?” (“do mosquitos only come with an open window and the light on [...]?”).<sup>42</sup> Accordingly, the whole construction can be assessed as an instance of a resultative construction.

The meaning group of partiality can involve the metaphorization of concrete direction expressions. Consider, for example, Adelung (1793), who discusses the metaphorical reading of *an* in *an die zehn Taler* (‘approximately ten thaler’). This reading can be traced back for *etw. anfangen* (‘begin sth.’) to Old High German *anafāhan* (‘grasp sth.’). Many *Handlungen* (‘actions’) begin with the *Handanlegen* (‘the laying on of the hand’). Starting with constructs such as these, I suggest that the metaphor was fixed in corresponding schemas and grammaticalized. Its genesis can currently only be seen in *etw. anpacken* (‘set about sth.’). However, it can be assumed that the expression of partiality also involves the metaphorization of the feature ‘surface.’ That is implied through the contact meaning of *an* as opposed to *in*.<sup>43</sup> Meat that is *angebraten* is in a figurative sense only superficially affected by the verbal action. The action is broken off at the surface and does not pass *through* the meat.

The genesis of the intensification meaning can likewise only be related to the basic meaning of *an* indirectly and mediated by concrete constructs. I have shown above that this is a case of an overwriting of the meaning of *ankommen* (the reaching of the destination = contact with this). That overwriting was triggered by verbs whose meaning contains a path component that leads away from the typical viewer position/position of the communication partner (*steigen, treiben*).

The semantic field of perception or cognition is likewise only indirectly linked with the basic meaning of *an*. Through *an*, a part-whole relationship, such as *der Apfel am Baum* (‘the apple in the tree’), can be expressed. Something is perceived or construed as a part of another entity when it is in contact with this and set apart from it. This case is an example of a foreground-background configuration. What is seen or heard in relation to a person (background) is a part of this in the foreground. The perception component is contributed exclusively by the verbs. In other words, this construction is exclusively projected by perception verbs.

<sup>42</sup> Internet forum 07.09.2010: <http://www.stern.de/noch-fragen/muecken-1000100521.html>

<sup>43</sup> Regarding the network of relations between *an, ab, in, aus*, I refer to the corresponding entries in the *Deutsches Wörterbuch*.

These remarks show that the different groups cannot be predicted or derived based on the basic meaning of *an*. There are also no systematic relations between the different meaning groups that can be predicted. Nevertheless, they can be related to one another in connection with concrete PVs and in relation to the individual features of the contact meaning and corresponding metaphorizations. Thus, there is no direct family relationship between partiality and putting into operation. There is, however, a mediation through the respective PV-construction, which stands in direct relation to the feature ‘contact.’ Those mediating instances neither constitute the center of the category nor do they contain all the features of the category. However, they ground the network of relations described with Wittgenstein’s ([1953] 1990: §66f) concept of family resemblance, and explain the existence of uniform constructions for the expression of different event types.

I now turn to the relationship between different transitive constructions for the expression of causative actions. Assuming different uniform constructions, we would like to know the reasons for this uniformity. Although constructions cannot be predicted, they should still be motivated.<sup>44</sup> Let us consider the examples presented in (16).

- (16) a. *Der Klebbereich muss ohne Lufteinschlüsse vollflächig,*  
 the sticky.area must without air.pockets all.over  
*faltenfrei und fest angerollt werden.*<sup>45</sup>  
 wrinkle.free and firmly PART.rolled be  
 ‘The sticky side should be rolled on firmly avoiding air pockets and wrinkles.’
- b. *Backwaren, so groß wie Wagenräder sollten*  
 Pastries as large as cart.wheels should  
*angerollt werden.*<sup>46</sup>  
 PART.rolled be  
 ‘Pastries as big as cartwheels should be brought along.’
- c. *Die Berliner Feuerwehr will [...] junge Migranten*  
 the Berlin fire.brigade wants young migrants

<sup>44</sup> Lakoff (1987: 91, 482, 508) considers motivation to be the fundamental organizing principle. Accordingly, a construction X motivates a construction Y, when Y inherits from X semantic, pragmatic, and formal properties. Relations of this kind correspond to the hypothesis of structure preservation formulated by Plank (1985: 115), according to which, “erweiterte und markierte Konstruktionen so weit wie möglich analog entsprechenden einfachen und unmarkierten Konstruktionen strukturiert sind” [‘extended and marked constructions are structured as far as possible like corresponding simple and unmarked constructions’].

<sup>45</sup> [www.pur-bautechnik.de/dampfdicht/index.htm](http://www.pur-bautechnik.de/dampfdicht/index.htm)

<sup>46</sup> *Rhein-Zeitung*, 27.12.2005: ‘Neue Weihnacht gefiel dem Kaiser bestens’.

*direkt nach der Schule anwerben.*<sup>47</sup>

directly after the school PART.recruit

‘The Berlin fire brigade wants to recruit young migrants directly out of school.’

d. *Nach der neuen Regelung können Bauarbeiter*

after the new regulation can builders

*im Sommer bis zu 30 Überstunden ansparen.*<sup>48</sup>

in.the summer up to 30 overtime.hours PART.save

‘According to the new regulation, in summer builders can save up a maximum of 30 hours overtime.’

All four utterances express causative actions. Nevertheless, different basic concepts form the basis for the four different examples above. In (16a) rolling leads to contact. In (16b) the causative rolling leads to the change of place of an entity. Formations of the type as in (16b) activate many typical semantic roles of a transport frame: among others, a path (PATH), a movable object (THEME), and a starting point (SOURCE), which is not the case for formations of the type in (16a). (16a) and (16b) are licensed by different constructions exhibiting the common feature CAUSE. The meaning of (16c) is based on the concept attracting an entity, that is, its intentional movement towards the agent. This meaning is not presupposed by the simplex, but contributed by the construction. Unlike Goldberg (1995: 161), I do not assume that intentional and concrete actions – viz. the *Anwinkeln der Beine* (‘bending of the legs’) and the *Anwerben der Kunden* (‘drumming-up of customers’) – are based on two different constructions. In my view, these distinctions arise through the flexibility of the construction in its use with the corresponding verb. In (16d) an action is expressed in which the second argument is augmented or brought about. This meaning is already contained in the simplex, but need not be, as will be shown below.

Besides the fact that the expressed event type need not be predictable from the base verb, the various functions of the particle are an indication that there are different constructions at work. In (16a) the particle marks a categorial place of contact or a contact as a resultant state. In (16b) it refers to an aforementioned place or the place of the speaker. In (16c) it denotes the relation between the moving agent and the second argument that is moving towards the agent. Examples such as (16d) can frequently be paraphrased with *zusammen* (‘together’). In my view, we are dealing here with four uniform transitive constructions with related meanings as illustrated in (17).

<sup>47</sup> *Berliner Tagesspiegel*, 20.10.2008: ‘Feuerwehr will gezielt Türken anwerben’.

<sup>48</sup> *Berliner Morgenpost*, 07.06.1999: ‘Einigung über neuen Tarif bei Schlechtwetter auf dem Bau’.

- (17) a. X ATTACH Y  
 b. X MOVE Y TO DEICTIC LOC  
 c. X ATTRACT Y  
 d. X AMASS/CREATE Y

The connection between the constructions (17a) and (17b) is constituted by the causative verbs of position. When something is *an etw. gesetzt* (‘placed on sth.’) or *an etw. gehängt* (‘hung onto something’), the concept of a movement as well as the concept of the establishment of contact are activated. An instance of (17b) – namely, *etw. anziehen* (‘put sth. on’) – could, through the semantics of *ziehen* (‘to pull’) as ‘move something in its own direction of movement,’ have led to the formation of (17c), while the metonymic use of (17a,b), could have led to the formation of (17d). Consider the examples in (18).

- (18) a. *Sivas will in den nächsten Jahren insgesamt*  
 Sivas wants in the next years a.total.of  
*1 Million Bäume anpflanzen.*<sup>49</sup>  
 1 million trees PART.plant  
 ‘In the coming years Sivas wants to plant a total of 1 million trees.’
- b. *Mit der Erbschaft ließen sich rund 25 Hektar*  
 with the inheritance could be around 25 hectares  
*Wald anpflanzen.*<sup>50</sup>  
 forest PART.plant  
 ‘With the inheritance around 25 hectares of forest could be planted.’

In (18a) *pflanzen* is an instance of the construction in (17a). The trees are connected with the earth – indeed, *an* (‘in’) a place *gepflanzt* (‘planted’). In (18b) the same verb is an instance of the construction in (17d), where the result is anticipated, specifically that a whole forest is planted or brought about. The interim stages – namely, the planting of the individual trees so that a forest is created – are skipped. I suggest that there is a causal relationship of contiguity between ‘trees’ and ‘forest’. It is created through the construction at a syntagmatic level as ‘trees’ and ‘forest’ are in a part-whole relation. Through *einen Wald anpflanzen* (‘plant a forest’) in (18b), they are conceptualized in a causal material-product relationship. Metonymic variations are thereby based on relationships between causal, temporal, and local partial aspects and their larger counterparts. The importance

<sup>49</sup> Braunschweiger Zeitung, 04.05.2006: ‘Livesendung vom Comeniustreffen’.

<sup>50</sup> Braunschweiger Zeitung, 05.07.2006: ‘Kreis erbt: Geld für 25 Hektar neuen Wald’.

of detaching metonymy from the purely rhetorically defined concept of a *pars pro toto* or *totum pro parte* relationship is pointed out by Lakoff & Johnson (1980: 39) when they remark that the “grounding of metonymic concepts [...] usually involves direct physical or causal associations.”

I propose that the causative construction in (17a) activates in the core area two argument slots, one for an agent and another one for an argument, which is brought into contact with a categorial ground. These are obligatorily expressed through the construction. The frame also contains the peripheral role for the goal of the action. The verb *pflanzen* as an instance of the construction (17a) allows the fine determination of the selection properties, whereby ‘trees’ can be chosen as the second argument in (18a). Through the part-whole relationship between ‘trees’ and ‘forest,’ in relation to the goal of the action – to create a forest – that can now be realized through a causal relation as second argument (18b), although in reality it is not *angepflanzt* (‘planted’). The same metonymic construction-specific derivation relation explains that one can *anschütten* earth (move it to a place), but one can also *anschütten* a whole dam (the creation of the whole from its parts). However, this derivation does and did not take place with every expression. Thus, according to the corresponding entry in the *Deutsches Wörterbuch*, *den Teig ansetzen* means that the finished dough was put in a warm place to rise. A metonymic derivation for the current understanding of the composition of dough is not possible and also not necessary. It can be assumed that the meaning was fixed on the basis of individual PVs in the construction. Besides the metonymic relations, verbs whose lexical meaning displays an AMASS component, such as *sparen*, *häufen*, *sammeln* (‘save, amass, collect’), also played a central role. (19) illustrates the network of relations between the transitive causative constructions with *an*.

(19)

causative →	a) X ATTACH Y	metonymy:
position verbs →	b) X MOVE Y LOC → → “anziehen”	material > product
	c) X ATTRACT Y ← ← ←	↓
	d) X AMASS/CREATE Y ← ← ← ←	← ←

The central role of the causative position verbs in the case of metonymic and metaphorical derivations can be explained on the basis of their semantics. Unlike many causative movement verbs, they contain no indication about the type of action. They express the causation of a resultant state, which is determined through the corresponding static verbs of position. Although the way in which something is brought into the respective position is presupposed as a variable slot of the activated frame, it is not determined as a default value through the verbs.



In the case of an intransitive construction expressing a state of contact as in (20c), only the state carrier and its state are expressed through the construction. The constructions in (20b) and (20c) both contain formal and semantic components (subparts) of the construction (20a).

I propose that single PVs should be analyzed as instances of the corresponding constructions. Thus, *etw. ankleben* is an instance of (20a), *anwachsen*, in the sense of ‘take root,’ an instance of (20b), and *anliegen* an instance of (20c). Partially lexicalized PVs are special cases, which often involve the reinterpretation of the base verb within a construction whose meaning, however, remains unchanged. Let us consider *schaffen* as an instance of a ditransitive construction with a reflexive pronoun. Even if *sich etw. anschaffen* (‘get oneself sth.’) is lexicalized, since *schaffen* is interpreted as *kaufen* (‘buy’), the semantics of the construction remains transparent (21). Analogously, it is possible to analyze *jdm. etw. andrehen* (‘foist sth. on sb.’) as an instance of a non-reflexive variant.

- (21) a. 

[NPnom V <sub>fin</sub> sich NPacc an]: X CAUSE	RECEIVE Y
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↓  
 b. 

er schafft sich etw. an: X CAUSE via “kaufen”	RECEIVE Y
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Constructions can also be more specific instances of related (more abstract) constructions. In this regard, I have pointed to the relation between the construction for the expression of putting into operation (*etw. anschalten*) and a more schematic Resultative Construction (RC).

More specifically, the particle *an* can be used predicatively and attributively, just like adjectival resultative phrases of RCs, because the schematic RC is capable of transferring its constructional meaning to the construction containing the particle. The particle *an* of this construction is topicalized and modified more frequently than the *an* of other constructions, i.e., it exhibits properties of the adjectives of transparent RCs. To account for this systematically, I assume a direct inheritance link between a general RC in (22a) and the corresponding particle construction in (22b).

- (22) a. 

X CAUSE Y BECOME STATE Z : [NPnom V <sub>fin</sub> NPacc AP]
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↓  
 b. 

X SWITCH Y ON	: [NPnom V <sub>fin</sub> NPacc an]
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Finally, I turn to a special case of analogical extension which may occur when verbs of a frame are used with a specific construction. When a specific verb is used most frequently (as opposed to other verbs) in a specific construction, it establishes itself as the leading form. For example, above I discussed the verb

*etw. anbraten* in relation to semantically related verbs such as *etw. anrösten*, *andünsten*, *anbräunen*, *anschmoren*, etc. ('start to/partially roast, steam, brown, stew'). Considering other PVs such as *etw. anschwitzen* ('sweat sth. '), it becomes evident that *schwitzen* only receives the meaning of cooking within the construction with *an*. In other words, it is a direct instance of another PV of the same group of semantically related verbs. That PVs (viz. instances of constructions) can also be schemas for other PVs is not uncommon. For example, PVs such as *sich einen anzwitschern*, *ansäuseln*, *andudeln*, *anzüchten* ('get tipsy, sloshed, merry, plastered') are direct instances of *sich einen antrinken* or *ansaufen* ('get drunk').<sup>51</sup> Between the simplex verbs themselves there is no relation of similarity. Such extensions are only produced temporarily within the niche formation, that is, as instances of the verb *sich einen antrinken*.

## 6 Conclusion

Compared to modular theories of language, the constructional analysis of PVs with *an* has the following advantages. First, lexicalized and transparent PVs as well as verbs that cannot be clearly defined as belonging to one category or the other can be analyzed in one common format without a calculated comparison between verb and particle. Second, compositionality is retained as a fundamental principle involving procedural, frame-based semantics (as opposed to static invariants). Third, the relation between the different meaning groups of constructions and constructions and PVs is based on an immanent processual (i.e. always also diachronic) system of flexible schema-instance relationships, in which instances are the precondition and the precursor (prototypes) for schemas.

The constructional analysis suggested in this paper assumes overlapping and construction-based connections. Many argument structure constructions with *an* belong to the lexical entry of the verb. This means that corresponding PVs are stored holistically. To support my view, I discussed a range of data illustrating the frequency and/or (partial) idiomaticization of PVs. Likewise, many of the constructions discussed in this paper can be abstracted from corresponding verbs and used productively. This means that the general construction does not cancel out the specific construction, but it feeds on it.

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<sup>51</sup> Gerdes (2016: 143) proposes a similar analysis for non-lexicalized particle verbs with 'an' treating them as instances of lexicalized verbs.



## References

- Adelung, Johann C. 1790 [1793–1801]. *Grammatisch-kritisches Wörterbuch der Hochdeutschen Mundart mit beständiger Vergleichung der übrigen Mundarten, besonders aber der oberdeutschen. Zweyte, vermehrte und verbesserte Ausgabe*. Hildesheim & New York: Geog Olms. [http://woerterbuchnetz.de/cgi-bin/WBNetz/wbgui\\_py?sigle=Adelung](http://woerterbuchnetz.de/cgi-bin/WBNetz/wbgui_py?sigle=Adelung) (accessed 24 June 2012)
- Ágel, Vilmos. 1993. *Valenzrealisierung, finites Substantiv und Dependenz in der deutschen Nominalphrase*. (Kölner Linguistische Arbeiten – Germanistik 29) Hürth: Gabel.
- Behrens, Leila. 2002. Structuring of Word Meaning II: Aspects of Polysemy. In Cruse, Alan, Franz Hundnurscher, Michael Job & Peter R. Lutzeier, Peter R. (eds.), *Lexikologie: Ein internationales Handbuch zur Natur und Struktur von Wörtern und Wortschätzen*. 1st half-vol., 319–337. Berlin & New York: de Gruyter.
- Bierwisch, Manfred. 1987. Semantik der Graduierung. In Bierwisch, Manfred & Ewald Lang (eds.), *Grammatische und konzeptuelle Aspekte von Dimensionsadjektiven*, 91–286. Berlin: Akademie-Verlag.
- Bloomfield, Leonard. 1973 [1933]: *Language*. 12. edn. London: Allen & Unwin.
- Boas, Hans C. 2006. A Frame-Semantic Approach to Identifying Syntactically Relevant Elements of Meaning. In Steiner, Petra, Hans C. Boas & Stefan Schierholz (eds.), *Contrastive Studies and Valency: Studies in Honor of Hans Ulrich Boas*, 119–149. Frankfurt am Main et al.: Lang.
- Boas, Hans C. 2008. Towards a Frame Constructional Approach to Verb Classification. *Revista Canaria de Estudios Ingleses* 57. 17–47.
- Broccias, Christiano. 2000. The need for the resultative network. In Conathan, Lisa J., Jeff Good, Darya Kavitskaya, Alyssa B. Wulf & Alan C.L. Yu. (eds.), *Proceedings of the twenty-sixth annual meeting of the Berkeley Linguistics Society: General session and parasession on aspect*. Berkeley, California: Berkeley Linguistics Society. 41–52.
- Bybee, Joan L. 1985. *Morphology: A Study of the Relation between Meaning and Form*. Amsterdam & Philadelphia: Benjamins.
- Bybee, Joan L. 2010. *Language, Usage and Cognition*. Cambridge: Cambridge University Press.
- Chang, Lingling. 2008. Resultative Prädikate, Verbalpartikeln und eine konstruktionsgrammatische Überlegung. *Deutsche Sprache* 2. 127–145.
- Croft, William. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Dewell, Robert B. 2011. *The Meaning of Particle / Prefix Constructions in German* (= Human Cognitive Processing 34). Amsterdam & Philadelphia: Benjamins.
- Di Sciullo, Anna-Maria & Edwin Williams 1987. *On the Definition of Word*. Cambridge, Mass.: The MIT Press.
- Dowty, David. 1991. Thematic Proto-Roles and Argument Selection. *Language* 67. 547–619.
- Engelberg, Stefan. 2009. Blätter knistern über den Beton: Zwischenbericht aus einer korpuslinguistischen Studie zur Bewegungsinterpretation von Geräuschverben: Konstruktionsgrammatische Überlegung. *OPAL-Sonderheft* 4. 75–97.
- Engelberg, Stefan, Svenja König, Kristel Proost & Edeltraud Winkler 2011. Argumentstrukturmuster als Konstruktionen? Identität – Verwandtschaft – Idiosynkrasien. In Engelberg, Stefan, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik. IDS Jahrbuch 2010*, 71–112. Berlin & Boston: Walter de Gruyter.
- Fauconnier, Gilles. 1985. *Mental Spaces: Aspects of Meaning Construction in Natural Languages*. Cambridge: The MIT Press.

- Felfe, Marc. 2012. *Das System der Partikelverben mit ‘an’: Eine konstruktionsgrammatische Untersuchung*. Berlin & New York: Walter de Gruyter.
- Fillmore, Charles J. 1977. Scenes-and-Frames Semantics. In Zampolli, Antonio (ed.), *Linguistic Structures Processing*. Vol. 5, 55–81. Amsterdam, New York & Oxford: North Holland.
- Fillmore, Charles J. 1985. Frames and the Semantics of Understanding. *Quaderni di Semantica* 6. 222–254.
- Fillmore, Charles J., Paul Kay & Mary K. O’Connor. 1988. Regularity and Idiomaticity in Grammatical Constructions: The Case of ‘Let Alone.’ *Language* 64. 501–538.
- Gerdes, Jens. 2016. *Partikelverben im produktiven Gebrauch. Eine Korpusuntersuchung verbaler Bildungsschemata in Presstexten*. Trier: Universität Trier. <http://ubt.opus.hbz-nrw.de/volltexte/2016/964/> (accessed 20 June 2016)
- Goldberg, Adele E. 1995. *A Construction Grammar Approach to Argument Structure*. Chicago & London: The University of Chicago Press.
- Goldberg, Adele E. & Ray Jackendoff. 2004. The English resultative as a family of constructions. *Language* 80(3). 532–568.
- Goldberg, Adele E. 2006. *Constructions at Work: The Nature of Generalizations in Language*. Oxford: University Press.
- Goldberg, Adele E. 2010. Verbs, Constructions and Semantic Frames. In Rappaport Hovav, Malka, Edit Doron, & Ivy Sichel (eds.), *Syntax, Lexical Semantics and Event Structure*, 39–58. Oxford: Oxford University Press.
- Gorlach, Marina. 2004. *Phrasal constructions and resultativeness in English*. Amsterdam: John Benjamins Publishing Company.
- Grimm, Jacob & Wilhelm Grimm (1854–1960): *Deutsches Wörterbuch*. Leipzig: Hirzel. <http://germazope.uni-trier.de/Projects/WBB/woerterbuecher/woerterbuecher/dwb/wbgui> (accessed 24 June 2012)
- Helbig, Gerhard & Wolfgang Schenkel. 1975. *Wörterbuch zur Valenz und Distribution deutscher Verben*. 3rd edn. Leipzig: Bibliographisches Institut.
- Hundsnerscher, Franz 1997 [1968]. *Das System der Partikelverben mit ‘aus’ in der Gegenwartssprache*. (Beiträge zur germanistischen Sprachwissenschaft 11). Hamburg: Buske.
- Jackendoff, Ray. 2002. English Particle Constructions, the Lexicon, and the Autonomy of Syntax. In Dehé, Nicole, Ray Jackendoff, Andrew McIntyre & Silke Urban (eds.), *Verb-Particle Explorations*, 67–94. Berlin & New York: Mouton de Gruyter.
- Jacobs, Joachim. 2009. Valenzbindung oder Konstruktionsbindung? Eine Grundfrage der Grammatiktheorie. *Zeitschrift für Germanistische Linguistik* 37. 490–513.
- Kay, Paul & Laura A. Michaelis. 2010. Constructional Meaning and Compositionality. In Maienborn, Claudia, Klaus von Heusinger & Paul Portner (eds.), *Semantics: An International Handbook of Natural Language Meaning*. Vol. 3, 2271–2296. Berlin: de Gruyter.
- Kempcke, Günter. 1965. Die Bedeutungsgruppen der verbalen Kompositionspartikeln *an-* und *auf-* in synchronischer und diachronischer Sicht. *Beiträge zur Geschichte der deutschen Sprache und Literatur* 87. 392–426.
- Kempcke, Günter. 2001. Polysemie oder Homonymie? Zur Praxis der Bedeutungsgliederung in den Wörterbuchartikeln synchronischer einsprachiger Wörterbücher der deutschen Sprache. *Lexicographica* 17. 61–68.
- Knobloch, Clemens. 2009. Einladung und Einleitung. ZGL-Workshop „Konstruktionsgrammatik“ am 29./30. Januar 2009. *Zeitschrift für Germanistische Sprachwissenschaft* 37. 385–401.
- Kolehmainen, Leena. 2005. *Präfix- und Partikelverben im deutsch-finnischen Kontrast*. Frankfurt am Main et al.: Lang.

- Kühnhold, Ingeburg. 1973. Präfixverben. In Kühnhold, Ingeburg & Hans Wellmann (eds.), *Deutsche Wortbildung: Das Verb*. (Schriften des Instituts für deutsche Sprache in Mannheim. Vol. XXIX.), 141–362. Düsseldorf: Schwann.
- Lakoff, George. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. Chicago & London: The University of Chicago Press.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar. Vol. I. Theoretical Prerequisites*. Stanford: Stanford University Press.
- Lüdeling, Anke. 2001. *On Particle Verbs and Similar Constructions in German*. Stanford: CSLI Publications.
- Müller, Stefan. 2002. *Complex Predicates: Verbal Complexes, Resultative Constructions and Particle Verbs in German*. Stanford: CSLI.
- Müller, Stefan. 2007. Resultativkonstruktionen, Partikelverben und syntaktische versus lexikonbasierte Konstruktionen. In Fischer, Kerstin & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik I. Von der Anwendung zur Theorie*, 177–202. Tübingen: Stauffenburg.
- Paul, Hermann. 2002 [1880]. *Prinzipien der Sprachgeschichte*. 10th edn. Tübingen: Niemeyer.
- Plank, Frans. 1981. *Morphologische (Ir-)Regularitäten*. Tübingen: Narr.
- Plank, Frans. 1985. Prädikativ und Koprädikativ. *Zeitschrift für Germanistische Linguistik* 13. 154–185.
- Rich, Georg A. 2003. *Partikelverben in der deutschen Gegenwartssprache mit durch-, über-, um-, unter-, ab-, an-*. Frankfurt am Main et al.: Lang.
- Rostila, Jouni. 2007. *Konstruktionsansätze zur Argumentmarkierung im Deutschen* (Acta Universitatis Tamperensis 1260) Tampere: Tampere University Press. <http://acta.uta.fi/english/teos.php?id=1099>; (accessed 12 June 2010)
- Schumacher, Helmut. 1986. *Verben in Feldern: Valenzwörterbuch zur Syntax und Semantik deutscher Verben*. (Schriften des Instituts für deutsche Sprache 1) Berlin & New York: de Gruyter.
- Stefanowitsch, Anatol & Stefan Th. Gries. 2003. Collocations: Investigating the Interaction between Words and Constructions. *International Journal of Corpus Linguistics* 8(2). 209–243.
- Stefanowitsch, Anatol. 2011. Keine Grammatik ohne Konstruktionen: Ein logisch-ökonomisches Argument für die Konstruktionsgrammatik. In Engelberg, Stefan, Anke Holler & Kristel Proost (eds.), *Sprachliches Wissen zwischen Lexikon und Grammatik*. IDS Jahrbuch 2010, 181–210. Berlin & Boston: Walter de Gruyter.
- Stiebels, Barbara. 1996. *Lexikalische Argumente und Adjunkte: Zum semantischen Beitrag von verbalen Präfixen und Partikeln*. Berlin: Akademie-Verlag.
- Stiebels, Barbara & Dieter Wunderlich. 1994. Morphology Feeds Syntax: The Case of Particle Verbs. *Linguistics* 32. 913–968.
- Talmy, Leonard. 1985. Lexicalization Patterns: Semantic Structure in Lexical Forms. In Shopen, Timothy (ed.), *Language Typology and Syntactic Description*. Vol. 3: *Grammatical Categories and the Lexicon*, 57–149. Cambridge: Cambridge University Press.
- Talmy, Leonard. 1991. Path to Realization: A Typology of Event Conflation. *Berkeley Linguistics Society* 17. 480–519.
- Thompson, Sandra A. & Paul J. Hopper. 2001. Transitivity, Clause Structure, and Argument Structure: Evidence from Conversation. In Bybee, Joan & Paul J. Hopper (eds.), *Frequency and the Emergence of Linguistic Structure*, 27–60. Amsterdam: Benjamins.
- Tomasello, Michael. 2006. *Die kulturelle Entwicklung des menschlichen Denkens*. (Engl.: *The Cultural Origins of Human Cognition*. Cambridge, Mass., London: Harvard University Press, 1999). Frankfurt am Main: Suhrkamp.

- Torres-Martínez, Sergio. 2017. Working out multiword verbs within an Applied Cognitive Construction Grammar framework. In *European Journal of Applied Linguistics* 5(1). 1–38.
- Traugott, Elizabeth C. 2008. Grammatikalisierung, emergente Konstruktionen und der Begriff der ‘Neuheit.’ In Stefanowitsch, Anatol & Kerstin Fischer (eds.), *Konstruktionsgrammatik II. Von der Konstruktion zur Grammatik*, 5–32. Tübingen: Stauffenburg.
- Weinrich, Harald. 2006. *Sprache, das heißt Sprachen*. 3rd extended edn. Tübingen: Narr Francke Attempto Verlag.
- Welke, Klaus. 2001. Was heißt 1., 2., 3. Argument? In Thielemann, Werner & Klaus Welke (eds.), *Valenztheorie: Einsichten und Ausblicke*, 169–190. Münster: Nodus Publikationen.
- Welke, Klaus. 2009. Valenztheorie und Konstruktionsgrammatik. *Zeitschrift für Germanistische Linguistik* 37. 81–124.
- Wittgenstein, Ludwig. 1990 [1953]. *Philosophische Untersuchungen*. (1st edn. *Philosophical Investigations*. Oxford: Blackwell, 1953) In Wittgenstein, Ludwig: *Tractatus logico-philosophicus. Philosophische Untersuchungen*, 95–423. Ed. by Peter Philipp. Leipzig: Reclam.
- Wunderlich, Dieter. 2000. Predicate Composition and Argument Extension as General Operations. In Stiebels, Barbara & Dieter Wunderlich (eds.), *Lexicon in Focus*. (Studia grammatica 45), 247–270. Berlin: Akademie Verlag.
- Zeller, Jochen. 2001a. *Particle Verbs and Local Domains*. (Linguistik Aktuell/Linguistics Today Vol. 41) Amsterdam: Benjamins.
- Zeller, Jochen. 2001b. Prefixes as Transitive Verbs. In Dehé, Nicole & Anja Wanner (eds.), *Structural Aspects of Semantically Complex Verbs*, 1–34. Frankfurt am Main et al.: Lang.
- Zeller, Jochen. 2002. Particle Verbs are Heads and Phrases. In: Dehé, Nicole, Ray Jackendoff, Andrew McIntyre & Silke Urban (eds.), *Verb-Particle Explorations*, 233–267. Berlin & New York: Mouton de Gruyter.
- Ziem, Alexander. 2008. *Frames und sprachliches Wissen: Kognitive Aspekte der semantischen Kompetenz*. (Vol. 2 of *Sprache und Wissen*) Berlin, New York: Walter de Gruyter.





## **Part IV: Constructional Productivity**



Karin Madlener

# Type and token frequency effects on developing constructional productivity: The case of the German *sein* ‘be’ + present participle construction

## 1 Developing constructional productivity

Constructionist approaches to language assume that language acquisition is usage-based. They posit that increasingly abstract linguistic representations gradually emerge “from language use by means of powerful generalization abilities” (Behrens 2009: 384) in meaningful contexts of interaction. As such, language learning is “the piecemeal learning of many thousands of constructions and the frequency-biased abstraction of regularities within them” (Ellis 2002: 143). The latter process is based on the recognition of distributional patterns of form-meaning mappings in the input or rather on “the distributional analysis of the language stream and the parallel analysis of contingent perceptual activity, with abstract constructions being learned from the conspiracy of concrete exemplars of usage following statistical learning mechanisms [...]” (Ellis and Cadierno 2009: 117–118).

Language learners basically face four challenges: Firstly, they have to build up a substantial store of utterance chunks, which allow for beginning participation in communication and serve as a data base for the abstraction of regularities. Secondly, learners have to recognize recurrent patterns across their stored chunks and further input utterances. Pattern recognition is a function of learners both noticing consistent repetition and detecting systematic variation in the input (Behrens 2009: 386). It relies on domain-general mechanisms of segmentation, distributional analysis, and categorization. Thirdly, learners must abstract mental representations of increasingly item-general, lexically unspecific constructions via cognitive comparison and schematization across the previously detected local slot-and-frame patterns (cf. Behrens 2009: 397). Finally, learners have to go beyond the familiar input and productively extend learned constructions to novel uses with unseen lexical items. Pattern extension is commonly assumed to rely on functional analogy, probabilistic inference, and pre-emption mechanisms,

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which compute probabilities of (non-) generalizability and (non-) extensibility of particular constructions based on the available direct and indirect, positive and negative input evidence.

Constructional productivity deals with the corresponding question of whether and to what extent particular constructions actually attract novel slot-filler items and are extensible to unfamiliar or nonce items (Barðdal 2008: 1; Taylor 2012: 285). Productivity patterns of constructions can be described using corpus linguistic analyses (for an overview see Barðdal 2008: 24–28). Productivity can also be estimated psycholinguistically as the probability of the pattern's availability, for a particular speaker at a specific point in time, for use with novel items such as recent borrowings, neologisms, rare, unfamiliar, or artificial nonce words, for example, in elicited production tasks, acceptability ratings, or *wug*-test paradigms. In other words, developing constructional productivity refers to a speaker's increasing ability and willingness to extend a specific pattern to a broader variety of lexical fillings including novel instances, either spontaneously or when prompted to do so.

The crucial questions for language acquisition research are the following: How does constructional productivity develop? How do language learners abstract a productively extensible constructional schema across the particular exemplars of the construction encountered in the input? And what kind of input structure is needed or rather most beneficial to encourage the development of constructional productivity? In other words, what provides learners with good evidence that a construction is generalizable across a broad range of contexts and extensible to novel instances?

The present contribution investigates the issue of input effects on developing constructional productivity as far as instructed adult second language learners are concerned. The main research question is whether exposure to enriched input featuring skewed type-token ratios, where one or a few central types account for the majority of the occurrences of the construction (Taylor 2012: 192), contributes to the development of constructional productivity.

In prior research, benefits of skewed input have mainly been observed in the domain of pattern recognition. Section 2 therefore briefly reviews the proposed effects of skewed input on pattern detection with reference to first, artificial, and second language learning. Section 3 argues that skewed input plays a complementary role in pattern extension. Following this, Section 4 gives a description of the classroom study that investigated the effects of exposure to skewed input on the development of constructional productivity by adult learners of German as a second language. A short linguistic description of the exemplary target construction, namely the German *sein* 'be' + present participle construction, is provided in Section 4.1. The procedures of data collection

and analysis are then summarized in Sections 4.2 and 4.3. Section 5 presents and discusses the main results of the study. It provides an analysis of the inter-group differences in terms of developing target availability, variability, and generalizability. After analyzing the effects of different overall input type frequencies (Section 5.1), the discussion zooms in on the effects of skewed input (Section 5.2). Section 6 summarizes the main findings and discusses the observed skewing advantage in developing constructional productivity with a focus on constructional specifics and on explicit learning from implicit instruction in the adult classroom setting.

## 2 Proposed effects of exposure to skewed input in terms of pattern recognition

Skewed input is characterized by Zipfian type-token ratios. One or a few central types account for the “lion’s share” of the construction’s exemplars (Ellis 2012: 14) due to high token frequencies of occurrence, whereas the majority of the types occur with considerably less or low frequencies. Taylor (2012: 194) posits that skewed input is a basic design feature of human language and essential for learnability. The main argument in favor of beneficial effects of skewed input in first language acquisition refers to the availability of a salient central exemplar.

Corpus-based studies of child-directed speech show that first language input is naturally skewed in favor of one highly frequent and semantically prototypical central exemplar for the main verb argument constructions, such as *go* for intransitive motion and *give* for the ditransitive (Goldberg, Casenhiser, and Sethuraman 2004). Children pick up these central exemplars first, then gradually develop a more varied inventory of constructional types (Goldberg, Casenhiser, and Sethuraman 2004). Being highly frequent, the central exemplars are strongly entrenched and act as path breakers into the new construction. Their meaning overlaps strongly with the overall constructional meaning and they tend to be highly distinctive of the respective constructions in terms of cue and category validity (Taylor 2012: 189). In sum, they are highly salient due to their high token frequency, distinctiveness, and communicative usefulness. The outstanding central exemplars thus help language learners sort out specific constructions from coherent natural discourse input and they act as initial anchors for the establishment of new form-meaning mappings in the learner’s mind.

A related argument proposes that skewed input encourages initial pattern recognition due to increased surface similarity. A series of artificial language

learning studies involving children and adults suggest that even minimal exposure to skewed input facilitates pattern detection and argument linking for novel word order constructions (e.g., Boyd, Gottschalk, and Goldberg 2009; Casenhiser and Goldberg 2005; Goldberg, Casenhiser, and White 2007). The skewing advantage follows from the ideal balance between surface similarity and variation in input that features Zipfian type-token ratios. On the one hand, the high-frequency central exemplar contributes substantial surface similarity, which facilitates structural alignment. On the other hand, the non-central low-frequency types provide evidence of pattern variability, which triggers cognitive comparison and analysis across input utterances. Cordes (2014) reports partially contradictory results. However, these may be attributed to the fact that the central exemplar *vadrink* ('pretend to drink') in her training set is not semantically prototypical of the novel construction's general meaning 'pretend to' + verb. Additionally, skewed input may be more efficient in the learning of abstract word order constructions than in the learning of morphologically marked constructions (Cordes 2014).

Based on skewing advantages observed in non-linguistic categorization (Elio and Anderson 1984) and in first and artificial language learning, Bybee (2008) and Ellis (2009) suggest that instructed second language learners should be exposed to skewed input in first contact with a new construction, too. They propose that a substantial amount of surface similarity and the availability of a clear central type should help learners get a "fix" on the main characteristics of the new category (Ellis 2009: 150). There are contradictory results from two second language classroom studies that did not find the expected skewing advantage (McDonough and Trofimovich 2013; Year and Gordon 2009). This may be attributed to the fact that in the respective instructional settings, learning was possibly (Year and Gordon 2009) or even obviously (McDonough and Trofimovich 2013) explicit, whereas skewed input is assumed to be beneficial only in implicit learning conditions (Elio and Anderson 1984).

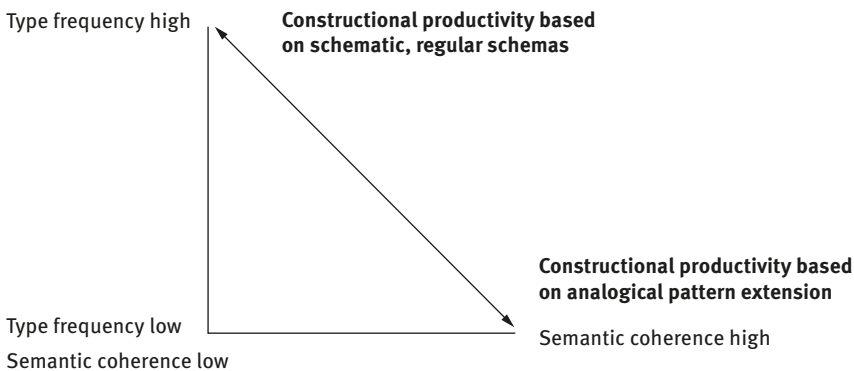
### 3 Possible effects of exposure to skewed input in terms of pattern extension

As learning tends to be more explicit in formal classroom settings, type variation has been claimed to be the crucial input feature for the development of constructional productivity in instructed second language acquisition: "[...] in acquiring productivity, exposure to many different types in a construction would be more helpful than exposure to many identical tokens" (Bybee 2008: 222). The underlying assumption is that constructional productivity relies on highly

schematic representations and that schematization in turn depends on high type frequency (Ellis and Cadierno 2009: 112). The more different types a pattern is witnessed to apply to, the more productive and the better extendible the pattern will be considered, and the more readily it will sanction novel instances (Bybee and Thompson 2000). More precisely, constructional productivity will be high if learners have input evidence for high type frequency, substantial type variation, and broad semantic coverage (Suttle and Goldberg 2011).

