

Constructing a constructicon for German

Empirical, theoretical, and methodological issues

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This chapter discusses a number of important issues underlying and motivating the development of a constructicon for German. More specifically, it presents an overview of some typologically interesting facets of German syntax such as word order, topological fields, case, and passives. Taking a contrastive view of some German constructions and their English counterparts, this chapter shows under what circumstances existing entries from the Berkeley constructicon for English can be reused to create corresponding entries in a German constructicon. Of particular interest in this context are the notions of idiomaticity, abstraction, and the continuum of constructional correspondence. Finally, this chapter introduces ongoing constructicographic efforts to create a constructicon for German. To document the current status of the project, both the methodology and the workflow guiding the German Constructicon project (GCon) are illustrated.

Keywords: annotation, constructicon, construction, construction grammar, contrastive linguistics, German

1. Introduction

This paper addresses empirical, theoretical, and methodological issues that arise in the development of a constructicon for German. By discussing a set of grammatical constructions in contemporary German and comparing them to their equivalents in English, we aim at singling out to what extent constructions in German exhibit commonalities but also idiosyncrasies that need to be taken into account when constructing a constructicon for German. On the basis of the results, we propose that the benefit of mapping English constructions, as, for example, documented in the prototype of the Berkeley FrameNet constructicon (see Boas, 2017; Lee-Goldman & Petruck, this volume), to their counterparts in German is limited to a relatively small number of constructions. Other constructions require additional treatments both in terms of their syntactic behavior as well as their grammatical realization patterns and their semantic properties including pragmatic constraints.

The remainder of the paper is structured as follows. Section 2 provides a brief overview of typologically interesting facets of German syntax that distinguishes German from other languages, most notably English, for which there already exists a prototype constructicon (Fillmore, 2008; Fillmore, Lee-Goldman & Rhomeux, 2012; for an overview: Ziem, 2014a). These include word order (Webelhuth, 1992, Kathol, 2000), topological fields (Wöllstein, 2010), the case system (Zifonun, Hoffmann & Strecker, 1997), the passive (Ackerman & Webelhuth, 1998; Lasch, 2016), and (semi-)idiomatic constructions (Oya, 1999; Boas, 2003; Engelberg et al., 2011, Ziem & Staffeldt, 2011), among others (see also Boas & Ziem, in press a; in press b). The goal of this section is to highlight the particularities of a specific range of grammatical phenomena of German that have important consequences for the architecture of a German constructicon, with particular reference to its reliance on the lexical information contained in a German FrameNet.

Section 3 discusses the implications of these characteristics of German grammar to inform and influence the architecture of a German constructicon. To this end, we begin by reviewing insights from research in contrastive linguistics, which has demonstrated significant problems when analyzing grammatical phenomena from a contrastive perspective (James, 1980; Chesterman, 1998; Haspelmath, 2007). The second part of this section puts these insights into the context of cross-linguistic generalizations over constructions by comparing the approaches of Croft (2001) and Boas (2010a). While the former explicitly argues that categories and constructions are language-specific, the latter proposes that it is in fact possible to apply constructions as a *tertium comparationis* for the analysis of particular types of constructions. In this context, we also briefly point to parallel research on creating construction entries for Swedish and Portuguese in parallel to the Berkeley constructicon for English (see Bäckström, Lyngfelt & Sköldbberg, 2014; Laviola, 2015; Lyngfelt, Bäckström et al., this volume).

In Section 4, we discuss how the empirical and theoretical insights about the syntax-lexicon continuum should drive the design of a constructicon for German. Building on prior research such as Boas (2014), Ziem (2014a), Ziem, Boas and Ruppenhofer (2014), Ziem and Ellsworth (2016), Boas, Dux and Ziem (2016) and the contributions in Boas and Ziem (in press a), we investigate what types of construction entries from the English constructicon (Fillmore, Lee-Goldman & Rhomeux, 2012) can be reused for creating parallel construction entries for a German constructicon (similar to proposals in Boas (2002) for reusing English semantic frames for other languages). Specifically, we discuss and compare three constructions in German and English, ranging from quasi synonymous and structurally homologous ones, such as the *just_because_doesn't_mean* construction, to constructions with significant language-specific characteristics, such as the *way* construction (Goldberg, 1995; Oya, 1999) and the family of exclamative

constructions (d’Avis, 2013; Michaelis, 2001; Ziem & Ellsworth, 2016).¹ The empirical evidence leads us to propose a “continuum of constructional correspondence” to argue that reusing English construction entries has only limited benefits.² We therefore propose a language-specific corpus-based methodology that focuses on the creation of German-specific construction entries by primarily relying on syntactic and semantic categories of German. This approach has the advantage of first providing detailed lexico-syntactic construction entries for German, linking these in larger networks of (families of) constructions. Only at a later point in time, is it feasible to link German construction entries to construction entries of other languages, similar to approaches in rule-based machine translation (Slocum, 1987) and preliminary results from research linking Swedish construction entries with their English counterparts (see Bäckström, Lyngfelt & Sköldberg, 2014).

Having this in mind, Section 5 finally documents the current status of the German Constructicon project hosted at the University of Düsseldorf (<http://gsw.phil.uni-duesseldorf.de>). Specifically, we introduce the annotation and analysis pipeline that has been created to cope with peculiarities of German constructions (also discussed in Section 2), while at the same time being principally compatible with both the lexicographic FrameNet database and the constructicons of other languages, most notably in English (Petrucci & Lee Goldman, this volume), Swedish (cf. Lyngfelt, Bäckström et al., this volume), Brazilian Portuguese (cf. Torrent et al., this volume), Japanese (cf. Ohara, this volume), and Russian (cf. Janda et al., this volume).

2. Typological considerations

The goal of this section is to briefly discuss the particularities of a selected range of grammatical phenomena of German that have important consequences for the architecture of a German constructicon, with particular reference to its reliance on the lexical information contained in a German constructicon.³

1. Following the style sheet for this volume, frame and construction names are written in a sans serif font (in this case Conco1as). Please note that typical FrameNet conventions use Courier (New) font for frame names and italicized Courier (New) font for construction names.

2. Our case study presented in the following sections suggests that creating parallel constructicons based on the Berkeley constructicon for English turns out to be much more complicated than finding translation equivalents in lexical FrameNets as described by Padó (2007) and Padó and Lapata (2009).

3. For more detailed descriptions of German grammar, see, e.g., Abraham (1995), Eisenberg and Thieroff (2013), Hentschel and Weydt (2013), and Zifonun, Hoffmann and Strecker (1997). This section is based in part on Boas and Ziem (in press b).

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. the SOV order is considered to be “basic”, while other word orders are derived from this word order (see Bierwisch, 1963; Haider, 1993). Consider the following examples, in which the order of the finite verb differs between SOV (1a), VSO (1b), and OVS (1c).

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

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 as in (1a), in which the finite verb occurs in the last position (V-L) in sentences introduced by complementizers, serves as the basis for deriving other word order configurations in which the verb occurs in second position (V-2) such as in (1c) (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 & Sternefeld, 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 rather 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 (though prototype effects may yield

similar observations; see Lakoff, 1987; Goldberg, 1995), 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 & Lasch, 2013, pp. 95–102). We return to this point below when we discuss some basic procedures for identifying, classifying, and capturing different types of constructions in German.

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, pp. 394–420; Eisenberg & Gallmann, 2016, pp. 871–899; Imo, 2016, pp. 199–226). We briefly review some of the key insights of this model before showing how some of them 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 so-called fields and brackets, as the following figure illustrates:

Prefield	Left Sentence Bracket	Middle Field	Right Sentence Bracket	Final Field
----------	-----------------------	--------------	------------------------	-------------

Figure 1. Topological fields⁴

On 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).

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 an internal

4. Some accounts also assume a so-called “pre-prefield” (‘Vorvorfeld’) and “final final field” (‘Nachnachfeld’). For the sake of simplicity, we do not include these additional fields here and in the following explanations.

structure of their own (e.g. they can also be clauses). When dealing with complex predicates, the right sentence bracket hosts all non-finite verbal parts. In the case of subordinate sentences, the finite verb also appears in this position. The final field typically contains constituents of subject, object, adverbial, and relative clauses.⁵

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 Figure 2 shows, in which items in italics are obligatory.

	Prefield	Left Bracket	Middle Field	Right Bracket	Final Field
V-1		<i>Finite verb</i>	Constituents	Inf. V	Constituents
V-2	<i>Constituent</i>	<i>Finite verb</i>	Constituents	Inf. V	Constituents
V-L		<i>Conjunction</i>	Constituents	Inf. V <i>finite Verb</i>	Constituents

Figure 2. Three sentence types according to position of the finite verb. Items in italics are obligatory (see Wöllstein-Leisten et al., 1997, p. 54)⁶

The information in Figure 2 is a generalization over a multitude of different sentence types (declarative, imperative, interrogative, etc.) defined by the position of the finite verb, i.e. V-1, V-2, and V-L sentences. In fact, Wöllstein-Leisten et al. (1997, p. 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 fields model.⁷ For the purpose of designing and building a German constructicon we propose to adopt the basic insights of the topological fields model. On this view, each of the 28 sentence templates can be regarded as part of the form of a construction (we leave aside other issues regarding the form of

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

6. 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 fields and final fields. See Wöllstein-Leisten et al. (1997) and Welke (2011) for more details. In a constructicon 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).

7. Space limitations prevent us here from going into any further detail about the 28 different configurations of constituents according to the topological fields model.

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; Sag, 2012). Following the concept that constructions are pairings of form with meaning also requires addressing the meaning side of each of the 28 constructions (and others) in a systematic fashion. We return to related issues in Section 4 below, where we discuss some features of a construction of German.

