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Construction Grammar and its Application to English

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are reading them, the more likely you are to find a view that is not only disputed, but also hopelessly outdated.

Another point I would like to offer in order to discourage you from any further engagement with this book is that there are excellent texts out there that you can profitably use to get an overview of the kind of work that is being done in Construction Grammar. Let me mention the work of Adele E. Goldberg (1995, 2006), which has been extremely influential, and which offers an authoritative and highly accessible starting point for the interested novice. Also, *The Oxford Handbook of Construction Grammar* has recently been published (Hoffmann and Trousdale 2013). This hefty tome of some 650 pages, written by experts in the respective topics, is in a much better position to do justice to the complexities of the field than a slim introductory book such as this one. Another resource that I would like to mention is the excellent textbook *Syntactic Theory*, in which Ivan Sag, Thomas Wasow, and Emily Bender give a detailed account of how constructions can be usefully formalised (Sag et al. 2003). Formalisation is completely disregarded in this book, but it is essential in many areas of research, not least in computational linguistics. Oh, one more thing. If you are passing through Northern California in the not-too-distant future, you could stop by at Copy Central, 2560 Bancroft Way, in Berkeley, and ask for a copy of the textbook manuscript written by Charles J. Fillmore and Paul Kay, who are the main architects of Construction Grammar and whose ideas literally inform every page of this book.

Lastly, you will note that the title of this book is *Construction Grammar and its Application to English*. What this book aims to do is to lay out an inventory of English constructions and to explain how these can be analysed, using the framework of Construction Grammar. The focus on English constructions comes at the price of neglecting all other languages that are currently the subject of constructional research and, importantly, comparisons between them. Construction Grammar has been devised as a framework for the analysis of the general human capacity for language. It is a basic assumption that knowledge of language will be organised according to the same principles across different languages, but to what extent this assumption is correct is still very much a matter of investigation. This book will completely ignore this interesting issue, focusing instead on English constructions, many of which are actually quite well described in existing treatments of English grammar, idioms, and vocabulary.

You're still reading? Well, don't say I didn't warn you.

1 Introducing Construction Grammar

1.1 What do you know when you know a language?

What do speakers of English have to know in order to produce utterances that other speakers will understand? For many linguists, across different theoretical persuasions, working out what speakers know when they know a language is *the* most important task in their field of study. So, what do speakers know? If you had to come up with a number of bullet points with the most important aspects of linguistic knowledge, your list would be likely to show some overlap with the following ones.

(1) What speakers have to know:
  • must know words
  • must know how to combine words into phrases and sentences
  • must know how to put the right endings on words
  • must be able to understand newly coined words
  • must know that sometimes what is meant is different from what is said
  • must know that language varies across different contexts
  • must know idiomatic expressions

Clearly, more items could be added to this list. In order to get a working model of linguistic knowledge, it would further be necessary to work out how each item on the list interacts with all the other ones. For instance, how does knowledge of idioms relate to knowledge of the words that occur in them? How does knowledge of syntactic patterns relate to knowledge of morphological inflections of the words in a sentence? Given that modelling speakers' knowledge of language is a highly complicated task, it will be likely to come to you as a surprise that linguistic knowledge, according to Construction Grammar, can be captured by a list that is considerably shorter than the one shown above.

(2) What speakers have to know, according to Construction Grammar:

- must know constructions

Yes, you have read correctly. All that speakers need to have, according to the constructional view, is knowledge of constructions. This claim is expressed by Adele E. Goldberg, one of the central developers of Construction Grammar as a theory of linguistic knowledge, in the following way (2003: 219):

> The totality of our knowledge of language is captured by a network of constructions: a 'construct-i-con'.