In the absence of sufficient type variation in the input, learning is expected to be conservative and item-based. Constructional productivity is thus not expected to develop from exposure to low type frequency input. On the contrary, high token frequencies of occurrence for each of a small number of types should lead to holistic storage of the repeatedly encountered exemplars of the construction as unanalyzed and unrelated chunks; that is, to their entrenchment as autonomous units even if they are instantiations of a more general construction (Bybee 2006). High-frequency exemplars should thus not contribute to the productivity of a construction, but rather resist or even prevent cognitive comparison, analysis, pattern detection, and productive generalization.

By contrast, I suggest a complementary role of high token frequencies in productive pattern extension, provided that the tokens of high frequency are salient central exemplars in skewed input and that there is substantial semantic coherence across types. This assumption is based on Barðdal's (2008: 45) concept of constructional productivity domains, which are defined by the corresponding construction's highest level of schematicity. Schematicity is a function of a construction's type frequency, its semantic coherence, and the reverse correlation of the two. All categories that are situated on the so-called productivity cline (Figure 1) are understood to be fully productive within their respective domains (Barðdal 2008: 2), but mental



**Figure 1:** Productivity cline (adapted from Barðdal 2008: 38; cf. Madlener 2015: 67).

representations of high type frequency constructions exist “at higher levels of schematicity and at more intermediate levels of schematicity” (Barðdal 2008: 45–47) than those limited to a small(er) number of types. The lower the type frequency of a construction, the lower its representational level of schematicity, the smaller its productivity domain, and the higher the degree of semantic coherence needed for the construction to sanction novel instances. That is, the higher the degree of similarity between the familiar exemplar and the novel item needs to be in order for the latter to trigger novel uses, possibly via analogical extension based on a unique salient role model.

This is where token frequencies become important. The types of a low type frequency construction with higher individual frequencies of occurrence assumedly have a stronger degree of mental entrenchment and are therefore more readily accessible and more easily used as models for analogical extensions to novel instantiations (Barðdal 2008: 52). In skewed input, there is at least one strongly entrenched and salient high-frequency exemplar that encourages analogical pattern extension. Additionally, due to the low-frequency non-central exemplars, there is nevertheless at least some type variation in skewed input. Depending on the individual learner and task characteristics, the development of constructional productivity may thus be a cumulative process, with analogical pattern extension based on a salient role model boosting pattern generalization that is triggered by increasing but still moderate type variation.

Artificial language learning studies focusing on pattern recognition have found skewing advantages in terms of developing productivity, that is, in terms of learners’ ability and willingness to extend the novel pattern to unfamiliar instances. Boyd and Goldberg (2012) show that adults readily generalize a new construction to entirely novel items from minimal exposure, given high semantic coherence across exemplars and a high-frequency central exemplar (16 tokens, 5 types, skewed type-token ratios). This indicates that for adults, “minimal exposure to a novel construction is sufficient for the formation of generalizations that go well beyond the specific exemplars encountered in the input” (Boyd and Goldberg 2012: 460). More generally speaking, as long as the new construction is not overly complex, adults’ ability to broadly generalize from restricted input may be less dependent on high input type variation than previously assumed, but rather rely on a general cognitive tendency for maximal categorization as a way of facilitating interaction with the environment (Taylor 2012: 187). Additionally, second language learners are consciously trained to detect abstract patterns in very limited input in classroom settings and to generalize them beyond the input for further creative use.

In the following, I report evidence for type and token frequency effects on developing constructional productivity based on classroom training studies with adult learners of German as a second language. The focus is on the effects of

exposure to highly type-varied input on the one hand (Section 5.1) and to skewed input on the other hand (Section 5.2).

## 4 Testing the effects of exposure to skewed input on developing constructional productivity

The classroom training studies took place in regular classroom settings. Learners were exposed to massively enriched structured audio input over two weeks. In other words, to listening comprehension texts that featured an unusually high number of task-essential instantiations of the target construction *sein* ‘be’ + present participle. Test conditions differed with regard to overall target type variation<sup>1</sup> and type-token ratios in the training input. The main research question was: Do learners need broad evidence of pattern variability and generalizability, that is, exposure to high type frequency input, to develop constructional productivity and increasingly extend the target construction to novel items when prompted, or do they readily generalize even when faced with highly restricted input evidence of constructional productivity?

The present contribution reports data from 52 learners with minimal prior target knowledge. At pretest, these learners displayed command of at least three different types of the target construction in elicited or prompted production tasks, be these correct or incorrect.<sup>2</sup> Our hypotheses regarding developing constructional productivity were the following:

- (1) High type variation in the input will be beneficial but not strictly necessary for instructed adult second language learners of German to develop reliable constructional productivity with an exemplary target construction. This predicts differences in learners’ developing pattern extension ability to arise as a result of the amount of input type variation. A learning advantage is assumed for learners with minimal prior target knowledge exposed to high type frequency input. Constructional productivity is expected to develop rapidly, with increasing schematization being based on increasing evidence of pattern variability and extensibility in the input. Yet, as adults have been shown to readily generalize from low type frequency input in artificial language learning experiments, exposure to highly type-varied input should not be strictly necessary for developing constructional productivity.

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<sup>1</sup> Types of the target construction are defined with respect to verb lemmas at the present participle slot. One verb lemma at the participle slot represents one type of the construction.

<sup>2</sup> Data from learners without prior target knowledge are reported in Madlener (2015, 2016).

- (2) If the input is less type-varied, learners exposed to skewed input will outperform learners exposed to balanced input in terms of developing constructional productivity. This predicts that despite low input type variability, the target construction may be productively extended. In low(er) input type frequency conditions, productive pattern generalization may rely on analogical pattern extension, given a high level of semantic coherence across the exemplars in the input, substantial token frequencies per type, and favorable type-token ratios. As discussed above, the availability of a small number of highly frequent and strongly entrenched central exemplars, which constitute easily retrievable and salient role models, should facilitate analogical pattern extension. Learners exposed to skewed input are therefore expected to outperform their peers exposed to balanced input in the middle and low type frequency conditions.

#### 4.1 The test case: the German *sein* ‘be’ + present participle construction

The German *sein* ‘be’ + present participle construction was chosen as an exemplary target of learning. The construction was first described by Rapp (1997) as a particularity of the class of so-called psychological causative verbs (*psychische Wirkungsverben*), a category of about 215 verbs such as *enttäuschen* (‘disappoint’), *entzücken* (‘delight’), *faszinieren* (‘fascinate’), and *beunruhigen* (‘worry’). It is further discussed in Handwerker & Madlener (2009) and Möller (2007: 16–17). Examples are underlined in (1) and (2):

- (1) Die Lage in Syrien ist unverändert dramatisch. Die Berichte über das Vorgehen der syrischen Sicherheitskräfte und das Leiden der Menschen in Homs sind erschütternd und bestürzend.<sup>3</sup>  
 ‘The situation in Syria remains dramatic. Reports about the Syrian Army’s operations and the population’s distress in Homs are startling and upsetting.’
- (2) Bei diesem Buch fand ich die ersten 300 Seiten sehr langatmig, habe mich schwergetan, weiter zu lesen, aber der Schluss war super spannend.<sup>4</sup>  
 ‘I found the first 300 pages of this book very drawn-out, I had a hard time going on reading, but the ending was really exciting.’

<sup>3</sup> [http://www.auswaertiges-amt.de/DE/Infoservice/Presse/Meldungen/2012/120209-BM\\_SYR.html](http://www.auswaertiges-amt.de/DE/Infoservice/Presse/Meldungen/2012/120209-BM_SYR.html) (retrieved 22.09.2012)

<sup>4</sup> <http://www.krimi-couch.de/krimis/lisa-jackson-bitter-sollst-du-buessen.html> (retrieved 22.09.2012)

The German *sein* ‘be’ + present participle construction is considered a subtype of the copula + adjective construction.<sup>5</sup> The present participles occupy a typical adjectival slot, they are also gradable as in (3), they may be coordinated with genuine adjectives as in (4), and they cannot be modified by verbal complements as in (5). Some can additionally be morphologically negated as in (6) and a small number are rather loosely related to the corresponding verb stem in terms of semantics, e.g., *reizend* (‘lovely’) and *aufregend* (‘thrilling’). Activity verbs as in (7) are excluded from the construction (Fuhrhop and Teuber 2000: 101–102).

- (3) Das ist umso enttäuschender. ‘This is all the more disappointing.’
- (4) Das ist nicht nur teuer, sondern auch frustrierend für die Mitarbeiter. ‘This is not only expensive but also frustrating for the employees.’
- (5) Diese Frage ist (\*uns alle) faszinierend/ faszinierend für uns alle. ‘This question is fascinating for all of us.’
- (6) Hitchcock ist unspannend. ‘Hitchcock is a bit of a yawn.’ (literally: unexciting)
- (7) \*Er ist singend. ‘He is singing.’

The German *sein* ‘be’ + present participle construction is thus not a verbal continuous form, in contrast to other European languages such as English or Spanish. However, it is still a rather special case of the copula + adjective construction. The construction does not predicate a specific property of the subject-referent itself, for example, its being red, useful, or simple-minded. It rather points to the subject-referent’s potential to trigger a specific (change of) emotion in the experiencer, by virtue of some prototypical or contextually inferable property, action, or involvement in an event or state of affairs (called *primärer Vorgang* ‘primary event’ by Rapp 1997: 79). As a consequence, the stimulus-subject is more agent-like than expected in typical copula + adjective constructions, e.g., *The car is red* or *Peter is poor*.

As a regular pattern, the *sein* ‘be’ + present participle construction is both characteristic of and restricted to the class of psychological causative verbs.<sup>6</sup> Its overall type and token frequencies are low compared to the lexical ranges and

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<sup>5</sup> See Rapp (1996) and Maienborn (2007) for evidence of participles’ adjective status. See Fuhrhop and Teuber (2000: 102) for a related analysis of the present participle “half-way between verb and adjective”.

<sup>6</sup> There is a limited number of other predicative present participles, but these are basically lexicalized, so-called pseudo-participles such as *hervorragend* (‘excellent’), *anwesend* (‘present’),



frequencies of occurrence of similar predicative constructions, for example, with deverbal-*lich*-adjectives. Searches in a 2.5 billion word corpus (the Public archive section of DeReKo<sup>7</sup>) return a probable overall maximum of 155 different types of the *sein* 'be' + present participle construction.

Constructional productivity is nevertheless predicted to be high for native speakers. As semantic coherence is high, analogical pattern extension would be expected when a new psychological causative verb was encountered or came into existence, given its predicative present participle was not pre-empted by a competing deverbal adjective. If there is a regular adjective with the corresponding meaning, the present participle can be formed but it cannot be used predicatively (8–9). Idiosyncratic blockings by deverbal adjectives concern about 20 psychological causative verbs. This may reduce constructional productivity to some extent. Competing adjectives were excluded from the present study.

(8) Das ist ärgerlich/ \*ärgernd. 'This is annoying.'

(9) Das ist erstaunlich/ \*erstaunend. 'This is surprising.'

## 4.2 Data collection: Study setting and design

In order to approximate the question of whether and to what extent learners develop constructional productivity in cases of reduced type frequency of a selected target construction in the input, adult learners of German as a second language were exposed to massively enriched structured audio input over two weeks. The training study took place in regular classrooms in order for the learning situation, the groups' overall composition, and the participants' motivation to be as authentic and as natural as possible.

All participating classes were aimed at level B2 (upper intermediate) of the Common European Framework of Reference for Languages. 52 participants with minimal prior target knowledge were included in the final data set, with an age range of 19 to 41 years (average: 22 years), length of stay in Germany prior to the pretest ranging from 1 week to 3 years (average: 15 weeks), length of time learning German as a second language ranging from 4 months to 15 years (average: 4.5 years), and totaling 23 different first languages.

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or *bedeutend* ('important'), which have genuine adjective status (Bernstein 1992). Only present participles with psychological causative readings were included in the present training study.

7 Retrieved via <https://cosmas2.ids-mannheim.de/cosmas2-web/> in June 2010

**Table 1:** Training groups and conditions.

N	Training condition	Input tokens	Type frequency	Type-token ratios	
9	High	high type frequency	150 target constructions	50 different types	balanced: 2–4 tokens per type
5	Mid_Bal	middle type frequency	150 target constructions	25 different types	balanced: 6 tokens per type
9	Mid_Skew	middle type frequency, skewed	150 target constructions	25 different types	skewed: 3 high-frequency types (24 tokens each), 22 low-frequency types (2–4 tokens each)
9	Low_Bal	low type frequency	150 target constructions	9 different types	balanced: 16–18 tokens per type
15	Low_Skew	low type frequency, skewed	150 target constructions	9 different types	skewed: 2 high-frequency types (36 tokens each), 7 middle-frequency types (10–12 tokens each)
5	Control	zero	150 adjective constructions	25 different types	balanced: 6 tokens per type

The test conditions differed with respect to the variables “overall input type frequency” (high, middle, low, zero) and “type-token ratio” (balanced, skewed), which defined the distribution of the target construction in the respective groups’ training input. This resulted in five training conditions, namely (1) high type frequency (High),<sup>8</sup> (2) balanced middle type frequency (Mid\_Bal), (3) skewed middle type frequency (Mid\_Skew), (4) balanced low type frequency (Low\_Bal), (5) skewed low type frequency (Low\_Skew), and one control condition (see Table 1).<sup>9</sup> Type variation and coverage of the *sein* ‘be’ + present participle target construction were similarly restricted for all training conditions, as only participles from psychological causative verbs were included in the training set. Semantic coherence was therefore high for all conditions due to verb-class specificity.

<sup>8</sup> Skewing was not implemented in the high type frequency condition, as this would have resulted in 46 hapaxes for 50 types (assuming four high-frequency types with seven to eight tokens each). In the second language learning context, chances are that the learners will miss a high proportion of the hapaxes in the audio input altogether, hence possibly learning from four types only. This condition was therefore excluded.

<sup>9</sup> Group sizes differ because learner groups were assigned to test conditions as wholes. For the analysis, groups were split post-hoc according to the learners’ level of prior target knowledge (as evidenced by pretest scores). The statistical models used account for group size in a conservative way. The smaller the group sizes, the less likely the inter-group differences are to be statistically significant.

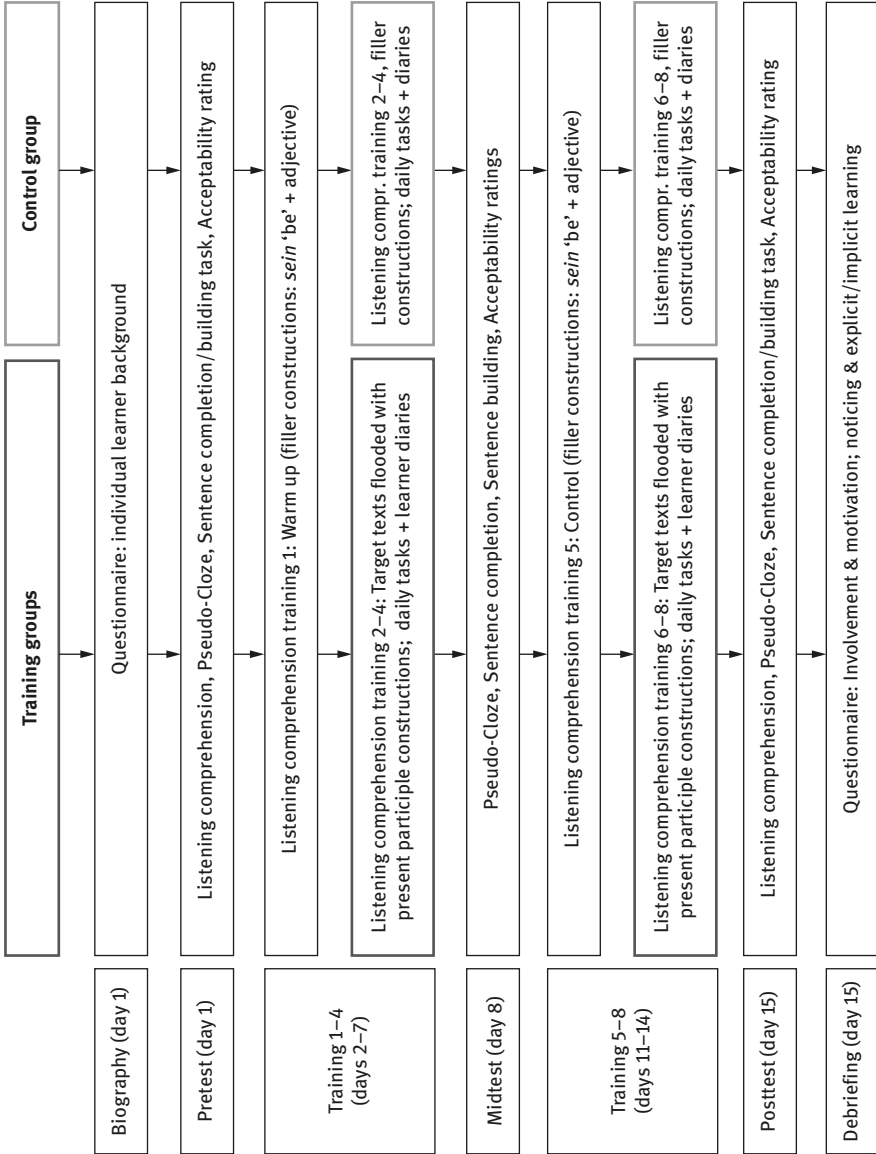


Figure 2: Timing of training and testing (Madlener 2015: 112).

Each group was followed over two and a half weeks, including project information, training, and testing (see Figure 2 for timing and procedures of data collection). Participation was advertised as additional listening comprehension training, and training sessions were exclusively focused on decoding the audio input texts for meaning.

Each training session took 15 minutes. Input texts were about 3.5 minutes long and structured as fake interviews. Target texts were given on days 5–7 and 12–14. Each of the target texts contained 12 or 13 target constructions, adding to 75 target constructions across the six target texts. The texts were heard twice, so learners were exposed to a total of 150 tokens of the target construction. At first, each text was presented as a whole and students were not permitted to take notes, then the text was repeated with three intermittent pauses for note taking.

The target constructions in the input texts were task-essential, such that a maximum number had to be processed and understood in order for the learners to respond correctly to the content-related written partner tasks that followed the listening comprehension texts (e.g., picture sorting, reconstructing arguments from the input text, or commenting on opinions and attitudes expressed in the input text). Learners were not told to focus on the target construction. The instructional conditions were strictly implicit such that any construction learning from exposure to the listening comprehension texts was incidental.

A pretest was carried out before the first training session (day 1); a midtest took place after learners had been exposed to three target input texts (day 8); and a posttest took place after the last training session (day 15). For each training condition at each test time, each task contained at least two familiar and two generalization prompts. All tests consisted of a cloze task, a prompted sentence completion task, a prompted sentence building task, and an acceptability rating task, in that order.<sup>10</sup>

### 4.3 Data analysis: Operationalization and modeling

In order to track and quantify learners' developing constructional productivity over the duration of the study, four dimensions of learners' elicited and prompted production data and acceptability ratings were taken into account:

- i. *Target availability*: Learners' increasing ability and willingness to produce the target construction in response to a corresponding prompt

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<sup>10</sup> See Madlener (2015: 105–122) for more detailed descriptions of training and testing procedures.

Target availability is operationalized as the number/proportion of tokens of the target construction a learner produces correctly at test. As a central measure of learning, target availability is measured in obligatory contexts only (i.e., in the cloze task). By contrast, overall target availability is computed across all elicited and prompted production tasks, including obligatory and facultative target contexts. Increasing target availability (token frequency in elicited and prompted production) indicates developing constructional productivity.

- ii. *Target variability*: Learners' increasing ability and willingness to apply the target construction to a broad range of different lexical items

Target variability is operationalized as the number/proportion of different types of the target construction a learner produces correctly at test. Increases in target variability (type frequency in elicited and prompted production) indicate developing constructional productivity.

- iii. *Target generalizability*: Learners' increasing ability and willingness to extend the target construction to unfamiliar items

Target generalizability is operationalized as the proportion of unfamiliar causative psychological verb lemmas (generalization prompt types) that elicit correct productions of the target construction. The measure accounts for pretest knowledge and individual absences at training. Learners' increasing ability and willingness to use novel verb types within the construction indicates developing constructional productivity.

- iv. *Overproductivity*: Learners' tendency to overuse or overgeneralize the target construction

Overproductivity is most evident in learner productions combining a present participle with an experiencer subject, as in *Als er seine Sekretärin geheiratet hat, war ich sehr \*überraschend* ('When he married his secretary I was very \*surprising'), and in the corresponding acceptability ratings. High levels of or increases in \*experiencer + present participle constructions indicate difficulty both with form-meaning mapping, more precisely with argument linking for the subject slot in the complex construction, and with the recognition of constructional restrictions.

In the following, inter-group differences in developing constructional productivity are reported for selected dependent variables in each of the four dimensions. Statistical data analyses were carried out using linear mixed effects regression (lmer) models in R (R Core Team, 2012; packages *languageR* and *lme4*; cf. Baayen, 2008). These models "describe an outcome as the linear combination of fixed effects [...] and conditional random effects associated with e.g. subjects and items" (Jaeger, 2008: 442). In our case, the main fixed effect of interest is the interaction between training condition (i.e., input structure) and time. This

interaction operationalizes the development of constructional productivity over time as a function of the specific input frequency distributions in the respective groups' training input.

In order to estimate type frequency effects (Section 5.1), the data set fed into the model excludes the skewed input conditions, resulting in four levels for the variable *Condition*: *zero* (control group), *high* (training condition High), *middle* (Mid\_Bal), and *low* (Low\_Bal) type frequency. In order to estimate skewing effects (Section 5.2), the data set includes all conditions and the variable thus has six levels: control, High, Mid\_Bal, Mid\_Skew, Low\_Bal, Low\_Skew (see Table 1 above). In this case, *Condition* is a shortcut for the interaction between *overall input type frequency* (zero, high, middle, low) and *skewed type-token ratio* (true, false).

Inter-group differences in learning reflect learners' developing ability for pattern detection and extension as a consequence of varying type and token frequency distributions in the input. Conditions are biunique, in that they differ from each other on only one dimension. Contrasts between High, Mid\_Bal, and Low\_Bal are an effect of input type frequency. Contrasts between Mid\_Bal and Mid\_Skew or between Low\_Bal and Low\_Skew are an effect of skewed input. Finally, a contrast between Mid\_Skew and Low\_Skew results from the interaction between skewing and input type frequency, as do second-order differences such as contrasts of ratios between Mid\_Bal :: Mid\_Skew and Low\_Bal :: Low\_Skew.

More inclusive models were subsequently fitted bottom-up, including additional predictor variables. Learner performance on filler items in the cloze-task reflects learners' general competence level. Learners' self-ratings of the difficulty of the listening comprehension texts reflect their overall listening comprehension competence. None of the other possibly relevant variables, such as daily contact hours to German (as an approximation of average input quantity) or learners' ratings of their overall interest in the topics of the training texts (as an approximation of motivation), turned out to significantly contribute to the model fit.<sup>11</sup>

## 5 Results: Developing constructional productivity from exposure to input floods

Pretest performance indicated that all of the 52 learners considered here brought some incipient target knowledge to the task, at least some high-frequency target particles learned as adjectives at a prior point in time, for example *spannend*

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<sup>11</sup> See Madlener (2015: 134–143) for more detailed descriptions of the statistical data analyses.

(‘exciting’) and *anstrengend* (‘tiring’). Still, learners’ representations of the target construction and their productions were highly variable at pretest. Whilst learners were able to provide the correct target construction in some contexts, they still produced substantial numbers of erroneous approximations such as stimulus + \*past participle constructions (e.g., *Unser Ausflug war sehr \*enttäuscht* ‘Our day trip was very \*disappointed’) and ad-hoc coinages of causative adjectives (e.g., *Mexiko ist \*faszinatisch* ‘Mexico is \*fascinatish’). On average, learners did not attempt any solution to about 25% of the target contexts at pretest.

Learners were faced with the challenge of productive pattern extension primarily when dealing with generalization target prompts in the elicited production tasks at mid- and posttest. In other words, when forced or prompted to productively extend the target pattern to novel instances beyond individual prior knowledge and the training items encountered in the input.

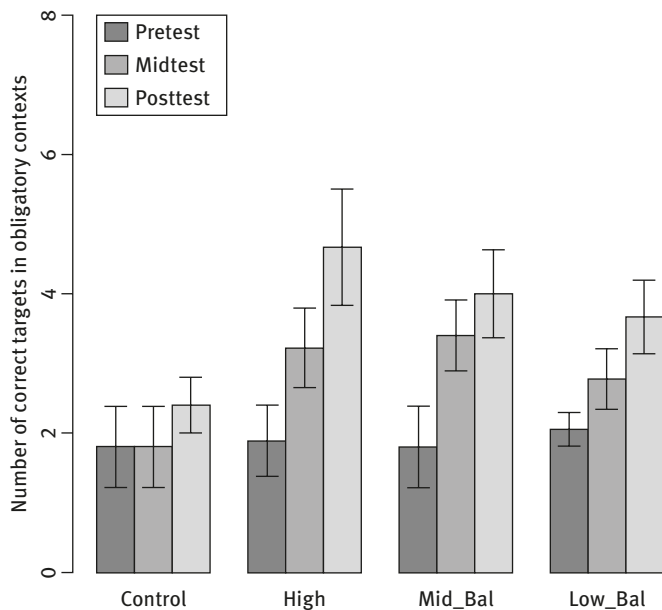
## 5.1 Effects of input type frequency

In this section, findings concerning Hypothesis 1 (cf. Section 4 above) are reported. The results from the present study are basically in line with this hypothesis. Exposure to highly type-varied listening comprehension input encourages productive pattern extension more than exposure to less type-varied input for our learners with minimal prior target knowledge. High input type variability is however not strictly necessary for developing constructional productivity. Additionally, indicators of overproductivity suggest that exposure to high type frequency input may be problematic with regard to argument linking.

The bar plots below (Figures 3 to 11) show pre- to posttest development in the control group and in the balanced training conditions (High, Mid\_Bal, Low\_Bal). As the data are complex, only the most relevant significance values are given in the text; for detailed reports of the statistical model outputs, that is, effect sizes and p-values of all fixed effects and interactions, see the online supplement to Madlener (2015) at <http://dx.doi.org/10.1515/9783110405538-suppl>.

### 5.1.1 Results

We start by considering overall development as a consequence of training condition, taking increasing target availability in obligatory contexts as a central indicator of acquisition. As shown by Figure 3 below, learners in the control group who had, by chance, two weeks of traditional explicit instruction on German participles during the time of the study, do not display any carry-over of class-

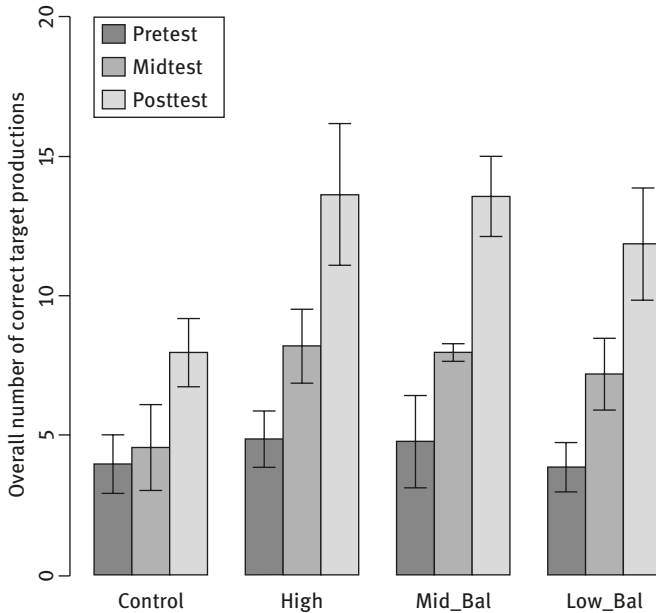


**Figure 3:** Number of correct target constructions in obligatory contexts, per group over time.

room learning to the acquisition of the *sein* ‘be’ + present participle construction. Their behavior does not significantly change over time ( $p = 0.86$  n.s.). In contrast, learners in all training groups manage to at least marginally improve in terms of target availability in the cloze task: Learners exposed to high type frequency input (High) display highly significant improvement over time ( $p = 0.002$ ) and are the only group to significantly outperform controls in terms of performance increases ( $p = 0.024$ ). The training effect in High is about twice as large as in the balanced low type frequency condition (Low\_Bal), yet the difference is statistically non-significant ( $p = 0.22$  n.s.).

In addition to training condition, overall language competence and listening comprehension ability are estimated highly significant predictors for learners’ development over time in terms of target availability in obligatory contexts (all  $p$ -values  $< 0.01$ ). The better learners’ overall German competence as approximated by performance on filler items in the cloze task, the better their performance on target items in obligatory contexts. Conversely, the greater learners’ perceived listening difficulty, that is, the poorer their overall listening comprehension skills and the more effort they have to put into decoding the training texts for meaning, the worse their performance on target structures in obligatory contexts and the smaller the incidental learning effect for the individual learners in terms of target availability in obligatory contexts.

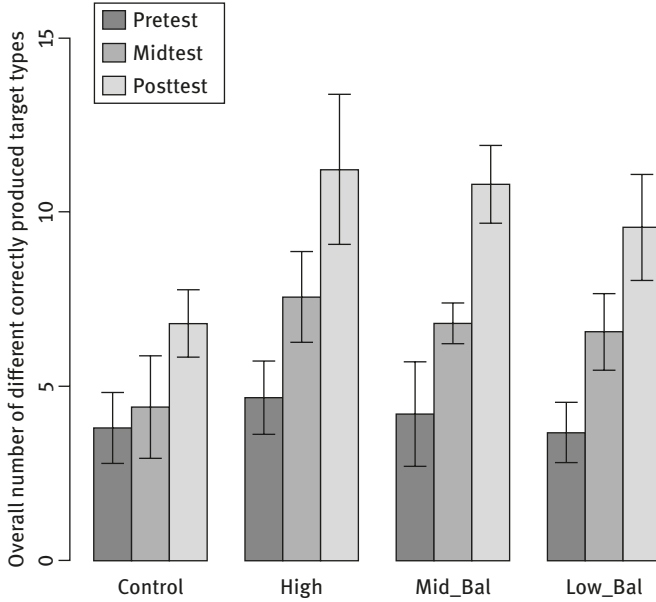




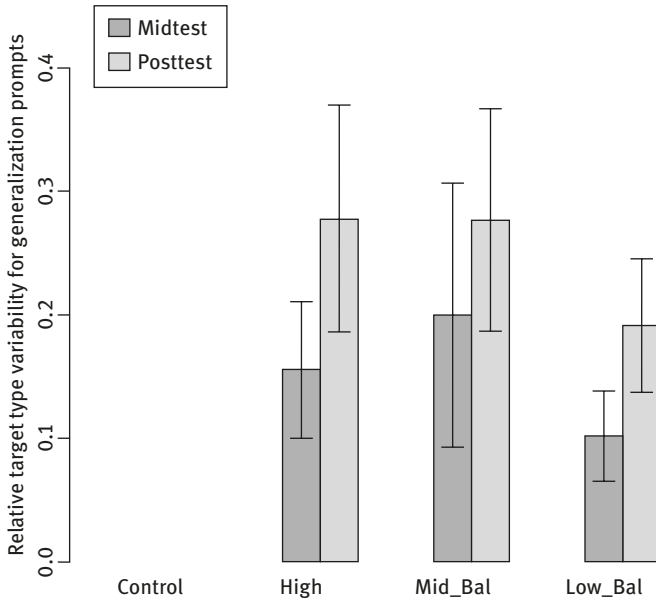
**Figure 4:** Overall number of correctly produced targets at test, per group over time.

As expected, Figure 4 shows that the control group's performance fails to improve significantly over time in terms of overall target availability across obligatory and facultative production tasks, too ( $p = 0.21$  n.s.). The training conditions do not significantly differ from controls on this variable (all  $p$ -values  $> 0.09$  n.s.), but, in contrast to controls, all training groups display significant pre- to posttest development (all  $p$ -values  $< 0.01$ ). Importantly, learners exposed to highly type-varied input fail to outperform their peers in Mid\_Bal and Low\_Bal here: Inter-group differences in development across the training conditions are not statistically significant (all  $p$ -values  $> 0.8$  n.s.). Moreover, Low\_Bal, not High, is the only group to display at least marginally significant learning effects during the first week of learning already ( $p = 0.06$  n.s.).

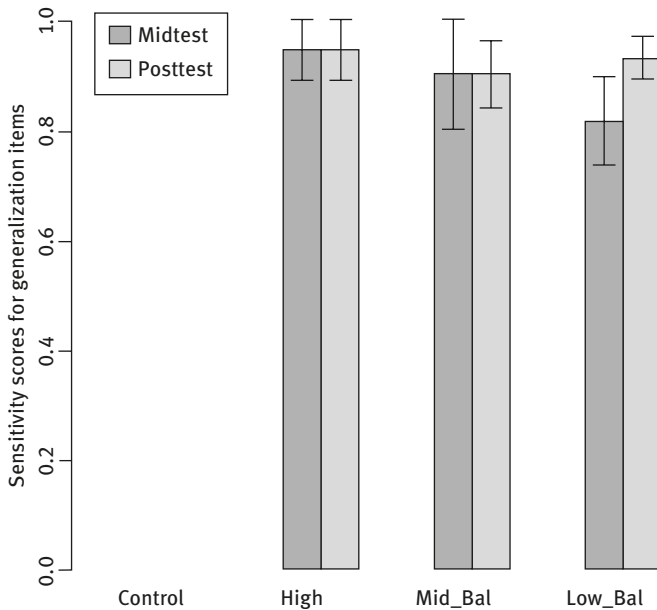
In other words, if availability is defined in a wider sense, the seeming advantage of High melts down to a simple trend: Exposure to highly type-varied input floods is not significantly more beneficial for constructional consolidation than exposure to less type-varied input. The same results obtain for target variability, that is, for learners' ability and willingness to apply the target pattern to an increasingly broad range of different lexical items: All test groups display significant pre- to posttest improvement (all  $p$ -values  $< 0.01$ ), but they do not significantly differ from each other in their development over time (Figure 5 below; all  $p$ -values  $> 0.8$  n.s.).



**Figure 5:** Overall number of different target types correctly produced at test, per group over time.



**Figure 6:** Proportion of different target types produced to generalization prompts, per group at mid- and posttest.

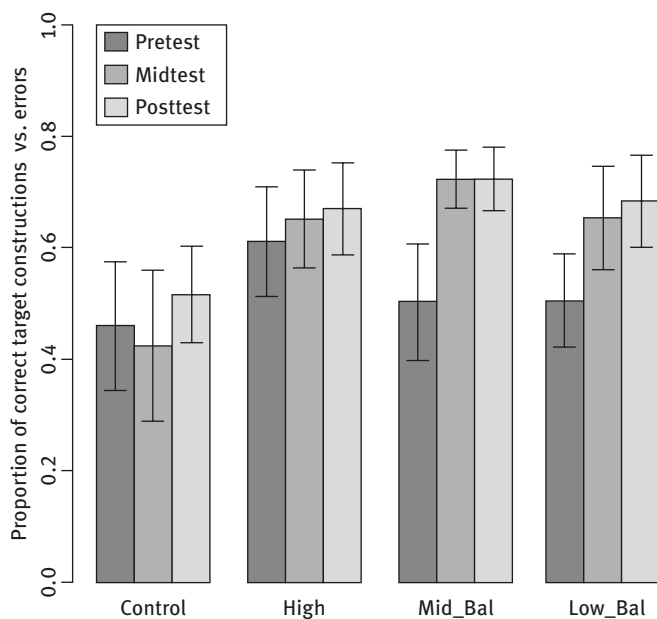


**Figure 7:** Sensitivity scores for generalization items, per group at mid- and posttest.

There is no type frequency effect in terms of relative type variability in learners' target productions in response to generalization prompts either (Figure 6): Learners exposed to balanced high, middle, and low type frequency input do not differ from each other in terms of their respective ability and willingness to produce an increasing range of target constructions when prompted with unfamiliar psychological causative verbs (all  $t$ -values  $< |0.5|$  n.s.).

By contrast, Figure 7 reveals a significant type frequency effect in terms of sensitivity scores on generalization items. *Sensitivity* reflects learners' proportions of correctly accepted correct target items, that is, their hit rates on the target sentences in an acceptability rating task; in other words, their target recognition ability. At midtest, learners in condition High significantly outperform learners in condition Low\_Bal in terms of sensitivity on generalization items ( $t = |2.2|$ ). Condition High virtually performs at ceiling already at midtest and also does so at posttest. This is not the case in the other training conditions. Learners exposed to more type-varied input are thus more likely to accept the target pattern with unseen lexical fillings, that is, to productively extend it to (correct) novel items.