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 because of the role and function they play 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, p. 251). Consider, for example, the sentences in (2a)–(2d), which contain the same constituents, but 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 is not known) by the hearer.⁸ Typically, animate NPs tend to precede inanimate ones, short constituents (like 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) above over the others.⁹ An additional factor complicating the choice and interpretation of different pragmatic orders is the nucleus of the intonation pattern that can be moved

8. Acceptability judgements may vary depending on a speaker’s background.

9. 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.

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 leading to the creation of a constructicon for German, these different intonation patterns will also require a careful analysis as a part of the form side of each individual construction. This entails that we will 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 we now turn to another important issue, namely the German 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. Case is either assigned structurally (configurationally), i.e. to identify the grammatical functions such as subject (nominative), direct object (accusative), or indirect object (dative) in a sentence. The system of four cases allows German to encode a variety of grammatical functions in many different word order combinations, giving rise to 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 (except for the pronouns) (for details see Kirkwood, 1969; Hawkins, 1986; Barðdal, 2013; Fischer, 2013). Case is also assigned lexically by verbs and prepositions (see Engel, 1988; Zifonun, Hoffmann & Strecker, 1997). As can be seen in (3), the paradigm of German case marking on NPs is quite extensive, involving number and gender. 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 (the first column contains masculine nouns, the second column feminine nouns, and the third column neuter nouns).

- | | | | |
|--------|-------------------|------------------|-------------------|
| (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 |

Each of the case markers in (3) can be regarded as their own constructions, combining a specific form with a specific meaning. For example, the sequence [_{<Nom-sing-masc>} *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 and Wilkins, 1996; Boas, 2010c).¹⁰ In contrast, the form side of the accusative case marking construction for singular masculine nouns is [_{<Acc-sing-masc>} *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 what we discussed above (for more details, see Zifonun, Hoffmann & Strecker, 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 typically assigned structurally depending on the grammatical function of a NP in a sentence or it is assigned based on the (lexical) properties of particular verbs and prepositions that govern specific cases; for more details on how case can be analyzed in a constructional approach see Barðdal (2006, 2008, 2009). When designing a construction for German it is necessary to take account of all these constructions peculiar to German.

2.3 Constructions at different levels of abstraction

So far, we addressed only two types of constructions that are (almost) completely regular and that typically come without any significant restrictions. While word order constructions are fairly abstract – their meanings encode relatively high-level schematic meanings such as declarative, interrogative, or imperative semantics – they are also rather complex when it comes to the number of slots and constituents involved in each construction. Similarly, case marking constructions are regular and predictable because they attach to particular determiners, adjectives, and nouns only in specific contexts. They differ from word order constructions in that they encode relatively specific meanings such as Agent (nominative), Patient (accusative), and Beneficiary (dative). In terms of Goldberg's (2006) typology of constructions, we are dealing with a group of (word order) constructions that are

10. Note that the nominative in German has different types of functions, for details see Sommerfeldt and Starke (1992, pp. 103–104).

relatively schematic and a group of constructions (case marking) that are much more specific, of which each member consists of groups of morphemes attached to determiners, adjectives, and nouns.

We now turn to a brief discussion of some other types of constructions in German that differ from the two families of constructions above in terms of complexity and level of abstraction (for a more detailed discussion, see Boas, 2014). Our cursory discussion is intended to show that German has roughly the same types of constructions as those discussed by Goldberg (2006, p. 5) for English, including high-level abstract constructions, meaningful argument structure constructions, partially filled idioms, idioms, words, and morphemes.¹¹ What unifies all constructions is their common architecture, i.e. they are form-meaning pairings as Figure 3 from Croft (2001) shows.

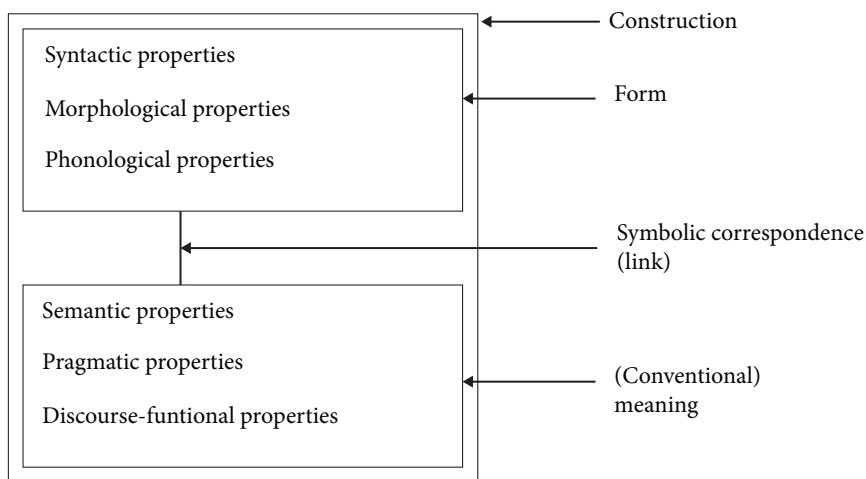


Figure 3. The symbolic structure of a construction according to Croft (2001, p. 18)

11. There is some disagreement among construction grammarians whether all constructions have meaning. For example, Goldberg (2006) proposes that the subject-auxiliary inversion construction in English is meaningful and motivated, whereas Fillmore (1999) argues for an abstract *auxiliary_inversion* construction that does not involve any significant meaning component(s). More explicitly, Fillmore, Lee-Goldman and Rhomieux (2012: Section 3) argue in a more recent paper that there are indeed “constructions without meaning”, such as the so-called *gapping* construction or the *shared_completion* construction, among others.

Just like English, German has a `subject_predicate` construction which ensures that the subject and the predicate agree in number, as the following examples illustrate.

- (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.’

While the form side of the construction is straightforward (the two daughters of the construction, the NP and VP, need to agree in number), the meaning side of the `subject_predicate` construction is not that easy to identify because it is rather abstract. In terms of level of abstraction it is thus fair to say that the `subject_predicate` construction in German is more abstract than the different types of word-order constructions discussed in Section 2.1 above, which encode more concrete meanings such as declarative, interrogative, imperative, etc. For this reason, Fillmore, Lee-Goldman and Rhomieux (2012: Section 3) suggest that the `subject_predicate` construction falls under the category “constructions without meaning”. However, even though its meaning is neither concrete nor non-transparent, we assume that the `subject_predicate` construction bears some type of (minimal) meaning.¹²

The `passive` in German constitutes another interesting family of constructions, because the different constructions used to express passive in German differ not only in their form aspects, but also in their meaning aspects since they all differ slightly from each other. This is one major aspect in which the `passive` in German differs from the `passive` in English. Ackerman and Webelhuth (1998) present an extensive account of 14 different passive and passive-like constructions in German, which are all related to each other in a constructional network (using HPSG-style inheritance hierarchies), and which differ from each other in their syntactic-semantic properties, as Figure 4 illustrates (do = direct object; io = indirect object). Each of the fourteen different passive constructions is a combination of specific features (e.g. P1, *german-short-pers-werden-pas-lci* combines the features “short” and “werden”).

12. There are some combinatorial restrictions, however, these come from the predicate *sleep* (instantiated in the `subject_predicate` construction), which requires an animate subject, unless metaphorical extensions are intended.

Passive		do	io	imp	long	short	modal	werden	bek.	sein
P1	<i>german-short-pers-werden-pas-lci</i>					✓		✓		
P2	<i>german-long-pers-werden-pas-lci</i>	✓			✓			✓		
P3	<i>german-short-imp-zuinf-pas-lci</i>	✓		✓		✓		✓		
P4	<i>german-long-imp-zuinf-pas-lci</i>			✓	✓			✓		
P5	<i>german-short-pers-zuinf-pas-lci</i>	✓				✓	✓			✓
P6	<i>german-long-pers-zuinf-pas-lci</i>	✓			✓		✓			✓
P7	<i>german-short-imp-zuinf-pas-lci</i>			✓		✓	✓			✓
P8	<i>german-long-imp-zuinf-pas-lci</i>			✓	✓		✓			✓
P9	<i>german-short-pers-bekommen-pas-lci</i>	✓				✓			✓	
P10	<i>german-long-pers-bekommen-pas-lci</i>	✓			✓				✓	
P11	<i>german-short-attpart-pas-lci</i>	✓				✓				
P12	<i>german-long-attpart-pas-lci</i>	✓			✓					
P13	<i>german-short-attruinf-pas-lci</i>	✓				✓	✓			
P14	<i>german-short-attruinf-pas-lci</i>	✓			✓		✓			

Figure 4. 14 German passive constructions and their properties (Ackerman & Webelhuth, 1998, p. 238)¹³

Using inheritance hierarchies, Ackerman & Webelhuth (1998) show that even though the semantic and syntactic properties of the 14 different passive constructions in German differ from each other, it is nevertheless possible to systematically identify certain characteristics shared by all constructions. This allows them to state an inventory of Lexical Combinatorial Items (LCIs, similar to grammatical constructions that combine form with meaning) that they arrange in a hierarchical network of constructions that inherits properties from even more abstract types of constructions. Consider, for example, Figure 4, which in the box at the top contains a set of abstract LCIs (comparable to constructions consisting of form-meaning pairings) from which the highest-level passive LCIs inherit their information. Thus, the *german-pred-pas-lci* is the top-level passive construction from which other lower-level passive constructions such as *german-pred-zuinf-pas-lci*, *german-bekommen-pas-lci*, and *german-werden-pas-lci* inherit information, which in turn are the mother constructions from which the concrete passive constructions in Figure 4 above inherit information.