At this point you will probably wonder what a construction is. This chapter will offer a comprehensive definition, but as a first approximation, Goldberg and other researchers in Construction Grammar view constructions as units of linguistic knowledge that pair a linguistic form with a meaning. This means that you are in fact familiar with a very common kind of construction, namely words. Words, by virtue of being symbolic form–meaning pairings, are constructions. The **construct-i-con**, as the name suggests, thus contains everything that would be contained in a lexicon, but in addition to that a large number of symbolic units that are larger in size than single words. The remaining parts of this chapter will characterise these units in some more detail, but let us for the moment return to the fundamental claim of Construction Grammar, namely that knowledge of language consists of a large network of constructions, *and nothing else in addition*. Everything that speakers know about words, about syntactic patterns, about prefixes and suffixes, about idioms, and about the intricacies of what is said and what is meant, everything of this is to be recast as knowledge of constructions. At first, this may seem an outrageous proposition. What motivates a claim that departs so drastically from the seemingly obvious conclusion that speakers need many different kinds of linguistic knowledge? The short answer is that all of that knowledge is thought to be represented directly at the level of constructions. The constructions that speakers know are directly associated with phonological, morphological, and syntactic properties, along with conventionalised meanings, possible variants, and the social contexts in which you are likely to use and hear them. In the simplest of terms, your knowledge of a construction is the sum total of your experience with that construction.

This view of linguistic knowledge may be hard to stomach at first, because it militates against an idea that is widely shared, both among

laypeople and among professional linguists. That idea goes by the name of the **dictionary-and-grammar model** (Taylor 2012: 8), which is a model of linguistic knowledge in which knowledge of vocabulary is neatly separated from knowledge of grammatical rules. (You will recognise the first two bullet points from our laundry list of linguistic knowledge.) And indeed, you might say, is it not obvious that children learn words and, in a second step, rules to combine those words into phrases and sentences? The central challenge for the dictionary-and-grammar view of linguistic knowledge is one that has plagued generations of second language learners, namely idiomatic expressions. (You recognise the last, seemingly less important bullet point from the list.) In the dictionary-and-grammar model, idioms form a kind of 'appendix' to the dictionary, a list that contains expressions such as *beat it*, *hit the road*, or *make like a banana and split*. These expressions need separate entries in the mental lexicon because speakers have to learn that each of the three means 'to leave', and that each of them is appropriate for slightly different contexts of use. Knowledge of the individual words and their meanings will not lead a speaker to that particular conclusion. The constructional view of linguistic knowledge originates with the observation that relegating idioms to an appendix is not satisfactory. The following sections outline why this is the case.

1.1.1 Idiomatic expressions permeate ordinary language

Contrary to what you might think, idiomatic expressions are no particularly peripheral phenomenon in naturally occurring data. Consider the following snippet from the British National Corpus (BNC), which is a large text collection that documents the usage of British English in the second half of the twentieth century.

(3) In winter you can look out of the window and tell it's 2 °C outside. How? Because the crocuses are coming into bloom. Crocuses are plants that nature has provided with a biological thermometer. It's very accurate, reacting to temperature differences of as little as 0.5 °C. As the weather gets warmer the flowers open. But when the temperature drops, they close again.

On the face of it, the text excerpt seems to be entirely unremarkable. You would be hard pressed even to find an expression in the text that would qualify as an idiom. However, a closer look reveals a number of expressions that would be difficult to explain with a dictionary-and-grammar model of linguistic knowledge. Take the very first words, *In winter*. This is a conventional way of saying *during the time of winter*,