However, accuracy rates, which are plotted in Figure 8 below, reveal a serious problem in condition High. Although learners exposed to highly type-varied input display substantial gains in terms of target availability (Figures 3, 4) and variability (Figure 5) and perform at ceiling in target recognition for generalization items

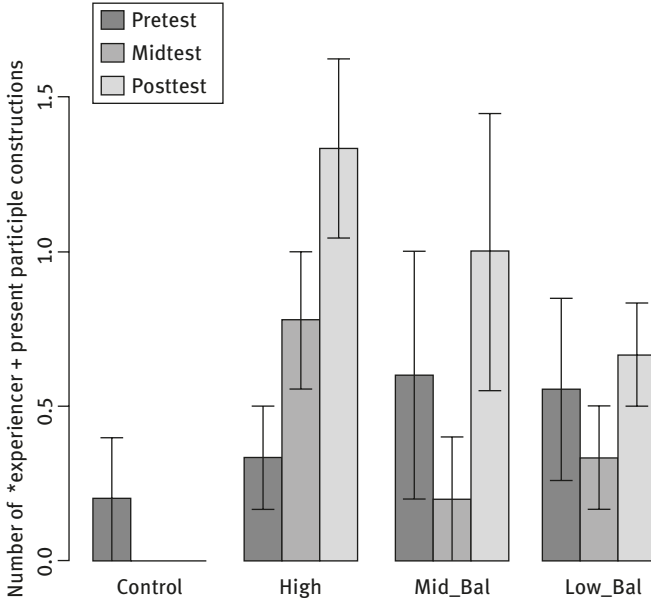


**Figure 8:** Proportion of correct target constructions as compared to erroneous constructions.

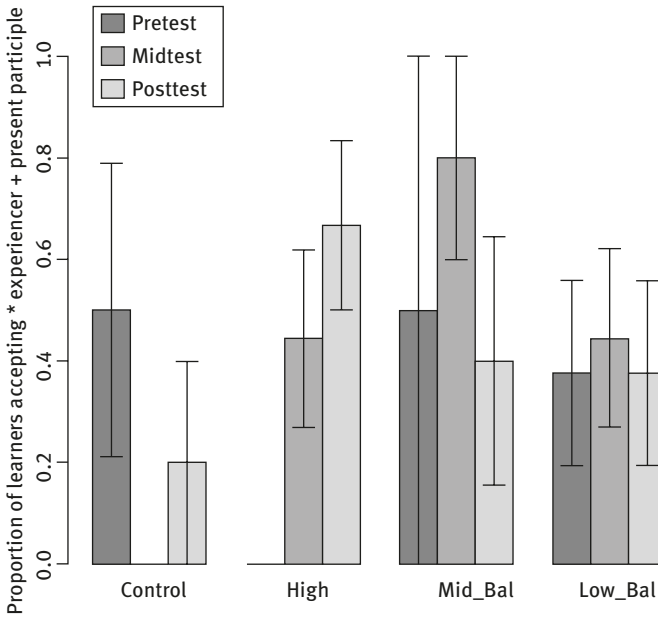
(Figure 7), they completely stagnate in terms of accuracy rates ( $p = 0.98$  n.s. for pre- to posttest development; comparison with the skewed input groups shows that this is not due to a ceiling effect, cf. Figure 17 below).

A closer look at the groups' error profiles reveals that High's main error type signals overproductivity. In general, increasing tuning to the new *sein* 'be' + present participle surface pattern in the training groups does not overwrite learners' overall preference for experiencer-subjects, and form-meaning mapping for the overall construction is still incomplete at posttest for all conditions. However, Figure 9 shows that condition High is the only group to display statistically significant increases in the production of erroneous \*experiencer + present participle constructions of the type *Ich war \*spannend für den Film* 'I was \*exciting for the movie' ( $p = 0.0004$ ). These erroneous productions can be interpreted as overgeneralizations. Condition High is also the only group to display a significant increase in the corresponding incorrect acceptability ratings, which are plotted in Figure 10 ( $p = 0.024$ ).

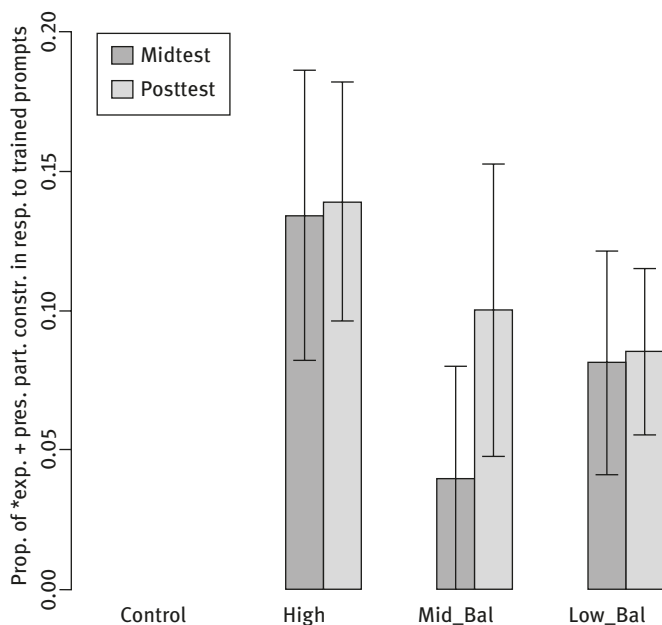
Both types of increase must be induced by input exposure during training, as the control group does not display this trend of overgeneralizing present participles into past participle contexts regardless of given experiencer subjects. More specifically, learners in condition High display the highest proportion of erroneous \*experiencer + present participle constructions in response to trained prompts



**Figure 9:** Number of \*experencer + present participle constructions, per group over time.



**Figure 10:** Proportion of learners incorrectly accepting \*experencer + present participle, per group over time.



**Figure 11:** Proportion of \*exper + present participle constructions in response to trained prompts, per group at mid- and posttest.

at mid- and posttest (Figure 11). Even if the group differences are not statistically significant (all  $t$ -values  $< |0.9|$  n.s.), this finding indicates that pronounced surface variability at the participle slot, due to high input type frequency, increases learners' difficulty with form-meaning mapping for the complex construction and creates at least temporary uncertainty about its coverage and restrictions.

### 5.1.2 Discussion

Significant increases in target availability and variability in the training conditions show that incidental constructional consolidation from exposure to enriched listening comprehension input is possible. More specifically, the advantage of training group High in terms of target availability in obligatory contexts suggests that exposure to highly type-varied input is, overall, most beneficial for learners in terms of detecting and confidently attuning to the *sein* 'be' + present participle target construction (Figure 3 above). The observed trends reveal that exposure to highly type-varied input is also rather beneficial for learning to acknowledge correct target constructions with unfamiliar lexical fillings in acceptability ratings

(Figure 7 above) and to correctly produce novel exemplars of the target construction (Figure 6 above). Taken together, these findings support Hypothesis 1.

High input type variability is nevertheless not *necessary* for learners to productively generalize the target pattern. Learners in condition Low\_Bal also display productive generalization in terms of increasing target variability (Figure 5 above) and target extensibility to novel items (Figure 6 above), even though to a lesser extent than learners exposed to high(er) type variation. In the Low\_Bal condition, the target construction is productively extended to sanction novel instances in spite of low input type frequency (9 types only in Low\_Bal), given substantial token frequencies per type (here: 16 to 18 tokens per type) and a high level of semantic coherence across the category members. Admittedly, learners with minimal prior target knowledge in Low\_Bal display less relative generalization than their peers without prior target knowledge in this condition (see Madlener 2015, 2016). The hesitation to extend the target pattern to novel lexical fillings is reflected in Low\_Bal's temporarily poor performance in terms of sensitivity for generalization items at mid test (Figure 7 above). These findings further confirm Hypothesis 1. Exposure to highly type-varied input is beneficial for learners to develop constructional productivity with the *sein* 'be' + present participle target construction, but is not a strict prerequisite.

Crucially and as outlined above, highly type-varied input is less beneficial for achieving reliable form-meaning mapping and argument linking. Learners in condition High perform less well than learners exposed to low(er) type frequency input when it comes to dealing with erroneous competing constructions, especially with incorrect experiencer subjects (Figures 9 to 11 above). High displays at least temporary over-productivity, due to difficulty with form-meaning mapping for the overall construction. In contrast to the other training conditions, High stagnates in terms of overall accuracy rates in production (Figure 8 above).

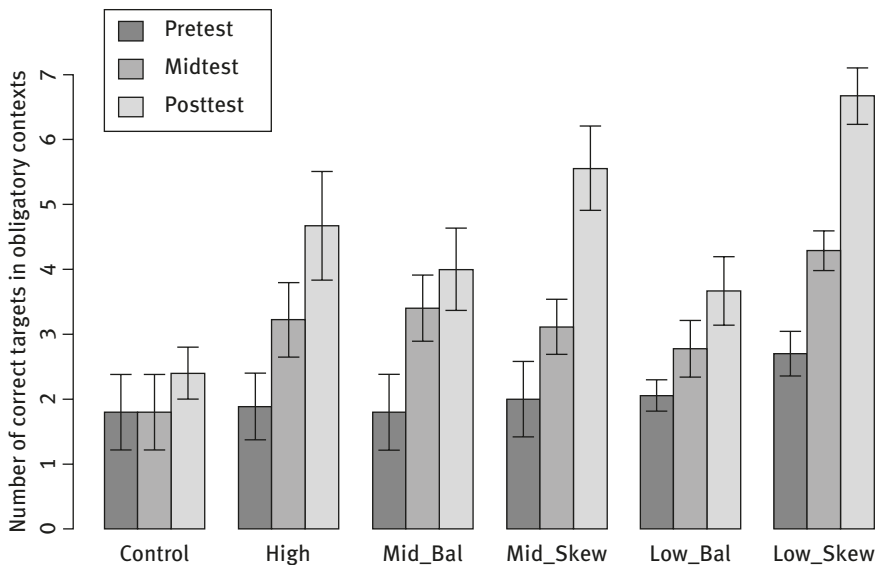
Overall, these results lend considerable support to Hypothesis 1. If type-token ratios are balanced, learners with some prior target knowledge exposed to higher type frequency input display better trends in developing productivity. It is noted, however, that learners exposed to low type frequency input do not completely lack productive generalization. Therefore, and as predicted, we can say that highly type-varied input is beneficial but not strictly necessary for learners to develop constructional productivity with the German *sein* 'be' + present participle construction. In contrast, the fact that our learners in the high type frequency condition visibly struggle with argument linking is not predicted by Hypothesis 1. Their problems with argument linking become actually evident in their use of both novel and familiar types of the target construction. Exposure to highly type-varied input under implicit instructional conditions thus has a serious drawback in terms of form-meaning mapping and overgeneralization.

## 5.2 Effects of skewed input

As Section 5.1 shows, constructions can be productively generalized to sanction novel instances, possibly via analogical extension, in spite of being witnessed with limited type frequency (condition *Low\_Bal*), at least to a certain extent. This contrasts to assumptions made, for example, by Ellis and Cadierno (2009). High token frequency and high semantic coherence may be a prerequisite in these circumstances, as argued by Barðdal (2008).

The question then arises whether favorable type-token ratios can further enhance learning in the low(er) type frequency conditions. In other words, does exposure to skewed input, where a few highly frequent central types account for the majority of the target tokens in the input, push the development of constructional productivity in training conditions where the input evidence of target extensibility is restricted? This section reports data with reference to the second hypothesis (see Section 4 above), which is again supported.

To examine the effects of skewed input, skewing conditions are added to the models and plots as *Mid\_Skew* (skewed middle type frequency input) and *Low\_Skew* (skewed low type frequency input). In the following bar plots (Figures 12 to 19), *Low\_Skew* is represented on the far right. Note that learners in this condition are faced with input that features extremely reduced input type variability,



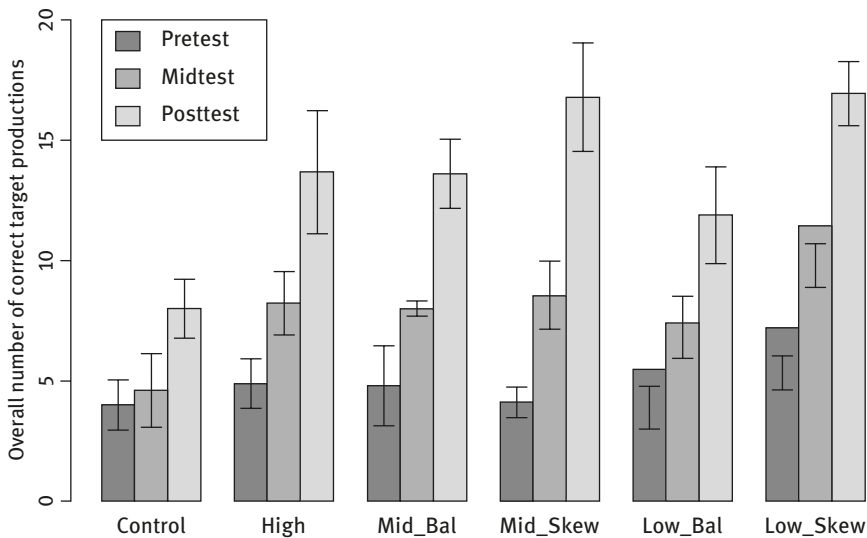
**Figure 12:** Number of correct target constructions in obligatory contexts, per group over time.



as within overall low input type frequency, the two central types *spannend* ('exciting') and *enttäuschend* ('disappointing') account for half of the target tokens in the input. Line plots (Figures 15b, 16b) show selected group learning curves over time adjusted for random effects.

### 5.2.1 Results

We start by reviewing learners' target availability in obligatory contexts (see Figure 12 above). Learners in condition Mid\_Skew do not significantly outperform their peers in the balanced middle type frequency training group (Mid\_Bal) in direct comparison ( $p = 0.11$  n.s.), but they indirectly do: Whereas learners in Mid\_Bal improve only very marginally in terms of target availability in obligatory contexts ( $p = 0.096$  n.s.), the performance of learners in Mid\_Skew increases significantly ( $p = 0.0001$ ), and Mid\_Skew also significantly differs from the stagnating control group in development over time ( $p = 0.0014$ ). Additionally, Mid\_Skew outperforms learners in Low\_Bal ( $p = 0.03$ ), whereas Mid\_Bal does not ( $p = 0.75$  n.s.).



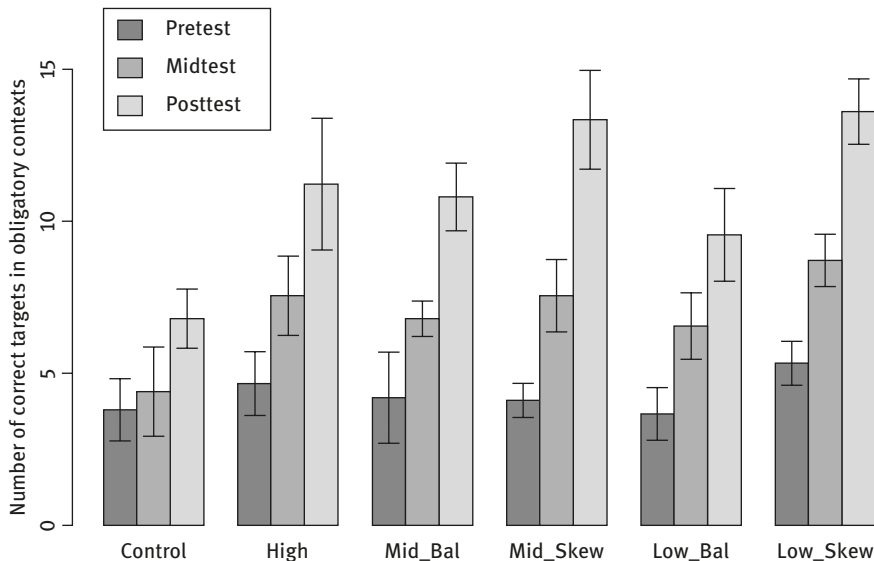
**Figure 13:** Overall number of correctly produced targets at test, per group over time.

In the low type frequency conditions, the beneficial effect of skewed input on learners' ability to correctly complete given target constructions in the cloze task is even more evident (see Figure 12 above). Learners in Low\_Skew display very

significant improvement in target availability in obligatory contexts ( $p = 0.0001$ ) and significantly outperform their peers in Low\_Bal in direct comparison ( $p = 0.003$ ). Furthermore, they significantly outperform learners in the stagnating control group ( $p = 0.0001$ ) and in Mid\_Bal ( $p = 0.035$ ), and they even marginally outperform learners in the rather successful condition High in terms of development over time ( $p 0.083$  n.s.).

As for overall target availability, that is, target availability across all production tasks, consider Figure 13 above. The skewing advantage is somewhat weaker but still visible here. Both Mid\_Skew and Low\_Skew indirectly outperform their peers exposed to balanced input, as their development over time is not only highly significant (all  $p$ -values = 0.0001), but also significantly differs from controls' (all  $p$ -values < 0.01), whereas Mid\_Bal's and Low\_Bal's does not (all  $p$ -values > 0.1 n.s.).

Results for target variability across all elicited and prompted production tasks, which are given in Figure 14 below, are basically the same. While the intergroup differences (Mid\_Bal vs. Mid\_Skew, Low\_Bal vs. Low\_Skew) are not statistically significant (all  $p$ -values > 0.2 n.s.), again the skewing conditions indirectly outperform the respective balanced conditions: Both Mid\_Skew and Low\_Skew significantly differ from the control group in terms of pre- to posttest development ( $p < 0.05$ ), whereas Mid\_Bal and Low\_Bal do not ( $p > 0.1$  n.s.). Crucially,



**Figure 14:** Overall number of different target types correctly produced at test, per group over time.

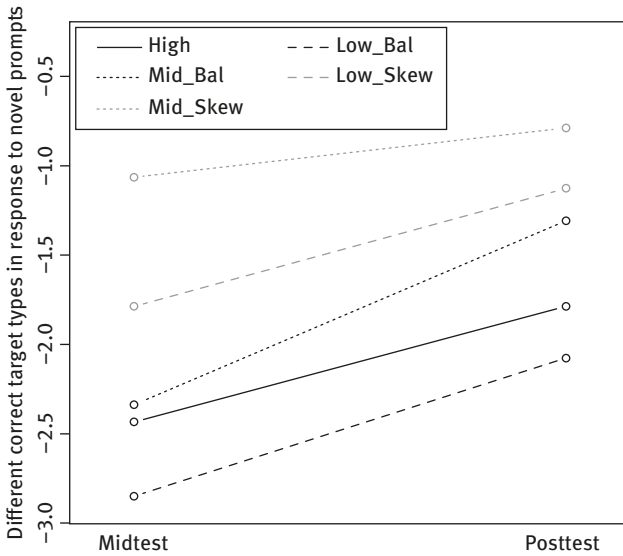
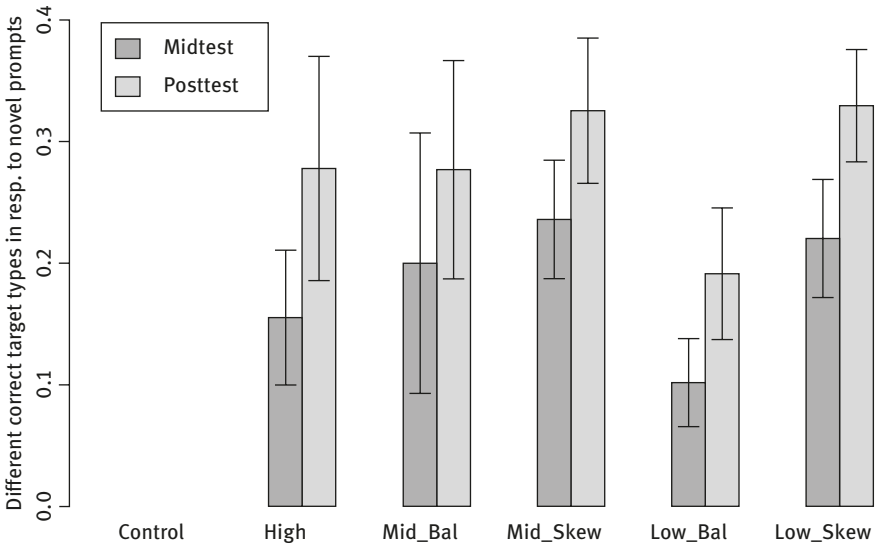
learners in Low\_Skew but not in Low\_Bal consistently produce more different target types at posttest than they were exposed to during training. Additionally, Low\_Skew tends to increasingly produce creative ad-hoc coinages like *\*ermüdigend* for *ermüdend* ('tiring'). These concern generalization prompts only and indicate increasingly productive spontaneous generalization, notably during the second week of training. This points to very productive pattern extension in Low\_Skew in spite of extremely reduced input variability.

The proportion of different types of the target construction produced in response to generalization prompts confirms this skewing advantage, as shown in Figure 15 below. Learners exposed to skewed low type frequency input (Low\_Skew) display broad productive generalization: They can extend the target pattern productively to a (yet nonsignificantly) higher proportion of different types of novel prompts than learners in Low\_Bal ( $t < |1.5|$  n.s.), and they do so at least as well as learners exposed to highly type-varied input (condition High;  $t < |1|$  n.s.).

Additionally, Figure 16 below shows that condition Low\_Skew performs better at midtest than Low\_Bal in terms of sensitivity on generalization items. These differences are not statistically significant in direct group comparison ( $t < |0.5|$  n.s.), but while condition Low\_Skew's performance is equal to that of the successful learners in High at midtest ( $t = |0.25|$  n.s.), Low\_Bal does significantly worse than High here ( $t = |2.2|$ ). The groups' sensitivity scores on generalization items converge at posttest, but learners in Low\_Skew are clearly faster at acknowledging unfamiliar instantiations of the target constructions than learners in Low\_Bal.

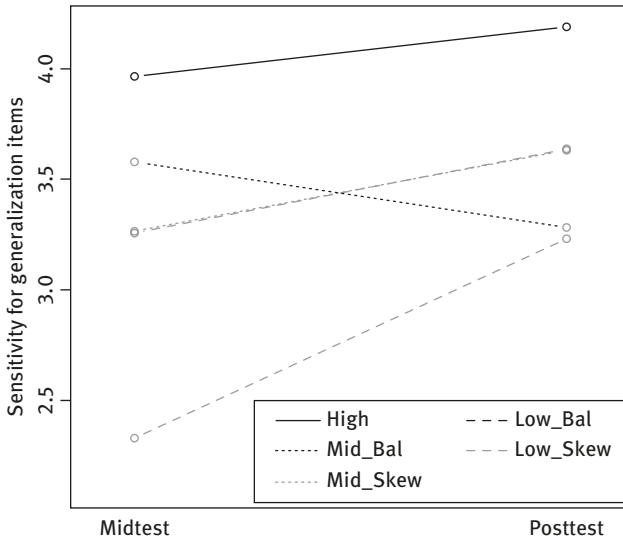
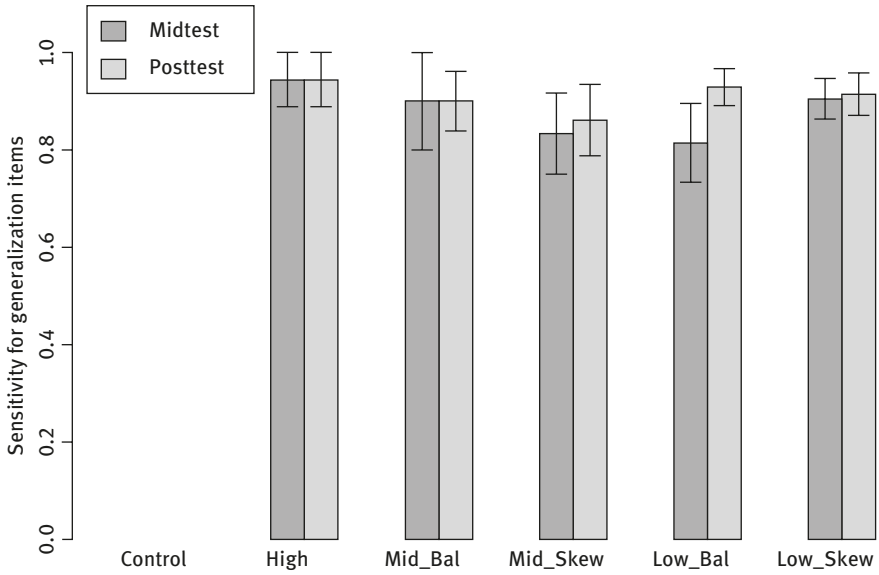
We also find positive skewing effects on generalization in the middle type frequency condition, at least as far as target extensibility in production is concerned. Consider again Figure 15 below: At midtest, learners in Mid\_Skew do not perform significantly better than their peers in Mid\_Bal ( $t = |1.47|$  n.s.), but they do significantly outperform Low\_Bal ( $t = |2.2|$ ), whereas Mid\_Bal does not ( $t = |0.48|$  n.s.). Figure 15b shows that once random variation is discounted, learners in Mid\_Skew consistently produce the highest proportion of correct generalization items of all groups. As for target recognition in the case of generalization items, performance of the skewed input groups is virtually indistinguishable once adjusted for random variation (Figure 16b below). Mid\_Skew is not, however, better than Mid\_Bal ( $t = |0.5|$  n.s.), whereas Low\_Skew does indirectly outperform Low\_Bal by comparison to at-ceiling High (see above).

Finally, skewing effects for accuracy rates are plotted in Figure 17 below. On this variable, learners exposed to skewed input do not significantly differ from learners exposed to balanced input of the same overall type frequency in terms of development over time (all p-values  $> 0.3$  n.s.). For condition Low-Skew, however, this might be due to a ceiling effect.



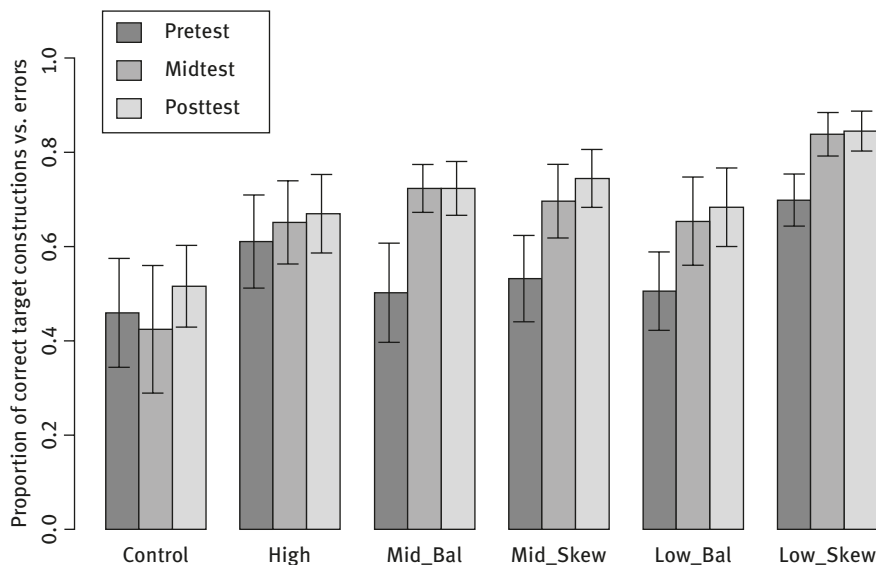
**Figure 15a, b:** Proportion of different target types produced to generalization prompts, per group at mid- and posttest.

Despite improvement in terms of accuracy, neither skewed input group learns to completely avoid overgeneralizations of the type \*experiencer + present participle, either in production or in acceptability ratings (Figures 18 and 19 below). However, Figure 18 shows that, in terms of overall development, both Mid\_Skew

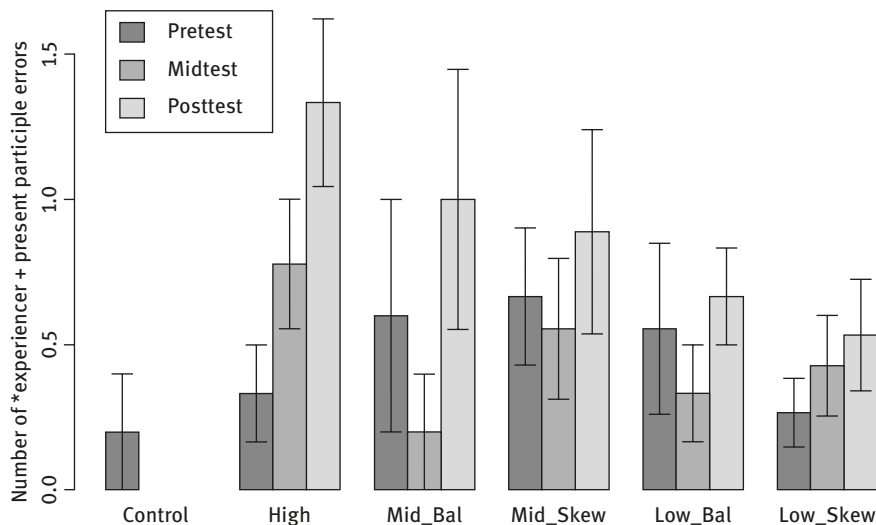


**Figure 16a, b:** Sensitivity scores for generalization items, per group at mid- and posttest.

and Low\_Skew marginally differ from High ( $p = 0.053/0.068$  n.s.), whose error rates significantly increase ( $p = 0.0004$ ). Figure 19 shows that both skewed input conditions significantly outperform High in terms of the development of acceptability

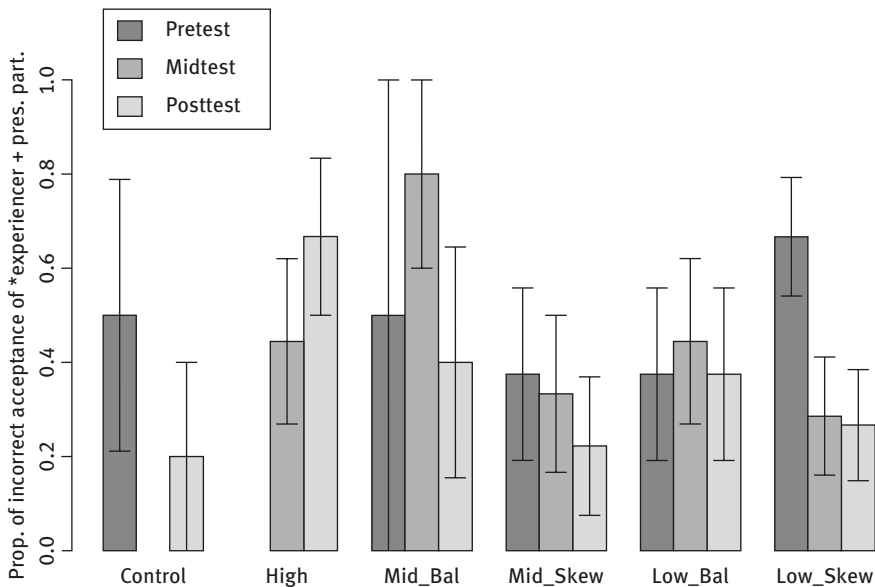


**Figure 17:** Proportion of correct target constructions as compared to erroneous constructions.



**Figure 18:** Number of \*experienter + present participle constructions, per group over time.

ratings on the corresponding prompts (all p-values < 0.05). Argument linking is thus not an obvious problem for learners in the skewed input conditions, who perform similarly well as learners in Low\_Bal.



**Figure 19:** Proportion of learners incorrectly accepting \*experienter + present participle, per group over time.

## 5.2.2 Discussion

These results confirm Hypothesis 2. Exposure to skewed input enhances developing constructional productivity with the *sein* ‘be’ + present participle construction in the low(er) type frequency conditions. Constructional productivity as measured in terms of target availability, variability, and generalizability improves more in learners exposed to skewed input than in learners exposed to balanced input of the same overall type frequency. This holds even in the case of extremely reduced type variation in condition Low\_Skew. In fact, the skewing advantage is most evident in this low type frequency condition, as Low\_Skew’s improvement is particularly good. Exposure to skewed low type frequency input clearly allows for quick and broad pattern generalization and productive pattern extension to novel items in spite of very restricted input type variation. The two highly frequent central exemplars seem to have provided salient role models for analogical pattern extension, readily sanctioning novel instances. Low\_Bal scores comparatively poorly.

With the exception of sensitivity scores on generalization items (Figure 16 above), Mid\_Skew and Low\_Skew display at least as much improvement in the domains of target availability, variability, and generalizability as condition High

over the two weeks of training. Exposure to skewed input of low(er) overall type variation is thus at least as beneficial as exposure to highly type-varied input for instructed adult second language learners with minimal prior target knowledge to develop broad constructional productivity with the *sein* 'be' + present participle construction under incidental learning conditions. Additionally, exposure to skewed input does not have any drawback in terms of over-productivity and argument linking errors, which makes skewed input actually superior to high type frequency input.

As such, although high token frequency per type and a high level of semantic coherence (as in *Low\_Bal*) may thus trigger productive generalization despite low type variation, at least to some extent (Barðdal 2008), Zipfian type-token ratios with selectively very high token frequencies for a small number of central types (as in *Mid\_Skew* and *Low\_Skew*) most certainly will. Analogical pattern extension from low type frequency input is thus not only a matter of high token frequencies per type, but primarily a matter of favorable type-token ratios.

These findings raise a number of questions concerning previous assumptions about the effects of skewed input, namely the role of skewed input in pattern recognition versus pattern extension and the role of explicit learning. These are briefly discussed in the following closing section along with the potential role of the constructional network (Abbot-Smith and Behrens 2006) and the assumed adult trend of maximal generalization (Boyd and Goldberg 2012).

## 6 Constructional productivity revisited

Data from our classroom training study are, in many respects, in line with Barðdal's (2008) model of gradient constructional productivity. Adult second language learners in instructed classroom settings appear to benefit from but do not necessarily need highly type-varied input to productively generalize and extend the *sein* 'be' + present participle construction beyond familiar examples (Hypothesis 1). However, it is only when exposed to skewed type-token ratios that they can confidently do so in the case of restricted type frequency and coverage (Hypothesis 2). This was shown for the semantically highly coherent verb-class-specific productivity domain of the German *sein* 'be' + present participle construction of psychological causative verbs.

With a maximum of 50 target types in the high type frequency condition, all training groups were exposed to input that was considerably more limited, in terms of type frequencies of the target construction, than the input of native speakers (see Section 4.1). The input used in the training study was less ambigu-



ous than native input, as both idiosyncratically blocking adjectives and so-called pseudo-participles were excluded from the training input. Although they may thus not reflect native speakers' generalization ability, their constructional productivity estimates, and their representational level of schematicity of the *sein* 'be' + present participle construction, the results of the study still point to the possibility of full constructional productivity in spite of low type variability (given skewed type-token ratios).

## 6.1 The adult trend to maximally generalize and the role of the constructional network

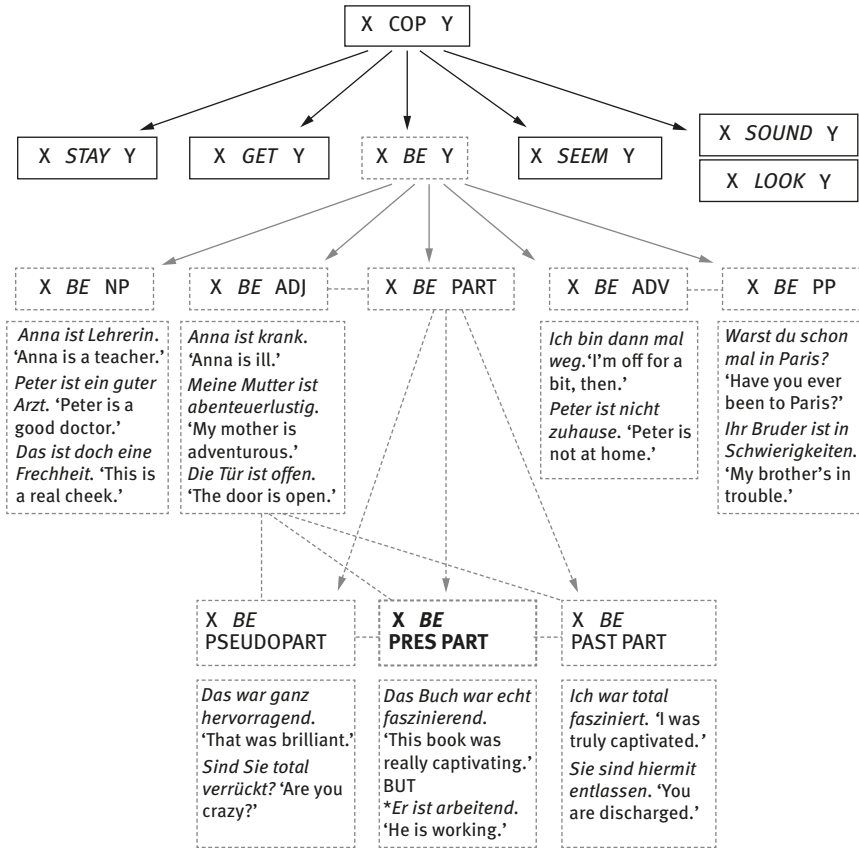
The assumed adult trend to maximally generalize even from limited input (e.g., Boyd and Goldberg 2012; Taylor 2012: 187) partly explains developing productivity despite reduced input type frequency, for example in our training conditions *Low\_Bal* and *Low\_Skew*. This trend has most likely been reinforced, in the case of the *sein* 'be' + present participle target construction, by the larger constructional network and by learners' familiarity with neighboring constructions.

Abbot-Smith and Behrens (2006) propose that acquisition is facilitated if the major building blocks of a new construction have previously been learned and are thus familiar. This is the case of the *sein* 'be' + present participle construction in the present classroom study. Learners have been familiar with the copula construction for months or even years, and have already been taught German participles, typically in the context of reformulating relative clauses (*der Mann, der lacht/der lachende Mann* 'the man who laughs/the laughing man'; *die Schuhe, die geputzt wurden/die geputzten Schuhe* 'the shoes that were polished/the polished shoes'). The *sein* 'be' + present participle construction as a transparent novel composition of familiar building blocks is thus expected to be learned quickly. In addition, the (verbal) present participle in itself is morphologically fully productive; there is a present participle for each and every German verb, although most of them can only be used preminally (*der lachende Mann* 'the laughing man') and adverbially (*Lachend ging er davon* 'He went away laughing').

Finally, the *sein* 'be' + present participle construction is easily recognizable as a member of the highly frequent and highly productive *sein* 'be' + adjective construction,<sup>12</sup> which in turn is a subclass of the very abstract copula construction (Figure 20). More specifically, the *sein* 'be' + present participle construction is

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<sup>12</sup> Only a small subgroup of adjectives is excluded from predicative use, including temporal adjectives like *täglich* ('daily') and *wöchentlich* ('weekly') and adjectives of affiliation like *ärztlich* ('medical') and *schulisch* ('academic').



**Figure 20:** Selected part of the local constructional network for *sein* 'be' + present participle (Madlener 2015: 306).

transparently related to the familiar *sein* 'be' + past participle construction, with which it paradigmatically contrasts (*Das Buch war faszinierend/Er war fasziniert von dem Buch* 'The book was fascinating/He was fascinated by the book'). The *sein* 'be' + present participle construction is certainly only partially productive to the extent that it excludes intransitive activity verbs (e.g., *tanzen* 'to dance') and atelic transitive verbs (e.g., *lieben* 'to love'). Yet the latter can be coerced into the construction via type shifting to a resultative job-done reading; for example, *Die Katze ist gestreichelt, wir können gehen* ('The cat is petted, we can leave now', Handwerker 2002). The familiar *sein* 'be' + past participle construction thus provides a highly productive role model for the generalization and extension of the new *sein* 'be' + present participle construction.

## 6.2 Skewed input in pattern recognition vs. extension

What is most striking in the results of the study is learner behavior in the low type frequency training condition, where productive pattern generalization may be based on analogical extension. Exposure to balanced vs. skewed low type frequency input causes clear differences in learners' ability and willingness to sanction novel instances of the target construction. This suggests that it is not only token frequency that affects constructional productivity at the lower end of the productivity cline (Barðdal 2008: 52), but also skewed type-token ratios. This is not predicted by previous research on the role of skewed input in learning. Zipfian distributions have been assumed to enhance low-level pattern detection across input exemplars, that is, the beginning recognition of a category, but not pattern extension beyond the input, as high type variability, broad coverage (Suttle and Goldberg 2011), and high entropy (Cordes 2014) are presumably needed for category broadening and productive generalization.