13. The labels in the top row represent the properties of each of the 14 passive constructions: direct object, indirect object, impersonal, long, short, modal, *werden*, *bekommen*, and *sein*.

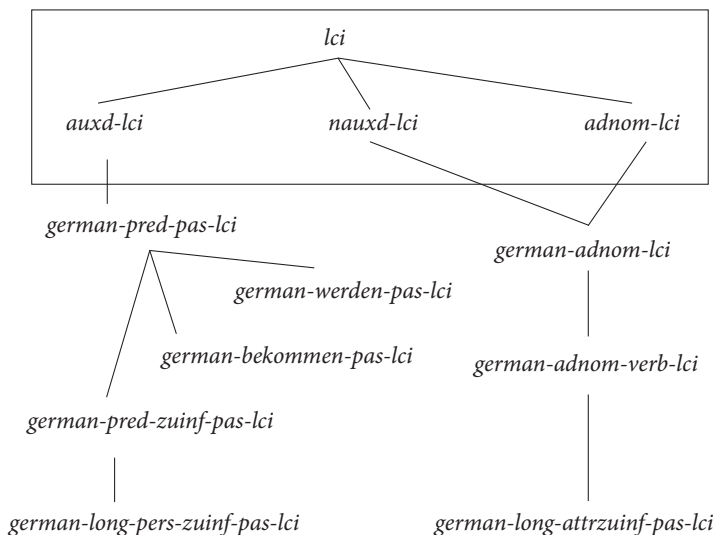


Figure 5. Network of passive constructions (lexical combinatorial items; LCIs) (Ackerman & Webelhuth, 1998, p. 248)

Ackerman and Webelhuth (1998, p. 248) characterize the advantages of such a network approach as follows: “By systematically extending these two type hierarchies in accordance with the demands of empirical data, it becomes possible to capture all the generalizations, sub-generalizations, and idiosyncrasies of the German passives.” With this short overview of how the different passive constructions in German can be analyzed using a constructional network, we turn our attention to a different family of constructions, namely argument structure constructions (see also Lasch, 2016, for a constructional analysis of German constructions without agents, including passive constructions).

Goldberg’s (1995) seminal work presents a number of similar analyses of a variety of so-called argument structure constructions (ASCs), which are independently existing meaningful constructions that are capable of fusing with lexical entries of verbs to provide them with extra meaning and hence with extra arguments at the syntactic level. One of the main motivations behind this approach is the wish to avoid implausible verb senses, such as in *Joe cooked Mary a meal* where *to cook* has an extra sense expressing a beneficiary receiving a theme from an agent. The solution, according to Goldberg (1995), is to propose an independently existing ditransitive construction that fuses with the lexical entry of *to bake*, thereby providing it with extra semantics and hence additional arguments. While the ditransitive construction has a fairly straightforward counterpart in German (cf. *Josef kochte Maria ein Essen*, ‘Josef cooked Maria a meal’) and appears to be fairly

productive, not all of the constructions discussed by Goldberg are equally productive. For example, Boas (2003, 2011) discusses the *resultative* construction (*Joe hammered the metal flat; Sue laughed herself silly*) in English and German, showing that an independently existing meaningful *resultative* construction is problematic because the restrictions placed on the fusion of the *resultative* construction with lexical entries are not sufficient. Based on several thousand corpus examples, Boas (2003, 2011) argues that the English *resultative* is in fact a network of so-called mini-constructions that are conventionalized form-meaning pairings at the level of verb senses (lexical unit, cf. Cruse, 1986). On this view, individual senses of verbs, which combine particular aspects of form (providing restrictions on phrase type and collocations) with particular aspects of meaning (such as discourse function, perspective, general pragmatic constraints), place their own restrictions on what types of *resultative* phrases and postverbal objects can combine with particular verbs and verb senses, respectively. What appears to look like an independent *resultative* construction turns out to be an epiphenomenon due to high type and token frequency (for a detailed discussion, see Boas, 2003).

When comparing English *resultatives* with their German counterparts, Boas (2003, 2011) demonstrates that the German counterparts exhibit some of the same properties, but also many other properties that are attributed to differences in the various polysemy networks¹⁴ and conventionalized verb senses in the two languages. One example is the verb *to drive*, which has many different German counterparts depending on the context: *fahren*, *treiben*, and *befördern*, among others. While English *drive* appears with a variety of different *resultatives* depending on the context ('Joe drives Mary to town'; 'Joe drives Mary up the wall'; 'Joe drives the nail into the door'), German requires a different verb for each of the senses/contexts, where each (sense of the) verb has its own specific semantic, pragmatic, and syntactic restrictions. This means that *resultatives* in German are, in principle, very similar to their English counterparts, but the exact specifications on the postverbal elements are language-specific and conventionalized and as such they need to be accounted for in terms of mini-constructions organized in a hierarchical network.

The analysis in Boas (2011) suggests that the kind of abstract meaningful constructions postulated by Goldberg (1995) are in fact compatible with the types of mini-constructions proposed by Boas (2003); here they are conceptualized in terms of a constructional network in which the abstract construction is at the very top of the network, with intermediate levels of abstraction and specification, while the mini-constructions specifying the many idiosyncratic collocational restrictions are found at the bottom of the network. On this view, Goldberg's abstract *resultative*

14. See also Fillmore and Atkins (2000), discussing the polysemy of *to crawl*.

construction is thought to be activated when a resultative is interpreted (decoding idiom), while Boas' concrete mini-constructions are involved when producing a resultative construction (encoding idiom).

Another interesting ASC is the English *way* construction (e.g. *They laughed their way off the stage*), which comes with relatively few restrictions on the types of verbs that can fuse with it, as long as the resulting sentence can be interpreted as motion involving the main verb (means or manner) (Jackendoff, 1990; Goldberg, 1995). Unlike the resultative construction, however, the *way* construction does not have clear counterparts in German. Thus, as we will show in Section 4, it is not helpful to develop parallel entries for German. Our discussion of parallels and differences between English constructions and their German counterparts have important implications for the design of a constructicon of German, to which we turn in Section 4. Before that, we briefly discuss a few methodological issues regarding the re-usability of English constructions for the description of constructions in German.

3. Contrastive issues

Given the differences and similarities between English constructions and their German counterparts discussed so far, what are the implications for the potential design of a German constructicon? This is an important issue because there are different views of how constructions can be compared across languages and whether insights about the nature of a particular construction in one language can also be applied to a similar type of construction in another language.

One major approach is Radical Construction Grammar by Croft (2001, 2013), who argues, contra many claims in the generative literature (Chomsky, 1981; 1995; Bresnan, 1982; Pollard & Sag, 1993; among others), that categories and constructions are language-specific and can therefore not be used to analyze the inventories of languages across the board. Croft shows that the distributional method applied by most generative accounts defines syntactic categories in terms of their possibility of filling certain roles in grammatical constructions. A comparison of a wide array of cross-linguistic data leads Croft (2001, p. 6) to propose that constructions are the basic units of syntactic representation, and that constructions are themselves language-specific. As such, Croft appears to be skeptical that cross-linguistic generalizations of the types proposed by generative frameworks are possible. Croft's non-reductionist concept of language regards categories as defined in terms of the constructions in which they occur, and as such "valid cross-linguistic generalizations are generalizations about how function is encoded in linguistic form" (2001, p. 363).

While Croft's (2001) Radical Construction Grammar seems to suggest that cross-linguistic generalizations are difficult to obtain unless they are generalizations about how function is encoded in linguistic form, there are other constructional approaches showing that some limited cross-linguistic generalizations are in fact possible when comparing pairs of languages with each other. This idea does not only rest on the insights from contrastive linguistics (James, 1980; Chesterman, 1998; Haspelmath, 2007), but it is also expressed by the founding fathers of Berkeley Construction Grammar (see Fillmore, 2013), who, when discussing a constructional analysis of English, make the following observation with respect to extending constructional insights from English to other languages: "We will be happy if we find that a framework that seemed to work for the first language we examine also performs well in representing grammatical knowledge in other languages" (Fillmore & Kay, 1993, pp. 4–5).

These ideas are developed further in a series of publications by Boas (2002, 2003, 2005, 2009b, 2010a, 2014) and Iwata (2008), which investigate how semantic frames and grammatical constructions from English can be used to analyze other languages such as German and Japanese.¹⁵ The detailed contrastive analyses show that it is indeed possible to use semantic frames and grammatical constructions from English as a starting point for the description and analysis of semantic frames and grammatical constructions in other languages (see also Ziem, 2014b). We begin our discussion with semantic frames and will turn to constructions further down. Boas (2002, 2005) demonstrates that the *Motion* and *Communication* frames of English as described in FrameNet (<https://framenet.icsi.berkeley.edu>; Fillmore & Baker, 2010; Ruppenhofer et al., 2010; Ruppenhofer, Boas & Baker, 2013) can be adopted straightforwardly for the description and analysis of the vocabulary of the *Motion* and *Communication* frames in German. Subsequently, the papers in Boas (2009a) build on this insight and show that this approach is also in principle applicable for other languages such as French, Japanese, Hebrew, and Spanish, with some minor typological exceptions. More recent efforts by other research teams to use English FrameNet frames for constructing FrameNets for other languages include FrameNets for Swedish (Borin et al., 2010), Brazilian Portuguese (Salomão et al., 2013), and Russian (see Janda et al., this volume).