in general, as opposed to *in the winter* of 2012. Knowing this is part of your linguistic knowledge, and a second language learner of English might not necessarily know it, opting for *in the winter* instead. Moving on, the sentence *you can look out of the window and tell it's 2 °C outside* is not as straightforward as you might initially think. Note that the verb *tell* in this sentence does not have its usual meaning of 'narrate', as in *tell a story*, but rather, the sentence conveys that the listener can *infer* that the temperature is 2 °C. Again, you understood that without any problems, but how so? The answer is that you know an idiomatic usage pattern with *tell*, which is important enough to receive its own entry in the *Oxford English Dictionary* as '*preceded by can: To be able to state; to know; to discern, perceive, make out, understand*' (*OED*, tell, v.). An example that would almost count as a real idiom is the expression *coming into bloom*, said of the crocuses. Plants in general can be *coming into leaf, coming into flower*, or *coming into fruit*, but crucially not into *leaves, flowers*, or *fruits*, even though that might be a more accurate description of what happens. Proficient speakers of English are aware that the singular is required; learners have to work that out, but cannot bank on the help of a dictionary or grammar book in that endeavour. Two sentences later, the text mentions *temperature differences of as little as 0.5 °C*. Here, we have an expression that many second language learners of English are actually taught, namely the use of *as ... as* with an intervening adjective. This expression typically serves to make a comparison, as in *John is as tall as Bob*, but note that here, the expression connects a scale with a value on that scale, so that the phrase *differences of as little as 0.5 °C* is an example of a schema that is also at work in *interest rates of as high as 100 per cent*, or *microcredit loans of as small as £40*. What is conveyed by these examples is that some measure is comparatively high, or comparatively low, but the standard against which the respective measurements are compared remains implicit, to be understood by the reader. You know that, but neither because you know what the individual words mean, nor because you know how to combine words into phrases. Again, the dictionary-and-grammar model is at a loss.

What emerges from the discussion of the short text excerpt is that ordinary language is fully permeated by a large number of idiomatic expressions whose forms and meanings are not entirely predictable on the basis of either the word meanings recorded in a dictionary or the rules of syntax provided by a grammar. The appendix to the dictionary, listing expressions such as *in winter, coming into bloom*, or *differences of as little as 0.5 °C*, would have to be of a substantial size in order to reflect speakers' knowledge of language fully.

1.1.2 Idiomatic expressions are more than fixed strings

Besides the sheer size of the appendix that would have to be added to the lexicon, the dictionary-and-grammar model faces difficulties that are less easily resolved. Representing speakers' knowledge of idiomatic expressions would be a relatively straightforward task if those idioms were just fixed strings of words such as *bite the dust, let off steam*, or *jump the gun*. However, many idiomatic expressions cannot be analysed as memorised strings, as two examples from the following BNC excerpt illustrate.

(4) 'Clients tell me that they are not worried about their property as long as their pets are all right,' says William Lewis, managing director of Home & Pet Care. 'We often get asked to look after elderly pets whose owners are worried that going into kennels may be too big a shock.' Most sitters are over 60, sensible and probably have pets of their own.

Sentences such as *going into kennels may be too big a shock* have been discussed under the heading of the BIG MESS construction (Van Eynde 2007).[1] Clearly, understanding a phrase such as *too big a shock* does not come about because speakers have memorised that very phrase. Rather, what speakers know is a more abstract pattern that also allows them to identify sentences such as *That's quite useful a lesson* or *How big an area are we talking about?* as conventional expressions. You can think of this abstract pattern as a cognitive schema, that is, a mental representation that captures the construction's general traits. In the case of the BIG MESS construction, this schema deviates in some ways from general syntactic patterns of English. For instance, in an ordinary English noun phrase, an attributive adjective follows the determiner and precedes the head noun, as in *a big shock*, rather than *big a shock*. Importantly, the BIG MESS construction has a certain grammatical systematicity, which is to say that it is sensitive to distinctions that, under the dictionary-and-grammar model, would be handled by the grammar, rather than by the dictionary. To illustrate, the nominal in the big mess construction must be indefinite. Replacing the indefinite article in *too big a shock* or *quite useful a lesson* with the definite determiner *the* or a demonstrative such as *this* renders the examples highly unconventional. Likewise, the nominal must be in the singular, so that it is not possible to replace *a shock* with

[1] Throughout this book, you will find the names of constructions printed in SMALL CAPITALS, as in the DITRANSITIVE construction, the BE GOING TO construction, or the S-GENITIVE construction.

two shocks, some shocks, or *a few shocks*. Lastly, the schema that represents speakers' knowledge of the BIG MESS construction must include some information on the pre-adjectival modifiers that are acceptable in the construction. It is easy to find authentic examples with the degree modifiers *quite, rather, too, somewhat*, and *pretty*; examples with interrogative *how* are quite common; but examples with *very* are surprisingly rare, and even unacceptable to some speakers (Van Eynde 2007). Speakers' knowledge of the BIG MESS construction is thus more than a fixed string of words, or perhaps a list of fixed strings, but rather a generalisation over such strings that specifies what works and what does not.