The present study, however, suggests that highly frequent central exemplars in skewed input not only act as anchors for a new construction in pattern detection (Ellis and Ferreira-Junior 2009), but also as salient role models encouraging productive generalization via analogical pattern extension. In contrast to previous research, which has mainly been carried out in the artificial language learning paradigm, the present study reveals that skewed type-token ratios may even be more beneficial in pattern generalization and extension than in initial pattern recognition in real second language acquisition in classroom settings, at least in combination with overall low input type frequency. In fact, extremely increased surface similarity due to skewed low type frequency input was found to largely inhibit pattern abstraction by learners *without* prior target knowledge (Madlener 2015, 2016). This is in direct contrast to artificial language learning studies which report successful pattern abstraction for skewed input featuring as few as five different types (e.g., Casenhiser and Goldberg 2005; Boyd, Gottschalk, and Goldberg 2009).

## 6.3 Skewed input and explicit learning

The differences between the findings of the present study and prior research in part relate to the issue of explicit learning. As for prior research, Elio and Anderson (1984) only found a skewing advantage for incidental learning under implicit instructional conditions in their non-linguistic task. The artificial language learning experiments for which consistent beneficial skewed input effects were reported (e.g., Boyd and Goldberg 2009; Casenhiser and Goldberg 2005; Goldberg

et al. 2004, 2007) took place in assumedly implicit laboratory settings, too. Two prior classroom studies targeting skewed input effects in second language learning under more explicit instructional conditions (McDonough and Trofimovich 2013; Year and Gordon 2009) did not find any significant skewing effects.

By contrast, exposure to skewed input clearly did lead to very successful explicit incidental learning in the present classroom study. Skewed low type frequency input both pushed explicit noticing of the target pattern, or rather of its central exemplars, and encouraged very successful explicit analogical pattern extensions at the same time. Debriefing reports from the successful learners in condition *Low\_Skew* reflect their high levels of conscious awareness and their trend toward explicit hypothesis testing. One learner, for example, reports awareness of the implicit learning issue identified as “vocabulary learning through repetition in listening texts”. Two others report having learned “words” from the input, more specifically referring to “specific words like *spannend* that repeatedly occurred in the input texts” and “repeated words like *enttäuschend*”. A further two learners report having learned about “participles”, explicitly naming a trained type (“I feel more confident in using adjectival participles like *enttäuschend*, I can never forget *enttäuschend*” and “participles: *faszination*, *faszinierend*”). Another learner reports more abstract learning of “different word forms”, using a generalization type as an example for the target pattern (*motivierend*, *motiviert* ‘motivating, motivated’), thus clearly demonstrating item-general knowledge. In a personal comment, finally, two very successful learners underlined their conscious awareness of the target structure, reporting on an agreement made in week two to use “only this special construction” during their conversations at lunch.

The present study differs in three main aspects from prior experiments, which may explain the observed discrepancies. Firstly, the learners were not encouraged to explicitly test hypotheses about the target construction, but the hypotheses arose naturally during meaning-based input processing. In other words, explicit incidental learning still occurred in an implicit incidental instructional setting. Secondly, both the amount and duration of exposure were much more substantial in the present study, meaning that explicit hypothesis testing was based on a larger data sample and that learners were able to test their emerging hypotheses against new input on the following day(s). Thirdly, the data sample of learners exposed to low type frequency input here featured more variation than the sentence-level input both in the artificial language learning studies and in the classroom study by McDonough and Trofimovich (2013). It included a broad variety of subjects, copula forms, modifiers, sentence types, and situational contexts. The presence of substantial input variation beyond the type variability at the participle slot possibly contributed to the learners’ successful explicit generalization of the target construction.

In sum, instructed second language learners are trained to consciously watch out for patterns. As skewed input reflects prototypical category structure, with a small number of highly frequent exemplars and a substantial number of low(er)-frequency instantiations, it may actually particularly well allow for the explicit guess that there are possibly many more low-frequency exemplars whose absence from the witnessed sample is purely accidental, and that, given semantic coherence, the category may confidently be extended to unfamiliar types.

## References

- Abbot-Smith, Kirsten & Heike Behrens. 2006. How known constructions influence the acquisition of other constructions: The German passive and future constructions. *Cognitive Science* 30(6). 995–1026.
- Baayen, R. Harald. 2008. *Analyzing Linguistic Data. A Practical Introduction to Statistics Using R*. Cambridge et al.: Cambridge University Press.
- Barðdal, Johanna. 2008. *Productivity. Evidence from Case and Argument Structure in Icelandic*. Amsterdam & Philadelphia: John Benjamins.
- Behrens, Heike. 2009. Usage-based and emergentist approaches to language acquisition. *Linguistics* 47(2). 383–411.
- Bernstein, Wolf Z. 1992. *Pseudopartizipien im deutschen Sprachgebrauch*. Heidelberg: Julius Groos Verlag.
- Boyd, Jeremy K. & Adele E. Goldberg. 2009. Input effects within a constructionist framework. *Modern Language Journal* 93(3). 418–429.
- Boyd, Jeremy K. & Adele E. Goldberg. 2012. Young children fail to fully generalize a novel argument structure construction when exposed to the same input as older learners. *Journal of Child Language* 39(3). 457–481.
- Boyd, Jeremy K., Erin A. Gottschalk, & Adele E. Goldberg. 2009. Linking rule acquisition in novel phrasal constructions. *Language Learning* 59 (Supplement 1). 64–89.
- Bybee, Joan. 2006. From usage to grammar: The mind's response to repetition. *Language* 82(4). 711–733.
- Bybee, Joan. 2008. Usage-based grammar and second language acquisition. In Peter Robinson & Nick C. Ellis (eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition*, 216–236. New York: Routledge.
- Bybee, Joan & Sandra A. Thompson. 2000. Three frequency effects in syntax. *Berkeley Linguistic Society* 23. 65–85.
- Casenhiser, Devin & Adele E. Goldberg. 2005. Fast mapping between a phrasal form and meaning. *Developmental Science* 8(6). 500–508.
- Cordes, Anne-Kristin. 2014. *The Role of Frequency in Children's Learning of Novel Morphology*. Tübingen: Narr Francke Attempto.
- Ellis, Nick C. 2002. Frequency effects in language processing. A review with implications for theories of implicit and explicit language acquisition. *Studies in Second Language Acquisition* 24. 143–188.

- Ellis, Nick C. 2009. Optimizing the input: Frequency and sampling in usage-based and form-focused learning. In Michael H. Long & Catherine J. Doughty (eds.), *The Handbook of Language Teaching*, 139–157. Malden: Wiley-Blackwell.
- Ellis, Nick C. 2012. What can we count in language, and what counts in language acquisition, cognition, and use? In Stefan T. Gries & Dagmar Divjak (eds.), *Frequency Effects in Language Learning and Processing*, 7–33. Berlin & Boston: Mouton de Gruyter.
- Ellis, Nick C. & Teresa Cadierno. 2009. Constructing a second language. Introduction to the Special Section. *Annual Review of Cognitive Linguistics* 7. 111–139.
- Ellis, Nick C. & Fernando Ferreira-Junior. 2009. Construction learning as a function of frequency, frequency distribution, and function. *The Modern Language Journal* 93(3). 370–385.
- Elio, Renée & John R. Anderson. 1984. The effects of information order and learning mode on schema abstraction. *Memory & Cognition* 12. 20–30.
- Fuhrhop, Nanna & Oliver Teuber. 2000. Das Partizip 1 im Deutschen. *ZAS Papers in Linguistics* 16. 100–114.
- Goldberg, Adele E., Devin M. Casenhiser, & Nitya Sethuraman. 2004. Learning argument structure generalizations. *Cognitive Linguistics* 15. 289–316.
- Goldberg, Adele E., Devin M. Casenhiser, & Tiffani R. White. 2007. Constructions as categories of language. *New Ideas in Psychology* 25. 70–86.
- Handwerker, Brigitte. 2002. Chunks, Raster und Regeln: Vom Lexikon zur Grammatik in der Fremdsprachenvermittlung. In Wolfgang Börner & Klaus Vogel (eds.), *Grammatik und Fremdspracherwerb. Kognitive, psycholinguistische und erwerbstheoretische Perspektiven*, 207–230. Tübingen: Gunter Narr Verlag.
- Handwerker, Brigitte & Karin Madlener. 2009. *Multimedia-Chunks für Deutsch als Fremdsprache. Theoretischer Hintergrund und Prototyp einer multimedialen Lernumgebung*. Baltmannsweiler: Schneider Verlag.
- Jaeger, Florian. 2008. Categorical data analysis: Away from ANOVAs (transformation or not) and towards logit mixed models. *Journal of Memory and Language* 59. 434–446.
- Lieven, Elena V. M. 2010. Input and first language acquisition: Evaluating the role of frequency. *Lingua* 120. 2546–2556.
- Madlener, Karin. 2015. *Frequency Effects in Instructed Second Language Acquisition*. Berlin, Boston: Mouton de Gruyter.
- Madlener, Karin. 2016. Input optimization. Effects of type and token frequency manipulations in instructed second language learning. In Heike Behrens & Stefan Pfänder (eds.): *Frequency Effects in Language. What Counts in Language Processing, Acquisition, and Change*. 133–173. Berlin, Boston: Mouton de Gruyter.
- Maienborn, Claudia. 2007. Das Zustandspassiv. Grammatische Einordnung – Bildungsbeschränkung – Interpretationsspielraum. *Zeitschrift für Germanistische Linguistik* 35. 83–114.
- McDonough, Kim & Pavel Trofimovich. 2013. Learning a novel pattern through balanced and skewed input. *Bilingualism: Language and Cognition* 16(3). 654–662.
- Möller, Max. 2007. Psychische Wirkungsverben des Deutschen. *Deutsch als Fremdsprache* 44(1). 11–19.
- R Core Team. 2012. R: *A Language and Environment for Statistical Computing*. Version 2.15.1 (2012-06-22). <http://www.R-project.org>, last access: October 23, 2017.
- Rapp, Irene. 1996. Zustand? Passiv? Überlegungen zum sogenannten “Zustandspassiv”. *Zeitschrift für Sprachwissenschaft* 15(2). 231–265.

- Rapp, Irene. 1997. *Partizipien und semantische Struktur: Zu passivischen Konstruktionen mit dem 3. Status*. Tübingen: Stauffenburg.
- Suttle, Laura & Adele E. Goldberg. 2011. The partial productivity of constructions as induction. *Linguistics* 49(6). 1237–1269.
- Taylor, John R. 2012. *The Mental Corpus. How Language is Represented in the Mind*. Oxford et al.: Oxford University Press.
- Year, Jungeun & Peter Gordon. 2009. Korean speakers' acquisition of the English ditransitive construction: The role of verb prototype, input distribution, and frequency. *The Modern Language Journal* 93(3). 399–417.

Ryan Dux

# Frames, verbs, and constructions: German constructions with verbs of stealing

## 1 Introduction

In this paper, I apply insights from Construction Grammar and Frame Semantics to an analysis of German constructions used with verbs of stealing in order to shed light on various issues in the syntax-semantics interface, including verb classification, partial productivity, and constructional polysemy. When speakers use language, they must express the infinite variety of real-world events using a finite set of linguistic structures. Many events can be construed grammatically in various ways. English verbs denoting acts of theft, for instance, may realize the event participants syntactically in two different ways. The *steal* variant in (1) is associated with verbs such as *steal*, *swipe*, or *pilfer*, and realizes the stolen goods as direct object. The *rob* variant in (2) occurs with *rob* and *mug*, and differs from the first variant in that the victim, and not the goods, is the direct object.

(1) *She stole the bag (from the man).*

(2) *She robbed the man (of his bag).*

While English offers a single pattern to profile the victim of a theft event, German may do this in multiple ways. The *steal* variant in (3) can be paraphrased using the applicative construction in (4) or the ditransitive construction in (5).<sup>1</sup>

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<sup>1</sup> These examples and most used in this paper come from the Archive of Written Language portion of the DeReKo Corpus, housed at the Institut der Deutschen Sprache (IDS; Institute of the German Language). These examples include the corpus's identification numbers, which point to the original source of the data. Unless otherwise noted, examples without such marking are invented examples used to demonstrate differences between verbs and constructions clearly.

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- (3) *Diebe klauen Sägen von einer Baustelle.*  
 thieves snatch saws from a construction.zone  
 ‘Thieves steal saws from a construction zone.’ B RZ10/MAR.15017.
- (4) [...] *dass man sie [...] des Geldes beraubt.*  
 that one she.ACC the.GEN money.GEN be-rops  
 ‘...that one robs her of money.’ PST/W05.00048
- (5) *Petra raubt jedem den Atem.*  
 Petra robs everyone.DAT the.ACC breath.ACC  
 ‘Petra robs everyone of their breath.’ A10/JAN.00887

In Section 2, I describe how these different ways of construing a single event type have traditionally been viewed as syntactic alternations between a basic variant and a marked variant. I then present recent research within the framework of Construction Grammar (Goldberg 1995, 2006), which views each variant of an alternation as an independent construction with its own semantic, syntactic, and pragmatic properties. Here, I argue that a Construction Grammar view of alternations allows for a more straightforward comparison of syntactic patterns across languages, especially when combined with principles of Frame Semantics (Fillmore 1985; Boas 2010). I then describe various problems surrounding the relationship between verbal and sentential meaning, which can be elucidated by such contrastive constructional analyses.

In Section 3, I describe the two German constructions in (4) and (5) in more detail, analyzing their combination with verbs of stealing and other verb classes and comparing them with their English counterparts. These constructions are particularly interesting because they exhibit two puzzling phenomena noted in the literature. First, the constructions are partially productive: they appear with some, but not all verbs of stealing. Second, they are polysemous: they have slightly different meanings when combined with different verbs.

In Section 4, I then elaborate on this analysis to show its implications for various theoretical issues. I first compare an alternation-based and a frame-based classification of German verbs of stealing to show how the two approaches lead to radically different verb classes and sub-classes. I then seek factors, which may account for the partial productivity of stealing verbs in the ditransitive construction, concluding that a verb’s participation must be specified for each individual verb. Finally, I show that a verb’s frame semantics predict the interpretation of individual instances of broader, polysemous constructions, but that these interpretations may differ from language to language.

## 2 Alternations, constructions, and frames

### 2.1 Levin's (1993) alternations and verb classes

The notion of syntactic alternations has been a mainstay of research on the syntax-semantics interface. Alternations are sets of syntactic patterns, which allow a verb to express its arguments in different ways. One such alternation is the locative alternation, which appears with verbs describing events where an Agent moves a Theme to a Goal, such as *load* and *spray* (Fillmore 1968; Levin 1993: 54). In one variant of the locative alternation, the Theme is direct object and the Goal is in a directional or locational prepositional phrase as in (6). The other variant realizes the Goal as direct object and the Theme in a prepositional phrase headed by *with* as in (7).

- (6) a. *Pat loaded hay onto the wagon.*  
 b. *Pat sprayed paint onto the wall.*
- (7) a. *Pat loaded the wagon with hay.*  
 b. *Pat sprayed the wall with paint.*

Another widely-recognized alternation is the ditransitive alternation,<sup>2</sup> in which a recipient or benefactive is realized either in a prepositional phrase headed by *to* or *for* in (8) or as the first object of a ditransitive sentence in (9).

- (8) a. *Pat gave a gift to Mary.*  
 b. *Pat baked a cake for Mary.*
- (9) a. *Pat gave Mary a gift.*  
 b. *Pat baked Mary a cake.*

Rule-based analyses of alternations such as Pinker (1989) assume that the two variants of an alternation differ only in their syntactic realization but express identical or near-identical semantic propositions. A further assumption is that one variant is basic, while the other is derived through syntactic transformations. (See Dowty 2000 and Goldberg 2002 for arguments against such a view.)

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<sup>2</sup> Although this alternation and the associated syntactic pattern (without the preposition) are also referred to as the “dative,” “benefactive,” or “double-object” alternation/construction, I follow the terminology of Goldberg (1995, 2006) and refer to it as the “ditransitive.” Furthermore, for comparative purposes, I also refer to the equivalent German pattern (with a dative object) as the “ditransitive”.

One application of alternations as a theoretical construct is in the formulation of verb classes. A major goal in research on the syntax-semantics interface involves the identification of classes of verbs, which exhibit similar or identical behavior with respect to their meaning and the syntactic realization of their arguments. While various approaches to verb classification exist, one of the most prominent approaches is Levin (1993), whose main criteria for classification is shared alternating behavior. Levin assumes that verbs with the same alternating behavior must share the same meaning components (1993: 1), so she groups verbs together if they undergo the same set of alternations.

Verbs such as *rob* and *steal* are among Levin's classes of Verbs of Dispossession. Levin uses the syntactic patterns such as those in (10) and (11) to distinguish verbs of dispossession from one another and classify them accordingly.<sup>3</sup> Verbs in her Steal class exhibit the syntax in (10), while those in her Cheat class exhibit the syntax in (11).

(10) *He stole the purse from the woman.*

(11) *He robbed the woman of the purse.*

A list of verbs in each class and Levin's brief semantic description of the classes is given in Table 1 below.

While Levin (1993) provides a good first start for verb classification, her method has been criticized for generating heterogeneous classes (Baker and Ruppenhofer 2002; Boas 2008, 2011; Dux 2011, 2016). For one, the definitions of her classes are sometimes vague and result in classifying verbs together, which exhibit significant semantic differences. Her Steal class, for instance, includes the verbs *steal*, *capture*, *plagiarize*, and *retrieve*, which differ greatly in the types of scenes they describe. Second, Levin (1993) only uses a few alternations to define each of her classes, and does not account for differences in the verbs' occurrence with other alternations that are not used to define the class. For example, her Steal verbs differ in their ability to appear in intransitive patterns as in (12) and with certain preposition types as in (13).

(12) Sam{stole/*plagiarized*/\*took/\*swiped}.

(13) a. *Sam took the food **out of** the fridge.*  
 b. ??*Sam kidnapped the child **out of** the house.*

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<sup>3</sup> Verbs in Levin's Steal class are also defined by their inability to participate in the locative, benefactive, conative, or causative alternations (Levin 1993: 129).

**Table 1:** Definitions and verbs of Levin’s Steal and Cheat classes (Levin 1993: 128–129).

Class	Definition	Verbs
<b>Steal</b>	“These verbs primarily describe the removal of something from someone’s possession; [...]”	abduct, cadge, capture, confiscate, cop, emancipate, embezzle, exorcise, extort, extract, filch, flog, grab, impound, kidnap, liberate, lift, nab, pilfer, pinch, pirate, plagiarize, purloin, recover, redeem, reclaim, regain, repossess, rescue, retrieve, rustle, seize, smuggle, snatch, sneak, sponge, steal, swipe, take, thief, wangle, weasel, winkle, withdraw, wrest
<b>Cheat</b>	“[...] these verbs [...] typically describe depriving someone/something of an inalienable possession (in the broad sense).”	absolve, acquit, balk, bereave, bilk, bleed, break (of a habit), burgle, cheat, cleanse, con, cull, cure, defraud, denude, deplete, depopulate, deprive, despoil, disabuse, disarm, disencumber, dispossess, divest, drain, ease, exonerate, fleece, free, gull, milk, mulct, pardon, plunder, purge, purify, ransack, relieve, render, rid, rifle, rob, sap, strip, swindle, unburden, void, ween

Another problem is that Levin does not rely on corpus data when determining a verb’s alternating behavior, which results in inaccurate classifications. For example, Levin claims that Steal verbs do not participate in the benefactive alternation in (14). However, a search of the Corpus of Contemporary American English (COCA) shows that some Steal verbs can, in fact, appear with a benefactive direct object. In (15), the first object *me* refers to a third party who receives the stolen goods after the theft has taken place.

- (14) a. *The thief stole the painting for Mr. Smith.*  
 b. \**The thief stole Mr. Smith the painting.* (Levin 1993: 129)

- (15) *Change the subject. Better yet, **steal me** another drink.* (COCA)

In Section 4.1, I take a closer look at how German verbs of stealing may be classified in an alternation-based approach like Levin’s, comparing her syntax-based classes against the semantics-based classes used in Frame Semantics (Fillmore 1985, see the following sub-section).

A somewhat more significant problem with Levin’s approach involves the status of alternations as the main criterion for classification. Levin does not account for a verb’s full range of alternating behavior, but uses only a handful of alternations to define each class. Furthermore, the meanings that she ascribes to her alternations are not always clear. For instance, Levin claims that the reciprocal

subject alternation is reflective of a meaning component of “social interaction.” However, while this construction occurs with *meet*, a Verb of Social Interaction, it also occurs with *jog*, which does not necessarily exhibit “social interaction” semantics (cf. Baker and Ruppenhofer 2002).

(16) *Jim met with Sue. ~ Jim and Sue met.*

(17) *Jim jogged with Sue. ~ Jim and Sue jogged.*

When it comes to questions of contrastive analysis such as those posed in this paper, Levin’s reliance on alternating behavior becomes a more serious problem. Namely, English alternations do not always have clear counterparts in other languages. Frense and Bennett (1996) apply Levin’s conative, middle, and locative alternations to the analysis of German verb classes and find numerous differences in both the alternations themselves and the classes undergoing them. For one, they show that some English alternations do not exist in German (e.g. the *swarm* variant of the locative alternation) and that some English alternations have multiple German translations. For instance, the German middle alternation may involve a simple verb (18) or the modal verb *lassen* ‘let’ (19):

(18) *Dieses Buch liest sich leicht.*  
 this book reads REFL easily  
 ‘This book reads well.’ (Frense & Bennett 1996: 311)

(19) *Dieses Buch lässt sich gut lesen.*  
 this book lets REFL well read  
 ‘This book reads well.’ (Frense & Bennett 1996: 311)

Frense and Bennett also show that classes of German verbs do not have the same alternating behavior as their English counterparts. As an example, while German verbs of creation undergo the conative alternation (20a)–(20b), their English counterparts do not (20c)–(20d).

(20) a. *Arno baute das Haus.*  
 Arno built the.ACC house  
 ‘Arno built the house.’

b. *Arno baute am Haus.*  
 Arno built on.the.DAT house  
 ‘Arno built at the house.’

- c. *Arno built the house.*  
 d. \**Arno built at the house.* (cf. Frense and Bennett 1996: 310)

The existing literature reviewed above, as well as the data discussed throughout this paper, show that one must be careful when applying Levin's alternation-based classification approach to cross-linguistic studies. This gives us reason to search for another method for comparing verb classes and constructions across languages. In the following, I discuss Construction Grammar as presented by Goldberg (1995, 2006), which offers another way of analyzing the combination of verbs and syntactic patterns.<sup>4</sup> I then present Boas's (2010) suggestions for comparing similar constructions in different languages using the principles of Frame Semantics (Fillmore 1985; Fillmore and Baker 2010). Finally, I present some relevant issues within Construction Grammar, which may be resolved through a comparative analysis of similar constructions in German and English.

## 2.2 Construction Grammar

In Construction Grammar (CxG), the syntactic patterns in which verbs appear are treated in the same way as lexical units, namely as constructions, which are pairings of form with meaning (Goldberg 2006). CxG views all aspects of language as an inventory of meaning-form pairings, from highly abstract sentence patterns such as the transitive construction to idiomatic phrases such as the *What's X doing Y?* construction (Kay and Fillmore 1999) to individual lexical units, such as *dog*. Constructions are defined by Goldberg (2006: 5) as follows: "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."<sup>5</sup>

Goldberg (1995, 2006) deals primarily with argument structure constructions, which "are a special subclass of constructions that provides the basic means of

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<sup>4</sup> Various versions of Construction Grammar have been formulated over the past decade, each with a different purpose and set of assumptions. The most popular rendition and that discussed here is Goldberg's (1995, 2006) Cognitive Construction Grammar, which seeks psychological explanations for the properties of constructions. Radical Construction Grammar (Croft 2001) focuses on typological cross-linguistic work, Sign-based Construction Grammar (Boas and Sag 2012) attempts to formalize the properties of constructions, and Embodied Construction Grammar (Feldman et al. 2009) is employed in artificial intelligence.

<sup>5</sup> For other definitions of constructions, see Goldberg (1995: 4), Croft (2001: 17–21), and Fried and Östman (2004: 18–23).



- (24) a. *He stole money from the woman.*  
 b. *He robbed the woman.*
- (25) a. *He stole money from the safe.*  
 b. \**He robbed the safe of its contents.* (Goldberg 1995: 48)

Furthermore, *rob* entails that the victim is negatively affected, while *steal* focuses on the fact that goods do not belong to the thief. As a result, *rob* does not usually appear with goods of low value as in (25b), while *steal* may. Instead, the goods argument of *rob* is typically something of significant worth or importance, which leads to the ‘affectedness’ of the victim (see also Pinker 1989: 396).<sup>7</sup>

- (26) *He stole a pen from me.*
- (27) ??*He robbed me of a pen.*

Using this and other data, Goldberg argues that the seemingly similar verbs *rob* and *steal* in fact exhibit semantic differences, which are reflected in the constructions they appear in. *Rob* profiles a victim as target, while *steal* profiles the stolen goods. Goldberg represents this difference in the verbs’ lexical entries, with profiled arguments given in bold-faced font:

- (28) *rob* <**robber** **victim** goods >  
*steal* <**stealer** source **goods** > (Goldberg 1995: 48)

Goldberg ties the verbs’ occurrence in different syntactic patterns to the way these two syntactic constructions construe the participants of the theft event. The profiled target of *rob* and the profiled goods of *steal* both occur in the prominent syntactic slot of direct object, while the goods of *rob* and the target of *steal* are optional oblique phrases (see Perek 2015 for a more in-depth analysis of alternations using statistical methods and corpus data).

Goldberg (1995: 50) posits an important, yet highly debated, principle, which governs the fusion of verbs and constructions. The Semantic Coherence Principle states that the specific participant role of a verbal argument must be semantically

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<sup>7</sup> These types of subtle semantic properties of syntactic patterns are seldom accounted for in most theories of verb-argument structure. However, the incorporation of Frame Semantics (to account for detailed world knowledge) with Construction Grammar (to account for the meaning of syntactic patterns) is a promising approach to such phenomena.



similar to the more general argument role of the construction.<sup>8</sup> For instance, the construction associated with *steal* has the argument role slots Agent, Patient, and Location, which can be fused with the stealer, goods, and source participants of *steal*, respectively. Throughout the present analysis, particularly in the discussion of partial productivity, I argue that Goldberg's Semantic Coherence Principle is not constrained enough to prevent the generation of infelicitous sentences, thereby corroborating insights from other scholars such as Kay (1996, 2005), Nemoto (1998), Boas (2003), and Iwata (2008).

### 2.3 Contrastive CxG and Frame Semantics

So far, I have shown that CxG provides a richer analysis of the alternating behavior of *rob* and *steal* in English than traditional alternation-based approaches. Now, the question arises as to how a CxG methodology can be applied to constructions associated with German verbs of stealing. Here, I discuss Boas' (2010) proposal for applying CxG to contrastive analyses with the use of Frame Semantics. Although few studies on CxG have tackled purely contrastive questions, many scholars have identified and described constructions in other languages (see Boas 2010: 4, for a list of such works). The general success of research applying CxG to other languages suggests that this framework is also fruitful for contrastive analyses. In particular, Boas argues that Frame Semantics provides a useful semantic interface for comparing constructions across languages. This section outlines his proposed methodology.

Frame Semantics (Fillmore 1985, Fillmore and Baker 2010, Boas 2013) makes much of the notion that detailed world knowledge is required for the understanding of language.<sup>9</sup> This approach thus classifies verbs according to the semantic frames they evoke, which are defined as “schematic representations of the conceptual structures and patterns of beliefs, practices, institutions, images, etc. that provide a foundation for meaningful interactions in a given speech community” (Fillmore et al. 2003: 235). Each frame is associated with a certain number of

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<sup>8</sup> Goldberg also posits a second principle, the Correspondence Principle, which states that all profiled participants of a verb must be expressed as an argument of the construction. The Correspondence Principle is a default principle, as it may be overridden when the construction's function is to suppress prominent arguments (e.g. passive, middle constructions).

<sup>9</sup> Here, I use the form of Frame Semantics associated with FrameNet and the work of Charles J. Fillmore, but see Busse (2012) and Ziem (2008) for a review of how the notion of frame is used in different theories.

participants, called frame elements (FEs),<sup>10</sup> and may be evoked by a variety of lexical units (LUs), a word in one of its senses. LUs include nouns, verbs, adjectives and multi-word expressions, among others. FrameNet (<http://framenet.icsi.berkeley.edu>, Ruppenhofer et al. 2010), a lexical database built on Frame Semantic principles, uses corpus data to provide syntactic information about the realization of FEs with individual LUs.

One such FrameNet frame is the *Theft* frame, which involves the scenario of “a perpetrator taking some goods from a source or a victim” (Ruppenhofer et al. 2010). The FEs of this frame are thus PERPETRATOR, GOODS, SOURCE, and VICTIM.<sup>11</sup> Numerous LUs evoke this frame, including verbs (e.g. *embezzle*, *shoplift*, *steal*, *swipe*), nouns (e.g. *larceny*, *thief*), and adjectives (e.g. *light-fingered*, *stolen*). To account for how the semantics of the *Theft* frame is syntactically realized in English, FrameNet extracts relevant sentences from the BNC and annotates the grammatical function and phrase type of the FEs occurring with a given LU. For instance, the sentence in (29) includes a nominal subject PERPETRATOR and a nominal direct object GOODS. (30) also has these argument types, but also includes a SOURCE in a prepositional phrase headed by *from*.

(29) *John stole a pen.*  
 PERPETRATOR GOODS  
 NP.Ext NP.Obj

(30) *John stole a pen from the table.*  
 PERPETRATOR GOODS SOURCE  
 NP.Ext NP.Obj PPfrom.Obl

FrameNet accounts for the way *rob* differs from *steal* by positing a second frame, the *Robbery* frame, which is related to the *Theft* frame by means of a *Perspective\_on* relationship. Verbs in this frame differ semantically in that they are not associated with a SOURCE, but instead describe situations in which “a PERPETRATOR wrongs a VICTIM by taking something (GOODS) from them” (Ruppenhofer et al. 2010). Verbs in this frame include *rob* and *mug*. Syntactically, *Robbery* verbs differ from *Theft* verbs in that they realize the VICTIM, and not the GOODS,

<sup>10</sup> FEs roughly correspond to Goldberg’s participant roles and the semantic roles used in other theories of lexical semantics (e.g. Fillmore 1968). However, they differ in that they do not apply to individual verbs nor to the entire verbal lexicon, but are defined at the level of semantic frames.

<sup>11</sup> The names of frames are traditionally written in *Courier New* font. The names of FEs are written in SMALL CAPS.

as direct object in (31). *Rob* may also realize the Goods in an *of* prepositional phrase, but other verbs in this frame do not (32).<sup>12</sup>

- (31) *John {robbed/mugged} the poor old lady.*  
 PERPETRATOR                      VICTIM  
 NP.Ext                                      NP.Obj
- (32) *John {robbed/\*mugged} the lady of her purse.*  
 PERPETRATOR                      VICTIM      GOODS  
 NP.Ext                                      NP.Obj      PPOf.Objl

By analyzing sentences in this way, it is possible to determine the range of syntactic frames (i.e. constructions) associated with individual LUs and with semantic frames in general. This method for mapping semantics, in the form of frames and FEs, and syntax, in the form of phrase types and grammatical functions, allows one to identify similar classes of verbs in different languages and determine the range of syntactic patterns they may appear in. These classes then serve as a basis for comparison and facilitate the identification of cross-linguistic variability in the syntactic expression of a given function (or semantic domain).

Not only can a single linguistic function be expressed with a variety of constructions, but a single construction may be used for various functions. Boas observes that contrastive analyses, which use Frame Semantics as a basis enable a more systematic account of constructional polysemy (discussed later in this section). In particular, Boas (2010: 11) argues that constructions are polysemous in that a single syntactic configuration can have multiple interpretations depending on the semantic frame of the verb it combines with and other contextual factors.

[...] it is in theory possible to map the same frame-semantic meaning to different forms across languages. As such, each syntactic frame expressing a specific aspect of a lexical unit's frame-semantic meaning can be regarded as a grammatical construction. This means that each syntactic frame may be polysemous because it may be used to express the semantics of a broad variety of semantic frames [...].

In Section 3, I apply Boas' (2010) proposal for contrastive work on CxG by using the empirical methods of Frame Semantics to analyze two constructions associated

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<sup>12</sup> In the remainder of this paper, I refer to verbs in the *Theft* and *Robbery* frames collectively as “verbs of stealing” or “stealing verbs.”

with verbs for stealing in German. Before this analysis, I first discuss some issues in the CxG literature, which may be settled by the present analysis.

## 2.4 Partial productivity, constructional polysemy, granularity of constructions

While Construction Grammar has been successfully applied to a wide variety of linguistic phenomena, a number of questions pertaining to the exact relationship between constructions and verbs remain unsettled in the literature. The frame-based contrastive analysis of constructions in German and English, which I undertake in Section 3 sheds light on this enigmatic relationship. Section 4 then tackles more general questions involving the interaction of verbs and constructions. In particular, I discuss three problems relevant in CxG research: partial productivity, constructional polysemy, and the proper granularity-level for constructional analyses.

Partial productivity refers to the phenomenon in which a construction may appear with a particular verb, but not with semantically similar verbs (Barðdal 2008, Goldberg 1995: 120–140). Some constructions, such as the transitive construction, are highly productive in that they occur with a wide range of verbs, and with all members of semantically related classes of verbs, such as ‘cooking’ verbs.

- (33) a. *She baked a cake.*  
 b. *She cooked a steak.*  
 c. *She simmered the beef.*  
 d. *She braised the beef.*

However, many constructions are partially productive, as they only occur with a limited number of verbs. One such construction is the ditransitive construction.

- (34) a. *She baked Mary a cake.*  
 b. *She cooked Mary a steak.*  
 c. *??She simmered Mary some beef.*  
 d. *??She braised Mary some beef.*

(34) demonstrates that some verbs of food preparation (*bake, cook*) are felicitous in the ditransitive, but others (*simmer, braise*) are not. Partial productivity raises problems for Goldberg’s Principle of Semantic Coherence, as it is not strong enough to constrain the generation of sentences such as (31c)–(31d). The principle states that verb’s participants must be semantically compatible with the

construction, yet it is unclear that the semantics of *simmer* and *bake* are significantly different than that of *bake* or *cook*.

Partial productivity is treated in detail by Boas (2008), who attempts to account for the varying constructional behavior among *Self\_motion* verbs. One proposed solution is to identify specific entailments of a verb, which allow it to appear in the construction. Boas proposes that *Self\_motion* verbs may appear in the caused-motion construction when they entail that the *SELF\_MOVER* is moving quickly and energetically (cf. *He jogged/\*crawled her off the sidewalk*). He also suggests that a verb's constructional behavior may be related to its semantic weight. In this context, Boas appeals to Snell-Hornby's (1983) notion of verb descriptivity: low-descriptivity verbs such as *walk* or *run* have fairly general meanings while high-descriptivity verbs such as *wander* or *crawl* describe the situation in more detail. Boas argues that low-descriptivity verbs occur in a wider range of constructions than high-descriptivity verbs. Dux (2011) comes to similar findings with *Theft* verbs, showing that high-descriptivity verbs such as *shoplift* and *embezzle* appear in fewer syntactic patterns than lower-descriptivity *steal* and *swipe*. In Section 4.2, I discuss the productivity of the German applicative and ditransitive constructions with respect to verbs of stealing, in order to test Boas (2008) observations and shed more light on whether the constructional behavior of semantically similar verbs may be predicted based on their semantics.

A second major topic in CxG research involves the notion of constructional polysemy. Many constructions exhibit different senses, often as variations on a central or prototypical sense (Boas 2003, 2008; Goldberg 1995: 31–39). For instance, while the ditransitive construction (Goldberg 1995: 141–151) has a central sense of a prototypical giving scenario as in (35a), when it is used with different verbs, the notion of giving/receiving is extended to “intended future giving” as in (35b) or “disallow giving” as in (35c).

- (35) a. *He gave me a pencil.*  
 b. *He promised me a gift.*  
 c. *He denied me entry.*

In the discussion of the German applicative and ditransitive constructions in Section 3, I describe the constructions not only with respect to their behavior with verbs of stealing, but also their general properties and their behavior with other verb classes. In Section 4.3, I then elaborate on the relation between polysemous constructions and semantic frames, proposing that their specific interpretation can be predicted by the frame semantics of the verb they occur with.

A third relevant discussion in the CxG literature involves the proper level of granularity at which constructional behavior should be analyzed. The

<b>High (construction) level:</b>				
Ditransitive Cx:	Agent	Verb	Recipient	Theme
<b>Medium (verb class) level:</b>				
Giving:	Giver	{give/donate}	Recipient	Given Item
Cooking_creation:	Cook	{bake/cook}	Recipient	Produced_food
<b>Low (verb) level:</b>				
<i>give:</i>	John	gave	Susan	a present.
<i>bake:</i>	John	baked	his friend	a cake.

**Figure 1:** The ditransitive construction at various levels of granularity.

constructions proposed by Goldberg (1995, 2006) and shown in (20)–(22) are abstract, high-level constructions. Scholars such as Boas (2003) and Iwata (2008) criticize Goldberg’s abstract constructions for not properly accounting for their combination with individual verbs, as seen in the discussion of partial productivity and Goldberg’s principles. Boas and Iwata argue that constructional analyses must proceed from the bottom up, identifying individual instances of constructions in combination with verbs. In contrast to Goldberg’s high-level constructions, these scholars claim that more fruitful analyses are possible at the level of medium-level verb-class-specific constructions or low-level verb-specific constructions (or “mini-constructions” in Boas’ 2003 terminology). Figure 1 shows how the ditransitive can be analyzed at various levels of granularity.<sup>13</sup>

The present study sheds light on the proper level of constructional analysis for various phenomena. In particular, I argue that while Goldberg’s abstract constructions serve as a useful base of analysis, specific phenomena such as partial productivity and constructional polysemy are better accounted for with reference to verb-specific and verb class level constructions, respectively.

### 3 Two German constructions associated with verbs of stealing

This section investigates the applicative and ditransitive constructions as used with German stealing verbs and compares them with their English counterparts as well as with verbs in other semantic classes. The main goal of my discussion is to lay the theoretical groundwork for various claims about the relation between

<sup>13</sup> Traugott (2008) proposes a related, but not identical, distinction between macro-, meso-, and micro-constructions in order to account for diachronic grammaticalization phenomena.

verbs, semantic frames, and constructions. The German data was initially gathered through discussions with several native speakers between 20 and 50 years old in Düsseldorf, Germany, in early 2013. This native speaker data was supplemented with small-scale analyses of the Archive of Written Language portion of *Das Deutsche Referenzkorpus* ('The German Reference Corpus'; Kupietz et al. 2010; henceforth DeReKo) at the Institute for the German Language in Mannheim. A more extensive, large-scale corpus-based study is surely desirable in the future<sup>14</sup> to determine whether my initial observations can also be confirmed on the basis of much larger amounts of corpus data.