Extending this contrastive approach to grammatical constructions, however, appears to be more challenging. Building on earlier contrastive research on the *resultative* construction in English and German (Boas 2003), each of the papers in Boas (2010b) investigate how English constructions such as the *ditransitive*, the *resultative*, the *caused-motion*, the *comparative*, and the *conditional*

15. See also the contributions in Boas and Gonzalez-Garcia (2014), which apply a similar methodology to the contrastive analysis of various Romance languages.

are realized in a variety of languages including Japanese, Swedish, Thai, Spanish, Finnish, and Russian. The papers show that there are typological differences in what types of English constructions can be used for the description and analysis of similar constructions in other languages. While sometimes there are straightforward counterparts in which the semantics of an English construction finds a direct equivalent in a different language (but with different specifications on the form side), including its restrictions, there are many cases of divergence in which the English construction requires a set of different constructions in another language.

Similar insights have emerged from more recent applied research on the architecture of so-called constructicons, which are constructional extensions to existing FrameNet projects for different languages. Building on original research by Fillmore (2008) and Fillmore, Lee-Goldman and Rhomieux (2012), who discuss the design and implementation of a constructicon for English, research groups have started building constructicons for Swedish (Lyngfelt et al., 2012), Japanese (Ohara, 2014), Brazilian Portuguese (Torrent et al., 2014), and Russian (Janda et al., this volume); additionally, there are also increasing efforts to create a German constructicon (for more details cf. Section 5). In contrast to the FrameNets for other languages than English, which reused the English frames, these constructicon projects do not primarily reuse the constructions from the English constructicon. Instead, they rely on language-internal resources to find, describe, and analyze the constructions found in their languages in order to then write construction entries. More recently, Bäckström, Lyngfelt, and Sköldbberg (2014) explored how information from English construction entries can be used to create corresponding entries in a Swedish constructicon. Similarly, Lyngfelt, Torrent et al. (this volume) discuss interlingual relations between constructions, specifically between English, Swedish, and Brazilian Portuguese construction entries (see also Laviola, 2015). Their investigation shows how some constructions can be aligned with their equivalent constructions in other languages, and how at a practical level linking construction entries also involves linkability between resources (i.e. constructicons).

In the following section, we take an alternative approach by exploring how three different families of constructions from the Berkeley constructicon for English can be reused in one or the other way for the description and analysis of German constructions. In contrast to the language-internal strategy pursued by the constructicon projects for Swedish, Japanese, and Brazilian Portuguese, we are thus interested in exploring what types of information from English constructions can be directly reused for developing comparable construction entries for German. The results of our discussion form the basis for outlining a contrastive methodology that relies on both (1) a contrastive extension of English construction entries to German, and (2) language-internal analysis and writing of construction entries in cases in which the contrastive approach is not fruitful (see Boas, 2014).

4. The ‘continuum of constructional correspondences’: Consequences for the design of a German constructicon

In the remainder of this paper, we demonstrate how the empirical and theoretical insights about the syntax-lexicon continuum should drive the design of a constructicon for German. Building on findings in previous works (e.g., Boas, 2014; Ziem, 2014a; Ziem, Boas & Ruppenhofer, 2014; Ziem & Ellsworth, 2016), we specifically investigate what types of construction entries from the English constructicon (Fillmore, Lee-Goldman & Rhomieux, 2012; Boas, 2017) can be reused for creating parallel construction entries for a German constructicon. This is similar to proposals in Boas (2002) for reusing English semantic frames for other languages (see also Lyngfelt, Torrent et al., this volume). Specifically, we discuss and compare three types of constructions in German and English, ranging from quasi synonymous and structurally homologous ones, such as the *just_because_doesn't_mean* construction, to constructions with more or less language-specific characteristics, such as the family of *exclamative* constructions (d’Avis, 2013; Michaelis, 2001; Ziem & Ellsworth, 2016) and the *way* construction (Goldberg, 1995, pp. 199–218; Oya, 1999).¹⁶ The *way* construction, as we shall see, is interesting since there indeed is a counterpart in German which, however, substantially differs from the English *way* construction. Even further to the far end of the ‘continuum of constructional correspondences’ is the English *progressive be-present-participle* construction that entirely lacks a German counterpart. We do not discuss such constructions, however, simply because they only offer little, if anything, for cross-linguistic mappings.

The advantages of reusing existing resources for building a German constructicon are numerous. In the case of German, however, the possible resources are limited. So far, the most elaborated repository anchored in a constructionist framework is the frame-based database created by the SALSA project (Burchardt et al., 2009).¹⁷ Just like the Berkeley FrameNet project, however, the resources concentrate on valence-bearing linguistic expressions. Thus, they are first and foremost lexical resources ignoring to a large extent constructional information beyond the word level (for an overview cf. Ziem, 2014a). To this end, Fillmore (2013, p. 17) observes

16. Note that to date only the *way* construction is included in the current Berkeley FrameNet constructicon. However, this database merely documents the results achieved in a two-year pilot project. The database will be supplemented by many more constructions in the future. Indeed, there are many English constructions that have not made their way into the database even though they are already analyzed in detail.

17. More recently, collaborators of the German Frame-based Online Lexicon (G-FOL) (<http://coerll.utexas.edu/frames/>) at the University of Texas at Austin have begun compiling lexical entries of German verbs, nouns, adjectives, and adverbs for learners of German (see Boas & Dux, 2013; Boas, Dux & Ziem, 2016).

that a full account of the linguistic structures a sentence instantiates requires not only information about the syntactic and semantic valency of each of the words constituting a sentence, but also information about the grammatical constructions that have meanings and functions on their own. Indeed, many syntactic and semantic structures, such as (semi-)idiomatic constructions (for example `just_because_does_not_mean`, see Section 4.1), constructions on the sentence level (e.g. `exclamative` constructions, see Section 4.2) and even argument structure constructions such as the way construction (see Section 4.3) “cannot be fully explained in terms of the kind of structures recognized in FN’s [= FrameNet’s] annotation database, or simple joinings or embeddings of these” (Fillmore, Lee-Goldman & Rhomieux 2012, p. 312).

As we pointed out above, it is worthwhile noting that there is a continuum between lexicon and grammar, allowing the use of the same formalisms and annotation criteria for both frame-bearing words and grammatical constructions. More specifically, Fillmore demonstrates how to integrate the latter into the FrameNet database (Fillmore, 2008; Fillmore, Lee-Goldman & Rhomieux, 2012). Since we use these formalisms in a slightly simplified way for creating a construction for German, we briefly introduce the most important annotation categories before turning to three types of constructions illustrating the continuum of (non-)correspondences between English constructions and their German counterparts.

We begin with the linguistic unit evoking a construction, which is called a ‘Construction Evoking Element’ (CEE).¹⁸ To illustrate, consider (5), an instantiation of an `exclamative` construction (Ziem & Ellsworth, 2016), discussed in detail in Section 4.2.

- (5) Was für ein spektakulärer Blick von der Stadt!
 what for a spectacular view of the city
 ‘What a spectacular view of the city!’

In (5), the pronoun *was* (‘what’) serves as the CEE. The complete expression, the so-called construct licensed by the `exclamative` construction, comprises the scope of the surprise conveyed by the `exclamative` construction. Since the meaning of

18. Note that Fillmore, Lee-Goldman and Rhomieux (2012) argue that there does not always have to be a CEE that evokes a construction. We think that this is, to some extent, problematic. We see in this the possible danger of postulating empty elements in parallel to empty categories and invisible traces in generative grammar, an issue that constructionist approaches seek to avoid in the first place. Part of the problem seems to be that a CEE is usually conceptualized as a fixed lexical element, or a fixed string of words, bound to a construction. However, we are convinced that a CEE can also be structural in nature. This is true, for example, for most abstract constructions such as the `transitive` construction and the `subject_predicate` construction.

the construction is determined by the *Experience_obj* frame, its Constructional Elements (CEs) can also be annotated with recourse to the FEs constituting the *Experience_obj* frame. Specifically, the scope of the surprise equates with the frame element *STIMULUS*. Hence, CEs can be defined as those constituents of a syntagmatically complex linguistic structure that instantiate parts of a construction.

Constructional annotations help describe and define a construction appropriately. To this end, the CEE is identified in the first place. In contrast to frame annotations, a target LU providing a link to the construction is often missing. We then name those parts of sentences that form the constituents of the constructs licensed by the construction. Finally, these components are labeled as elements of the construction. Following this procedure, (6) exemplifies the annotation of (5) regarding (a) the CEE, (b) the CEs and their functions within the construction, and (c) the construct that is licensed by the construction. Following FrameNet annotation conventions, we tag CEs with square brackets and constructs with curly brackets, while labeling the meanings or functions of these elements with the help of subscripts.

(6) {[_{CEE}<What>] a [_{STIMULUS}spectacular view of the city]!}.

(6) does not yet include annotations of the grammatical functions and phrase types of each of the CEs (if applicable). In line with the descriptions of the respective FEs in the *Experience_obj* frame, the CE *STIMULUS* realized in (5) can be defined as follows: *STIMULUS* is the event or entity which brings about the emotional or psychological state – that is, surprise in the case of a *exclamative* construction – of the *EXPERIENCER*.

Overall, there is a plethora of information that goes into a constructional entry in a German constructicon. Full descriptions of grammatical constructions should include, but are not limited to the following:

- lists of the construction-evoking elements (CEEs)
- descriptions of the construction's lexical head, if applicable,
- descriptions of constructional elements (CEs), including the function of each CE within a construction as well as the phrase types in which each CE may be realized,
- illustrations and descriptions of the realization patterns of a construction
- reports on pragmatic, semantic, and syntactic constraints (preemption)
- explanations of collostructional preferences for each CE, if applicable,
- explanations of covariational preferences of CEs, if applicable,
- annotated sample sentences illustrating the range of realization patterns
- definitions of both form- and meaning-related relations connecting a construction to other constructions in the constructicon.