The second example from the excerpt that is worth some consideration is the sentence *Most sitters are over 60, sensible and probably have pets of their own*. The crucial phrase here is *have pets of their own*, which illustrates another idiomatic expression with internal grammatical systematicity. The elements *of* and *own* are invariant, but between the two, any possessive determiner (*my, your, his, her*, etc.) may enter the expression. The construction, which we may call the N OF ONE'S OWN construction, includes a nominal that must be indefinite. The sentence *John now has a car of his own* is a conventional expression, but replacing the indefinite determiner with the definite determiner *the* leads to an ungrammatical, perhaps even uninterpretable result. By contrast, a constraint on the number of the nominal, as observed in the BIG MESS construction above, does not apply. *John now has three cars of his own* is just as good an example as the one in which he owns only one car.

Summing up this particular argument, there is evidence to suggest that many idioms cannot be stored as fixed strings, which makes it necessary to think of idiomatic expressions as schemas with slots that can be filled with certain elements but not others. The slots of some idioms are sensitive to grammatical distinctions, such as the distinction between singular and plural, or the distinction between definite and indefinite. These observations put the dictionary-and-grammar model of linguistic knowledge in a rather awkward position: Should the appendix to the dictionary perhaps include a bit of grammatical information, so that these expressions could be accounted for? Doing this is possible, but you see how that decision would start blurring the line between dictionary and grammar. If grammar enters the appendix, a large grey area emerges between dictionary and grammar in which the patterns that are memorised show characteristics of lexical entries, but also of grammatical rules. It is this grey area that researchers in Construction Grammar call the construct-i-con.

1.1.3 Idiomatic expressions are productive

A good reason for keeping vocabulary and grammar apart as separate forms of linguistic knowledge is that words can be thought of as 'building blocks' that are highly numerous, but essentially fixed and atomic, whereas syntactic rules and morphological word formation processes are productive, that is, they allow speakers to create structures that are new and original. Vocabulary is thus just a finite collection of building material; grammar is what gives language the power to produce an infinite variety of new utterances.

The dictionary-and-grammar model of linguistic knowledge would be much more convincing if the idioms of a language were essentially like words: fixed and learnable as strings. The previous section has argued that this is an impoverished view. Many idiomatic expressions do not fully specify the lexical elements that can occur in them, and a good number of them even allow different grammatical elements into the variable slots that can be filled. For example, the phrase *the more, the merrier* instantiates a schema that has given rise to many expressions that are structurally identical but contain other adjectives in the comparative, such as *the bigger, the better* or *the redder, the deadlier*. It appears that *the more, the merrier*, also known as the COMPARATIVE CORRELATIVE construction (Culicover and Jackendoff 1999) or THE X-ER THE Y-ER construction (Fillmore et al. 1988), is productive, allowing speakers to produce creative utterances. The productivity, however, does not stop with different types of adjective that are inserted into that construction, but it extends to variation of grammatical forms. In an example such as *The darker the roast, the stronger the taste*, each adjective is followed by a nominal. In *The stronger a voice we have, the more effective we are*, each adjective forms part of a clausal structure. In *The more carefully you do your work, the easier it will get*, the first part is in fact adverbial, rather than adjectival. Hence, speakers' knowledge of this construction is not limited to the fact that there are open slots for different kinds of adjective, but rather, speakers have an active command of the kinds of grammatical unit that are acceptable in the construction. The fact that speakers know how to use idiomatic expressions productively makes it necessary to abandon the strict separation of lexical and grammatical knowledge.