It is important to note that negative claims regarding infelicitous or ungrammatical combinations are less easily supported without a comprehensive corpus analysis, so my proposals below should be regarded as the basis for further discussion. Furthermore, recent research has shown that few grammaticality judgments are all-or-nothing. In particular, Stefanowitsch (2011) observes that verb-construction combinations deemed infelicitous in the literature are, in fact, found in corpora, albeit with less frequency than those deemed felicitous. Other scholars, such as Michaelis (2004) and Boas (2011) have identified instances of *coercion*, in which verbs or arguments, which typically do not appear in a specific construction may appear in these if the meaning is coerced to match the construction's semantics. In sum, the data presented here are subject to further analyses using both corpus analysis and theoretical notions such as coercion.

The first step of my analysis is to identify German verbs which evoke the *Theft* and *Robbery* frames and the range of syntactic frames (i.e. constructions) in which these verbs appear. To identify German verbs of *Theft*, we must find verbs that describe situations in which a PERPETRATOR takes GOODS from a SOURCE or VICTIM, and realize these FEs as arguments. Such verbs include *stehlen*, *klauen*, *mausen*, *mopsen*, and *stibitzen*, among others. German verbs evoking the *Robbery* frame describe situations in which a PERPETRATOR wrongs a VICTIM by taking something (GOODS) from them. German verbs such as *rauben* and *ausrauben* exhibit *Robbery* semantics, because they emphasize the forcefulness of the PERPETRATOR and the negative affectedness of the VICTIM. For the analysis in this section, I will focus on constructions associated with the most common and semantically general of these verbs: *stehlen*, *klauen*, and *rauben*, and their prefixed counterparts *bestehlen*, *beklauen*, and *berauben*, as these low-descriptivity verbs likely occur in the broadest range of constructions (cf. Boas 2008). The constructional behavior of other German *Theft* and *Robbery* verbs will be discussed in the following section.

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<sup>14</sup> In particular, the proposals of Stefanowitsch and Gries (2003) and Gries and Stefanowitsch (2004) for collocation analysis seems appropriate for this type of investigation.

The next step in the analysis is to determine the range of constructions these verbs occur in. Prototypical syntactic frames for these verbs are similar to those of English *steal*. In (36), the GOODS is the direct object and the SOURCE is in a prepositional phrase headed by *von* ('from') or *aus* ('out [of]'). In (37), the *von* prepositional phrase realizes a VICTIM rather than a SOURCE. (38) shows a simple transitive use with GOODS as direct object and no prepositional phrase.

- (36) *Diebe klauen Sägen von einer Baustelle.*  
 thieves snatch saws from a construction.zone  
 'Thieves steal saws from a construction zone.' BRZ10/MAR.15017
- (37) *Robin Hood und sein Freund Little John rauben Gold*  
 Robin Hood and his friend Little John rob Gold.ACC  
*von den Reichen*  
 from the rich  
 'Robin Hood and his friend Little John rob gold from the rich.' BRZ10/  
 JAN.04412
- (38) *Sie stahlen technische Geräte und Geld.*  
 they stole technical devices.ACC and money.ACC  
 'They stole technical devices and money.' M10/JAN.00273

Each of these syntactic frames realizes the GOODS FE in a profiled (accusative) argument slot, similar to the *steal* variant of the English *rob/steal* alternation. Equivalentents of the *rob* variant, in which the VICTIM is not in an oblique/prepositional phrase are given in (39) and (40).<sup>15</sup>

- (39) [...] *dass man sie [...] des Geldes be-raubt.*  
 that one she.ACC the.GEN money.GEN be-rops  
 '...that one robs her of money.' PST/W05.00048

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<sup>15</sup> Another relevant construction is seen in the example: *Der Mann bekommt die Tasche gestohlen*. 'The man gets/has the bag stolen.' The recipient passive construction is highly marginal, especially in non-colloquial registers, so it will not be discussed here. However, many generalizations identified for the other constructions apply to the recipient passive as well, as it is semantically similar to the ditransitive construction. For more on the recipient passive, see Askedal (2005), Leirbukt (1997), and Lenz (2013).



- (40) *Petra raubt jedem den Atem.*  
 Petra robs everyone.DAT the.ACC breath.ACC  
 ‘Petra robs everyone of their breath.’ A10/JAN.00887

The remainder of this section discusses these two patterns in more detail, describing nuances in their semantic and syntactic properties and comparing them with their English counterparts.

### 3.1 Applicative construction

The first major construction in which the VICTIM of a stealing event is given prominence over the Goods is given in (41), in which the VICTIM is accusative object and the GOODS is optionally realized as a genitive object.

- (41) *Der Mann beraubte die Frau der Tasche.*<sup>16</sup>  
 the man be-robbed the.ACC woman the.GEN bag  
 PERPETRATOR VICTIM (GOODS)  
 NP.Nom NP.Acc (NP.Gen)

This construction does not occur with the non-prefixed variants of verbs of stealing, but only with their *be-* prefixed counterparts. The verb *berauben* can optionally realize the GOODS in a genitive noun phrase, but this is less felicitous with the verbs *beklauen* or *bestehlen* (42).<sup>17</sup> This construction also exhibits a pragmatic constraint pertaining to the genitive case of the GOODS noun phrase. In modern spoken German, genitive case marking of objects is fairly uncommon (Grüner 2008, Bauer 2011), so speakers may avoid using this argument in spoken language.

- (42) a. *Der Mann {beraubte/??bestahl/??beklaute} die Frau*  
 the man {be-robbed/??be-stole/??be-swiped} the.ACC woman  
*der Tasche.*  
 the.GEN bag  
 ‘The man {robbed/??stole/??swiped} the woman of her bag.’

<sup>16</sup> In colloquial language, the realization of the stolen goods, particularly concrete goods, as a genitive object is highly marked.

<sup>17</sup> A brief search of the DeReKo corpus for instances of these verbs from the year 2010 shows that *berauben* appears with the genitive GOODS in 35 of 50 cases, while *bestehlen* and *berauben* show no instances out of 50 attestations each.

- b. *Der Mann {beraubte/bestahl/beklaute} die Frau.*  
 the man {be-robbed/be-stole/be-swiped} the.ACC woman  
 ‘The man {robbed/stole/swiped} the woman.’

Semantically, the accusative object is not compatible with purely locational SOURCE FEs (e.g. tables), but is limited to animate VICTIMS (e.g. people) or semi-sentient SOURCES (e.g. stores, banks).

- (43) a. *Er beraubte die Frau.*  
 he be-robbed the lady  
 ‘He robbed the woman.’
- b. *Er beraubte die Bank.*  
 he be-robbed the bank  
 ‘He robbed the bank.’
- c. *\*Er beraubte den Tisch.*  
 he be-robbed the table  
 ‘\*He robbed the table.’

Typically, the stolen GOODS are of significant worth and the VICTIM is therefore significantly negatively affected by the theft. That is, if the GOODS are realized at all, they are usually of high value (see endnote 7).

- (44) a. *Ein Schlaganfall hat die 95-jährige weitgehend der*  
 a stroke has the.ACC 95-year.old substantially the.GEN  
*Sprache beraubt [...]*  
 language be-robbed  
 A stroke substantially robbed the 95-year-old of speech [...]' RHZ10/JAN.01718
- b. *[...], um Polen des internationalen Schutzes*  
 to Poland.ACC the.GEN international protection.GEN  
*zu berauben*  
 to be-rob  
 ‘[...], in order to rob Poland of international protection.’ HAZ10/JAN.02451

The pattern in (42) is an instance of the broader applicative construction, described in detail by Michaelis and Ruppenhofer (2001).<sup>18</sup> This construction occurs with

<sup>18</sup> For comparisons of the German Applicative construction and English Locative alternation, see Brinkmann (1997), Dewell (2004), and Iwata (2008: 149–156).

verbs of many semantic classes and is flagged by the *be-* prefix. Prior accounts of this construction (e.g. Brinkmann 1997) describe it as a syntactic transformation on a verb's basic valence, which promotes an oblique argument to direct object. A typical instance of this construction is similar to that of the *load/spray* locative alternation in English (cf. Levin 1993: 49–55; Goldberg 2002).

- (45) a. *Er lädt Heu auf den Wagen.*  
 He loads hay.ACC onto the wagon  
 'He loads hay onto the wagon.'
- b. *Er belädt den Wagen (mit Heu).*  
 He be-loads the.ACC wagon.ACC with hay  
 'He loads the wagon (with hay).'

Michaelis and Ruppenhofer (2001), however, argue that the construction is not dependent on verbal valence, but is instead an independent construction with its own argument structure and semantics. This argument is supported by the construction's occurrence with verbs of varying "basic" valence. Michaelis and Ruppenhofer cite applicative constructions with intransitive verbs, transitive verbs, or denominal verbs with no non-prefixed verb counterpart.

- (46) a. Intransitive: *besprechen* 'discuss' ← *sprechen* 'speak'  
 b. Transitive: *beladen* 'load' ← *laden* 'load'  
 c. Denominal: *behaaren* 'apply hair to' ← *Haar* 'hair'<sup>20</sup>

According to Michaelis and Ruppenhofer (2001: 65–105), the meaning associated with the applicative construction is best described with reference to a central core sense with numerous (metaphorical) extensions. The core semantics involves the notions of transfer to, coverage of, and the affectedness of a 'location.' The prototypical case with *beladen* in (45b) fulfills each of these criteria: the hay is transferred to the wagon, the wagon is covered by the hay, and the wagon undergoes a change of state from being empty to full (of hay). The transitive construction in (45a), on the other hand, only entails that hay is transferred to the wagon. Michaelis and Ruppenhofer (2001: 71) claim that the transfer semantics of the applicative construction have a cognate concept of removal, which licenses the use of verbs of stealing in the construction. The infelicitousness of low-value GOODS with stealing verbs in the applicative construction may be tied to the notion of affectiveness in the construction's core semantics: if the GOODS are not of significant value to the VICTIM, the VICTIM does not match the semantic constraints on the accusative object of the construction (i.e. being holistically affected).

- (47) a. ??*Er beraubte mich eines Euros.*  
 he be-robbed me one.GEN Euro.GEN  
 ‘??He robbed me of a Euro.’
- b. *Er beraubte mich meines letzten Euros.*  
 He be-robbed me my.GEN last Euro.GEN  
 ‘He robbed me of my last Euro.’

Michaelis and Ruppenhofer (2001: 99–129) identify fine-grained classes of verbs which display variations on the construction’s core semantics, including those signifying concrete acts of coverage (e.g. *bedecken*), metaphorical extensions of the coverage scenario (e.g. *beachten*), and inference-based extensions such as ‘Communication as Transfer’ (e.g. *beantworten*). Michaelis and Ruppenhofer (2001: 125) list verbs of stealing their class of Removal verbs, along with *beerben* (‘inherit’) and *beholzen* (‘clear-cut [forest]’).<sup>19</sup> They also include *bemausen* and *bemopsen* in this list, but these verbs seem rather marginal in the applicative construction. The semantics of the Removal class differs from the prototypical case (e.g. *beladen*) in that the accusative object loses (i.e., becomes un-covered by) the unobligatory oblique object. A syntactic difference between stealing verbs and the prototypical case is seen in the realization of the oblique argument: while many verbs realize the oblique in a prepositional phrase (e.g. the *mit* prepositional phrase of *beladen*), verbs of stealing occur with an oblique genitive noun phrase.

The German applicative construction is the closest syntactic counterpart to the *rob* variant of the English *rob/steal* alternation. The PERPETRATOR is the subject, the VICTIM is the direct (accusative) object, and the GOODS are optionally realized as an oblique argument. A minor syntactic difference is that the oblique of the English *rob* variant is in a prepositional phrase headed by *of* in English, which is the closest equivalent to the German genitive.<sup>20</sup> A more relevant difference involves how the construction is licensed in the two languages. In English, the two variants of the *rob/steal* alternation are associated with completely different lexical items. In German, however, some non-prefixed verbs which occur in the *steal* variant can occur in the *rob* variant, provided they are marked with the *be-* prefix. Also, the German applicative construction applies to a much wider range of verbs than the English *rob* pattern, which is primarily limited to verbs of

<sup>19</sup> The English translation of *beholzen* is quoted directly from Michaelis and Ruppenhofer (2001: 125), although this sense is not readily available to all speakers.

<sup>20</sup> The equivalent pattern in Dutch realizes the GOODS in a *van* (‘of’) prepositional phrase (Delorge and Colleman 2006).

removal (cf. Levin 1993: 129). Finally, the English *rob* variant does not exhibit the sociolinguistic constraint which restricts the expression of GOODS in colloquial speech, because English *of* prepositional phrases are common in both formal and informal registers, unlike the German genitive case.

These differences between the combination of verbs and constructions in German and English raises questions for the cross-linguistic application of verb classes such as Levin (1993). In English, different verb classes can be formulated based on whether a verb occurs in the *rob* or the *steal* variant of the *rob/steal* alternation. In German, however, the same verbal roots (*-klaue-*, *-raub-*, *-stehl-*) can occur in the transitive + prepositional phrase variant or the applicative pattern, depending on the presence of the *be-* prefix. This systematic difference in linking verbs to syntactic patterns shows that alternation-based classifications for English cannot be directly carried over to other languages, even closely related languages such as German and English.

### 3.2 Ditransitive construction

In the second major syntactic pattern occurring with theft verbs, the PERPETRATOR is the subject and the GOODS argument is the accusative object. The VICTIM argument is realized as a dative object occurring between the verb and the accusative object.

- (48) *Der Mann klaute der Frau die Tasche.*  
 the man snatched the.DAT woman the.ACC bag  
 PERPETRATOR VICTIM GOODS  
 NP.Nom Verb NP.Dat NP.Acc  
 ‘The man snatched the bag from the woman.’

This pattern is used with the non-prefixed variants of stealing verbs.

- (49) *Der Mann {stahl/\*bestahl} der Frau die Tasche.*  
 the man {stole/\*be-stole} the.DAT woman the.ACC bag  
 ‘The man {stole/\*be-stole} the bag from the woman.’

When the VICTIM occurs as a dative object, the GOODS must also be present.

- (50) *\*Der Mann klaute der Frau.*  
 the man snatched the.DAT woman  
 ‘\*The man snatched the woman.’

Like the applicative construction, the dative object is also semantically restricted to animate VICTIMS or those construed as being animate, and it is infelicitous with non-animate SOURCES.

- (51) a. [...] *er* [...] *klaute* *einer* *Oma* *die* *Einkaufstüten*.  
 he snatched a.DAT grandmother the.ACC shopping.bags  
 ‘He stole shopping bags from the old woman.’ BRZ10/JAN.05123
- b. *Er* *klaute* *dem* *Tisch* *die* *Einkaufstüten*.  
 he snatched the.DAT table the.ACC shopping.bags  
 \*‘He stole shopping bags from the table.’

Because the dative case is still prominent in modern colloquial German, this pattern is felicitous in spoken language (Grüner 2008; Bauer 2011).

The sentence in (48) is an instance of the broader ditransitive construction. Traditional accounts (Baker 1988; Larson 1988) analyze the English equivalent of this pattern as an alternation between the realization of a beneficiary in a prepositional phrase (often headed by *an* ‘to’ or *für* ‘for’) or a dative (first) object noun phrase.

- (52) a. *Er* *schickt* *einen* *Brief* *an* *mich*.  
 he sends a.ACC letter to me.ACC  
 ‘He sends a letter to me.’
- b. *Er* *schickt* *mir* *einen* *Brief*.  
 he sends me.DAT a.ACC letter  
 ‘He sends me a letter.’
- (53) a. *Er* *kauft* *ein* *Buch* *für* *mich*.  
 He buys a.ACC book for me.ACC  
 ‘He sends a letter to me.’
- b. *Er* *kauft* *mir* *ein* *Buch*.  
 he buys me.DAT a.ACC book  
 ‘He buys me a book.’

However, constructional accounts such as Goldberg (2002) argue that this pattern is better analyzed as an independent construction. This argument extends to the German construction as well. First, the ditransitive construction can occur with verbs, which do not normally select for a recipient or beneficiary, such as *backen* (‘to bake’) or *singen* (‘to sing’). Consider the following examples.

- (54) a. *Sie* *backt* *ihm* *einen* *Kuchen*.  
 she bakes him.DAT a.ACC cake  
 ‘She bakes him a cake.’

- b. *Sie singt ihm ein Lied.*  
 she sings him.DAT a.ACC song  
 ‘She sings him a song.’

Semantically, the ditransitive construction also constrains the dative object to animate or volitional participants. For instance, while a human recipient can be the dative object, inanimate locations generally may not.<sup>21</sup>

- (55) a. *Er schickt einen Brief an den Mann.*  
 he sends a.ACC letter to the.ACC man  
 ‘He sends a letter to the man.’  
 b. *Er schickt dem Mann einen Brief.*  
 he sends the.DAT man a.ACC letter  
 ‘He sends the man a letter.’
- (56) a. *Er schickt einen Brief nach Deutschland.*  
 he sends a.ACC letter to Germany.DAT  
 ‘He sends a letter to Germany.’  
 b. \**Er schickt Deutschland einen Brief.*  
 he sends Germany.DAT a.ACC letter  
 \*‘He sends Germany a letter.’

The semantics of the ditransitive construction, like that of the applicative construction, also involves a central sense with various extensions. The core semantics is associated with an Agent who intends to give a Recipient some Theme through the action denoted by the verb (Goldberg 1995: 142–151). With *schicken* (‘to send’) in the examples above, the subject *er* (‘he’) intends for the dative object (*dem Mann* ‘the man’) to receive the accusative object (*einen Brief* ‘a letter’). The notion of “giving” in the core semantics can be paraphrased as “cause to have,” and many of the non-prototypical cases of the ditransitive can be seen as variations on the notion of “having.” Namely, some instances of the ditransitive construction imply that the dative object will receive something in the future if certain requirements are fulfilled (e.g. *versprechen* ‘promise’) or is prevented from having something (e.g. *verweigern* ‘deny’).

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<sup>21</sup> Note, however, that in (54b) the dative object *Deutschland* may become felicitous through coercion (Michaelis 2004; Boas 2011), when it metonymically stands for an organization in Germany.

- (57) a. *Sie verspricht mir ein Geschenk.*  
 she promises me.DAT a.ACC gift  
 ‘She promises me a gift.’
- b. *Sie verweigert mir ein Geschenk.*  
 she denies me.DAT a.ACC gift  
 ‘She denies me a gift.’

Another sense of this construction is one in which the dative object is deprived of something (e.g. ‘cause not to have’). This sense is associated with verbs of stealing and other possessional deprivation verbs such as *wegnehmen* (‘take away’) or *abkaufen* (‘buy from’), as the following examples illustrate.

- (58) a. *Sie stiehlt mir das Buch.*  
 she steals me.DAT the.ACC book  
 ‘She steals the book from me.’
- b. *Sie nimmt mir das Buch weg.*  
 she takes me.DAT the.ACC book away  
 ‘She takes the book away from me.’
- c. *Sie kauft mir das Buch ab.*  
 she buys me.DAT the.ACC book off  
 ‘She buys the book off of/from me.’

The English ditransitive construction is quite similar to that of German. A structural difference arises from the lack of case marking in English in that the German dative object is not associated with dative case marking in English but is identified in terms of its structural position in the sentence. The English ditransitive construction is also semantically flexible, as it occurs with verbs of future having (e.g. *promise*) and verbs of preventing from having (e.g. *deny*). However, the range of the English construction is not as broad as its German counterpart, because it does not refer to a victim with verbs of stealing and it does not occur with more general verbs of removal such as *take (away)*.

- (59) a. *She promised him a book.*  
 b. *She denied him the book.*  
 c. *\*She took him the book (away).*

English verbs in the *Theft* frame may appear in the ditransitive construction, but under a different interpretation: the dative object receives the ‘default’ interpretation of receiving or benefiting from the theft, not of being deprived of something.



**Table 2:** Interpretation of dative object with different verbs in German and English.

Interpretation of Dative	English	German
concrete recipient ( <i>give/geben</i> )	yes	yes
abstract recipient ( <i>teach/lehren</i> )	yes	yes
future recipient ( <i>promise/versprechen</i> )	yes	yes
denied possession ( <i>deny/verweigern</i> )	yes	yes
lose possession ( <i>steal/stehlen</i> )	no	yes

(60) *She stole me a watch.* = *She stole a watch {for/\*from} me.*

English verbs in the **Robbery** frame do not appear in the ditransitive construction.

- (61) a. \**She robbed me \$20.*  
 b. \**She mugged me \$20.*

Table 2 shows how dative arguments are interpreted with various verbs in German and English. While the range of polysemy in both languages is quite broad, only in German can dative objects in the ditransitive refer to entities that lose possession of something.

In summary, the German applicative and ditransitive constructions can both be seen as close translation equivalents of the English *rob* variant in the *rob/steal* alternation, because they do not realize the **VICTIM** in a prepositional phrase, but as a nominal object in accusative or dative case, respectively. Both constructions exhibit a semantic constraint that the relevant object is a (semi-) sentient **VICTIM** and not an inanimate **SOURCE**. Despite these similarities, the two constructions also exhibit differences. For instance, the ditransitive does not allow the **GOODS** to be omitted, while the applicative is often infelicitous or questionable when the **GOODS** are realized. This is a result of both the profiling of the **VICTIM** in accusative case (and concomitant backgrounding of the **GOODS**) and of the pragmatic restriction on genitive objects in colloquial German.

## 4 Frames, verbs, and constructions

### 4.1 Semantic and syntactic classification of German verbs of stealing

I now discuss the implications of the preceding constructional analysis for theoretical issues in CxG, including verb classification, partial productivity, and constructional

polysemy. One discussion made possible through (Contrastive) CxG is a comparison of frame-based and alternation-based classes. Here, I deal with a wider array of German verbs of stealing and discuss both their frame semantics and their participation in various constructions. The discussion shows that a frame-semantic approach results in semantically uniform classes with no clear implications for alternating behavior, while classes developed using Levin's (1993) alternation-based methodology result in numerous sub-classes which account for constructional behavior, but often separate semantically similar verbs. The first step in this comparison involves the identification of a wide range of German verbs with "stealing" semantics.

The verbs discussed above, along with their prefixed counterparts, are the most semantically neutral of German stealing verbs. *Rauben* has the additional implication that the PERPETRATOR carries out the act with some aggression or violence. *Klauen*, like *stehlen*, does not show this meaning component, but is restricted to colloquial speech. *Entwenden* is also general, but it is quite formal and seems to emphasize the ease with which the PERPETRATOR steals the GOODS. *Ergaunern* is used for events in which the PERPETRATOR uses trickery to obtain the GOODS. The verbs *mausen*, *mopsen*, and *stibitzen*, are very informal and typically restricted to unserious offenses in which the GOODS are of low value. Finally, the verbs *unterschlagen* and *veruntreuen* are used for the theft or misappropriation of abstract financial assets (cf. English *embezzle* or *misappropriate*). These two verbs can also be used for less prototypical stealing events in which the PERPETRATOR simply misuses the GOODS of the VICTIM (who typically entrusts the PERPETRATOR with the GOODS, as an investor).<sup>22</sup> A summary of these verbs and their detailed semantics is given in Table 3.

Table 2 represents a frame-semantic classification of German verbs of stealing. The left column lists German verbs which evoke the Theft and Robbery frames.<sup>23</sup> Each verb is associated with a PERPETRATOR who takes GOODS from a SOURCE or VICTIM. Individual verbs vary semantically in the restrictions they place on certain frame elements (e.g. the GOODS of *mausen* is low in value) or on how the theft is carried out (*ergaunern* involves the use of trickery to obtain the GOODS). In an extreme view of Frame Semantics, one may argue that each individual verb (or even each individual sense of a verb) is associated with its own unique frame-semantic information. This is particularly suitable for verbs such as *veruntreuen* or *unterschlagen*. However, while positing different semantic frames for individual

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<sup>22</sup> It is possible to view these two verbs as evoking a frame separate from the Theft or Robbery frame, but I include them in the analysis because they involve the same FE types as the other verbs.

<sup>23</sup> The Robbery frame is likely evoked only by the prefixed verbs (*beklauen*, *bestehlen*, etc.), but a more detailed discussion of the difference between German Theft and Robbery verbs must be put aside for the present.

**Table 3:** Semantics-based classification of German verbs of stealing.

Verb	Meaning	Register	Level of Descriptivity
(be)stehlen	general	Standard	Low
(be)klauen	general	Informal	
(be)rauben	general (use of violence/aggression)	Standard	
entwenden	general (ease of stealing)	Formal	Medium
mausen	Goods = small	Informal	
mopsen	Unserious offense		
stibitzen	Very informal		
veruntreuen unterschlagen	Goods = large sum of money or abstract assets Perpetrator = entrusted w/Goods	Standard/ Formal	High
ergaunern	Means = Trickery	Standard	

verbs helps to account for some aspects of behavior (see the discussion of partial productivity below), most applications require coarser-grained classifications. In some cases, a compromise between coarse- and fine-grained classes may be of use.<sup>24</sup> It is also noteworthy that verbs can be sub-classified according to register, which is in line with the CxG assumption that all aspects of language should be taken into account. Note that this frame-based classification does not make claims about the syntactic behavior of verbs, but facilitates investigations into the relation between verb meaning and syntactic form.

In an alternation-based approach, verb classes are posited based on the syntactic patterns (i.e. alternations) in which they occur. Table 4 lists four major syntactic patterns associated with German verbs of stealing along with the list of individual verbs, which occur in these patterns.

According to a strict alternation-based classification, at least four different classes must be proposed to account for the syntactic distribution of German stealing verbs. While such an approach directly predicts the verbs' syntactic behavior, it unnecessarily splits semantically related verbs into multiple classes. A major assumption of alternation-based verb classes is that verbs with the same alternating behavior must have similar meaning. However, the data in Tables 3–4

<sup>24</sup> The idea that frames can be posited at varying levels of abstraction does not clash with Frame Semantics principles and has been suggested in some literature, but a clear methodology of how this can be carried out has not yet been fully developed (however, see Boas [2008] and Dux [2011] for suggestions).

**Table 4:** Syntax-based classification of German verbs of stealing.

Syntactic Pattern (Construction)				Participating Verbs
<b>Transitive + PP</b>				
NP.nom	V	NP.acc	PP.von /aus	<i>stehlen, klauen, rauben, entwenden, mausen, mopsen, stibitzen, veruntreuen, unterschlagen,</i>
PERPETRATOR		GOODS	VICTIM/SOURCE	<i>ergaunern</i>
<b>Applicative (no Goods)</b>				
NP.nom	V	NP.acc		<i>beklauen, berauben, bestehlen, (bemausen, bemopsen)</i>
PERPETRATOR		VICTIM		
<b>Applicative (with Goods)</b>				
NP.nom	V	NP.acc	NP.gen	<i>berauben</i>
PERPETRATOR		VICTIM	GOODS	
<b>Ditransitive</b>				
NP.nom	V	NP.dat	NP.acc	<i>entwenden, klauen, rauben, stehlen, mopsen, stibitzen, (mausen)<sup>1</sup></i>
PERPETRATOR		VICTIM	GOODS	

<sup>1</sup>*Mausen* is only marginally acceptable in the ditransitive construction. See Table 5 and the following subsection.

show that verbs may have similar meaning even if they do not participate in the same alternations. In the next sub-section, I discuss the difficulty of identifying specific meaning components that can account for the differential behavior of the various classes in Table 4.

This brief comparison of frame-based and alternation-based classes shows that different classification methodologies lead to quite different classes. While the alternation-based approach directly predicts the syntactic behavior of verbs, it is unclear whether the semantics of such classes can be empirically identified. Frame Semantics, however, accurately accounts for semantics in the form of semantic frames and FEs, and facilitates the identification of syntactic behavior through an empirical methodology based on natural language. Both types of classes may be useful, depending on the linguist's purpose, and it is likely that the most fruitful classes account for both semantic and syntactic information accurately and empirically.

## 4.2 Partial productivity and low-level constructional generalizations

I now discuss the partial productivity of the dative victim pattern and investigate factors which may predict a stealing verb's participation in the ditransitive, including specific meaning components, verb descriptivity, and overall frequency. This discussion will focus primarily on the ditransitive construction, but

**Table 5:** German verbs of stealing – general frequency and frequency in ditransitive.

Verb	total frequency	frequency from 2010	# with dative object (of 50)
stehlen	173 610	40 371	4
rauben	26750	6370	27
klauen	26084	6572	10
entwenden	59869	13931	5
mausen <sup>1</sup>	80	16	0
mopsen	359	102	8
stibitzen	1252	293	11
veruntreuen	6329	1371	0
unterschlagen <sup>2</sup>	9870	3918	0
ergaunern	3810	661	0

<sup>1</sup>The data for *mausen* is very sparse, since its use as a verb is very infrequent (only 80 attestations in the entire corpus). Therefore, the ditransitive frequency data is taken from the first 50 of 80 attestations. While no ditransitive instances were found in the first 50, at least one instance was found in the remaining attestations: *Damit gab dieser Vater an, wenn Alfred darüber klagt, daß ihm zehn bis zwanzig Briketts **gemaust** worden sind.* (WAM/DVD.00000)

<sup>2</sup>The data for *unterschlagen* is somewhat skewed, because this verb is highly polysemous and improper senses could not be filtered out. The frequency counts of *unterschlagen* in its Stealing sense are thus much lower than the figures given here, which include both Stealing and other non-Stealing senses. However, a manual search of approximately 50 attestations with the proper sense showed no instances of the ditransitive, as expected from discussions with native speaker informants.

a similar analysis can be carried out with the applicative construction as well. Table 5 shows data on German stealing verbs and their occurrence in the ditransitive construction, taken from the DeReKo corpus. The second column lists the total frequency of the given verb, and the third column lists its frequency since 2010. The final column lists the number of ditransitive uses of the verb from 50 randomly selected attestations from the year 2010.<sup>25</sup> A more rigorous analysis of a larger data sample is surely desirable for various reasons. Ideally, the frequencies of verbs and constructions should be split up according to various genres in order to capture stylistic and sociocultural effects. Furthermore, the validity of overall frequency as a predictor for constructional behavior is still debated (see Ruppenhofer, this volume). However, due to space constraints, such an analysis must be

<sup>25</sup> The search was lemmatized to include all forms (e.g. participle) and conjugations (e.g. first person *-e* ending), and was limited to only lower-case instances, in order to avoid nominal senses, which are capitalized in German text. For instance, the form *klauen* can also be used as a noun *Klauen* ('claws').

put off for later research. My data below should suffice to give a general picture of the verbs' relative frequencies both in general and with respect to the ditransitive, with the caveat that frequency and register/genre effects may be revised with a more comprehensive analysis.

The verb *rauben* appears the most frequently in the ditransitive (27 instances). *Klauen*, *stibitzen*, and *mopsen* are also relatively frequent (8–11 instances), while *entwenden* and *stehlen* are slightly less frequent (five and four instances, respectively). *Ergaunern*, *mausen*, *unterschlagen*, and *veruntreuen* did not appear in the ditransitive in any of their 50 analyzed attestations.

Before seeking an explanation for the participation of German stealing verbs in the ditransitive (dative victim) construction, let us briefly discuss Goldberg's Semantic Coherence Principle (Goldberg 1995). According to this principle, verbs are licensed in constructions if the participant roles of the verb can be viewed as instantiating the more abstract argument roles of the construction. Thus, the verb *klauen* can occur in the ditransitive because its participant roles Thief, Victim, and Goods, can be merged with the construction's argument roles Agent, (non-) Recipient, Theme, respectively. Verbs such as *ergaunern*, however, do not appear in the construction even though they are associated with the same participant roles (FEs) as *stehlen*. Goldberg's (1995, 2006) principle cannot account for the differing behavior of *stehlen* and *ergaunern*, as it does not constrain *ergaunern*, which has the same participant roles as *stehlen*, from occurring in the ditransitive. This suggests that Goldberg's abstract constructions are not suitable for this type of analysis, which is better carried out with reference to verb-level constructions as proposed by Boas (2003, 2006) and Iwata (2008).

One option for how to account for differing participation of semantically similar verbs in the ditransitive is to identify differences in the meanings of participating and non-participating verbs. *Ergaunern*, *unterschlagen*, and *veruntreuen* do not appear in the construction, and all three have a meaning component of "deception" or "breach of trust," suggesting that this meaning component precludes them from realizing a dative victim. However, this does not account for the behavior of the full range of verbs of stealing. For instance, *stibitzen* and *rauben* both participate, and *unterschlagen* and *mausen* do not, yet both these verb pairs have different descriptive meanings. Therefore, we must conclude at this point that there is no single meaning component, which uniquely predicts whether a German stealing verb may appear in the ditransitive, although evidence suggests that verbs with a meaning component of 'deception' or 'breach of trust' do not occur in this pattern.

Another approach to this problem is found in Boas (2008), who appeals to the notion of verb descriptivity as formulated by Snell-Hornby (1983), which states that verbs vary in the amount of detail with which they describe an event or a situation. Although no clear-cut method for weighing verb descriptivity has

been established yet, findings in Boas (2008) and Dux (2011, 2016) suggest that different types of semantic constraints contribute differently to a verb's semantic weight. In particular, low-descriptivity verbs exhibit no constraints or only pragmatic constraints (e.g. formal vs. informal). Medium-descriptivity verbs either encode the manner in which the action is carried out or they constrain one or two FEs to a general semantic type (e.g. animate or concrete). Finally, high-descriptivity verbs often involve detailed background knowledge apart from the basic verb meaning and constraint multiple FEs to general or specific semantic types. The semantic information from Table 2 helps us establish the descriptivity of German stealing verbs: *stehlen* and *klauen* are the least descriptive, because they apply to practically every type of theft situation, with the only restriction being that *klauen* is informal. *Rauben* and *entwenden* exhibit fairly low descriptivity, as *rauben* merely implies the use of force or aggression and *entwenden* is informal and sometimes implies the ease with which the act is carried out. The verbs *mausen*, *mopsen*, and *stibitzen* have medium descriptivity because they are informal and generally restricted to low-value, concrete GOODS. Finally, *ergaunern*, *unterschlagen*, and *veruntreuen* are highly descriptive, as they refer to detailed background frames involving trust and deception, and the latter two are restricted to abstract (financial) GOODS of high value. A verb-descriptivity account of partial productivity seems quite plausible for German verbs of stealing in the ditransitive construction: each of the low-descriptivity verbs (*entwenden*, *klauen*, *rauben*, *stehlen*) may participate in the construction, while the high-descriptivity verbs (*ergaunern*, *unterschlagen*, *veruntreuen*) are infelicitous in the construction. However, the participation of the medium-descriptivity verbs (*mausen*, *mopsen*, *stibitzen*) varies. So while this type of analysis may account for the participation of high- and low-descriptivity verbs in the ditransitive,<sup>26</sup> further analysis is needed to predict the behavior of medium-descriptivity verbs.

A verb's frequency may also influence its ability to participate in a given construction (Barðdal 2008; Bybee 2012). An analysis of the frequency of German stealing verbs and their participation in the ditransitive helps shed light on the puzzle of partial productivity. The four most frequent verbs (*entwenden*, *klauen*, *rauben*, *stehlen*, overall frequency > 25,000) all appear in the ditransitive. The three next most frequent verbs (*ergaunern*, *unterschlagen*, *veruntreuen*, frequency 3,000–10,000) do not participate, but also exhibit high descriptivity and the meaning components “breach of trust” and “deception,” which was suspected

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<sup>26</sup> These two analyses raise the important question of whether *ergaunern*, *unterschlagen*, and *veruntreuen* do not appear in the ditransitive due to the specific meaning components ‘trust’ and ‘deception’ or due to their generally high descriptivity. Further work is needed to answer this question, so it cannot be answered at this time.

to preclude their occurrence in the ditransitive. However, the least frequent verbs (*mausen*, *mopsen*, *stibitzen*, frequency < 1,300) vary in their compatibility and frequency with the ditransitive construction. Interestingly, their frequency in the ditransitive seems to correlate with their overall frequency: *stibitzen* is the most frequent of the three (1,252 attestations) and appears 11 times out of 50 in the ditransitive, *mopsen* is the next most frequent (359 attestations) and appears in the ditransitive eight times out of 50, while the least frequent *mausen* (80 attestations) rarely appears in the ditransitive (see endnote 27). Of course, one must investigate a larger data set before conclusions can be drawn, but it seems that frequency may also affect German stealing verbs' (particularly infrequent, informal verbs') ability to appear in the ditransitive. Again, these findings must be confirmed using a larger data set and a closer investigation of register/genre effects, as well as a comparison with Ruppenhofer's (this volume) claims about verb frequency and constructional behavior.

### 4.3 Semantic frames and polysemous constructions

The analysis of German and English verbs of stealing also sheds light on constructional polysemy. Many constructions are polysemous in that they are associated with various meanings (see Goldberg 1995 and Boas 2003). Often, constructions have a single core meaning, which is extended to a range of associated situations. As discussed in Section 3.2, the ditransitive construction is associated with various senses of “receiving” and the semantics of the dative object ranges from typical recipients of concrete and abstract themes, to beneficiaries, to participants who are disallowed or deprived of a possession.

A cursory look at the ditransitive construction with verbs evoking different semantic frames suggests that semantic frames may help us to predict the specific interpretation of polysemous constructions. In particular, the semantics of the dative object depend on the frame semantics of the verb it is combined with. Table 6 shows how the dative object is interpreted when combined with verbs of different semantic frames.

Verbs in the GIVING frame (e.g. *geben* ‘give’, *schchenken* ‘give as a gift’) are associated with (non-metaphorical) gain of possession, those in the COMMITMENT frame (e.g. *versprechen*, *verheissen* ‘promise’) receive a “future having” interpretation, and those in the PREVENT\_FROM\_HAVING frame (e.g. *verweigern*, *ablehnen* ‘refuse’) receive a “prevent from having” interpretation. Generalizing over this data, we see that the construction receives a different interpretation when combined with verbs of different frame-semantic classes and that the interpretation remains the same when different verbs of the same frame-semantic class are



**Table 6:** Interpretation of ditransitive construction with various frames in German and English.

Frame	Interpretation of dative object	Example
Giving (Ger/Eng)	gain possession	<i>Er gibt/schenkt ihr ein Buch.</i> He gives her a book.
Commitment (Ger/Eng)	future gain possession	<i>Er verspricht/verheisst ihr seine Liebe.</i> He promises her his love.
Denying (Ger/Eng)	not allowed to possess	<i>Er hat ihr ein Buch verweigert/abgesagt.</i> He denied her a book.
Theft (Eng)	intended gain possession	<i>He steals/swipes her a book.</i>
Theft (Ger)	lose possession	<i>Er stiehlt/klaut ihr ein Buch</i> 'He steals a book from her.'

used. However, as discussed at the end of Section 3, the dative object of stealing verbs are associated with the “gain possession” sense in English, but the “lose possession” sense in German.<sup>27</sup> This shows that the interpretation of related constructions may differ across languages, even when the related construction is used with verbs of the same frame-semantic class.