Clearly, providing all information for each grammatical construction in German is a very ambitious endeavor. Describing and explaining collostructional preferences, for example, requires extensive corpus studies for each target construction. However, even though setting up a construction for German is undeniably a large-scale project, it helps to consider it a collaborative work in progress. In the first place, there may be missing pieces of information but these gaps can be filled once validated empirical data are available. As we will see in the next sections, even in the case of well-documented constructions, not all information required for a full construction entry is available. For the sake of usability, it is important to bear in mind that only a complete constructional entry meets the requirement for capturing what a language user needs to know in order to use and understand a grammatical construction appropriately.

4.1 The *just_because_doesn't_mean* construction: exemplifying one end of the 'continuum of constructional correspondences'

Unlike its German counterpart (*nur weil heißt das [noch lange] nicht*), the English *just_because_doesn't_mean* construction (henceforth: JBDM construction) has been discussed extensively in the literature (e.g., Hirose, 1991; Bender & Kathol, 2001; Hilpert, 2005, 2007; Kanetani, 2011). What makes this construction an interesting example in our discussion of a construction for German is that its German counterpart does not only seem to exhibit very similar idiosyncratic syntactic properties, but it also seems to have a very similar range of meanings. If this proves to be true, the JBDM construction represents a clear instance of a related set of English constructions with clear correspondences in German. This means that we can seriously consider reusing English constructional entries as a starting point for creating their counterparts in the German construction.

Let us first have a look at the semantic properties of the JBDM construction. Standard *because*-clauses in English are ambiguous, because they can be interpreted as carrying both causal and inferential meaning (Bender & Kathol, 2001, pp. 14–16). Once the main clause of such sentences is negated, another ambiguity occurs due to the scope of the negation and the common cause/inference ambiguity. Narrow scope negation (i.e., solely the main clause is negated) only allows for the causal reading, while wide scope negation licenses both cause denial as well as inference denial. The same holds for the *because* clause. However, once the *because* clause takes the sentence-initial position, the two types behave differently as (7) shows.

- (7) Nur weil für den Aufbau eines Konstruktions große Anstrengungen nötig sind, heißt das nicht, dass dies unmöglich ist.
'Just because the development of a construction requires a lot of effort does not mean that it is impossible.'

Simple *because*-clauses only allow for a narrow scope reading of the negation, whereas, as Bender and Kathol (2001, p. 15) observe, “preposed *just because*-clauses continue to allow for both a narrow and a wide scope construal of the negation. However, the wide scope negation only allows for the inference denial interpretation.” In (7), for example, the JBDM construction is used to deny the inference that building up a constructicon is impossible due to the required effort. To conclude, initial *just because* clauses behave in a way that is not licensed by combinations of other existing constructions, and, accordingly, they have to be seen as being licensed by a specific construction, “which calls for a *just because* adjunct preceding a negated main clause, and specifies that the negation in the main clause should take scope over the adjunct.” (Bender & Kathol, 2001, p. 15).

Note that this holds true just as well for the German counterpart. Undoubtedly, an important function of the German *nur_weil_heißt_das_nicht* construction (henceforth: NWHN construction) is also to indicate that the *heißt nicht*-part does not necessarily follow from the *because*-part. Even more, using the construction means to distance oneself from the proposition expressed in the second part.

Hilpert (2005, p. 88; 2007, p. 31) observes that inference denial is only one meaning of the JBDM construction. In some cases the JBDM construction gives also rise to a more general meaning, namely that of concessivity. In contrast to (7) discussed above, the meaning of instances such as (8) cannot be reduced to inference denial. In the case of (8), for example, there is no way to infer what can be done from what one considers desirable.

- (8) Nun, nur weil es wünschenswert ist, heißt das nicht, dass es machbar ist.
‘Now, simply because it’s desirable doesn’t mean it’s doable.’
- (9) Nun, obwohl wir das gerne machen möchten, steht nicht fest, dass wir das tatsächlich machen können.
‘Now, although we might want to do it, it is not certain that we actually can do it.’

Hilpert argues that instances of the JBDM construction such as (8) can be translated straightforwardly into the concessive construction in (9). He concludes that historically the JBDM construction has evolved “into a general marker of concessivity in modern usage” (Hilpert, 2007, p. 31), displaying idiosyncratic semantic properties that do not derive from the meanings of the parts the construction is made of. Again, the same concessive meaning is at work in the German counterparts. Semantically there is thus no difference whatsoever between the English JBDM constructions and its German counterpart.

Turning to the syntactic properties of the JBDM construction, we would like to point out two properties that are worth looking at more closely. First, the syntactic status of the *because*-part is anything but clear. Hirose (1991, pp. 18–19) argues that

the *just because*-part has a nominal structure serving as a grammatical subject while the *doesn't mean*-part instantiates the verb phrase. In contrast, however, Bender and Kathol question the subject status of the *just because*-clause, arguing that in many cases we find indeed a realized pronominal subject like *that* or *it*.

- (10) Nur weil wir Beispiele finden, heißt das nicht, dass die Analyse richtig ist.
'Just because we find examples it does not mean that the analysis is correct.'

Instances like (10) provide clear counterevidence against the assumed subject status of the *because*-part. Even in cases where there is no pronominal subject realized, Bender and Kathol (2001, p. 18) stick to this view, claiming that such instances feature an unexpressed subject. As a result, they generally assign adjunct status to the *doesn't mean*-part. Overall, the issues regarding the grammatical status of constructional elements arise from the (missing) realization of a pronominal subject. Both in English JBDM constructions and in their German counterparts we observe the same syntactic variability.

Second, the JBDM construction features some lexical variation. Hilpert points out that instead of *mean* a variety of other verbs, such as *be*, *assume*, *give*, *make*, *have to*, *imagine*, among others, may enter the verb slot in the second part of the construction. The verb *mean*, however, clearly remains the most common and most frequently used verb. Almost all verbs indicate some kind of inferencing process, supporting its dominant semantics of inference denial. Even though a thorough corpus study on the German JBDM construction is still missing, at this fine-grained level of analysis there may be language-specific differences in German. Surprisingly, variation is also found in the negation (*doesn't*) in the second part of the construction. Hilpert (2007, p. 29) quotes examples challenging the standard view (e.g. Hirose, 1991) that the negation is a fixed property of this construction, as Hilpert's (2007) examples below show.

- (11) Nur weil's schwierig ist, ist ein armseliger Grund, es nicht auszuprobieren.
'Just because it's difficult is a poor reason not to try.'

Again, this variation is rarely found, interestingly both in English and in German. Regardless of these potential differences, we can conclude that the JBDM construction exhibits the same range of meaning variation as its German counterpart. The grammatical properties of the JBDM and the NWHN construction are also very similar. In particular, both in English and in German (a) the order of the constructional elements are fixed, (b) the *because*-part is headed by comparable lexical items (*just because / nur weil*), although variation exists but is very rare (e.g. *simply because / einfach weil*), (c) the second part of the construction regularly contains a negation, again, however, exceptions are possible both in English and German, and (d) in both languages, there are narrow restrictions on the verbs that may enter the

construction, albeit language-specific differences do exist. Based on these common properties we propose that the German NWHN and the English JBDM construction are almost identical both semantically and syntactically. Pairs of constructions such as NWHN and JBDM exemplify one side of the continuum of constructional correspondences. In such cases, it would be most effective to reuse existing English construction entries to compile their German counterparts.

In the remainder of this paper, we discuss two more constructions, illustrating the ‘continuum of correspondences’: one with some remarkable language-specific features (the family of *exclamative* constructions) and one with largely language-specific peculiarities (the *way* construction).

4.2 The family of *exclamative* constructions: Exemplifying constructions with partial commonalities in German and English

We take the family of *exclamative* constructions as a good sample for exemplifying constructions with partial commonalities in English and German, thus illustrating the middle part of the ‘continuum of constructional correspondences’. While, as we will show below, exclamative constructions exhibit some striking language-specific peculiarities on the form-side, the range of semantic variation in German and English remains roughly the same.

What are “exclamatives”? Even though forms and functions of exclamatives are well-examined (Zanuttini & Portner, 2009; d’Avis, 2013; Rett, 2009), most studies do not advance a constructional approach (for an exception cf. Michaelis, 2001; Ziem & Ellsworth, 2016). Across the stances taken in these studies, it is common sense that exclamatives constitute a sentence type that allows to express a speaker’s surprise with regard to any kind of perceived entity, including events, situations, and objects the speaker comes across (d’Avis, 2013, p. 171; Rett, 2009, p. 607), provided that what is evoking the surprise diverges significantly from an expected default. To illustrate, (12) conveys the speaker’s evaluation that the car referred to appears to him or her particularly big.

- (12) Was für ein riesiges Auto!
 ‘What a huge car!’

As Michaelis puts it, the surprise expressed by exclamatives generally entails

a judgment by the speaker that a given situation is noncanonical. A noncanonical situation is one whose absence a speaker would have predicted, based on a prior assumption or set of assumptions, e.g., a stereotype, a set of behavioral norms, or a model of the physical world. (Michaelis, 2001, p. 1039)

To be more precise, Zanuttini and Portner identify three distinguishing features of exclamatives, namely (1) factivity, (2) scalar implicature, and (3) the inability to function in question/answer pairs (Zanuttini & Portner, 2003, pp. 46–50). As to (1), exclamatives are taken to be only embeddable in so-called factive predicates.