1.1.4 The growth of the appendix

The considerations that were presented in the previous sections make one thing very clear. The commonsensical view of linguistic knowledge as divisible into knowledge of vocabulary and knowledge of grammar

suffers from a painful growth of the appendix, requiring an emergency procedure. Should the appendix perhaps be surgically removed, so that the patient can recover? In a paper that has since become one of the central references of the Construction Grammar literature, Charles J. Fillmore and colleagues suggest a solution that takes a surprisingly different route. In the conclusion to their study of the LET ALONE construction (*I don't eat fish, let alone raw oysters*), they propose the following (1988: 534):

It appears to us that the machinery needed for describing the so-called minor or peripheral constructions of the sort which has occupied us here will have to be powerful enough to be generalized to more familiar structures, in particular those represented by individual phrase structure rules.

In other words, if it is the case that idiomatic expressions are abundant in language, if they cannot be characterised as fixed strings, and if speakers can be observed to use them productively, then these expressions deserve to be given a proper analysis. Since idiomatic expressions accommodate different words and show structural variation, the tools for such an analysis will have to be sensitive to both lexical and grammatical distinctions. Hence, and this is the punchline of Fillmore et al.'s argument, these tools can just as well be used for the 'more familiar structures', that is, everything that used to be part of the grammar component of the dictionary-and-grammar model. Instead of dictionary and grammar, all that is needed for the description of linguistic knowledge is the 'construct-i-con'. Essentially, this means that after the operation, the surgeons watch in astonishment as the severed appendix gets up, thanks everybody in the room, and walks out of the hospital, all on his own.

Up to now, the discussion in this chapter has dealt with linguistic knowledge in fairly general terms. What is still missing from the picture is a more detailed account of what constructions actually are. The following sections will focus on precisely that topic.

1.2 What is a construction?

The term **construction** is used not only in Construction Grammar, but in almost any area of research that is concerned with language. Hence, you will probably already have an idea of what a construction is, but your idea might not fully correspond to the way in which the term will be used in this book. In pedagogical language textbooks, a construction is typically a complex linguistic form that serves a grammatical function. Examples would be the PASSIVE construction (*The village was destroyed*), the IMPERATIVE construction (*Go to your room and stay there!*),

or the PAST PERFECT construction (*I had already heard the news*). The examples of idiomatic expressions that were discussed in the sections above would seem to suggest that the term means something similar in Construction Grammar. Perhaps, you might reason, the term is used a little more broadly, including not only grammatical constructions such as the past perfect, but also idioms and words. That is a good enough guess, but one important issue is missing from this view of constructions. Recall that Construction Grammar is a theory of linguistic knowledge. Hence, constructions are first and foremost something cognitive, that is, a piece of speakers' linguistic knowledge. More specifically, we can say that a construction is a generalisation that speakers make across a number of encounters with linguistic forms. Let's take another look at a few examples of the COMPARATIVE CORRELATIVE construction:

(5) the more, the merrier
the bigger, the better
the redder, the deadlier
the younger, the messier
The darker the roast, the stronger the taste.
The larger the company, the worse is the service.
The stronger a voice we have, the more effective we are.
The more that Mrs Bell reflected upon the subject, the more at a loss she was.
The less he knows, the better.
The more carefully you do your work, the easier it will get.

As was pointed out in the discussion above, the construction displays substantial variation in the lexical items that can appear, but also in the grammatical units that instantiate it. Nonetheless, you will probably agree that all of the examples above are 'the same' in that they belong to a common constructional pattern. If you do agree, that is evidence that your experience with language led you to abstract away from individual differences between sentences like these ones and to form a generalisation. It is this generalisation that Construction Grammarians talk about when they discuss the COMPARATIVE CORRELATIVE construction.

1.2.1 Defining constructions: a first try

The preceding discussion has mentioned several characteristics of constructions, but it has not yet presented a satisfying definition of the term that would allow us to identify a construction as such when we look at linguistic data. A widely cited definition of constructions has been offered by Adele E. Goldberg (1995: 4):

C is a CONSTRUCTION iff$_{def}$ C is a form–meaning pair $<F_i, S_i>$ such that some aspect of F_i or some aspect of S_i is not strictly predictable from C's component parts or from other previously established constructions.