In summary, the data above leads me to the following hypothesis: the interpretation of a polysemous construction, such as the ditransitive, can be accounted for based on the frame-semantic class of the main verb. This hypothesis holds only within a single language, however, as the same verb-construction combination may yield a different interpretation in different languages.

## 5 Conclusion

My analysis of stealing verbs in German and English and the constructions they occur in serves as the basis for a set of related generalization regarding the relationship between verbs, semantic frames, and polysemous constructions. These are summarized in the following three statements.

- (I) When a verb is used in a polysemous construction, the verb’s frame semantics (i.e. the semantic frame that it evokes) determines the specific interpretation of the broader polysemous construction.

<sup>27</sup> Again, the dative object may sometimes be interpreted as a Benefactive, but this requires a very specific context, and the Victim reading is default for German verbs of stealing.

- (II) The ability of a verb to combine with a given construction cannot be predicted based on class membership, but must be specified for each verb.<sup>28</sup>
- (III) Similar constructions in different languages may receive a different interpretation, even if they appear with verbs with the same frame semantics.

Of course, (I)–(III) are working hypotheses based only on the data discussed in this paper. Future research on other verb classes and the (polysemous) constructions in which they occur will have to investigate in more detail the relationship between verbs, semantic frames, and constructions, both within and across languages. The present discussion, however, shows how concepts in Frame Semantics and Construction Grammar can be utilized to systematically investigate the relation between verbs and constructions, regardless of the language in question.

The working hypotheses in (I)–(III) can help us answer the questions raised in Section 2 regarding the relationship between verbs and constructions. One overarching debate in that discussion involves the proper granularity level of constructions for useful generalizations on the relation between verb and construction. In particular, Goldberg's (1995, 2006) abstract constructions contrast with Boas' (2003) and Iwata's (2008) verb-class level and verb level constructions. I have shown that a verb's participation in a given construction is difficult to predict, but may sometimes be predicted with appeal to its specific meaning components, its level of descriptivity, or its overall frequency. However, none of these criteria are conclusive for accounting for the participation of German stealing verbs in the ditransitive construction, so at this point we must conclude that a verb's constructional participation must be specified for each individual verb, thus emphasizing the importance of verb level constructions (see also Herbst 2014). On the other hand, for a given language, the interpretation of a polysemous construction may be accounted for based on the frame semantics of the verb with which it occurs. For more in-depth accounts of the interpretation of polysemous constructions, one may refer to verb-class level constructions (see Croft 2003), and the appropriate classes can

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<sup>28</sup> The usefulness of frames for predicting semantics is also argued for in Michaelis and Ruppenhofer's (2010) discussion of omitted arguments. Michaelis and Ruppenhofer show that omitted arguments always receive a definite or indefinite interpretation, depending on the frame-semantic membership of the verb. Further, they show that while frames predict the interpretation of the omitted argument, they do not predict whether or not the argument may be omitted given an individual verb. This is similar to my analysis of constructional polysemy: frames predict the interpretation of an (omitted) argument, but individual verbs determine whether it may be omitted.

be identified using the principles of Frame Semantics. In sum, my analysis has shown the advantages of a frame-constructional approach and it has argued for the importance of low-level constructions for a comprehensive description of the relationship between verbs, semantic frames, and constructions, both within and across languages.

## References

- Askedal, John Ole. 2005. Grammatikalisierung und Persistenz im deutschen „Rezipienten-Passiv“ mit *bekommen/kriegen/erhalten*. In Torsten Leuschner, Tanja Mortelmans & Sarah de Groot (eds.), *Grammatikalisierung im Deutschen*, 211–228. Berlin & New York: Mouton de Gruyter.
- Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
- Baker, Collin & Josef Ruppenhofer. 2002. FrameNet's frames vs. Levin's verb classes. In Julie Larson & Mary Paster (eds.), *Proceedings of the 28th Annual Meeting of the Berkeley Linguistics Society*, 27–38. Berkeley: University of California Linguistics Department.
- Barðdal, Jóhanna. 2008. *Productivity: Evidence from case and argument structure in Icelandic*. (Constructional Approaches to Language 8.) Amsterdam: John Benjamins.
- Bauer, Astrid. 2011. *Die Mär des Genitivschwunds*. Norderstedt: GRIN Verlag.
- Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford: Center for the Study of Language and Information Publications.
- Boas, Hans C. 2006. A frame-semantic approach to identifying syntactically relevant elements of meaning. In Petra Steiner, Hans C. Boas & Stefan Schierholz (eds.), *Contrastive studies and valency. Studies in honor of Hans Ulrich Boas*, 119–149. Frankfurt & New York: Peter Lang.
- Boas, Hans C. 2008. Towards a frame-constructional approach to verb classification. *Revista Canaria de Estudios Ingleses* 57. 17–48.
- Boas, Hans C. (ed.). 2009. *Multilingual FrameNets in computational lexicography: Methods and applications*. Berlin & New York: Mouton de Gruyter.
- Boas, Hans C. 2010. Comparing constructions across languages. In Hans C. Boas (ed.), *Contrastive studies in Construction Grammar*, 1–20. Amsterdam & Philadelphia: John Benjamins.
- Boas, Hans C. 2011. Coercion and leaking argument structures in Construction Grammar. *Linguistics* 49(6). 1271–1303.
- Boas, Hans C. 2013. Wie viel Wissen steckt in Wörterbüchern? Eine frame-semantische Perspektive. *Zeitschrift für Angewandte Linguistik* 57. 75–97.
- Boas, Hans C. & Ivan A. Sag (eds.). 2012. *Sign-based Construction Grammar*. Stanford, CA: Center for the Study of Language and Information Publications.
- Brinkmann, Ursula. 1997. *The locative alternation in German: Its structure and acquisition*. Amsterdam & Philadelphia: John Benjamins.
- Busse, Dietrich. 2012. *Frame-Semantik*. Berlin & New York: Mouton de Gruyter.
- Bybee, Joan. 2012. Exemplars and constructions. In Graeme Trousdale & Thomas Hoffmann (eds.), *The Oxford handbook of Construction Grammar*, 49–69. Oxford: Oxford University Press.
- Croft, William. 2001. *Radical Construction Grammar*. Oxford: Oxford University Press.

- Croft, William. 2003. Lexical rules vs. constructions: A false dichotomy. In H. Cuyckens, T. Berg, R. Dirven, and K.-U. Panther (eds.), *Motivation in language: studies in honor of Günter Radden*, 49–68. Amsterdam/Philadelphia: John Benjamins.
- Croft, William. 2009. Connecting frames and constructions: a case study of *eat* and *feed*. *Constructions and Frames* 1 (1). 7–28.
- Croft, William. 2012. *Verbs: Aspect and causal structure*. Oxford: Oxford University Press.
- Davies, Mark. 2008–. *The Corpus of Contemporary American English (COCA): 520 million words, 1990–present*. <https://corpus.byu.edu/coca/>
- Delorge, Martin & Timothy Colleman. 2006. Constructions with verbs of dispossession in Dutch. *Papers of the Linguistic Society of Belgium*. 1–15.
- Dewell, Robert B. 2011. *The meaning of particle/prefix constructions in German*. Amsterdam & Philadelphia: John Benjamins.
- Dowty, David. 2000. 'The garden swarms with bees' and the fallacy of 'argument alternation.' In Yael Ravin & Claudia Leacock (eds), *Polysemy: Theoretical and computational approaches*, 111–128. Oxford: Oxford University Press.
- Dux, Ryan. 2011. *A frame-semantic analysis of five English verbs evoking the theft frame*. Austin, TX: University of Texas at Austin MA report.
- Dux, Ryan. 2016. *A usage-based account of verb classes in English and German*. Austin, TX, University of Texas at Austin dissertation.
- Feldman, Jerome, Ellen Dodge, & John Bryant. 2009. Embodied Construction Grammar. In Bernd Heine & Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis*, 111–138. Oxford: Oxford University Press.
- Fillmore, Charles J. 1967. The grammar of *hitting* and *breaking*. In Roderick Jacobs & Peter Rosenbaum (eds.), *Readings in English Transformational Grammar*, 120–133. Waltham, MA: Ginn.
- Fillmore, Charles J. 1968. The case for case. In Emmon Bach & Robert T. Harms (eds.), *Universals in linguistic theory*, 1–88. New York: Holt, Rinehart, and Winston.
- Fillmore, Charles J. 1985. Frames and the semantics of understanding. *Quaderni di Semantica* 6(2). 222–254.
- Fillmore, Charles J. & Collin Baker. 2010. A frames approach to semantic analysis. In Bernd Heine & Heiko Narrog (eds.), *The Oxford handbook of linguistic analysis*, 313–340. Oxford: Oxford University Press.
- Fillmore, Charles J., Christopher R. Johnson & Miriam Petruck. 2003. Background to Framenet. *International Journal of Lexicography* 16(3). 235–250.
- Frense, Jutta & Paul Bennett. 1996. Verb alternations and semantic classes in English and German. *Language Sciences* 18(1). 305–317.
- Fried, Mirjam & Jan-Ola Östman. 2004. Construction Grammar: A thumbnail sketch. In Mirjam Fried & Jan-Ola Östman (eds.), *Construction Grammar in a cross-language perspective*, 11–86. Amsterdam & Philadelphia: John Benjamins.
- Goldberg, Adele. 1995. *Constructions: A Construction Grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, Adele. 2002. Surface generalizations: an alternative to alternations. *Cognitive Linguistics* 13. 327–356.
- Goldberg, Adele. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
- Gries, Stefan & Anatol Stefanowitsch. 2004. Extending collocation analysis: A corpus-based perspective on 'alternations.' *International Journal of Corpus Linguistics* 9(1). 97–129.

- Gruber, Jeffrey S. 1965. *Studies in lexical relations*. Cambridge, MA: Massachusetts Institute of Technology dissertation.
- Grüner, Stephanie. 2008. *Genitivabbau im Standarddeutschen*. Norderstedt, Germany: GRIN Verlag.
- Herbst, Thomas. 2014. The valency approach to argument structure constructions. In Thomas Herbst, Hans-Jörg Schmid, & Susen Faulhaber (eds.), *Constructions – Collocations – Patterns*, 167–216. Berlin: De Gruyter.
- Iwata, Seizi. 2008. *Locative alternation. A lexical-constructional approach* (Constructional Approaches to Language Series 6). Amsterdam & Philadelphia: John Benjamins.
- Kay, Paul. 1996. *Argument structure: Causative ABC constructions*. Berkeley, CA: University of California, Berkeley unpublished manuscript.
- Kay, Paul. 2005. Argument structure constructions and the argument-adjunct distinction. In Mirjam Fried & Hans C. Boas (eds.), *Grammatical constructions. Back to the roots*, 71–100. Amsterdam & Philadelphia: John Benjamins.
- Kay, Paul & Charles J. Fillmore. 1999. Grammatical constructions and linguistic generalizations: The ‘What’s X doing Y?’ constructions. *Language* 75. 1–33.
- Kupietz, Marc, Cyril Belica, Holger Keibel, Andreas Witt. 2010. The German Reference Corpus DeReKo: A primordial sample for linguistic research. In Nicoletta Calzolari, Khalid Choukri, Bente Maegaard, Joseph Mariani, Jan Odijk, Stelios Piperidis, Mike Rosner & Daniel Tapias (eds.), *Proceedings of the 7th conference on International Language Resources and Evaluation* (LREC 2010). Valletta, Malta: European Language Resources Association (ELRA), 1848–1854. [http://www.lrec-conf.org/proceedings/lrec2010/pdf/414\\_Paper.pdf](http://www.lrec-conf.org/proceedings/lrec2010/pdf/414_Paper.pdf)
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19. 335–392.
- Leirbukt, Oddleif. 1997. *Untersuchungen zum bekommen-Passiv im heutigen Deutsch*. Tübingen: Niemeyer.
- Lenz, Alexandra N. 2013. Three competing auxiliaries of a non-canonical passive – On the German GET passive and its auxiliaries. In Artemis Alexiadou & Florian Schäfer (eds.), *Selected papers of the Jahrestagung der Deutschen Gesellschaft für Sprachwissenschaft – Sektion noncanonical passives*, 63–94. Amsterdam & Philadelphia: John Benjamins.
- Levin, Beth. 1993. *English verb classes and alternations: A preliminary investigation*. Chicago: University of Chicago Press.
- Levin, Beth & Malka Rappaport-Hovav. 2005. *Argument realization*. Cambridge: Cambridge University Press.
- Michaelis, Laura. 2004. Entity and event coercion in a symbolic theory of syntax. In Jan-Ola Östman & Mirjam Fried (eds.), *Construction grammars: Cognitive grounding and theoretical extensions*, 45–88. Amsterdam & Philadelphia: John Benjamins.
- Michaelis, Laura & Josef Ruppenhofer. 2001. *Beyond alternations: A constructional account of the applicative pattern in German*. Stanford: Center for the Study of Language and Information Publications.
- Nemoto, Noriko. 1998. On the polysemy of ditransitive *save*. *English Linguistics* 15. 219–242.
- Perek, Florent. 2015. *Argument structure in usage-based Construction Grammar*. Amsterdam/Philadelphia: John Benjamins.
- Pinker, Steven. 1989. *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: Massachusetts Institute of Technology Press.
- Ruppenhofer, Josef. 2015. *Argument omissions in multiple German corpora*. In Hans C. Boas & Alexander Ziem (eds.), *Constructional approaches to argument structure in German*. Berlin & New York: Mouton de Gruyter.

- Ruppenhofer, Josef. 2018. (this volume) *Anaphoric omissions in multiple German corpora*. In Hans C. Boas & Alexander Ziem (eds.), *Constructional approaches to argument structure in German*. Berlin & New York: Mouton de Gruyter.
- Ruppenhofer, Josef & Laura Michaelis. 2010. A constructional account of genre-based argument omissions. *Constructions and Frames* 2(2). 158–184.
- Ruppenhofer, Josef, Michael Ellsworth, Miriam Petruck, Christopher Johnson & Jan Scheffczyk. 2010. *FrameNet II: Extended theory and practice*. Berkeley, CA: International Computer Science Institute technical report. <http://framenet.icsi.berkeley.edu>
- Snell-Hornby, Mary. 1983. *Verb-descriptivity in German and English: A contrastive study in semantic fields*. Heidelberg: C. Winter Universitätsverlag.

Jouni Rostila

# Argument structure constructions among German prepositional objects

## 1 Introduction

Prepositional objects (PO) are in German linguistics understood to be structures such as in (1), where a lexical head (boldface) selects a certain preposition as its object/complement marker, which in turn usually governs the accusative or the dative case:

- (1) a. *Er wartet auf den Zug.*  
he waits on the.ACC train  
'He waits/is waiting for the train.'
- b. *Ich zweifle an seiner Ehrlichkeit.*  
I doubt at.DAT his.DAT honesty  
'I doubt his honesty.'
- c. *Er ist stolz auf ihre Leistung.*  
he is proud on her.ACC achievement  
'He is proud of her achievement.'
- d. *Seine Abhängigkeit vom Sport macht ihn kaputt.*  
his dependence from.DAT sports makes him broken  
'His dependence on sports destroys/is destroying him.'
- e. *Seine Dankbarkeit für unsere Hilfe war offensichtlich.*  
his thankfulness for our.ACC help was obvious  
'His thankfulness for our help was obvious.'
- f. *Wir haben uns mit ihnen kurz unterhalten.*  
we have ourselves with them.DAT short entertained  
'We talked briefly with them.'
- g. *Er hat für die neue Partei gestimmt.<sup>1</sup>*  
he has for the.ACC new party voted  
'He voted for the new party.'

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<sup>1</sup> For the sake of clarity, and in the interest of readers less familiar with German, I have frequently made use of simple constructed or dictionary examples when the argument concerns basic properties of prepositional objects and clear-cut grammaticality judgments. More complex

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Since the choice of preposition in such structures is mostly lexically determined by a verb or other predicative head,<sup>2</sup> the prepositions of prepositional objects can be considered analytic counterparts of lexical/inherent cases (see Rostila 2007: 111–114, 205–211 for discussion). Accordingly, such uses of prepositions have hitherto mostly been described as lexical idiosyncrasies of the heads they accompany.<sup>3</sup> In the seemingly fairly rare cases where semantic regularities governing the choice of the preposition can be discerned, these have been interpreted as being due to remains of the original lexical semantics of the preposition in question (cf. Dürscheid 1999: 12; Zifonun et al. 1997: 1368). In Rostila (2002, 2004, 2005, 2007, 2014), I have argued for a revision of this view, proposing that some prepositions of prepositional objects in fact constitute independently meaningful productive patterns that can be described as *a(argument structure)-constructions* in the sense of Goldberg (1995). Their independent meaning contribution is not solely a function of their original lexical semantics, but derives to a large part from a process in which

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authentic examples from the web and literary sources (see the list of such cases at the end of the paper) are used when suitably simple cases could be found, or to illustrate phenomena of border-line character that might be worth a more thorough empirical study. In all examples, glossing (especially in terms of grammatical categories) only extends to the parts relevant for the discussion. To avoid unnecessary details, no segmentation of grammatical morphemes is undertaken, unless it is absolutely necessary for clarity; thus for instance *auf den Zug* in (1a) is glossed ‘on the.ACC train’, although an analysis like *auf de-n Zug* ‘on the-ACC train’ would be more accurate.

2 Critical comments by a reviewer reveal that the concept of lexical selection I employ is a potential source of misunderstanding. The purport of this concept is that a lexical head selects (or determines/governs) a certain other lexical head (or other element, e.g. case morpheme) to accompany it, not a semantically defined class of accompanying heads. Under this view, verbs like e.g. locational *sein* (‘be’), *liegen* (‘lay’), or *sich befinden* (‘be situated’) do not lexically select the P(P)s that complement them. The reason for this is that they do not select an individual lexical head, but a whole semantically defined class of these, which even extends to locational adverbials (cf. e.g. *sich im Zug* [‘in the train’]/*auf dem Tisch* [‘on the table’]/*unter dem Tisch* [‘under the table’]/*um die Ecke* [‘around the corner’]/*dort* [‘there’] *befinden*). By contrast, my concept of lexical selection only covers cases where an individual head selects another individual lexical head, or a case morpheme. The justification for such a narrow concept of lexical selection is to be seen in the circumstance that it can explain the semantic bleaching of the selected elements: they become *de facto* parts of the sign doing the selecting, see Sections 2.1 and 3.2 below for discussion. As regards cases like *sich im Zug/um die Ecke befinden*, I would not in fact consider them cases of lexical selection at all (doing so would amount to assuming Chomskyan s-selection [Chomsky 1986: 86]). Since they are instances of a productive pattern, they should be seen as cases of a-constructions selecting semantically adequate fillers for both a verb slot and a slot for a locational complement; see (16) below for a schematic representation.

3 Even work as recent as Müller and Wechsler (2014: 41) proposes such idiosyncratic selection of preposition for *warten + auf* (‘to wait for’) (cf. [1a]), a prime example for a prepositional object where the choice of preposition can be accounted for in terms of the argument structure construction approach advocated in this paper.



formerly lexically selected prepositions – the type that probably constitute the bulk of prepositions of prepositional objects – gain independence from the verbs and other predicate heads governing them, and, in a sense, take over some of the semantics of their former governing heads. As I have argued before and will show below, this process can plausibly be analyzed as a process of grammaticalization. If this view is viable, it has far-reaching consequences: it suggests that a-constructions in general might be products of grammaticalization, and that abstract senses of local prepositions might sometimes stem from verbs and other predicate heads which have lexically governed/selected them for a certain period.

The structure of the paper is as follows: In Section 2, I recapitulate and further develop arguments from my earlier work<sup>4</sup> for the view that some prepositions of prepositional objects, henceforth *PO-Ps*, above all prospective *auf* ('on') (as in [1a]), can be deemed manifestations of a-constructions. In Section 3, I argue for regarding productive *PO-Ps*, and in fact all a-constructions, as products of grammaticalization. The stances of Schøsler (2007) and Noël (2007a, b) on this issue will prove instrumental to this argumentation by showing where informed and influential views require revision. In addition, I consider the question of whether insights into the development of verb islands into a-constructions in child language can shed light on the diachronic emergence of productive *PO-Ps* from ordinary *PO* structures, which at least very closely resemble verb islands. Finally, in Section 4, I sketch the repercussions of my proposal for the classification of primary adpositions and its prospects for research into the emergence of abstract senses of primary local adpositions.

## 2 Productive *PO-Ps* as a-constructions

### 2.1 Evidence for a-constructions among *PO-Ps*

The bulk of *PO-Ps* in German are probably lexically governed by individual heads and hence adequately described in the traditional way, i.e. as lexical idiosyncrasies of predicate heads. As I have argued in more detail in Rostila

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<sup>4</sup> Arguments regarding the government properties of nominals as an indicator of the existence of the prospective *auf* construction (cf. [7] below) and the development of productive *PO-Ps* into adjunct heads (cf. [11]) appear here for the first time; the same goes for proposals regarding the classification of adpositions (Section 4). Otherwise, the paper recapitulates the essence of my work on the topic in German, most notably Rostila (2005, 2007, 2014). Modifications only involve improvements aimed at a clearer argumentation and some new examples.

(2002, 2004, 2007), such PO-Ps are essentially without independent semantics, since they do not commute in the structuralist sense, i.e. cannot be selected on their own, but only along with the head governing them. In other words, they do not constitute independent signs, but parts of larger signs. Examples of PO-Ps of this type can be seen in (1b)–(1g). To be sure, some PO-Ps of this class do seem to display an independent meaning contribution: e.g. in (1f), *mit* ('with') denotes an accompanying relation, and in (1g), *für* ('for') displays a meaning like that of English *for* in *for or against*, or *vote for*. However, in such cases the possibility of assigning the preposition an independent semantics is probably due to the lexical semantics that the preposition had before becoming lexically governed. The former independent semantics still shows, since the preposition in question has not been part of another sign for long.

Recently "recruited" PO-Ps like those in (1f)–(1g) thus accord with the traditional view that any discernible semantics of PO-Ps is due to their original lexical semantics (cf. Dürscheid 1999: 12; Zifonun et al. 1997: 1368). However, there seem to be reasons to assume that there also exists a fundamentally different class of meaningful PO-Ps, one whose independent contribution is due to a reanalysis that has turned formerly lexically selected PO-Ps into surface exponents of a-constructions in the sense of Goldberg (1995).<sup>5</sup> Such a status of some PO-Ps shows mainly in two ways. The fact that certain PO-Ps occur with several semantically similar heads hints at the presence of a meaningful productive pattern. For instance, the PO-P *auf* ('on') (+ accusative) occurs widely with prospective heads, as in (2).

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5 A referee points to the problems with a Goldberg-style approach discussed in Müller (2006) and Müller and Wechsler (2014), asking whether my proposal could also be accounted for in terms of a lexical approach such as that of Boas (2003, 2011). While I believe Goldberg's a-construction approach can be remedied, such an undertaking is obviously beyond the scope of this paper. As regards an alternative formulation of my approach in terms of a lexical approach, I see no essential problems, insofar as such an approach can be made compatible with the circumstance that also abstract schemas, not just individual cases, may play a role in argument structure generalizations (cf. also Boas 2014 for the need to assume constructions at different levels of generalization). Since the essence of the lexical model is that the valency pattern of an individual verb can function as a model for using another, the question arises whether it can adequately capture novel verb uses resulting from the application of (more) abstract schemas. Goldberg's argument structure constructions, which abstract away from individual verbs, would seem a more adequate tool for this. The way such schemas arise from surface patterns according to the principles of the usage-based model also seems better compatible with Goldberg's approach. See Section 3.1, especially note 27, for some related discussion.

- (2) a. *Er wartet/hofft auf einen Börsensturz.*  
 he waits/hopes on a.ACC stock market crash  
 ‘He waits/hopes/is waiting/hoping for a crash of the stock market’
- b. *Er bereitet sich auf einen Börsensturz vor.*  
 he prepares himself on a.ACC stock market crash before  
 ‘He prepares/is preparing for a crash of the stock market.’
- c. *Wir sind schon sehr gespannt auf eure Zeichnungen.*  
 we are already very Excited on your.ACC drawings  
 ‘We are already very excited about your drawings.’
- d. *Denksport macht [einen] neugierig auf mehr.*  
 thoughtsports makes one curious on more  
 ‘Mental sports make [one] curious about more’
- e. *Wenn dies eine Aussicht auf Entsatz sein sollte, [...]*  
 if this a perspective on relief.ACC be should [...]  
 ‘If this was supposed to be a chance for relief, [...]’

*Über* (‘over’) (+ accusative), on the other hand, often accompanies heads whose complement represents the topic of a mental activity, cf.

- (3) *über etwas sprechen/ berichten/ diskutieren/ erzählen/*  
 over something.ACC speak report discuss tell  
*nachdenken/ informieren*  
 reflect inform

Examples like these can be easily multiplied (cf. e.g. Rostila [2007: 130–131, 2014] for further *auf* cases) and can be provided for further PO-Ps as well, such as *an* (‘at’) (+ dative) denoting CAUSE, as in (4).

- (4) a. *Er freut sich an den ersten Zeichen des Frühlings.*  
 he delights himself at the.DAT first signs of spring  
 ‘He delights in the first signs of spring.’
- b. *Es lag an den Wetterverhältnissen.*  
 it lay at the.DAT weather conditions  
 ‘It was due to the weather conditions.’
- c. *Er starb an Krebs.*  
 he died at cancer.DAT  
 ‘He died of cancer.’
- d. *Es scheiterte an den ungünstigen Verhältnissen.*  
 it failed at the.DAT unfavourable Conditions  
 ‘It failed due to the unfavourable conditions.’

- e. *Er leidet an Herzbeschwerden.*  
 he suffers at heart conditions  
 'He suffers from a heart condition/has heart troubles.'

A particularly clear example of an a-construction in the guise of a PO-P can be seen in *an* ('at') (+ dative) in cases like (5).

- (5) a. *Er baute an einem Haus.*  
 he built at a.DAT house  
 'He was building a house.'  
 b. *Er trank an einem Bier.*  
 he drank at a.DAT beer  
 'He was drinking a beer.'  
 c. *Er schrieb an einem Buch.*  
 he wrote at a.DAT book  
 'He was writing a book.'

Each of these verbs normally takes a direct object, i.e. an accusative object, instead of a PO with *an*, as their complement. However, when combined with a PO with *an*, the verbs acquire the sense 'on-going/non-completed activity/process' roughly equal to the contribution of the progressive form in English. By contrast, the corresponding accusative object structures leave it unspecified whether the verb activity or process is in progress, or completed. Since the PO-P *an* with such an aspectual contribution can be systematically combined with any transitive verb denoting an activity whose stage of completion is recognizable, it is a prime candidate for an a-construction in the form of a PO-P. This aspectual PO-P *an* has been noted earlier as an example of a PO-P with an independent semantics – i.e. as an exception among the normal, semantically faded PO-Ps, cf. Breindl (1989: 39) – but to my knowledge an a-construction status as the source of the semantic contribution has not been proposed.<sup>6</sup>

One further instance of an a-construction signified by a PO-P, possessive *um* ('around') (+ accusative), will surface in the course of the discussion below; cf. also Rostila (2005: 145, 152, 2006a: 368–370, 2007: 185–192) for *vor* (+ dative) denoting CAUSE with predicates like *Angst haben (vor X)* (lit. 'have fear [before X]'), *sich fürchten (vor X)* (lit. 'fear oneself [before X]'), *nicht schlafen können (vor X)* (lit. 'not be able to sleep [before X]'). However, these cases hardly

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<sup>6</sup> Cf. also Schøsler (2007: 54) for a similar structure in Danish with the preposition *på* that would seem to qualify as an a-construction as well.

exhaust the potential of finding semantic regularity, i.e. a-constructions, among German PO-Ps. Even a brief look at the list of German PO-structures provided in Duden (1984: 611–614) makes it seem likely that many, if not most PO-Ps, can be seen as part of some kind of productive pattern built around a common semantic denominator. Many of the patterns extend only to a few cases, however, and what is more, individual PO-Ps often appear as potential members of several different patterns. This suggests family resemblance conditions, and perhaps multiple sources of analogy as well.<sup>7</sup>

I now take a closer look at the question of why the PO-Ps exemplified should be considered independently meaningful and productive. Since in cases like (2)–(5) a certain preposition regularly occurs in conjunction with a certain semantics, while all else in its context varies, it seems natural to interpret the re-occurring semantics, e.g. prospectivity in (2), as the meaning contribution of the preposition. More conclusive evidence for productivity and independent meaningfulness can be seen in cases of coercion, however. Similarly to e.g. the English ditransitive construction (Goldberg 1995: 48), which can impose a CAUSE-RECEIVE semantics on verbs like *bake* and *kick*, cf. *He baked her a cake/kicked her the ball*, some PO-Ps seem to be able to coerce heads into readings that these hardly display themselves. Perhaps the clearest instance of this is prospective *auf* (+ accusative), cf. (6a)–(6b). It seems to have the potential to impose a prospective semantics on heads: the verb *sich freuen* ('delight [in something]') usually governing the PO-P *über* ('over') is neutral with respect to whether the cause of joy is situated in the past, present or future; once combined with *auf*, the verb acquires the sense 'look forward (to something)', and the cause of joy must be interpreted as a future event. Similarly, *programmieren* ('to program') and *trainieren* ('to train') are hardly prospective verbs by themselves, but acquire this feature when combined with *auf*,<sup>8</sup> cf. (6c–d):

- (6) a. *Ich freue mich über das Ende des Semesters.*  
 I delight myself over the.ACC end of term  
 'I am delighted about/glad of the ending of term.'
- b. *Ich freue mich auf das Ende des Semesters.*  
 I delight myself on the.ACC end of term  
 'I look forward to the ending of term.'

<sup>7</sup> Cf. Knobloch (2009: 548) for similar conditions among German particle verbs.

<sup>8</sup> In fact, a comprehensive dictionary like *Duden Deutsches Universalwörterbuch* lists for both *programmieren* and *trainieren* prospective, or perhaps rather goal-oriented, uses with *auf*. I would still maintain that the basic senses of these verbs denote activities without future or goal orientation, and that the dictionary listing of such uses reflect the high frequency with which these verbs are coerced by *auf*. Cf. below for a similar situation with respect to *um*.

- c. *Das Start-up-Unternehmen [...] ist ebenfalls auf Wachstum programmiert.*  
 the start-up firm [...] is also on growth.ACC programmed  
 'The start-up firm is also intent on growth.'
- d. *Resch [...] hatte [...] seine Nerven darauf trainiert, [...]*  
 Resch [...] had [...] his nerves it-on trained [...] 'Resch had trained his nerves for it.'

Examples (6c)–(6d) also illustrate a further property of the *auf* construction that can only be mentioned in passing here: there seem to exist two variants of the *auf* construction that are probably diachronically intertwined. While cases like (6b) and (2) illustrate the prospective variant of the construction, cases like those in (6c–d) rather belong to the goal-oriented variant; see Rostila (2014: 104) for further examples. The synchronic and diachronic relationship of these two variants is an obvious object for further study.

Evidence of a slightly different kind for the productivity of the *auf* pattern is provided by cases where *auf* occurs in conjunction with nominals, cf. (7).

- (7) a. *EM-Gastgeber Ukraine: Favorit aufs Ausscheiden*  
 EC host Ukraine: favourite on.ACC dropping out  
 'E(uropean) C(hampionships) host Ukraine: favourite for dropping out'
- b. *Guttenberg sieht Chance auf Staatshilfe für Arcandor schwinden*  
 Guttenberg sees chance on state subventions.ACC for Arcandor disappear  
 'Guttenberg sees the chances of Arcandor getting state subventions disappear'
- c. *Auch wenn Minogues Songs hauptsächlich von der Liebe handeln, tragen sie nicht das Versprechen auf romantische Zweisamkeit in sich*  
 also when Minogues' songs mostly of the love are carry they not the promise on romantic togetherness.ACC in sich  
 in themselves  
 'Even though Minogue's songs are mostly about love, they do not express the promise of romantic togetherness.'
- d. *Eine Garantie auf einen solchen [Studien]Platz zu haben, ist enorm wichtig*  
 a guarantee on a.ACC such [study] place to have is enormously important  
 'It is enormously important to have a guarantee that one can have such a place of study.'

- e. *das in der US-Verfassung festgeschriebene Recht auf das*  
 the in the US constitution stated right on the.ACC  
*Tragen von Waffen*  
 carrying of arms  
 ‘the right to carry arms enshrined in the US constitution’

Possibly with the exception of *Recht*, the nominals that seemingly govern *auf* (‘on’) here are all prospective in their semantics, so one cannot speak of significant coercion effects in such cases. Still, the cases speak for the productivity of a prospective pattern centered on *auf*. This is because none of the nominals can be argued to govern *auf* in the normal way. Nominalizations usually inherit the argument marking pattern of the corresponding verb, if the pattern is lexically determined (cf. e.g. Welke 2011: 305); however, verbs like *versprechen* (‘promise’), *garantieren* (‘guarantee’), and *favorisieren* (‘favor’) do not occur with *auf*, and *Chance* and *Recht* are hardly derived from verbs (cf. the dictionary *Duden Universalwörterbuch*, DUWB). Therefore, data like (7) allow for the interpretation that these nominals are combined with *auf* because no lexically determined option is available, but the *auf* pattern is, thanks to its prospective semantics compatible with the nominals.

Further cases of coercion by a productive PO-P can be seen in the unusual verb readings in (8). When combined with the PO-P *um* (‘around, about’) (+ accusative) verbs such as *schießen* (‘shoot’), *schreien* (‘cry, shout’), *weinen* (‘weep’), *zittern* (‘tremble’), *anrufen* (‘telephone’), and *fragen* (‘ask, pose a question, question’), along with many others, gain the sense of losing or attempting to acquire or maintain something; this sense is hardly associated with the verbs *per se*, but stems from the productive PO-P *um*, which I will for want of a better label call the possessive *um* construction.

- (8) a. [...] *falls er es doch schaffen sollte,*  
 [...] if he it even manage should  
*um sein erbärmliches Leben zu schreien [...]*  
 about/around his.ACC pitiful life to cry [...]  
 ‘[...] in case he should manage to cry for his pitiful life [...]’
- b. *Neuner schießt sich um einen Podestplatz*  
 Neuner shoots herself about/around a.ACC podium appearance  
 ‘Neuner shoots herself out of a place on the podium.’
- c. *Er möchte darum nicht betteln.*  
 he would like it-about/around not beg  
 ‘He would not want to beg for it.’
- d. *Er zitterte um sein Vermögen.* (cf. DUWB, s.v. *zittern*)  
 he trembled about/around his.ACC wealth  
 ‘He trembled at the thought of losing his wealth.’

- e. *Die Mutter bangt um ihr Kind.* (DUWB, s.v. *bangen*)  
 the mother fears about/around her child  
 ‘The mother fears for her child.’
- f. *Er weinte um den Verlust seiner Jugend und [...]*  
 he wept about/around the.ACC loss his.GEN youth and [...]  
 ‘He wept for the loss of his youth and [...]’
- g. *Sie betete um seine Heilung.* (cf. DUWB, s.v. *beten*)  
 she prayed about/around his.ACC recovery  
 ‘She prayed for his recovery.’
- h. *Im vorliegenden Fall war der EuGH in drei Fällen  
 in present case was the EuGH in three cases  
 von einem spanischen Gericht um Klärung  
 from a spanish court about/around clarification  
 angerufen worden.  
 telephoned become*  
 ‘In this case, the European Court of Justice had been called by a  
 Spanish court three times in order to obtain clarification.’
- i. *jemanden um Rat/Erlaubnis  
 someone about/around advice/permission.ACC  
 fragen* (DUWB, s.v. *fragen*)  
 ask/question  
 ‘to ask somebody for advice/permission’

Further still, cases like (9) demonstrate that also the productive PO-P *über* (‘over’) mentioned above has an independent semantic contribution to make: when combined with *über*, verbs like *arbeiten* (‘work’) and *sich beruhigen* (‘calm down’) gain the sense of a mental activity directed at a certain topic not associated with them in their more normal uses:

- (9) a. *Er arbeitet über Brecht.* (Lerot 1982: 273)  
 he works over Brecht.ACC  
 ‘He works/is working on Brecht.’
- b. *Agnes war es, die sich darüber nicht beruhigen konnte.*<sup>9</sup>  
 Agnes was it who herself it-over not calm down could  
 ‘It was Agnes who could not calm down about it.’

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<sup>9</sup> A German native speaker reviewer finds this example odd. I still choose to use it here, since this is an attested case and might even reflect the creative extension of the *über* construction to a verb not normally used in it. This might explain the odd flavor.



Observations like these of course give rise to the question of how to judge whether a head has a certain sense or acquires it by coercion. I have relied on comprehensive dictionaries like the *Duden Universalwörterbuch* (DUWB) in this respect, deeming verb senses not listed in them as testifying to coercion. However, the case of *fragen*, cf. (8i), shows that this method is not without its problems.<sup>10</sup> This verb is indeed listed in the DUWB as also having a sense of attempting to acquire something by posing a question. However, since this sense is only the third one out of a set of four given in the DUWB and involves an additional meaning component ('attempted acquisition') compared to the presumably central sense that is given first, I regard the acquisition component as a contribution of *um*. In my view, the inclusion of an 'attempted acquisition' sense in the *fragen* entry reflects the probably high frequency with which *fragen* is coerced by *um*; since frequent coercions can presumably result in the establishment of new verb senses (cf. Engelberg 2009: 82; Boas 2011: 1296), dictionaries are not completely in the wrong in listing such verb senses, but anticipate likely developments.

One further indicator of the a-construction status of certain PO-Ps can be seen in the fact that such Ps sometimes occur alone essentially with the same semantics as in cases where a verb or other predicate head accompanies them. Thus in (10a), a common German farewell expression, *auf* seems to carry the same prospective semantics as in (2). *Wiedersehen*, 'seeing (one another) again', is presented as a future event with the aid of *auf* – and perhaps also as a goal of the act of saying farewell, cf. the goal-oriented variety of the construction mentioned above. In (10b), on the other hand, *über* is used alone to mark its complement as a topic to be broached, i.e. in a way similar to (3) and (9).

- (10) a. *Auf*                      *Wiedersehen!*  
       on                        seeing-again.ACC  
       b. *Tom Schimmeck über Kreuzzüge*    *gestern*    *und*    *heute*  
           Tom Schimmeck over crusades.ACC    yesterday and today  
           'Tom Schimmeck on crusades past and present'

Independent occurrences like these are presumably only possible under discourse conditions that favor compact expression – conditions like those of greetings (10a) and newspaper headings (10b).<sup>11</sup> It is conceivable that cases like (10) are elliptical to begin with and then, if they occur frequently, are conventionalized

<sup>10</sup> To define more reliably the central and derived senses of verbs, a polysemy network analysis like that of Fillmore and Atkins (2000), preferably based on a broad body of empirical material, would be needed.