- (13) a. Tom weiß, was das für ein riesiges Auto ist.
 ‘Tom knows what a huge car that is.’
 b. *Tom denkt, was für ein riesiges Auto das ist.
 ‘Tom thinks what a huge car that is.’

In Standard English, (13b) is not licensed since either quotation marks or commas are required to label the subordinate clause as a quotation (respectively as Tom’s thoughts). As to (2), the scalar implicature peculiar to exclamatives derives from the very nature of surprises. More specifically, the implicature results from an unexpected property, such as the car’s size in (13), or any other observation the speaker comes across. Finally, the third characteristic, namely the inability of exclamatives to function in question/answer pairs, help distinguish exclamatives from other sentence types, particularly interrogative and declarative sentences. In contrast to the latter, exclamatives are not licensed to be part of question/answer pairs, as demonstrated in (14). More precisely, the problem with (14a) and (14b) is that B was pragmatically only acceptable under the condition that it would serve as the second part of an adjacency pair; however, in both cases the exclamatives A clearly do not instantiate the first part of an adjacency pair since they do not impose conditionally relevance on B.

- (14) a. A: Was für ein riesiges Auto! B: ??Es hat eine Länge von sechs Metern.
 ‘A: What a huge car! B: ??It is six meters in length.’
 b. A: Wie riesig ist das Auto? B: Es hat eine Länge von sechs Metern.
 ‘A: How huge is the car? B: It is six meters in length.’
 c. A: Das Auto ist groß. B: Es hat eine Länge von fünf Metern.
 ‘A: The car is huge. B: It is five meters long.’

Beyond this widely uncontroversial set of defining criteria, some linguists additionally assume that exclamatives require some kind of gradable element, either explicitly expressed, such as “huge” in (12), or implicitly entailed, and thus inferred, as in (15).

- (15) Was für ein Auto!
 ‘What a car!’

Depending on the context, the surprise expressed in (15) could be evoked by very different properties of the car, be it its elegance, its size, or some other distinctive characteristics such as its huge tires. However, it is anything but clear whether

scalarity, that is, the existence of gradable elements, is indeed a necessary property of exclamatives (for an extensive discussion see Ziem & Ellsworth, 2016; also d' Avis, 2013). If scalarity were constitutive for exclamatives, it would be impossible to account for many instances usually included in the family of exclamative constructions. Among them are, to mention but a few, the *what's_x_doing-_y* construction (Kay & Fillmore, 1999), *what_NP* constructions (e.g. '*What a mess this is!*' 'Was für eine Schweinerei das ist!', *What a mess!* 'Was für eine Schweinerei!'), *Bare_NP* constructions (e.g., *A mess!* 'Eine Schweinerei!'), and constructions surfacing as NP initiated sub-clauses (e.g. *No surprise they didn't win!* 'Kein Wunder, dass sie nicht gewonnen haben!'). In the remainder of this section, aiming at maximalist coverage, we will not exclude instances of exclamative constructions for purely theoretical reasons. For the sake of the argument made here, we refrain from a more extensive discussion of scalarity (but see Ziem & Ellsworth, 2016, pp. 163–184).

We first like to draw attention to form-side variations of exclamative constructions by comparing the range of constructions in German with those in English. As summarized in Table 1, at least four parameters of cross-linguistic variations are worth a closer examination.

Table 1. Cross-linguistic variations of exclamative constructions

Cross-linguistic variation	German example	English counterpart
Verb position	(i) <i>Ist</i> das ein schöner Tag!	*Is this a nice day! What a nice day!
	(ii) Was für ein schöner Tag (<i>das ist/ist das</i>)!	*What a nice day is this! What a nice day this is!
Sub-clause initiated by complementizer	(iii) <i>Dass</i> das Wetter so herrlich ist!	??That the weather is so beautiful! This is such a beautiful weather!
	(iv) <i>Wenn</i> das kein voller Erfolg ist!	??If this is not a great success! This is such a great success!
Obligatory particle	(v) Das ist <i>aber</i> ein schnelles Auto!	*But this a fast car! What a fast car this is!
Lexical gap	(vi) Was <i>für</i> ein schöner Tag (das ist)!	*What for a nice day (this is)! What a nice day (this is)!
	(vii) Als wäre es Frühling!	*As it were spring! As if it were spring!

To begin with, verb-first exclamative constructions, such as (i), are well possible in German but not in English. This is also true for exclamatives surfacing as sub-clauses initiated by complementizers such as *dass* ('that') or *wenn* ('if') exemplified in (iii) and (iv). Furthermore, an interesting case are German exclamative

constructions with an obligatory particle such as *vielleicht* ('perhaps') or *aber* ('but'), as exemplified in (v). The particle is obligatory since its omission turns the exclamative into a declarative sentence. Finally, cross-linguistic variation concerns lexical gaps, that is, lexical categories missing in a construction in one language but turning up in the other, such as in (vi) and (vii). For example, only in German the *What*_NP exclamative, often considered the prototype of exclamative constructions, entails the preposition *für* 'for' (cf. (vi)).

Overall, these mismatches seem to indicate language specific peculiarities constituting at least partially distinctive families of exclamative constructions in German and English. On the other hand, however, there are also numerous homologous constructions including no deviations whatsoever. Among them are the following:

- NP_as_exclamative construction, e.g. *Ein schöner Tag!* ('A beautiful day')
- Wh_NP construction with *what* 'welch', e.g. *What a beautiful day!* ('Welch ein schöner Tag!')
- AP_as_exclamative constructions, e.g. *Schön!* ('Beautiful!')
- comparative_as_exclamative constructions initiated by *such* ('so'), e.g. *So ein schöner Tag!* ('Such a beautiful day!')
- WXDY constructions with nominal focus elements, e.g. *Was macht mein Tagebuch auf deinem Schreibtisch?* ('What's my diary doing on your desk?')

Turning to the semantics of exclamative constructions the question arises to what extent the meanings of English and German exclamative constructions differ from one another. Presuming that generally, with the exception of synonymy, different forms trigger different meanings, we expect semantic deviation between German and English exclamative constructions where we detected cross-linguistic syntactic variation (see Table 1). Vice versa, full constructional correspondence is expected in cases of cross-linguistically homologous constructions.

The prototypical meaning of exclamative constructions can be summarized as follows: (a) exclamative constructions presuppose some kind of situation, in (15), for example, that the car referred to does exist; (b) exclamative constructions convey the speaker's surprise regarding a specific facet of the situation, for instance the car's seize in (12); (c) they cannot figure as part of a question/answer pair; (d) by means of scalar implicatures exclamative constructions implicitly or explicitly express the speaker's evaluation of what she or he is surprised about. In addition to that, Bare_NP and Bare_AP constructions (*A kangaroo!* 'Ein Känguruh!'; *Wonderful!* 'Wunderbar!') require some pragmatic adjustment either regarding the property being surprised about in the case of Bare_NPs or regarding the entity referred to in the case of Bare_APs.

Also, most instances of the English WXDY construction (*What is my diary doing on your desk?* ‘Was macht mein Tagebuch auf deinem Schreibtisch?’) have equivalents in German. Note, however, that the WXDY construction also comprises instances with missing German counterparts. This holds, for example, for WXDY constructions with verbs as focus elements (e.g. *What are you doing looking at my diary?* ‘Was in aller Welt schaust du in mein Tagebuch?’).

Interestingly, we even find full semantic correspondences in some cases of syntactic mismatches, including English constructions with lexical gaps (e.g. *What a nice day!* ‘What [for] a nice day!’), and constructions with/without word order constraints (*What a beautiful weather this is!* ‘Was für ein schöner Tag [das ist]/[ist das]!’). Yet, in all other cases listed in Table 1, syntactic mismatches yield semantic mismatches, since English grammar neither licenses exclamatives with verb-first position (*Ist das ein schöner Tag!* ‘*Is this a nice day!’) nor exclamatives surfacing as sub-clauses initiated by complementizers (*Dass das Wetter so herrlich ist!* ‘*??That the weather is so beautiful’). Furthermore, there are no equivalents to the particles constitutive for German exclamatives such as *Das ist aber/vielleicht ein schönes Auto!* (‘What a nice car!’). When an exclamation is translated from one language into another, the semantic mismatches forces one to draw on related exclamation constructions. For example, both German exclamation constructions with an obligatory particle (‘Das ist aber ein schnelles Auto!’) and German verb_first_exclamatives are translated as *what*_NP construction.

In sum, we can conclude that the range of meanings expressed by exclamatives in German does not substantially differ from the range of meanings expressed by their English counterparts. At the same time, however, it is important to highlight that the family of German exclamation constructions encompasses a bunch of constructions with only partial correspondences to English counterparts. Compared with English, German offers a broader range of syntactic patterns to encode exclamation meaning. Most significantly, particles, such as *aber* and *vielleicht* (*Das ist aber/vielleicht ein schöner Tag!*) as well as exclamatives initiated by complementizers (*Dass der Tag so schön ist!*) and verb_first_exclamatives (‘*Ist das ein schöner Tag!*’) allow for encoding surprise without having one-to-one English equivalents. Hence, the family of exclamation constructions exhibit partial correspondences between English and German. They are located in the middle field of the ‘continuum of construction correspondences’.

4.3 The way construction: Towards the other end of the ‘continuum of constructional correspondences’

Finally, we turn to the *way* construction to illustrate what types of English constructions have no clear constructional correspondences in German and can thus be found towards the other end of the ‘continuum of constructional correspondences’. In contemporary English, the *way*-construction, as illustrated in (16) and (17), is not only an interesting and well-documented type of argument structure construction (Marantz, 1992; Goldberg, 1995, 1997; Oya, 1999; van Egmond, 2009; Christie, 2011; among others), its distribution is also constantly expanding over time, as Israel (1996) observes.