This definition captures three important notions. First, a construction pairs a linguistic form with a meaning (In the definition, F stands for Form, S is for Semantics). Second, by virtue of being a form–meaning pair, a construction is a unit of knowledge, rather than a form that could be described without reference to speakers' knowledge of language. Third, the definition introduces a criterion that we have not explicitly mentioned up to now, namely the criterion of non-predictability. A construction is defined as a form–meaning pair in which either an aspect of form or an aspect of meaning is non-predictable. What does that mean? With regard to meaning, this criterion captures the common characteristic of idioms that the interpretation of the whole idiom is more than just a combination of the meanings of its component words. Consider the following idioms that carry non-compositional and hence non-predictable meanings:

(6) We're back to square one.
Will and Jenny finally tied the knot.
His theory is totally off the mark.
Let's call it a day.

Non-compositional meaning is perhaps the most widely used diagnostic to identify constructions, but note that the definition does not only talk about non-predictable meanings. Constructions can also be identified on the basis of non-predictable aspects of their *form*. A form of a construction is non-predictable if it is not an instance of a more general formal pattern, say, a particular sentence type or a morphological schema. The following examples illustrate the idea of constructions with non-predictable forms.

(7) all of a sudden
by and large
the more, the merrier
Try as I might, I just couldn't grasp the principle.
How big an area are we talking about?
I have waited many a day for this to happen.

These examples defy typical phrase structure rules that would model the structure of phrases such as *the large sandwich with egg salad*. In fact, for several of the examples it is not even possible to determine the parts of speech for every component word. Into what word class would we

categorise *sudden* in *all of a sudden*? Is the *by* in *by and large* a preposition, and if so, why is it not followed by a nominal (*by the lake*), or at least coordinated with another preposition (*made by and for dog-owners*)? In some of the examples, the component parts are clearly identifiable, but their order seems to revolt against ordinary syntactic patterns. For instance, there is no general phrase structure rule that would allow speakers to conclude that *many a day* is a conventional expression of English. Usually, *many a day* is a conventional expression of English. Usually, *many* occurs with plural nouns, or as a pronominal form by itself. In those contexts, *many* can be replaced by *few*, but this does not work in *many a day*. Fillmore et al. (1988: 506–10) describe these kinds of examples when they speak of 'familiar pieces, unfamiliarly arranged' and 'unfamiliar pieces, unfamiliarly arranged'. In pedagogical works on idioms, these two categories are often relegated to the relative background, with the focus being on expressions such as *set the record straight, tie up loose ends*, or *show someone the ropes*. These idioms, as you will notice, have non-compositional meanings, but are formally 'familiar pieces, familiarly arranged', that is, there is nothing idiomatic about their form, only about their meaning.

With all of these observations in place, we are in a position to look at linguistic data and to decide whether or not a given expression qualifies to be called a construction. Since formal or semantic non-predictability is a required criterion in the definition proposed by Goldberg (1995), this gives us a reason to exclude all kinds of expressions that are both semantically compositional and formed according to general phrase structure rules or word formation processes, as illustrated in the following examples:

(8) John enjoys playing the piano.
Strawberries are more expensive than apples.
I wonder why he keeps wearing that hat.
Harvey's taunting of the bear was merciless.

Saying that these are not constructions does of course raise the question what else they might be. And, you might add, was Construction Grammar not founded on the premise that knowledge of language was knowledge of constructions, and nothing else in addition? How can this claim be reconciled with the assessment that a certain linguistic expression is no construction? So, when we say that *John enjoys playing the piano* is not a construction, what is meant is that this particular example is not a construction in its own right, because first, the meaning of the whole is fully derivable from the meaning of the parts, and second, the structure of the whole is fully explicable from constructions that are known to exist in English. The sentence thus instantiates several more general