<sup>11</sup> Cf. Östman (2005) and Ruppenhofer and Michaelis (2010) for constructional accounts of the influence of genre.

in their shortened form. While this is likely to apply to (10a), (10b) still has a strong elliptical flavor, the verb *berichten* ('report') being probably the most likely accompaniment of *über*. Regardless of such differences, such cases support my case for these PO-Ps as manifestations of a-constructions: independent uses like these are to be expected at least under specific conditions if *auf* and *über* constitute signs in their own right.

In fact, in some cases productive PO-Ps seem to take on an even greater degree of independence: some of them may be advancing into adjunct use. This is a natural development,<sup>12</sup> given that gaining the status of an a-construction invests PO-Ps with an independent semantic contribution. Such a contribution is, on the other hand, a requirement for prototypical adjunct heads: they have to be capable of autonomic coding or self-licensing (Oppenrieder 1991: 4–5; cf. Helbig 1973: 155), i.e. prototypical adjuncts are meaningful even in isolation, as e.g. a PP with *because of* is, in contrast to a complement PP with *of* also expressing a cause: (*I failed because of you* – (*He's accused*) *of it*). There seem to be numerous cases where prospective *auf* displays this kind of behavior, as the following examples illustrate.

- (11) a. *Das ist auf absehbare Zeit kaum denkbar.*  
 that is on foreseeable time.ACC hardly thinkable  
 'For the foreseeable future, this is hardly an option.'
- b. *Aber wird Gemüse und Obst essen auf die Dauer nicht langweilig?*  
 but gets vegetables and fruit eating on the.ACC duration  
 not dull  
 'But doesn't it get dull in the long run to eat [just] vegetables and fruit?'
- c. *Wohnen auf Zeit*  
 living on time.ACC  
 'living temporarily/for a time'

Many of such cases have the flavor of conventionalized expressions, e.g. (11a)–(11b) (in fact, I would go as far as deeming the German phrase *auf jeden Fall* ['in any case'] as an instance of prospective *auf*), but a prospective semantics can nevertheless be discerned in such PPs, while their omissibility and lack of a subcategorization relation to the verb indicates a clear adjunct status.<sup>13</sup> Thus it seems the independent semantics characteristic of an a-construction has enabled the prospective *auf* construction to take on the role of an adjunct in certain contexts. Whether such adjunct uses still instantiate the prospective a-construction with

<sup>12</sup> Cf. Welke (2009: 540) for complements turning into adjuncts.

<sup>13</sup> In (11c), the *auf*-PP of course forms an adjunct to a noun, not to a verb.

*auf* or some other kind of construction cannot be resolved here; this would require a principled account of the difference between adjuncts and arguments added by a-constructions (but see Section 4 for some observations on this point).<sup>14</sup>

## 2.2 Potential counterarguments

At least two types of counterarguments to my proposal are conceivable. First, PO-Ps do not systematically display the semantic contributions my proposal ascribes to them. Instead, extensive polysemy and/or homonymy among PO-Ps seems to be the case – cf. e.g. the two productive PO-Ps signified by *an* (+ dative) discussed in Section 2.1. Second, all the productive PO-Ps identified by me are less than 100 per cent productive. This might justify calling them patterns of coining in the sense of Kay (2005) rather than constructions. Turning to the problem of polysemy/homonymy first, the inventory of PO-Ps in German certainly contains numerous counterexamples to any of the semantic contributions proposed by me for certain PO-Ps. This can only be illustrated with a few cases here. For example, the instances of the PO-P *auf* in (12a–c) hardly express prospectivity, and thus seem to form counterexamples to assuming a prospective *auf* construction:

- (12) a. *Sie war wütend/stolz auf mich.*  
 she was furious/proud on me  
 ‘She was furious with/proud of me.’
- b. *Er hat darauf nicht reagiert.*  
 he has it-on not reacted  
 ‘He did not react to it.’
- c. *Sie hat auf die Frage nicht geantwortet.*  
 she has on the.ACC question not answered  
 ‘She did not answer the question.’
- d. *Diskussion um Gendiagnostik*  
 discussion around/about genetic-diagnostics.ACC  
 ‘Discussion on/about genetic diagnostics’

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<sup>14</sup> Kay (2005) is the only such account I am aware of, but does not devote the question its full thrust. In Rostila (2013), I proposed that adjuncts indeed go back to a-constructions, the only difference between adjuncts and arguments added by a-constructions being the way a-constructions fuse with verbs. However, this account still needs further development. Notably, some instances of the goal-oriented variant of *auf* should be interesting for this, since they seem to straddle the borderline between complements and adjuncts, cf. *auf Vorrat essen* (lit. ‘to eat for stock/reserve’), *auf Zeit spielen* (‘to play for time’), *auf 400 € jobben* (‘to work for 400 €’).

- e. *Die Debatte um den Mindestlohn*  
 the debate about/around the.ACC minimum pay  
 ‘The debate on/over minimum pay’

Similar considerations apply to the PO-P *um* in cases like (12d) and (12e), and the counterexamples could be easily multiplied, for example with topic-presenting verb structures like *es geht/handelt sich um X*. Such instances of *um* are rather associated with a topic to be discussed than with gaining, maintaining or attempting to acquire a possession, cf. possessive *um* discussed above. Counterexamples of the type illustrated in (12) can be countered by referring to the possibility that the PO-Ps in question are lexically selected by the heads accompanying them, in which case they are virtually without an independent semantics (cf. note 2 for discussion). Alternatively, they might be due to the application of another productive PO-P that has emerged independently of the one whose semantics they seem to call into question. For instance, *um* might occur systematically enough denoting a topic of discussion to qualify as the exponent of an a-construction in its own right. If no semantic connection to the other *um* construction can be discerned, such cases have to be regarded as homonymy among a-constructions in the form of PO-Ps. The problematic cases to be discussed next, on the other hand, might be due to polysemy among such constructions.<sup>15</sup>

A case in point might be *über*, which in contrast to the *über* construction proposed above often seems to denote a cause instead of a topic of mental activity:

- (13) a. *Sie war ärgerlich über sein Verhalten.*  
 she was irritated over his.ACC behavior  
 ‘She was irritated by his behavior.’  
 b. *Sie haben sich über alles gestritten.*  
 they have themselves over all.ACC quarreled  
 ‘They quarreled about everything.’

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<sup>15</sup> Both the eventual homonymy and polysemy of a-constructions in the guise of PO-Ps give rise to the question of how the different readings can be activated in the absence of a formal opposition. I think a kind of formal opposition is present despite the appearances, however. It is due to the semantics of the verb or other head embedded in the construction: productive PO-Ps with the same form but different meaning combine with semantically different heads, and only the fusing of the PO-P with a semantically compatible or at least coercible head activates its meaning potential.

- c. 70 Cent müssen Reisende auf vielen Autobahnraststätten für die  
 70 Cent have travellers on many motorway service areas for the  
*Toilettenbenutzung zahlen* – zu viel, sagen vier von fünf  
 toilet use pay – too much, say four of five  
*Deutschen laut einer neuen Umfrage.*  
 Germans according to a new survey  
*Manch einer wird darüber zum Wildpinkler [...]*  
 some becomes it-over to wildpisser  
 ‘At many service stations, travelers must pay 70 cent for the use of the  
 toilet – too much, say four out of five Germans. Many choose to urinate  
 outside because of this [...]

In cases like (13a)–(13b), it can still be argued that the *über*-PO only denotes a topic of mental activity and hence constitutes an instance of the *über* construction proposed above. Since states like *ärgerlich* (‘irritated’) and activities like *sich streiten* (‘quarrel’) presuppose a cause, it is conceivable that they assign a participant role whose essence is CAUSE.<sup>16</sup> This role fuses with the second argument role of *über*, and the result is a reading like ‘topic causing a negative mental state/activity’ for the PO argument.

Cases like (13c) turn out to be more problematic, however. On the one hand, the *über*-PO would seem to denote a cause here, too – and to constitute an instance of a productive PO. It is hardly subcategorized by *werden* ‘become’, yet it does not qualify as an adjunct, either, since *über*-PPs cannot denote a cause in isolation, cf. *\*über die Kosten* in the sense (‘because of the costs’) to a typical causal adjunct PP *wegen der Kosten* (‘because of the costs’). Instances of *über* as in (13c) therefore seem to have the flavor of coercion cases, i.e. cases where an argument structure has been extended to a predicate not normally associated with it. The question is, can they be seen as instances of the proposed *über* construction denoting mental activity? As I see it, there are two alternatives: either this *über* construction is at play here, too, and the causal component is a pragmatic inference from the predicate *Wildpinkler werden* (‘become someone who pees in the street’); or (13c) represents the application of a new, slightly modified *über* construction emerging on the basis of cases like (13a)–(13b),<sup>17</sup> a construction more strongly associated with causes than topics of mental activity.<sup>18</sup> Given the tentative character and narrow

<sup>16</sup> See Rostila (2007: 187–192) for a discussion of the plausibility of a role of this type.

<sup>17</sup> That is, in such cases (especially in [13b]) the PO can be interpreted both as a topic and a cause. This may have provided the link by which mental activity *über* has developed into causal *über*.

<sup>18</sup> In fact, the case (9b) also hints at the involvement of such a causal construction: the PP seems not only to denote a topic, but a reason for anxiety as well. This might even be interpreted

empirical basis of these observations, I do not attempt to resolve the matter here; they mainly serve to illustrate the problems of tracking down productive PO-Ps among German PO-Ps. Any serious such attempt probably requires extensive corpus studies, where manual effort cannot be spared because of the semantic issues involved.

As regards the second type of counterargument, productive PO-Ps could be denied construction status on the grounds that their productivity is limited. For instance, despite its seemingly high productivity with prospective heads demonstrated in (2), prospective *auf* cannot occur with prospective heads like *einwilligen*<sup>19</sup> and *Plan*:

- (14) a. *Er hat in/\*auf die Scheidung eingewilligt.*  
 he has in/\*on the.ACC divorce agreed  
 'He agreed to the divorce.'
- b. *Bush und sein Plan für/\*auf den Weltumbau*  
 Bush and his plan for/\*on the.ACC world reconstruction  
 'Bush and his plan for world reconstruction'

Possibly with the exception of aspectual *an*, a similar counterargument can be raised with respect to all the productive PO-Ps proposed by me. Their use cannot be extended to all heads semantically compatible with them. Patterns thus restricted in their occurrence have been called patterns of coining by Kay (2005). In contrast to constructions, which Kay envisages as fully productive within the limits of semantic compatibility, patterns of coining display idiosyncratic restrictions in their applicability: essentially only the cases already established are fully acceptable, cf. e.g. *happy as a lark*, *dry as a bone* vs. *\*young as a chick*. To judge from data like (14), productive PO-Ps might seem to constitute a case in point.

It seems to me, however, that the whole division between constructions and patterns of coining is misguided. For one thing, 100 per cent productivity

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as an indication that both an *über* 'mental activity' and *über* 'activity with a cause' constructions are present – in other words, two sources of analogy are used at the same time.

**19** A referee points out that *einwilligen* represents an exceptional case in that as shown by Olsen (1997), the preposition *in* is dependent on the verb particle *ein*, not on the whole verb *einwilligen*. If one accepts Olsen's arguments for such an analysis, verbs like *einwilligen*, *einwerfen* and *einlegen*, which all occur with a PO with *in*, call for a CxG analysis in terms of a construction centered on the particle *ein* and with a variable slot for a verb (cf. Felfe 2012 for an account of this type for the verb particle *an*). Such an analysis has no repercussions on the crucial point here: no matter whether the choice of *in* is due to a particle construction based on *ein* or to lexical selection by *einwilligen*, it is apparently capable of pre-empting prospective *auf* in a context semantically compatible with *auf*. To accommodate the possibility that *einwilligen* + *in* goes back to a particle construction, I use the notation *ein(willigen)* + *in* below.

of rule-like phenomena is rare in natural language in the first place (cf. Givón 2002: 121; Stefanowitsch 2007: 167–168), so if this division is maintained, hardly anything can count as a construction. Moreover, data like (14) may not testify to a lack of productivity of prospective *auf*, but rather to the strength of competing patterns in these particular cases: it is conceivable that *ein(willigen) + in* (+ acc.) and *Plan + für* (+ acc.) form cases of lexically (or otherwise; cf. note 19) selected PO-Ps entrenched enough to resist conforming to the prospective *auf* pattern. In other words, *in* and *für* pre-empt the use of *auf* here. Such cases might in fact call it into question whether applicability within semantic compatibility is a sound measure of productivity in the first place: the result might often be more to do with preemption processes than with the productivity of the tested pattern. In any case, there appears to be an independent explanation for the lack of productivity found with productive PO-Ps: competition from other PO-Ps. Against this backdrop, they might even be seen as fully productive, but simply pre-empted by their competitors.

Even without claiming such latent full productivity for this subclass of PO-Ps, there are good grounds for regarding them as constructions – and for not adopting a construction vs. pattern of coining division. As I have discussed in more detail in Rostila (2006b, 2007: 137–144, 2014: 111–112), differences in the productivity of schematic constructions could be seen as differences in the degree of grammaticalization that the constructions have attained. Accordingly, the more grammaticalized a construction is, the more open are its slots semantically. Put differently, the less speakers can associate the slots of a construction with particular fillers like *happy as a lark*, the more grammaticalized it is.<sup>20</sup> Thus there are just more and less schematic, or grammaticalized, constructions – no patterns of coining besides constructions. Among productive PO-Ps, there is probably a continuum of schematicity, or degree of grammaticalization, from very low to rather high like that displayed by prospective *auf*. Prospective *auf*, in turn, displays a low degree of grammaticalization compared to a-constructions belonging to the “core” of grammar, constructions present in most sentences: for instance the German transitive construction signified by the case pair nominative-accusative (cf. Rostila 2007: Ch. 9), and the English transitive and ditransitive constructions, whose high degree of grammaticalization manifests itself in their completely schematic form.<sup>21</sup>

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**20** The principles of the usage-based model (cf. e.g. Bybee 2006) can account for how the slots become more open: the more fillers have appeared in a particular slot, the less clear idea speakers have of “correct” fillers, and the more tolerant they presumably grow of potential new fillers.

**21** A referee expresses doubts as to the semantic purport of the nominative-accusative (i.e. transitive) construction in German, and hence questions my classifying it as an a-construction. See Rostila (2007: Part III) for arguments for the independent meaningfulness of the nominative-accusative

## 2.3 On the form and meaning of a-constructions based on PO-Ps

It is time to take a slightly closer look at what kind of a-constructions PO-Ps constitute. For reasons of space, I will concentrate on the properties of the prospective *auf* construction, pointing out characteristics representative of the whole class of a-constructions of this type.<sup>22</sup>

Figure 1 below shows the form of the prospective *auf* construction, an approximation of its meaning, and an example of the way it fuses with an individual verb. I have chosen to present a case where coercion is needed, that of *sich auf etwas freuen* (cf. 6b). To start with the easiest part, the form of the construction: the sole phonetic exponent of the construction is the PO-P *auf* along with the accusative case that together mark the construction's second argument; since the choice of a certain PO-P always determines the choice of case, the PO-P and the case are in effect to be seen as one sign in all PO-P structures. Although the subject, or first argument of the construction, always carries the nominative case, this case rather belongs to the form of the nominative: 1st argument construction (cf. Rostila 2007: 341),<sup>23</sup> the rough German equivalent of a subject-predicate construction, since virtually all subjects carry the nominative in German.<sup>24</sup> The same goes for all a-constructions of this class.

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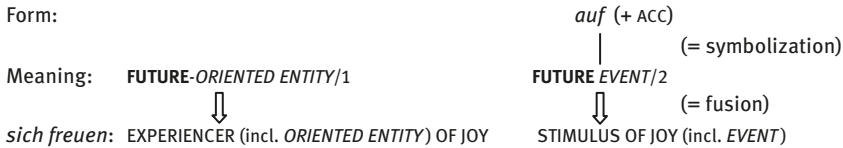
pattern in German. These arguments presuppose the notion of logico-pragmatic roles (called perspectival roles in Rostila 2007) worked out in Welke (2002), as well as Welke's (e.g. 1994, 2002) truly prototypical approach to semantic roles. On a view based on these notions, nominative-accusative can be argued to express PROTO-AGENT/1 – PROTO-PATIENT/2, where 1 and 2 roughly correspond to TOPIC and FOCUS. It is important to note that unlike Müller and Wechsler (2014: 21), and in keeping with a significo-semantic approach to meaning (Welke 1994, 2002; Rostila 2007: 49–51), I do not require a truth conditional semantic contribution of the German nominative-accusative construction in order for it to be meaningful.

**22** I will also restrict myself to PO structures in sentences with two arguments; possible a-constructions based on PO-Ps in structures where the predicate verb is accompanied by three or more arguments, cf. e.g. *Sie (1) hat ihn (2) in das Geheimnis (3) eingeweiht* ('She let him in on the secret'), are outside the scope of this paper.

**23** In Rostila (2007), I assume the following a-constructions based on the case pair nominative-accusative or nominative alone: nom-acc: AGENT/1-PATIENT/2, nom: AGENT/1, nom-acc: 1-2, nom: 1. In the latter two cases, the constructions only express perspectival roles (cf. note 21) and serve as a way to capture structural cases.

**24** A referee points out that there are German sentences without subjects such as (1) *Ihn dürstet nach Erfolg* ('He craves for success'; lit. 'him hungers after success'), (2) *Ihm graut vor der Prüfung* ('The exam terrifies him'; lit. 'him terrifies before the exam') and (3) *dass noch gearbeitet wurde* ('that it was still worked'; lit. 'that still worked was'). Such cases give rise to the question of what contributes the contents of the nom: 1 construction here. Even though there are variants of (1) and (2) with a nominative subject (*Ihn dürstet es nach Erfolg* and *Mir graut es vor der*





**Figure 1:** Fusion of prospective *auf* construction with *sich freuen*.

As regards the argument structure of the construction, PO-P constructions of this type first of all have two arguments. The numbers 1 and 2 refer to perspectival roles roughly equivalent to the syntactic functions subject and object; as argued in Rostila (2007: Ch. 2), such roles, adopted from Welke (1988, 2002), have certain advantages over both the notion of profiling employed in Goldberg (1995) and the traditional notion of syntactic functions (cf. 3.2 below for some detail). The roles of first and second argument are associated with argument roles, whose content may form the most controversial part of the construction. I have arrived at approximations of the semantics of the two arguments by comparing instances of the construction like those in (2), trying to extract the common semantic denominators of the arguments. In addition, I have considered cases like *Er wartet auf den Stein* ‘He waits/is waiting for the stone’, where the contents of the second argument become maximally transparent due to minimal overlap with the inherent meaning of the NP embedded in the second argument position (an NP like *der Stein/the stone* cannot inherently denote an event). Such methods are of course lax and rely all too much on intuition, but have to do in the absence of more objective ones. As regards the name labels of the arguments, it should be borne in mind that a-constructions based on PO-Ps represent generalizations on a rather low level; one should not therefore expect of them familiar semantic roles like AGENT, PATIENT, RECIPIENT, which only emerge from higher-level generalizations producing more grammaticalized a-constructions like the German transitive construction.

*Prüfung* respectively), the question is relevant. Within the system proposed in Rostila (2007), a-constructions serve as a means of linking for verbs whose linking pattern is to a large degree regular. Such verbs fuse with a-constructions solely on the basis of their semantics without recourse to any kind of lexically specified, idiosyncratic information regarding linking. However, the system also allows for more peripheral linking patterns specified for individual lexical items. Non-productive, i.e. ordinary, PO-Ps go back to such patterns, the verbs in (1) and (2) likewise. Such patterns, which may have accusative and dative subjects (cf. Rostila 2007: 59–61 for discussion) express the same kinds of contents as a-constructions (cf. Rostila 2007: 300–301, 309). For German dependent clauses like (3), where the expletive subject *es* cannot accompany the passive, a separate construction with information structural content needs to be introduced. The observations on the information structural contribution of *es* in Rostila (2007: 342–348) might serve as a basis for it, but the details cannot be worked out here.

Moving on to the fusion of the construction with the verb *sich freuen*, it is first of all notable that the participant roles of the verb are not lexically associated with perspectival roles. This reflects the attempt undertaken in Rostila (2007) to posit only idiosyncratic linking information as part of lexical entries. As regards the compatibility of argument and participant roles, I have indicated in boldface the semantic components that the construction imposes on the verb participants. Italics, on the other hand, indicates overlapping semantic components. Apart from the component FUTURE, the fusion illustrated here is a straightforward case of the verb's forming a subtype of the event expressed by the construction (cf. Goldberg 1995: 65), i.e. the participant roles are specific instances of the more general argument roles (provided that one accepts my assumption that EXPERIENCERS are ORIENTED ENTITIES, and all STIMULI amount to EVENTS).<sup>25</sup> The assumption that an a-construction can – within certain limits – impose its semantics on a particular verb is based on a concept of coercion like that proposed by Michaelis (2004). Michaelis' notion that grammatical constructions can override lexical constructions semantically ties in well with my assumption that a-constructions are products of grammaticalization, i.e. grammatical items forming closed classes.

Notably, the representation contains no indication of the required semantic relation between verb and construction that figures fairly prominently in Goldberg's (1995) approach. This is because I consider it in two respects premature to define such relations. First, it is doubtful whether the acceptable semantic relations between a-constructions and verbs embedded in them are conventionalized to a degree that justifies representing the relation as part of a construction; it should be borne in mind that constructions are meant to capture conventionalized linguistic knowledge. In Rostila (2007: 179–180), I view such relations as “usage preferences” (Stefanowitsch 2008: 247), which nevertheless have a potential for conventionalization, and base the fusion of verbs and constructions solely on the presence of semantic overlap between participant and argument roles. Second, any proposal regarding such conventionalized relations between a-constructions based on PO-Ps and verbs embedded in them would require an extensive corpus study that was not possible within the format of Rostila (2007).

To further motivate constructions of the type described in Figure 1, I will close by showing that also the analysis of the complements of verbs of motion and position as in (15) requires a-constructions closely resembling productive PO-Ps.

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<sup>25</sup> A referee points out that not only events but also states can occur as the second argument of the *auf* construction, cf. e.g. *Er freut sich auf das Tot-Sein* ('He looks forward to being dead'). This is no problem for my proposal, since the argument roles of the construction are prototypical in nature, and the categorization of a state as an event is a plausible case of coercion.

- (15) a. *Peter geht in den Korridor.*  
 Peter goes into the.ACC corridor  
 ‘Peter goes into the corridor.’
- b. *Der Wagen liegt im Straßengraben.*  
 the car lies in.the.DAT ditch ditch  
 ‘The car lies in the ditch.’

PP complements with local Ps like those in (15) should be described as a-constructions within a Goldberg-style CxG approach, since they can be productively combined with whole classes of verbs, i.e. positional and movement verbs. Abstracting away from differences between German and English, and using square brackets to indicate schematic parts, such constructions can be described in the following way:

- (16) a. [1<sup>st</sup> argument/THEME] [Verb of movement]  
 [directional expression = 2<sup>nd</sup> argument/GOAL]
- b. [1<sup>st</sup> argument/THEME] [Verb of position]  
 [locative expression = 2<sup>nd</sup> argument/LOCATION]

Such constructions are more schematic in their form than a-constructions describing productive PO-Ps: there is a variable slot for locative and directional expressions here that not only accommodates prepositional phrases, but even adverbs like *dorthin* (‘there [directional]’) or *dort* (‘there’). By contrast, constructions describing productive PO-Ps specify a certain preposition, e.g. *auf*. Otherwise, the only difference to productive PO-P constructions is a semantic one: constructions like (16) denote more concrete semantic roles than those underlying productive PO-Ps (cf. Figure 1 above). This reflects their degree of grammaticalization, which is lower than that of productive PO-Ps. The constructions in (16) will be of relevance for the discussion in Section 4.

### 3 How do productive PO-Ps emerge?

The discussion so far has shown that there are good grounds for regarding productive PO-Ps as a-constructions. My aim here is to outline and to some degree refine the scenario proposed in Rostila (2005, 2007, 2014) for how productive PO-Ps emerge diachronically. Given that productive PO-Ps represent a-constructions, this scenario might be informative with respect to how a-constructions in general come into being diachronically. This in turn is a crucial question, since

work within CxG has hitherto largely neglected the diachronic dimension of a-constructions, concentrating on their development in child language instead (cf. Tomasello 2003; Goldberg 2006),<sup>26</sup> and there is considerable controversy as to whether the diachronic emergence of a-constructions can be considered a case of grammaticalization, as the later discussion of Schøsler (2007) and Noël (2007a, b) will show. The scenario presented here is highly hypothetical in that it is largely not based on diachronic data, but relies on parallels to known cases of grammaticalization and insights into generalization in child language for corroboration. Its main *raison d'être* is to provide points of departure for future diachronic corpus studies of the development of productive PO-Ps in German that could put it on a more empirical footing.

### 3.1 Parallels to known cases of grammaticalization

I assume that productive PO-Ps emerge as generalizations across several cases where semantically similar predicate heads lexically select the same PO-P. For instance, prospective *auf* ('on') may have developed as a generalization across several semantically similar PO structures like (2) above. The usage-based model (e.g. Langacker 1987; Croft and Cruse 2004; Bybee 2006; Rostila 2006b) suggests that under such circumstances, language users form generalizations regarding both the form and the meaning of parallel cases. Concrete commonalities, e.g. *auf*, are stored as such, while schematic parts, or slots, are substituted for material whose form varies. Semantic commonalities of the parallel cases are stored as the meaning of the emerging (partially) schematic construction, and as semantic conditions on slot fillers. According to the usage-based model, the emergence of such generalizations requires type variation, i.e. the existence of several parallel cases. This view may require some refinement, though. It is at least tempting to hypothesize that e.g. possessive *um* might have developed essentially on the model of German *bitten* ('ask [in order to gain/possess]') alone, a presumably highly frequent verb + *um* combination whose meaning coincides with the core semantics of the construction. A similar argument could be made with respect to prospective *auf*, for which *warten* ('wait') might have formed the prototype. The central role that individual high-frequency cases seem to play in the development of a-constructions in child language (see 3.3 below for discussion) suggests that this is a possibility that should be looked into in diachronic corpus studies of the emergence of productive PO-Ps. This is all the more so because Boas (2003;

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<sup>26</sup> See Rostila (2007: 194–197) for discussion; cf. also Fried (2009).

2011) has proposed an appealing approach relying on individual cases, or “mini-constructions”, as a source of analogy instead of broad generalizations like Goldberg-style argument structure constructions.

Choosing between the two approaches is, however, not necessary here, since the parallels I see between the emergence of productive PO-Ps and certain processes of grammaticalization stand regardless of whether the reanalysis I am about to argue for requires type variation to come about, and whether it produces a broader or a narrower generalization.<sup>27</sup> Instead, it is crucial for these parallels, and for the generalizability of the grammaticalization of PO-Ps to a-constructions in general, that the diachronic starting point of the development consists in traditional PO structures, where the P is lexically selected by a certain head. This is because such structures, due to their head-specific argument marking, closely resemble verb islands (or more generally, item-based constructions; Tomasello 2003: 139), which in turn form the basis of the emergence of a-constructions in child language.

Evidence for lexically selected POs being the diachronic source can be seen in the fact that synchronically most POs seem to belong to this type, with only a few cases having advanced to a truly productive status. More concrete evidence with respect to prospective *auf* is provided by Hundt (2001), whose historical account shows how *warten* (‘wait’), synchronically probably the most central verb occurring with prospective *auf*, first selected virtually freely among directional prepositions, until finally the choice was narrowed down to *auf*. Rostila (2005: 146–149) provides a more detailed discussion of the process; at its core seems to have been a development where the preposition that was most often semantically compatible with the verb, *auf*, was finally stored as part of the verb entry. I assume similar processes have created the bulk of present-day PO structures in German, which,

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<sup>27</sup> In fact, it does not seem clear that there is a need to choose between the options in the first place. If abstract schemas indeed play a crucial role in generalizations regarding argument structure along with highly frequent individual cases in both ontogeny and phylogeny, as experimental work by Goldberg (2006), the historical study of a-constructions by Israel (1996), and also Bybee’s (2003) account of the grammaticalization of *can* in English suggest, both options seem to be needed (cf. also Boas 2014). Which of the two dominates in a particular case might depend on whether there is a lot of type variation or a few high-frequency cases present in a pattern at a certain moment. Even in the case that a single verb along with its argument-marking pattern functions as a model, I would still see an a-construction at work, however. From my point of view, a-constructions are nothing but knowledge of what kinds of generalizations can be made. Even a generalization on the basis of a single verb produces such knowledge, but in such cases, the generalization remains nearly indistinguishable from the individual verb in its argument marking pattern; in other words, the slots of the emerging construction remain relatively closed (cf. note 20). The more individual cases participate in the generalization, the more abstract it is, and the more clearly there is an a-construction in addition to individual cases.

unlike prospective *auf*, aspectual *an*, and a few other cases like those of *über* and *um* discussed in Section 2, essentially remain lexically selected. Contrary to the views of Hundt (2001) and Kolehmainen (2010: 36), and in agreement with Brinton and Traugott (2005: 123),<sup>28</sup> I deem such a development stage a manifestation of lexicalization, not yet grammaticalization: so far, only a complex lexical entry consisting of a predicate head and the preposition governed by it has been created. Only after the formerly lexically selected PO-P has been reanalyzed as a partially schematic construction, i.e. as an a-construction, can one speak of grammaticalization. This step manifests itself as the possibility of productive use; how this step probably takes place will be discussed next.

There are several known cases of grammaticalization that display striking similarities to what seems to happen to PO-Ps when they become productive. I will discuss two of them here and compare them to the case of prospective *auf* becoming productive. The cases in point are the textbook examples of grammaticalization, *ne ... pas* in French, and the development of words meaning ‘hand’ into affixes of manner in some native American languages discussed by Mithun (2002).<sup>29</sup> In each of these cases, an element X (*auf/pas/word* meaning ‘hand’) is first stored as part of several semantically similar constructions, loses its lexical meaning while “jailed” like this, and is eventually reanalyzed as a carrier of a more abstract meaning that derives from its “jailers”.<sup>30</sup> In the following, I will present the three cases in parallel, as they go through these three stages. The focus will necessarily be on the similarities of the cases; for more historical detail, see Detges and Waltereit (2002), Price (1997) and Rostila (2006b) for *ne ... pas*, Mithun (2002) for the affixes of manner.

Stage 1: X is frequently used with a certain (lexical or more complex) construction Y. X still has a full lexical meaning and constitutes a construction in its own right.

<sup>28</sup> See also Lehmann (2002: 12), who only sees the discontinuity of verb + preposition combinations as an obstacle to classification as cases of lexicalization.

<sup>29</sup> For further similar cases see Rostila (2006b, 2014: 107).

<sup>30</sup> A referee finds the parallel drawn by me between the grammaticalization of nouns like *pas* and changes pertaining to the status of prepositions like *auf* infelicitous, pointing out that such prepositions are grammatical elements from the outset. Accepting this point of criticism would amount to maintaining that only nouns as the most referential word-class can undergo grammaticalization, as well as claiming that further grammaticalization is not grammaticalization. Lexical prepositions are of course more grammaticalized elements than nouns denoting concrete entities, but they are as “lexical” as prepositions can be, denoting concrete local relations; it is a legitimate question to ask how their further grammaticalization to markers of grammatical relations takes place, and whether it involves parallels to prototypical processes of grammaticalization like that of *pas*. My proposal makes it seem plausible that it does.

- The word *pas* ('step') is frequently used with the simple negation *ne* (= *Y*) and a verb of motion embedded in this negation construction in order to give rise to the pragmatic inference 'emphatic negation' (cf. Detges and Waltereit 2002).
- A noun with the meaning 'hand' is frequently combined with certain verbs to narrow down their meaning (cf. Mithun 2002).
- A directional lexical preposition like *auf* is frequently combined with certain verbs, e.g. *warten* and *zielen* (present-day meanings: 'wait', 'aim'), since its meaning was the most compatible with the verb's typical directional arguments.<sup>31</sup>

Stage 2: High token frequency of *X + Y* entrenches *X + Y* as a unit/construction; the lexical meaning of *X* starts to fade, since *X* is now part of a larger construction that can be processed as a whole (cf. Rostila 2006b for discussion). Possible former pragmatic inferences are stored as part of the meaning of *X + Y*.

- The meaning 'emphatic negation' is conventionalized for *ne ... pas*; the loss of the lexical meaning of *pas* shows in the gradual spread of *ne ... pas* to verbs other than those of motion.
- The combinations verb + noun 'hand' are lexicalized; the meaning 'hand' fades, since the combinations are now "learned and accessed by speakers as units" (Mithun 2002: 248).
- Due to the high frequency of co-occurrence, a preposition like *auf* is stored with verbs whose complement it often used to head; discontinuous lexical entries of the type verb + preposition, i.e. lexically selected PO-Ps emerge. Storage as part of a larger construction starts to fade the original lexical meaning of the preposition. In addition, pragmatic inferences may be stored as part of the meaning of the arising complex verb entries, cf. Rostila (2005: 145–148, 2014: 108) for discussion.

Stage 3: *X* is reanalyzed as a carrier of a meaning that can be assigned to it on the basis of the overall meaning of *X + Y* (cf. the process called "blame assignment" by Tomasello 2003: 297).<sup>32</sup> The reanalysis may require the existence of several parallel cases *X + Y1*, *X + Y2*, ... . The new meaning of *X* is in this case a generalization over the meanings that speakers assign to *X* in the parallel cases. Compared to the original lexical meaning, the new meaning of *X* is more abstract. In other words, *X* has grammaticalized due to storage as part of a larger construction and

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<sup>31</sup> Cf. Rostila (2014: 107) for more detail.

<sup>32</sup> Cf. also Croft's (2000: 126–127) hypoanalysis.

a reanalysis as a sign/construction. X's reinstatement as a construction in its own right shows in its independent use.

- After *ne ... pas* has been degraded to a standard negation due to inflationary use (cf. Detges and Waltereit 2002: 184), speakers start to use *pas* alone as a negation, i.e. the colloquial negation *pas* arises. In other words, *pas* has been broken out of the larger construction *ne ... pas* and reanalyzed as carrying the meaning of this construction. It now constitutes a partially schematic construction in itself, one essentially restricted to colloquial language.
- Speakers reanalyze the element formerly meaning 'hand' as an affix with a meaning ('manner') that they have assigned to it on the basis of several cases where this element has been lexicalized with a verb. New verbs can now be derived with the aid of the affix (cf. Mithun 2002: 248).
- Speakers reanalyze a PO-P like *auf* as carrying a meaning that they can assign to it on the basis of several semantically similar verb + PO-P combinations. An a-construction, whose sole concrete part is the preposition in question, arises. This construction can now be productively applied to verbs that did not combine with the preposition earlier.

In each of these cases, the result is a partially schematic construction whose sole concrete surface exponent is X. If the cases of *pas* and the affixes of manner (along with further similar cases; cf. Rostila 2006b; 2007: 138–144; 2014: 106–112) can count as grammaticalization, I see no reason why that of PO-Ps should not, too; see 3.2 below for further discussion.<sup>33</sup>

The question now arises, however, to what extent the parallels between the cases are real. As regards *pas* and the affixes of manner, I have above merely given constructional interpretations of accounts by others that rely on historical data. As regards PO-Ps, it is at least a historical fact that their choice was fixed with certain verbs, and present-day coercion cases show that some of them later did become productive, i.e. were reanalyzed as partially schematic constructions.

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**33** It may seem like I have confused grammaticalization with exaptation (e.g. Lass 1997: 316) or regrammaticalization (e.g. Askedal 2006) by stressing that the grammaticalizing item lacks an independent meaning before its actual grammaticalization. However, if this argument were valid, the case of *pas*, a textbook example of grammaticalization, would constitute a case of exaptation as well. My claim is that most, if not all, processes of grammaticalization involve stage 2, where the grammaticalizing item loses its independent meaning. The verdict can only read 'exaptation' if the fact that they have carried independent meanings before this stage is ignored. A further point worth noticing is that from a CxG point of view, it makes only limited sense to speak of a grammaticalizing lexical item (like *pas*). Such an item ceases to be an independent sign at stage 2; from then on, the process of grammaticalization pertains to a complex construction.



Whether the high frequency of verb + preposition co-occurrence (Stage 1) and the existence of several combinations of certain PO-Ps with semantically similar verbs as a prelude to the productivity of such PO-Ps is a historical fact is something that remains to be established on the basis of historical corpora. In addition to these questions, some further points of departure for future historical corpus investigations into the rise of productive PO-Ps can be defined. I will return to these after discussing the approaches of Schøsler (2007) and Noël (2007a, b) to a-constructions and grammaticalization. As a preliminary, it must be stated that these accounts do not necessarily represent the most recent thinking of these scholars regarding the issue of a-constructions and grammaticalization. Nevertheless, they are useful in that they can be used to clarify my claims regarding the issue.

### 3.2 A-constructions and grammaticalization: a controversial issue

Schøsler (2007) regards processes where verb valency patterns acquire a specific content and as a consequence specialize to accompany certain verbs as cases of grammaticalization. Of specific interest here is the case of the valency pattern subject – indirect object (*S – IO*) in French, since this case is studied diachronically. To put it briefly, this pattern seems to have been without content earlier, but has specialized to express something like *STIM(ULUS) – EXP(ERIENCER)*, and therefore now combines with a narrower class of verbs than earlier. What is crucial here is that Schøsler (2007) considers a semanticization of a verb valency pattern to be a case of grammaticalization. This is also at the core of my proposal: lexically selected PO-Ps are valency patterns without independent meaning (cf. below for discussion) that in some cases are reanalyzed as meaningful, and this process, provided that it proceeds as outlined in the previous section, is a case of grammaticalization. However, for reasons not quite clear to me, Schøsler (2007: 60) is not willing to consider semanticized valency patterns as a-constructions; from my point of view, they clearly fall into this class, since they combine a pattern of syntactic form with content characteristic of a-constructions: syntactic functions paired with semantic roles.<sup>34</sup> In contrast to my approach, Schøsler (2007) offers no hypothesis for how the semanticization of the *S – IO* pattern took place, but

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<sup>34</sup> Syntactic functions display at least information structural content, provided that they are conceived of as perspectival/logico-pragmatic roles in the sense of Welke (2002); see the discussion of Noël (2007a, b) below for some detail.

she also sees the meaning of verbs as the source of the meaning (Schøsler 2007: 61) – cf. stage 3 in the grammaticalization scenario of 3.1.