(16) They laughed their way off the stage.

(17) The rat chewed his way through the wall.

While the English *way* construction comes with relatively few restrictions on the types of verbs that can fuse with it, as long as the resulting sentence can be interpreted as motion involving the main verb (means or manner) (Jackendoff, 1990; Goldberg, 1995), its German counterpart is different. In line with previous work by Maienborn (1994) and Kunze (1995), Oya (1999) shows that the German *reflexive_motion* construction can express similar types of scenarios. Following this analysis, the best candidates for German counterparts of the *way* construction as exemplified in (16) and (17) are the *reflexive* constructions (18) and (19).

(18) Sie lachten sich von der Bühne.
‘They laughed themselves off the stage.’

(19) Die Ratte kaute sich durch die Wand.
‘The rat chewed itself through the wall.’

Note, first, that the types of semantic restrictions licensing (18) and (19) are very similar to those of their English equivalents: (1) only activity verbs (not unaccusative verbs) can fuse with the *way* construction and the German *reflexive* construction, (2) the motion expressed by the *way* construction is often metaphorical rather than literal (cf., for example, *She drank her way through a case of vodka*; Goldberg, 1995, p. 204), and (3) there is often an implication that the agent is overcoming some type of obstacle when moving in order to reach a specific goal.

However, Oya also points out some systematic differences between the English *way* construction and its German counterpart. For example, while English allows a non-causal interpretation as illustrated in (20) (Goldberg, 1995, p. 206), in which the motion and the sound emission run parallel, this is not possible in German, according to Oya (1999, p. 363).

- (20) They were clanging their way up and down the narrow streets.
 ‘*Sie klapperten sich die schmalen Straßen rauf und runter.’

Moreover, the *way* construction and the German reflexive construction differ in terms of the types of meanings they convey. Jackendoff (1990: Section 10.1) already emphasized that the *way* construction triggers two meanings; the main verb can either be considered the means for moving along a path, as in (21), or the manner of moving along a path, as shown in (22).

- (21) Paul elbowed his way through the crowd.
 ‘Paul benutzte seine Ellbogen, um durch die Menschenmenge zu kommen.’
- (22) Peter danced his way through the hall in an hour.
 ‘Peter tanzte sich in einer Stunde durch den Saal.’

Thus, (21) is interpreted in such a way that Paul uses his elbows (as a means) to get through the crowd, whereas in (22) the verb *to dance* describes a manner of moving rather than a means to move along. Interestingly, just like the English reflexive construction (Goldberg, 1997; Egmond, 2009; for an overview: Christie, 2011, pp. 3–4), its German equivalent does not allow for a means interpretation.

Since the *way* construction is, in that sense, polysemous, the construction needs to provide as many entries as constructional meanings exist.¹⁹ The current prototype FrameNet construction for English thus comprises three entries for the *way* construction, namely *way_manner*, *way_means*, and *way_neutral*,²⁰ which all incorporate the same set of CEs, most importantly THEME, GOAL, and DIRECTION. They differ in specifying either the MANNER or MEANS of moving, or in being NEUTRAL in this respect. (23) exemplifies annotations for example (21).

- (23) {[_{THEME} Paul] [_{MEANS} elbowed] [_{CEE} <his way>] [_{PATH} through the crowd]}.
 ‘Paul benutzte seine Ellbogen, um durch die Menschenmenge zu kommen.’

Here, interestingly, the denominal verb incorporates a specification of MEANS. The instantiation of this CE qualifies (23) as a *way_means* construction.

It is worth having a closer look at the English reflexive construction, assuming that it is a true constructional equivalent of the German reflexive construction discussed above. Since, at least at first sight, the German reflexive construction

19. In this context it is interesting to note that Swedish basically patterns with German in that it, too, has a similar type of *way* construction (see Bäckström, Lyngfelt & Sköldbberg, 2014; Lyngfelt, Torrent et al., this volume), while Brazilian Portuguese does not (which means it is towards the far end of the constructional correspondence continuum).

20. See <http://www1.icsi.berkeley.edu/~hsato/cxn00/21colorTag/index.html>, accessed on August 5, 2016.

resembles much more the English reflexive construction than the *way* construction, it seems reasonable to suppose that the English reflexive construction may differ from the *way* construction in the same way the latter distinguishes itself from the German reflexive construction. But is this really the case? Summarizing and compiling previous findings, Christie (2011) identifies four distinguishing features. She argues that a reflexive construction is distinct from the *way* construction in that (a) it does not allow for a manner interpretation, as shown in (22) above, (b) it does not give rise to an atelic reading, (c) its PP does not denote a path, and (d) it does not entail an event.

To be more precise, we would like to elaborate on each difference individually while also looking at the commonalities of the German and English reflexive constructions. As already shown above, neither the English reflexive construction nor its German counterpart permits a means interpretation of the event described. With respect to telicity, (24) provides an illustrative example, reusing the instantiation of the *way* construction given in (22).

- (24) a. Peter danced himself through the hall in an hour.²¹
 b. Peter tanzte sich in einer Stunde durch den Saal.

Supplemented by a PP (*for an hour/eine Stunde lang*) supporting an atelic interpretation, (25a) illustrates that the instantiated reflexive construction indeed cannot express the event of dancing as being uncompleted. Instead, it is interpreted as fully completed, while the time it takes for completion might be specified by an additional PP as exemplified by *in an hour* in (25a). This is also true for their German equivalents provided in (24b) and (25b).

- (25) a. ??Peter danced himself through the hall for an hour (and still hasn't finished).
 b. ??Peter tanzte sich eine Stunde lang durch den Saal (und ist noch nicht fertig).

Thus, in contrast to the *way_manner* construction, both the English and the German reflexive constructions describe an activity with a terminal point. Another important point is that the PP in the English reflexive construction (*through the hall*) as well as its German equivalent (*durch den Saal*) do not encode a path because in both languages the constructions do not permit indirect anaphoric references to the respective path argument (for English see Christie, 2011, Section 3.3).

21. One reviewer noted that the sentences in (24) might not be found acceptable by all speakers of English. We are aware of this issue as it has been noted before in the literature on *resultative* and *caused_motion* constructions. Sentences such as those in (24) involve non-conventional *resultative* and *caused_motion* uses of these verbs and have been analyzed as one-shot extensions based on analogical association, also known as pattern of coining (see, e.g. Boas, 2003; Hanks, 2013; Kay, 2013).

- (26) a. Peter danced himself through the hall.??It led straight to the exit door.
 b. Peter tanzte sich durch den Saal.??Er/Es führte direkt zur Ausgangstür.

In contrast to (26), indirect anaphoric references to the path are well possible in the *way_manner* construction. Presumably, this is so due to the grammaticalization of *way*. Finally, Christie maintains that the English reflexive construction does not entail an event. According to her, only the *way_manner* construction has “the ability for anaphoric reference to an entailed event” (Christie, 2011, p. 10). This point is arguably very similar to the last one, namely that the PP in the reflexive construction does not encode a path. However, encoding a path and depicting an event are two different things that should be kept separate. While indirect anaphoric reference to the path denoted in the PP of a reflexive construction fails, anaphoric reference to the event addressed in a reflexive construction is well possible, as demonstrated in (27).

- (27) a. Peter danced himself through the hall. It was beautiful.
 b. Peter tanzte sich durch den Saal. Es war wundervoll.

In contrast to Christie (2011), we therefore doubt that the *way_manner* construction is distinct from the reflexive construction in that it entails an event. Indeed, English and German reflexive constructions do encompass an event more or less explicitly. Based on these observations, we conclude that the English reflexive construction and its German counterpart feature very similar characteristics, both syntactically and semantically. Most importantly, both trigger a manner interpretation and do not allow a means interpretation. While, however, in English there is also a *way_manner* construction that shares most features with the reflexive construction, there is no such alternative in German.

In addition, Oya’s (1999) comparison of the English *way* construction with its German counterpart provides evidence that these two constructions are also relatively similar with respect to the types of verbs with which they can fuse. Importantly, however, they are very different when it comes to the specific constraints regulating the fusion of verbs and constructions, and these constraints are construction- and language-specific.

Overall, this makes the German reflexive construction a construction in its own right. It shares many, if not all, features with its English equivalent, it is functionally equivalent to the *way_means* construction, but it greatly differs from the *way_means* construction. Hence, in this case, we see no good reason to reuse the constructional entry of the English *way* construction for compiling an entry for the German reflexive_motion construction.

5. Towards a German constructicon

The ultimate goal of the German Constructicon project (GCon, cf. <http://gsw.phil.uni-duesseldorf.de>), hosted at the University of Düsseldorf, is to identify and describe all constructions constituting the grammar of German in such a way that everything language users have to know in order to appropriately use and understand a construction is captured. Besides semantic, pragmatic, discourse-functional, and syntactic specifications, a full-fledged description of a construction also comprises information about relations to other constructions. Capturing the entire network of constructions in German constituting the constructicon is, to say the least, an ambitious long-term project that necessitates not only immense intellectual efforts, but also massive amounts of funding. However, it is worth getting started (for an overview cf. Boas & Ziem, in press a). More specifically, the project began by identifying possible German counterparts of English construction entries in the Berkeley FrameNet Constructicon (cf. Section 4.1). These include the family of so-called *negation_induced_connector* constructions, including the somewhat famous *let_alone* construction, and the family of *exclamative* constructions.

In the GCon project, we follow the directions of the Berkeley FrameNet constructicon approach. Particularly, we also aim at integrating constructions into a lexical frame-type database (Fillmore, 2008; Fillmore, Lee-Goldman & Rhomieux, 2012; for an overview Ziem, 2014a) by drawing on annotation categories and formalisms developed by the Berkeley pilot project (Fillmore, Lee-Goldman & Rhomieux, 2012). The constructional annotations are used to appropriately describe and define a construction. The most important constructicographic annotation categories include the Construction Evoking Element (CEE), the Construction Elements (CE), and the construct. In addition, we introduce a new annotation category called Correlated Element (CorE).

Just like a frame-evoking element in FrameNet, a CEE provides an explicit link to the respective target structure (here: the construction). Generally, a CEE is defined as the linguistic unit evoking a construction (Fillmore, Lee-Goldman & Rhomieux 2012: Section 2.2). Consider the following example.

- (28) Was für ein schöner Tag ist das!
 ‘What a beautiful day this is!’

In (28) the string of words *was für* evokes the *exclamative* construction. A CEE thus constitutes the lexical ‘anchor’ of a construction. Note, however, that such lexical elements are often missing. This is because not all constructions entail fixed lexical constituents. The more schematic a construction gets, that is, the more a construction is located towards the grammar pole in the lexicon-grammar continuum,

the more likely it is that it does not include one or more fixed lexical items. The *dis-transitive* construction, for example, is defined by its structural properties alone. The construct equates with the linguistic expression licensed by the *exclamative* construction. A construct is therefore an instance resp. an individual realization of the construction. The span of the construct is annotated by curly brackets. In (28) the construct encompasses *was für ein schöner Tag* ('what a beautiful day'). CEs can be defined as those constituents, or slots, of a grammatical construction that are instantiated by the respective parts of constructs. Following FrameNet annotation conventions, CEs are tagged with square brackets, while subscripts are used for labeling meaning or function. An *exclamative* construction, for example, essentially entails the CE *Stimulus* denoting the event or entity triggering the emotion of surprise (see Section 4.2).

Finally, a *CorE* is a word, or a string of words, that co-occurs with a construction in such a way that it enhances, or supplements, a (semantic, pragmatic, discourse-functional, syntactic) property of a construction. In the case of *exclamative* constructions, modal particles, such as *aber*, *denn*, *doch*, *vielleicht*, among others, used to function as *CorEs* in that they reinforce the speaker's surprise conveyed by the *exclamative* construction.

Next, consider (29), which exemplifies the annotations regarding the CEE, CEs, and the construct licensed by the construction. In addition to such semantic annotations, each CE and CEE is annotated syntactically (in terms of phrase type, part of speech, and grammatical function; cf. Section 4.2).

- (29) {_{Was_für}[_{CEE} Was für] [_{Stimulus} ein schöner Tag]} ist das!
 'What a beautiful day this is!'

Collecting and analyzing all relevant information for each grammatical construction is a challenging and very time-intensive empirical task. In order to proceed both efficiently and consistently, it is necessary to have precise annotation guidelines and a uniform workflow guiding all construction analyses in the same way. To reduce efforts, the workflow should benefit from computational resources wherever possible. We therefore developed a partly computational workflow consisting of the five consecutive steps below (<http://gsw.phil.uni-duesseldorf.de/>).

- *Subcorporation and preliminary analysis*: Using existing corpora (particularly the DWDS corpus and the German Reference Corpus²²), the first step aims at setting up a corpus of typical instances of the constructions under

22. Cf. <http://www.dwds.de> and <http://www1.ids-mannheim.de/kl/projekte/korpora.html>, last access: August 18, 2017.

investigation.²³ Once a set of corpus examples are identified and extracted, a preliminary analysis is performed to determine semantic, pragmatic, discourse-functional, and syntactic properties peculiar to the respective constructions. At this stage, CEs are also identified and tentatively defined to prepare semantic annotations.

- *Parsing Pipeline*: The parsing pipeline includes automatic annotations of part of speech, using the TreeTagger (Schmid, 1995) as well as phrase type and grammatical function by means of the BerkeleyParser (Petrov et al., 2006).
- *WebAnno*: For semantic annotations, we use the web-based annotation software WebAnno,²⁴ which supports the annotation of a wide range of project-specifically defined linguistic categories (cf. Castilho et al., 2016).
- *Construction Analyzer (CA)*: The Construction Analyzer is a web-based program that we developed for two purposes. First, it helps to automatically transform annotations into the annotation style used in the Berkeley FrameNet Constructicon. Second, and more importantly, it facilitates analyses of the annotations in several ways. For example, it identifies syntactic realization patterns of constructions as well as possible realizations of CEs and CEEs. Currently, CorE is implemented as an additional annotation layer.
- *Compilation of Construction Entries*: Finally, the results obtained from these analyses are carefully evaluated and interpreted with respect to their relevance for compiling a construction entry. Ideally, a construction entry should contain all information licensing a construct.

With this approach, both our methodology and our annotation procedure differ to some extent from the Swedish Constructicon Project (cf. Lyngfelt, Bäckström et al., this volume). In parallel with the Berkeley pilot project,²⁵ we provide a set of fully annotated sample instances for each construction along with a full-fledged definition of the construction, its CEs and CorEs (if any). As a consequence, in contrast to the Swedish Constructicon, each construction entry provides detailed information about in-depth analyses of the construction’s usage conditions, including pragmatic, semantic, and syntactic constraints. So far, due to the elaborate analytical process, GCon covers only a few families of constructions, most notably

23. In FrameNet, this preliminary work is called “subcorporation”; this step subsumes “the automatic processes used to extract example sentences for annotation from the corpus” (<https://framenet.icsi.berkeley.edu/fndrupal/glossary>, last access: January 5, 2018; for more details cf. also Fillmore et al., 2003).

24. <https://webanno.github.io>, last access: August 18, 2017.

25. Cf. <http://www1.icsi.berkeley.edu/~hsato/cxn00/21colorTag/index.html>

the family of *exclamative* constructions and the *reduplication* construction (Ziem & Ellsworth, 2016; Ziem, in press). Overall, however, GCon does not differ from the Swedish constructicon project in that it uses corpora; both GCon and the Swedish constructicon are corpus-based. Rather, the major difference is that analyses in GCon are essentially driven by semantic annotations.

At present (December 2017), GCon is still in an early stage, during which the constructicographic workflow is being optimized for requirements specific to German constructions. However, in the near future we aim at a broader coverage by means of (a) including constructions that have already been extensively analyzed (for an overview cf. Ziem & Lasch, 2013, pp. 143–165), (b) addressing conceptually less complex constructions that do not require such fine-grained investigations, and (c) providing the opportunity to collaboratively compile constructional entries using a web-based platform. As for the latter, we plan to make the hitherto password protected repository of German constructions freely accessible in order to allow the scientific community to suggest new construction entries and preliminary analyses. This way, we ultimately intend to make the construction of GCon a joint collaborative project, open for everyone who would like to contribute to the constructionist enterprise.

6. Conclusions and outlook

As we have shown above, it is a hard and winding road from an English to a German constructicon. Even though there are some one-to-one constructional correspondences between English and German constructions, such as the *just_because_doesn't_mean* construction and its German counterpart, many English constructions do not have clear-cut German equivalents. The *way* construction and the German *reflexive_motion* construction fall into this category. The fact that numerous basic German constructions (like those discussed in Section 2) do not have a straightforward English counterpart at all makes the situation even more complicated.

We take these findings as empirical support for doubting the usefulness of the Berkeley FrameNet constructicon, or any other constructicon, for directly creating parallel construction entries without questioning the annotation schema developed there. To be as comprehensive and precise as possible, we need a language-specific constructicon that meets the most fundamental grammatical requirements peculiar to German. In this view, the empirical evidence discussed so far suggests that reusing English construction entries is not always helpful (see also Lyngfelt, Bäckström et al., this volume). We therefore propose to start with parallel construction entries,

focusing solely on language-internal evidence from German as the basis for construction entries. This will ensure that the German constructicon will evolve in the style of the FrameNet constructicon while remaining at the same time conceptually independent of it. The corpus-based methodology we have in mind first focuses on the creation of German-specific construction entries by primarily relying on syntactic and semantic categories of German. This approach has the advantage of first providing detailed lexico-syntactic construction entries for German, linking these in larger networks of (families of) constructions. At a later point in time it may then be feasible to link German construction entries to construction entries of other languages, similar to approaches using transfer rules in rule-based machine translation (Slocum, 1987).

In line with the FrameNet Constructicon project (and in contrast to, for example, the Swedish constructicon, cf. Lyngfelt, Bäckström et al., this volume), such a non-contrastive German constructicon primarily builds on thoroughly annotated corpus examples illustrating (a) the set of CEEs evoking the construction, (b) the range of CEs specifying the construction, and (c) the syntactic variation of these CEs. Proceeding this way, we are currently developing a constructicon for German (<http://gsw.phil.uni-duesseldorf.de>) that is in part interlinked with G-FOL (the “German Frame-based Online Lexicon”) (Boas & Dux, 2013; Boas, Dux & Ziem, 2016). Beyond the constructicon building efforts illustrated in Section 5, we are currently involved in a pilot project that uses the first-year German textbook “Deutsch im Blick” (<http://coerll.utexas.edu/dib/>) for full-text annotation of both lexical items (frame-based) and grammatical structures (construction-based). The project is designed as a long-term collaboration between UT Austin and HHU Düsseldorf, linking resources for both the manual annotation work and the web-based storing of constructions and frames in a FrameNet-like database.

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