An essential contrast between my approach and that of Schøsler (2007) is to be seen in the fact that the semanticization of a pattern like S – IO is from my point of view rather a case of degrammaticalization. This is because the meaning of this pattern seems to have been more general before it specialized to express STIM – EXP. I therefore deem the origins of the pattern roughly on a par with a-constructions like the English transitive and ditransitive constructions, or the German nominative-accusative construction (Rostila 2007) with respect to the degree of grammaticalization – i.e. the pattern was already an a-construction grammaticalized to a very high degree before it specialized. By contrast, the point of departure with PO-Ps is an idiosyncratic, lexically determined valency pattern that is without semantic content due to lack of commutation,<sup>35</sup> and the result of the process of grammaticalization is a productive pattern with still a much more specific meaning than that of highly grammaticalized a-constructions like the English transitive and ditransitive constructions. From my point of view, therefore, Schøsler (2007) seems to have discussed a special case in the development paths valency patterns may take: a highly schematic a-construction becoming more specific in its meaning. My claim is that the more common way is from verb-specific patterns to a-constructions – the way PO-Ps seem to take.<sup>36</sup> Grounds for this are to be seen in the fact that this is the way a-constructions emerge in child language; see 3.3 below for discussion.

Noël (2007a,b) raises objections against Schøsler's (2007) proposal of considering the semanticization of valency patterns as a case of grammaticalization – and against considering a-constructions in general as products of grammaticalization. It appears, however, that his three main objections can be refuted. This strengthens the case for regarding the development of productive PO-Ps, and that of a-constructions in general, as a grammaticalization process.

First, Noël (2007a; 2007b: 193–194) points out that a gain in semantic content is not compatible with the main tenets of grammaticalization theory, which

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**35** That is, since the pattern cannot be substituted for another, it cannot constitute a sign at this stage.

**36** In fact, it is possible that even the S – IO pattern studied by Schøsler (2007) gained its a-construction status in much the same way as productive PO-Ps: the pattern may have been entrenched with certain verbs displaying STIM-EXP semantics and then reanalyzed as an a-construction; in other words, S – IO would have been the X of my grammaticalization scenario presented in 3.1. Noël (2007b: 193) makes a similar proposal, ascribing the STIM-EXP semantics to an individual verb frequently occurring in the S – IO pattern. Even if S – IO semanticized along these lines, I would still label the development degrammaticalization: it is crucial that the point of departure, the original S – IO construction, was more grammaticalized than the outcome.

rather associate a loss of meaning with grammaticalization processes. Admittedly, this counterargument applies to the case of the pattern S – IO specializing semantically, but as just discussed, this is arguably a case of degrammaticalization, and a gain in meaning is therefore to be expected. The emergence of productive PO-Ps, which I assume to be representative of the diachronic emergence of a-constructions in general, is a different process, one in which the means that used to express the participant role(s) of a verb come to express more general meanings, i.e. generalizations over sets of participant roles. Such a direction of semantic development is of course in keeping with the tenets of grammaticalization theory. What is more, if the process leading to the emergence of productive PO-Ps is considered in its entirety, i.e. from stage 1 to 3, it is even more clearly a case of semantic loss: the point of departure is a local lexical preposition,<sup>37</sup> as the grammaticalization scenario of 3.1 shows.

However, there seems to be a contradiction in my claims regarding the meaningfulness of lexically determined PO-Ps that has to be clarified. Above, I stated that lexically determined valency patterns like PO-Ps at stage 2 of my scenario are devoid of meaning; here I just said they express participant roles. Illogical as it may seem, both of these claims are valid. I must refer to Rostila (2007: 119–129) for a fuller discussion; here I can just give the gist of it.<sup>38</sup> As long as PO-Ps like *auf* are lexically determined markers of certain heads, they do symbolize the participant roles of certain heads, but this meaning potential is restricted to the context of these heads – it is not valid across the board, i.e. in the whole of the German language, unlike the meaning of, say, words like *Baum* ('tree'). At this stage, PO-Ps count as signs within other signs, the other sign in this case being the discontinuous lexical unit consisting of a verb and a PO-P. In Rostila (2007: 128), I call such signs secondary signs, in contrast to primary signs like *Baum* whose meaning is valid in the whole of a particular language. Secondary signs are only assigned meanings when language users analyze signs that contains them into their component parts; however, they can also choose to employ them as unanalyzed wholes, and in such cases, component parts remain without

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**37** To be exact, the starting point is the insertion of a local lexical preposition into an a-construction like those presented in (16); cf. Section 4 for some discussion. Both constructions involved at this stage – the lexical construction consisting of a particular local preposition and the a-construction in which it is embedded – are more concrete in their meaning than the outcome of the process, a productive PO-P, so the whole development accords with the tenets of grammaticalization theory.

**38** Notably, the approach based on secondary and primary signs developed in Rostila (2007) can also be applied to the account in Nunberg et al. (1994) of the meaningfulness of parts of idioms.

meaning assignment. This is how lexically determined PO-Ps can be regarded as being both meaningful and devoid of meaning at the same time.<sup>39</sup>

Noël's (2007a; cf. 2007b: 186, 198, n. 15) second counterargument reads that existing diagnostics of grammaticalization like decategorization and reduction only apply to processes involving concrete elements like *pas*. Completely schematic constructions like Schøsler's valency pattern S – IO would be outside of their scope. Now, if the above arguments for deeming the specialization of this pattern a case of degrammaticalization hold, these criteria in fact should not apply to it.<sup>40</sup> Nevertheless, they are at least in principle applicable to completely schematic constructions: their next stage of decategorization and reduction is complete disappearance. The criteria are also applicable to the process of lexically determined PO-Ps becoming productive: a lexical item like *auf* loses its status as a local lexical preposition and becomes the surface manifestation of an a-construction with a more abstract meaning. Presumably in the further course of grammaticalization, *auf* may also be phonetically reduced; highly grammaticalized a-constructions like the English transitive and ditransitive constructions show that a-constructions can even shed all of their phonetic substance. Such constructions in turn represent the highest grade of grammaticalization among a-constructions. The criteria of decategorialization and reduction apply to such truly fully schematic a-constructions insofar as they have been reduced from a-constructions symbolized by morphological cases (cf. the German transitive construction symbolized by the case pair nom-acc; Rostila 2007: 266) and can be further reduced to zero, which in this case means the demise of the construction.

Noël's third argument against considering the semanticization of the S – IO pattern a case of grammaticalization is to do with the semantics of a-constructions in general, and hence potentially discredits the idea of deeming a-constructions as products of grammaticalization regardless of the way they have arisen. He points out that the meanings expressed by a-constructions – e.g. roles like STIM and EXP – are propositional, not interpersonal, in contrast to prototypical grammatical meanings (2007a: 74–75). This view ignores an important meaning contribution of a-constructions. A-constructions do not just signify semantic roles, but also the syntactic functions that the construction associates with its arguments (cf. Rostila 2007: 61–65). These functions can in turn be interpreted

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**39** The same idea can be applied to the case of *pas* as well. At stage 2, this element can only be assigned the meaning 'emphasis of negation' within *ne ... pas* (elsewhere *pas* means 'step'); at stage 3, *pas* becomes a primary sign, or an independent construction, symbolizing NEGATION in the register of colloquial French.

**40** Strictly speaking, this pattern is not even an example of a completely schematic construction: it displays a concrete element, the preposition *à* used to mark the indirect object.

as meaning categories. In Goldberg (1995: 26, 49), they amount to profiling differences; in Rostila (2007), I prefer to call them perspectival roles, because this notion, adopted from Welke (logico-pragmatic roles; e.g. 1988, 2002), connects more explicitly to information structural categories like TOPIC and FOCUS.<sup>41</sup> Simplifying somewhat, part of the meaning contribution of a-constructions are categories like TOPIC and FOCUS, and such categories are clearly interpersonal, hence grammatical also by Noël's (2007a) standards.<sup>42</sup>

To sum up, at least Noël (2007a,b) fails to give compelling arguments against a-constructions as products of grammaticalization. Admittedly, to grant them this status, it seems justified to require that semantic generalization, or bleaching, is involved in their development, as Noël (2007a,b) does. For those a-constructions that emerge as generalizations over classes of individual verbs, this is a matter of course, however. Next, I will briefly turn to the question of why this should be the normal way a-constructions emerge on the diachronic axis.

### 3.3 Parallels between the emergence of a-constructions in child language and their diachronic emergence

Studies of child language (cf. Tomasello 2003; Goldberg 2006) suggest that a-constructions emerge as generalizations over groups of verb islands. In such groups, the verbs display semantic similarities and the same argument marking pattern; initially, the child does not recognize these parallels, however, hence the term 'island'. The process of generalization seems to be catalyzed by input where a single verb island dominates at first, followed by a more balanced distribution of cases (cf. Goldberg 2006: 79, 89–90; Goldberg et al. 2007). In other words, a mixture of high token frequency of individual cases and some type variation seems to be required.<sup>43</sup> Individual high-frequency cases that are presumably

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**41** A referee expresses doubts about a connection between syntactic functions and information structural status. Indeed, such a connection can only be worked out within Welke's (e.g. 2002) two-level theory of perspective, which can accommodate changes in information structure enabled by the relatively free constituent order of languages like German.

**42** Noël (2007b: 195) seems to revise his position regarding the status of semantic roles and is now willing to accept them as grammatical meanings. As shown, even without this concession there are reasons for considering the meanings of a-constructions grammatical meanings. Notably, Noël (2007b: 188) broaches grammatical roles – i.e. syntactic functions – in his discussion, but does not connect them to the meaning pole of a-constructions.

**43** Tomasello (2003: 173) states that there are so few studies of input frequency conditions that generalizations on the basis of individual high frequency cases cannot be excluded. However, it is at least tempting to hypothesize that generalizations seemingly based on individual cases

stored as such appear to provide a concrete point of reference for the learning process (cf. Goldberg et al. 2007; Avrahami et al. 1997); generalizations seem to emerge in an interplay of such concrete points of comparison, the presence of further similar cases and, later on, abstract schemas derived from the concrete cases (cf. Goldberg 2006: 79). Now, assuming that this picture of the emergence of a-constructions in child language is somewhere near correct, it seems useful to consider whether it might also capture the essence of their diachronic emergence.<sup>44</sup>

Arguments for considering the ontogeny of a-constructions informative of their phylogeny can be based on the diachronic study by Israel (1996) of the English *way* construction (e.g. *The wounded soldiers limped their way across the field*) and on facts known about German PO structures. Turning to the *way* construction first, Israel's study suggests that the diachronic emergence of this construction was driven by analogical extensions from individual cases and abstract schemas formed on the basis of clusters of verbs occurring in the construction. The similarities to the findings of Goldberg (2006) regarding the role of high-frequency individual cases and abstract schemas in child-language generalizations are obvious. Thus parallels between the ontogeny and phylogeny of a-constructions seem to be worth taking seriously.

The conditions prevailing among German PO-Ps speak for the same conclusion. The case of prospective *auf* demonstrates this perhaps most clearly, since it can be verified that the choice of P became fixed with *warten* ('to wait') at an earlier point (Hundt 2001: 182), while present-day data like (2), (6b)–(6d) and (7) testify to the existence of a productive pattern. In other words, *warten + auf* ('wait for') formed a verb island that has been generalized to an a-construction. Moreover, synchronic variation among German PO-Ps also suggests a parallel to generalization in child language: the bulk of PO-Ps seem to form verb islands in that the choice of PO-P is non-generalizable, and the simultaneous presence of more or less productive patterns suggests that some of the idiosyncratic patterns tend to be generalized. Assuming the credo of grammaticalization research that synchronic variation reflects diachronic change (Lehmann 1985), these conditions also hint at parallels between ontogeny and phylogeny. After clarifying some principal issues regarding such parallels, I will turn to the question of how their validity could be established on the basis of studying the diachrony of German PO-Ps.

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might in reality reflect the important role of high-frequency cases at the start of the process rather than cast doubt on the role of type frequency.

**44** See Rostila (2007: 149–150) for further discussion; this parallel is also drawn by Noël (2007a).

One might doubt parallels between processes of child language and diachronic processes on grounds that child language might not be the locus of innovation. Children might not have the social standing required to ensure the successful propagation of innovations; moreover, studies of child language suggest that children are rather conservative learners, tending to imitate rather than innovate (Tomasello 2003: 176, 194, 2006). However, central tenets of CxG make it seem unnecessary to differentiate between children and adults in the study of historical processes – at least on the level of granularity mostly attainable in such studies. If languages are indeed learned on the basis of domain-general cognitive abilities (Goldberg 2003: 222) that adults also still possess (see Rostila 2012: 216–217, 220–224 for discussion), it stands to reason that adult generalization processes are essentially the same as those of children.<sup>45</sup> Thus findings of research into generalization in child language would seem to be a legitimate source of working hypotheses for diachronic corpus studies of the emergence of a-constructions. In the following, I will outline a research agenda for such a study of German productive PO-Ps, concentrating on the case of prospective *auf*.

Productive PO-Ps would seem to constitute a particularly fruitful object of research for a study exploiting insights into child language generalization regarding argument structure and aimed at verifying parallels between ontogeny and phylogeny. After all, the point of departure of their development (lexically selected PO-Ps) and its outcome (productive PO-Ps) parallel the way stations of child language generalization: verb islands and a-constructions, respectively. What, then, should be sought in corpora in order to verify whether e.g. the emergence of prospective *auf* has proceeded parallel to child language generalization? In practice, all cases where prospective predicates occur with *auf* would be relevant, but especially the following kinds of findings would point to parallels to ontogeny:

- coexistence of several prospective predicates selecting *auf* before the spread of *auf* to further such predicates would point to the role of type variation
- high frequency of particular prospective predicates (e.g. *warten*) with *auf* before the spread of *auf* to further prospective predicates would hint at the role of high-frequency items as points of reference; if other prospective predicate + *auf* combinations were virtually absent at the same time, this would hint at analogical extension on the basis of individual cases

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<sup>45</sup> Notably, also the usage-based model (e.g. Langacker 1987; Croft and Cruse 2004) suggests that children and adults generalize under the same conditions, i.e. on the basis of type variation, in that the model does not differentiate between child learners and adult users.

The period most fruitful for such studies would probably be late stages of Middle High German and the whole of Early High German (1350–1650), since especially the latter period was characterized by a spread of PO structures (cf. Korhonen 2006: 1466).<sup>46</sup> Whether the existing corpora of these periods (e.g. *Bonner Frühneuhochdeutschkorpus*, ‘Bonn corpus of Early High German’) are large enough to enable the required frequency observations remains to be established.

## 4 Outlook

The proposal that there exists a class of productive/grammaticalized PO-Ps that can be described as a-constructions opens some at least partly new avenues of research. The most obvious of these is the search for productive PO-Ps (and case affixes with similar properties) in languages other than German and their description as a-constructions; cf. for instance *wait/hope/prepare for* and *good/bad/skillful/talented at* in English. Another one is the diachronic corpus study of the emergence of productive PO-Ps in different languages, perhaps along the lines sketched in Section 3.3.

The proposal also has consequences for the description of primary adpositions in general. It suggests that instead of a two-way classification into lexical vs. non-lexical/functional/grammatical adpositions (cf. Rauh 1993; Tseng 2001 for doubts regarding a two-way split), at least a three-way division is needed: primary lexical adpositions vs. lexically selected PO-Ps vs. productive PO-Ps, which form a-constructions.<sup>47</sup> In the following, I will outline this proposal and relate it to the grammaticalization scenario discussed in 3.1.

Figure 2 shows the types of primary adpositions my proposal implies (numbers 1–4). The block arrows in it indicate the grammaticalization cline of a-constructions envisaged by me, from which certain types of primary adpositions emerge.<sup>48</sup>

The first type of primary adpositions is that of local lexical adpositions. Such adpositions head the complements of verbs of motion and position like *go*, *lie*, *be*, and adjuncts of location. Both these structures emerge when adpositions of type 1 are inserted into a-constructions of the type presented in (16).<sup>49</sup> If such an

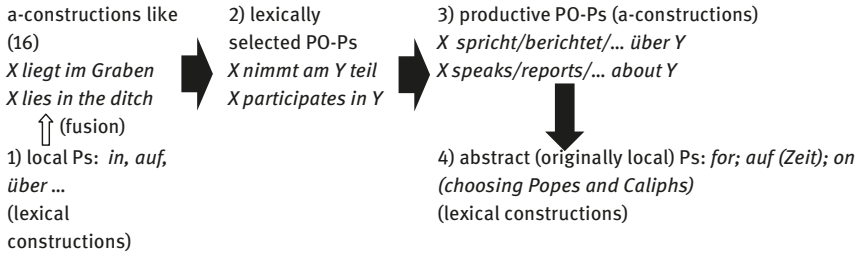
<sup>46</sup> Rostila (2016: 272) presents first results of a corpus study of PO structures in Early High German.

<sup>47</sup> The latter two groups correspond to Rauh’s (1993) case prepositions.

<sup>48</sup> I do not assume that the different types form discrete categories, but constitute points on a continuum.

<sup>49</sup> Cf. note 14 for a-constructions as a source of adjuncts.





**Figure 2:** Types of primary adpositions and their grammaticalization cline.

a-construction is entrenched with a certain verb or other predicate and a certain adposition of type 1 (cf. stage 2 of the grammaticalization scenario in 3.1), this gives rise to lexically selected PO-Ps. Notably, these adpositions are no longer independent constructions, but parts of a larger lexical construction. Next, as argued in this paper, lexically selected PO-Ps may be “prised” out of such constructions, i.e. be reanalyzed as signs in their own right, with meaning components taken over from verbs and other predicates they have been lexicalized with. The result is type 3 of primary adpositions, which in reality consists of a-constructions in the guise of PO-Ps – again a type of adpositions not reducible to lexical constructions.

Finally, type 4 is meant to capture primary adpositions with abstract meanings truly capable of self-licensing (cf. 2.1), i.e. senses specialized for adjunct use.<sup>50</sup> The source of this type might be a reanalysis resembling the emergence of productive PO-Ps: adpositions might be extracted out of a-constructions on PO-Ps and become lexical constructions again. It is doubtful whether such a process actually takes place, since it is easy to think of possible cases in point like the title/topic uses of *über, on* and *about* (cf. (10b) above and e.g. *On choosing Popes and Caliphs*<sup>51</sup>; *about your resignation*) as instances of a-constructions on PO-Ps (= type 3) able to appear without a verb in certain genres. Adpositions of type 4 may virtually only appear in fixed phrases like *auf Zeit, auf jeden Fall, for and against*, which might go back to a-constructions used frequently enough to entrench them with particular words.<sup>52</sup> Such phrases can sometimes function as

**50** Temporal adpositions like those in *am Montag/on Monday* and *in der Nacht/in the night* probably form the core of this class, but hardly emerge from a development involving the stages represented by types 2 and 3. They rather result from the direct extension of local adpositions to relations of time.

**51** [www.tribune.com.pk/story/524854/on-choosing-popes-and-caliphs/](http://www.tribune.com.pk/story/524854/on-choosing-popes-and-caliphs/), accessed: May 22, 2013.

**52** Rostila (2013), an attempt to analyze both verb complements and adjuncts as going back to the same a-construction, would also preclude this type of prepositions as independent lexical constructions.

a model, however, and this may in effect mean the rise of type 4 adpositions, cf. hypothetically *auf Zeit* ('for a time') → *auf absehbare Zeit* ('for the foreseeable future'), *auf Dauer* ('in the long run'), etc. It might also be useful to relate the development of Ps like *for* and *um* occurring in structures like *I prefer for you to know it* and *um zu ...* ('in order to') to this scenario.

## Appendix 1: Source references of authentic examples

- (2c): [www.pummeldex.de/](http://www.pummeldex.de/), accessed: March 2, 2006.  
 (2d): [www.faz.net/aktuell/wissen/mensch-gene/training-fuer-senioren-denksport-macht-neugierig-auf-mehr-11633105.html](http://www.faz.net/aktuell/wissen/mensch-gene/training-fuer-senioren-denksport-macht-neugierig-auf-mehr-11633105.html) (title), accessed: May 11, 2013)  
 (2e): Schröter, p. 203. (See below section Sources for the origin of examples drawn from literary works.)  
 (6c): [www.spiegel.de/auto/aktuell/0,1518,650453,00.html](http://www.spiegel.de/auto/aktuell/0,1518,650453,00.html), accessed: September 22, 2009.  
 (6d): Olivier, p. 483.  
 (7a): [www.spiegel.de/sport/fussball/em-2012-gastgeber-ukraine-droht-in-der-gruppenphase-zu-scheitern-a-837698.html](http://www.spiegel.de/sport/fussball/em-2012-gastgeber-ukraine-droht-in-der-gruppenphase-zu-scheitern-a-837698.html) (title), accessed: June 12, 2012.  
 (7b): [www.spiegel.de/](http://www.spiegel.de/) (title), accessed: June 3, 2009.  
 (7c): [www.spiegel.de/kultur/musik/0,1518,748296,00.html](http://www.spiegel.de/kultur/musik/0,1518,748296,00.html), accessed: March 1, 2011.  
 (7d): [www.spiegel.de/karriere/berufsstart/dieter-lenzen-fordert-master-abschluss-fuer-alle-a-834469.html](http://www.spiegel.de/karriere/berufsstart/dieter-lenzen-fordert-master-abschluss-fuer-alle-a-834469.html), accessed: May 22, 2012.  
 (7e): [www.spiegel.de/politik/ausland/us-vizepraesident-joe-biden-empfehl-schrotflinten-a-884415.html](http://www.spiegel.de/politik/ausland/us-vizepraesident-joe-biden-empfehl-schrotflinten-a-884415.html), accessed: February 20, 2013.  
 (8a): Kunkel, p. 533.  
 (8b): [www.spiegel.de/](http://www.spiegel.de/) (title), accessed: December 16, 2010.  
 (8f): [www.vonwolkenstein.de/wolkenstein-forum/showthread.php?t=893](http://www.vonwolkenstein.de/wolkenstein-forum/showthread.php?t=893), accessed: May 11, 2006.  
 (8h): [www.spiegel.de/reise/aktuell/0,1518,771125,00.html](http://www.spiegel.de/reise/aktuell/0,1518,771125,00.html), accessed: June 28, 2011.  
 (10b): [www.woche.de/titelthema2.htm](http://www.woche.de/titelthema2.htm), accessed: September 25, 2001.  
 (11a): [www.spiegel.de/politik/ausland/ex-aussenminister-david-miliband-fordert-mehr-grossbritannien-in-der-eu-a-881912.html](http://www.spiegel.de/politik/ausland/ex-aussenminister-david-miliband-fordert-mehr-grossbritannien-in-der-eu-a-881912.html), accessed: May 22, 2013.  
 (11b): [www.spiegel.de/gesundheit/ernaehrung/sport-mit-guter-leistung-dank-rohkost-profi-erklaert-ernaehrungskonzept-a-882002.html](http://www.spiegel.de/gesundheit/ernaehrung/sport-mit-guter-leistung-dank-rohkost-profi-erklaert-ernaehrungskonzept-a-882002.html), accessed: May 22, 2013.  
 (11c): [www.wohnenaufzeit24.de](http://www.wohnenaufzeit24.de), accessed: February 20, 2013.  
 (12d): [www.faz.net/aktuell/feuilleton/diskussion-um-gendiagnostik-so-werden-moralische-konflikte-kleingekocht-12168895.html](http://www.faz.net/aktuell/feuilleton/diskussion-um-gendiagnostik-so-werden-moralische-konflikte-kleingekocht-12168895.html) (title), accessed: May 12, 2013.

(12e): [www.stern.de/wirtschaft/arbeit-karriere/arbeit/bezahlung-die-debatte-um-den-mindestlohn-604845.html](http://www.stern.de/wirtschaft/arbeit-karriere/arbeit/bezahlung-die-debatte-um-den-mindestlohn-604845.html) (title), accessed: May 12, 2013.

(13c): [www.spiegel.de/](http://www.spiegel.de/), accessed: June 30, 2011.

(14b): [www.derstandard.at/1250598](http://www.derstandard.at/1250598), accessed: May 12, 2013.

## Appendix 2: Sources

Danella, Utta: *Nina*. Wilhelm Heyne Verlag, Munich 1992.

DUWB: *Duden Deutsches Universalwörterbuch*. 7. edition. Dudenverlag, Mannheim/Zurich 2011.

Kunkel, Thor: *Endstufe*. Eichborn, Berlin 2004.

Olivier, Stefan: *Jedem das Seine*. Nannen-Verlag, Hamburg 1961.

Schröter, Heinz: *Stalingrad. Bis zur letzten Patrone*. Cinema-Verlag, Waiblingen 1961.

## References

- Askedal, John Ole. 2006. Regrammatikalisierung. Begriffliche Überlegungen und zwei deutsche Beispiele. In Ulrich Breuer & Irma Hyvärinen (eds.), *Wörter – Verbindungen. Festschrift für Jarmo Korhonen zum 60. Geburtstag*, 301–316. Frankfurt/M.: Peter Lang.
- Avrahami, Judith, Yaakov Kareev, Yonatan Bogot, Ruth Caspi, Salomka Dunaevsky & Sharon Lerner. 1997. Teaching by examples: Implications for the process of category acquisition. *The Quarterly Journal of Experimental Psychology* 50A(3). 586–606.
- Bierwisch, Manfred. 1988. On the grammar of local prepositions. In Manfred Bierwisch, Wolfgang Motsch & Ilse Zimmermann (eds.), *Syntax, Semantik und Lexikon*, 11–66. Berlin: Akademie-Verlag.
- Boas, Hans C. 2003. *A constructional approach to resultatives*. Stanford: CSLI Publications.
- Boas, Hans C. 2011. Coercion and leaking argument structures in Construction Grammar. *Linguistics* 49.6. 1271–1303.
- Boas, Hans C. 2014. Lexical and phrasal approaches to argument structure: Two sides of the same coin. *Theoretical Linguistics* 40(1–2). 89–112.
- Breindl, Eva. 1989. *Präpositionalobjekte und Präpositionalobjektsätze im Deutschen*. Tübingen: Niemeyer.
- Brinton, Laurel J. & Elizabeth Closs Traugott. 2005. *Lexicalization and language change*. Cambridge: Cambridge University Press.
- Bybee, Joan. 2003. Mechanisms of change in grammaticization: the role of frequency. In Brian Joseph & Richard D. Janda (eds.), *The Handbook of Historical Linguistics*, 602–623. Oxford: Blackwell.
- Bybee, Joan. 2006. From usage to grammar: the mind's response to repetition. *Language* 82. 711–733.

- Chomsky, Noam. 1986. *Knowledge of language. Its nature, origin, and use*. New York: Praeger.
- Croft, William. 2000. *Explaining language change: an evolutionary approach*. Harlow: Longman.
- Croft, William & D. Alan Cruse. 2004. *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Detges, Ulrich & Richard Waltereit. 2002. Grammaticalization vs. reanalysis: a semantic-pragmatic account of functional change in grammar. *Zeitschrift für Sprachwissenschaft* 21. 151–195.
- Duden. 1984. *Grammatik der deutschen Gegenwartssprache*. (4. edn.). Mannheim, Vienna & Zurich: Dudenverlag.
- Dürscheid, Christa. 1999. *Die verbalen Kasus des Deutschen. Untersuchungen zur Syntax, Semantik und Perspektive*. Berlin & New York: Walter de Gruyter.
- Engelberg, Stefan. 2009. *Blätter knistern über den Beton*. Zwischenbericht aus einer korpuslinguistischen Studie zur Bewegungsinterpretation bei Geräuschverben. In Edeltraud Winkler (ed.), *Konstruktive Varianz bei Verben*. (OPAL Sonderheft 4/2009), 75–97. Mannheim: Institut für Deutsche Sprache.
- Felfe, Marc. 2012. *Das System der Partikelverben mit „an“*. Eine konstruktionsgrammatische Untersuchung. Berlin & New York: Walter de Gruyter.
- Fillmore, Charles J. & Sue Atkins. 2000. Describing polysemy: the case of *crawl*. In Yael Ravin & Claudia Leacock (eds.), *Polysemy: Linguistic and computational approaches*, 91–110. Oxford: Oxford University Press.
- Fried, Mirjam. 2009. Construction Grammar as a tool for diachronic analysis. *Constructions and Frames* 1. 262–291.
- Givón, Talmy. 2002. *Bio-linguistics: the Santa Barbara lectures*. Amsterdam & Philadelphia: John Benjamins.
- Goldberg, Adele E. 1995. *Constructions. A Construction Grammar approach to argument structure*. Chicago & London: University of Chicago Press.
- Goldberg, Adele E. 2003. Constructions: a new theoretical approach to language. *Trends in Cognitive Sciences* 7.5. 219–224.
- Goldberg, Adele E. 2006. *Constructions at work. The nature of generalization in language*. Oxford: Oxford University Press.
- Goldberg, Adele E., Devin Casenhiser & Tiffani R. White. 2007. Constructions as categories of language. *New Ideas in Psychology* 25. 70–86.
- Helbig, Gerhard. 1973. *Die Funktionen der substantivischen Kasus in der deutschen Gegenwartssprache*. Halle, Saale: VEB Max Niemeyer Verlag.
- Hundt, Markus. 2001. Grammatikalisierungsphänomene bei Präpositionalobjekten in der deutschen Sprache. *Zeitschrift für Germanistische Linguistik* 29. 167–191.
- Israel, Michael. 1996. The way constructions grow. In Adele E. Goldberg (ed.), *Conceptual structure, discourse and language*, 217–230. Stanford: CSLI Publications.
- Kay, Paul. 2005. Argument structure constructions and the argument-adjunct distinction. In Mirjam Fried & Hans C. Boas (eds.) *Grammatical constructions: Back to the Roots*, 71–98. Amsterdam & Philadelphia: John Benjamins.
- Knobloch, Clemens. 2009. Noch einmal: Partikelkonstruktionen. *Zeitschrift für Germanistische Linguistik* 37. 544–564.
- Kolehmainen, Leena. 2010. From a spatial adposition to a grammatical relations' marker: Contact- and context-induced grammaticalization and their interaction. *Lähivõrdlusi/Lähivertailuja* 20. 98–154.
- Korhonen, Jarmo. 2006. Valenzwandel am Beispiel des Deutschen. In Vilmos Ágel, Ludwig M. Aichinger & Hans-Werner Eroms (eds.) *Dependenz und Valenz. Ein internationales Handbuch der zeitgenössischen Forschung*, 1462–1474. Berlin & New York: Walter de Gruyter.

- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar. Vol. I.: Theoretical prerequisites*. Stanford: Stanford University Press.
- Lass, Roger. 1997. *Historical linguistics and language change*. Cambridge: Cambridge University Press.
- Lehmann, Christian. 1985. Grammaticalization: synchronic variation and diachronic change. *Lingua e stile* 20. 303–318.
- Lehmann, Christian. 2002. New reflections on grammaticalization and lexicalization. In Ilse Wischer & Gabriele Diewald (eds.), *New reflections on grammaticalization*, 1–18. Amsterdam & Philadelphia: John Benjamins.
- Lerot, Jacques. 1982. Die verbregierten Präpositionen in Präpositionalobjekten. In Werner Abraham (ed.), *Satzglieder im Deutschen: Vorschläge zur syntaktischen, semantischen und pragmatischen Fundierung*, 261–291. Tübingen: Narr.
- Michaelis, Laura A. 2004. Type shifting in Construction Grammar: An integrated approach to aspectual coercion. *Cognitive Linguistics* 15. 1–67.
- Mithun, Marianne. 2002. An invisible hand at the root of causation: the role of lexicalization in the grammaticalization of causatives. In Ilse Wischer & Gabriele Diewald (eds.), *New Reflections on Grammaticalization*, 237–258. Amsterdam & Philadelphia: John Benjamins.
- Müller, Stefan. 2006. Phrasal or lexical constructions? *Language* 82(4). 850–883.
- Müller, Stefan & Stephen M. Wechsler. 2014. Lexical approaches to argument structure. *Theoretical Linguistics* 40(1–2). 1–76.
- Noël, Dirk. 2007a. Verb valency patterns, constructions and grammaticalization. In Thomas Herbst & Katrin Götz-Votteler (eds.), *Valency: Theoretical, Descriptive and Cognitive Issues*, 67–83. Berlin & New York: Mouton de Gruyter.
- Noël, Dirk. 2007b. Diachronic construction grammar and grammaticalization theory. *Functions of Language* 14. 177–202.
- Nunberg, Geoffrey, Ivan A. Sag & Thomas Wasow. 1994. Idioms. *Language* 70. 491–538.
- Olsen, Susan. 1997. Prädikative Argumente syntaktischer und lexikalischer Köpfe: Zum Status der Partikelverben im Deutschen und Englischen. *Folia Linguistica* 31(3–4). 301–329.
- Oppenrieder, Wilhelm. 1991. *Von Subjekten, Sätzen und Subjektsätzen. Untersuchungen zur Syntax des Deutschen*. Tübingen: Niemeyer.
- Östman, Jan-Ola. 2005. Construction discourse: a prolegomenon. In Jan-Ola Östman & Mirjam Fried (eds.) *Construction Grammars: Cognitive grounding and theoretical extensions*, 121–143. Amsterdam & Philadelphia: John Benjamins.
- Price, Glanville. 1997. Negative particles in French. In Stewart Gregory & D. A. Trotter (eds.), *De mot en mot: Aspects of medieval linguistics. Essays in honour of William Rothwell*, 173–190. Cardiff: University of Wales Press.
- Rauh, Gisa. 1993. On the grammar of lexical and non-lexical prepositions in English. In Cornelia Zelinsky-Wibbelt (ed.), *The semantics of prepositions: from mental processing to natural language processing*, 99–150. Berlin & New York: Mouton de Gruyter.
- Rostila, Jouni. 2002. Die Präpositionen der Präpositionalobjekte als ein Kongruenzphänomen. In Mariann Skog-Södersved, Christoph Parry & Brigitte von Witzleben (eds.), *Grenzüberschreibungen. Festschrift für Henrik Nikula zu seinem 60. Geburtstag*, 129–139. Vaasa & Germersheim: SAXA.
- Rostila, Jouni. 2004. Towards a construction approach to grammaticalization in prepositional objects. In Marja Nenonen (ed.), *Papers from the 30th Finnish Conference of Linguistics*, 192–200. Joensuu: University of Joensuu.

- Rostila, Jouni. 2005. Zur Grammatikalisierung bei Präpositionalobjekten. In Torsten Leuschner, Tanja Mortelmans & Sarah De Groot (eds.), *Grammatikalisierung im Deutschen*, 135–166. Berlin & New York: Walter de Gruyter.
- Rostila, Jouni. 2006a. Construction Grammar as a functionalist generative grammar. In Piotr P. Chruszczewski, Michał Garcarz & Tomasz P. Górski (eds.), *At the crossroads of linguistics sciences*, 365–376. Cracow: Tertium.
- Rostila, Jouni. 2006b. Storage as a way to grammaticalization. *Constructions* 1/2006. <https://journals.linguisticsociety.org/elanguage/constructions/article/view/3070/3049.html> (accessed 13 October 2017).
- Rostila, Jouni. 2007. *Konstruktionsansätze zur Argumentmarkierung im Deutschen*. Tampere: Tampere University Press. <http://urn.fi/urn:isbn:978-951-44-7085-1> (accessed 13 October 2017).
- Rostila, Jouni. 2012. Konstruktionsgrammatik: innovative Wege für den DaF-Unterricht, insbesondere den Grammatikunterricht? *German as a Foreign Language* 2-3/2012. 215–237. <http://www.gfl-journal.de/2-2012/Rostila.pdf> (accessed 13 October 2017).
- Rostila, Jouni. 2013. Konstruktiosta, komplementeista ja adjunkteista [On constructions, complements and adjuncts]. Paper presented at the Annual Finnish Conference of Linguistics, University of Tampere, 4–5 May.
- Rostila, Jouni. 2014. Inventarisierung als Grammatikalisierung: produktive Präpositionalobjekte und andere grammatikalisierte Linking-Muster. In Alexander Lasch & Alexander Ziem (eds.), *Grammatik als Netzwerk von Konstruktionen: Sprachwissen im Fokus der Konstruktionsgrammatik*, 97–116. Berlin: Walter de Gruyter.
- Rostila, Jouni. 2016. Zur Integration von Argumentstrukturkonstruktionen in das Historisch syntaktische Verbwörterbuch. In Jarmo Korhonen & Albrecht Greule (eds.), *Historisch syntaktisches Verbwörterbuch. Valenz- und konstruktionsgrammatische Beiträge*, 261–276. Frankfurt a. M.: Lang.
- Rothstein, Susan D. 2001. *Predicates and their subjects*. Dordrecht: Kluwer.
- Ruppenhofer, Josef & Laura A. Michaelis. 2010. A constructional account of genre-based argument omissions. *Constructions and Frames* 2.2. 158–184.
- Schøsler, Lene. 2007. The status of valency patterns. In Thomas Herbst & Katrin Götz-Votteler (eds.), *Valency: Theoretical, descriptive and cognitive issues*, 51–65. Berlin & New York: Mouton de Gruyter.
- Stefanowitsch, Anatol. 2007. Konstruktionsgrammatik und Korpuslinguistik. In Kerstin Fischer & Anatol Stefanowitsch (eds.), *Konstruktionsgrammatik: Von der Anwendung zur Theorie*, 151–176. Tübingen: Stauffenburg.
- Stefanowitsch, Anatol. 2008. R-Relationen im Sprachvergleich: die Direkte-Rede-Konstruktion im Englischen und Deutschen. In Anatol Stefanowitsch & Kerstin Fischer (eds.), *Konstruktionsgrammatik II: Von der Konstruktion zur Grammatik*, 247–261. Tübingen: Stauffenburg.
- Tomasello, Michael. 2003. *Constructing a language. A usage-based theory of language acquisition*. Cambridge, Mass. & London: Harvard University Press.
- Tomasello, Michael. 2006. Construction Grammar for kids. *Constructions* SV1-11/2006. <https://journals.linguisticsociety.org/elanguage/constructions/article/view/26.html> (accessed 13 October 2017).
- Tseng, Jesse. 2001. Rethinking lexical and functional prepositions. In Ljiljana Šarić & Donald F. Reindl (eds.), *On prepositions*, 283–327. Oldenburg: BIS.

- Welke, Klaus. 1988. *Einführung in die Valenz- und Kasustheorie*. Leipzig: VEB Bibliographisches Institut.
- Welke, Klaus. 1994. Thematische Relationen. Sind thematische Relationen semantisch, syntaktisch oder/und pragmatisch zu definieren? *Deutsche Sprache* 22.1. 1–18.
- Welke, Klaus. 2002. *Deutsche Syntax funktional. Perspektiviertheit syntaktischer Strukturen*. Tübingen: Stauffenburg.
- Welke, Klaus. 2009. Konstruktionsvererbung, Valenzvererbung und die Reichweite von Konstruktionen. *Zeitschrift für Germanistische Linguistik* 37. 514–543.
- Welke, Klaus. 2011. *Valenzgrammatik des Deutschen: Eine Einführung*. Berlin & New York: Walter de Gruyter.
- Zifonun, Gisela, Ludger Hoffmann, Bruno Strecker & Joachim Ballweg. 1997. *Grammatik der deutschen Sprache*. Berlin & New York: Walter de Gruyter.

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