constructions. At the most general level, this concerns the SUBJECT-PREDICATE construction, which is instantiated by all sentences that combine a subject noun phrase with a predicate verb phrase. Somewhat more specifically, the sentence exemplifies the TRANSITIVE construction, which pairs a verb such as *enjoy* with a structure that serves as a direct object. In *John enjoys playing the piano* that object is not a noun, but rather a participial clause, which means that the sentence also instantiates the PARTICIPIAL -*ing* CLAUSE construction. Within that participial clause, we find another instance of the TRANSITIVE construction, as *the piano* is the direct object of *playing*. Finally, the phrase *the piano* instantiates the DEFINITE NOUN PHRASE construction. In summary, saying that a particular sentence is no construction boils down to the statement that every part of that sentence can be analysed in terms of a more general construction. There is even a term for expressions that are not in themselves constructions: phrases and sentences that instantiate more general constructions are called **constructs**. Dwelling on this term for a minute, you will notice that *by and large* is a construction because it does not instantiate any pattern that would be more general than itself. The same holds for *all of a sudden*. However, the phrase *many a day* in the sentence *I have waited many a day for this to happen* is a construct: it instantiates a more general pattern, namely the MANY A NOUN construction, which also gives rise to the expressions *many a time* or *many an Englishman*. The distinction between constructions and constructs is thus one between generalisations and concrete instances, between abstract types and the tokens that instantiate them. You could memorise the rule of thumb that constructions are relatively more abstract, whereas constructs are relatively more concrete, which will serve you well as a general principle. However, note that patterns such as *by and large* or *all of a sudden* are constructions that are not any more abstract than their instantiations. For these patterns, the constructs, that is, the actual tokens that appear in language use, have the exact same form as the constructions on which they are based.

1.2.2 Defining constructions: beyond non-predictability

The criterion of non-predictability in meaning or form is a very powerful diagnostic. If the meaning of an expression cannot be inferred from the meanings of its parts, then there is simply no alternative to the conclusion that speakers *must* have learned this expression as a form-meaning pair in its own right, that is, as a construction. Nonetheless, researchers in Construction Grammar these days have largely abandoned the idea that non-predictability should be a necessary criterion

for some expression to qualify as a construction. The reason for this assessment is that there are many expressions that are semantically and structurally transparent, but which nonetheless seem to qualify as constructions. Consider the following set of expressions.

(9) I love you.
     I don't know.
     Take a seat!
     Can I ask you something?
     How has your day been?

As you will agree, all of these expressions would have to be viewed as constructs because they instantiate highly general syntactic patterns. The sentence *I love you* illustrates the most basic form of the TRANSITIVE construction, *I don't know* is an instance of the NEGATION WITH *Do* construction, and so on and so forth. Still, despite the fact that these examples are structurally transparent, and despite the fact that their meanings can be compositionally derived, there is a reason for viewing these expressions as constructions. That reason is the fact that all of those expressions are highly frequent, highly conventionalised ways of saying things. The question *How has your day been?* literally asks for the information how someone's day turned out, but note that it is very different from *Of what quality has your day been?*, which would seem to be a rough paraphrase, but which is inadequate for opening a conversation of small talk. Some expressions may thus superficially look like constructs, but through repeated use, they have become the default option for a specific communicative situation. Taylor (2012: 100) offers the conspicuous example of *How old are you?*, which simply cannot be replaced with *How long ago were you born?* to ask for the interlocutor's age. As a proficient speaker of English, you know this, and hence this kind of information needs to be represented in the construct-i-con. Knowledge of language does not only include the ability to understand everything that is said, but it crucially also involves the ability to speak idiomatically. In order to accommodate this important aspect of linguistic knowledge, Adele E. Goldberg has proposed a modified version of her earlier definition of constructions (2006: 5):

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

You recognise the prior definition in the first sentence: non-predictable constructions are still recognised as such. However, the second sentence

opens up the definition to cover forms that are frequent enough to be remembered as such. These include sentence-level expressions such as *How old are you?* and *I don't know*, but crucially also many inflected word forms such as *cats*, *walked*, or *easier*. In the dictionary-and-grammar model of linguistic knowledge, these forms would not be stored as such, and also under Goldberg's earlier definition, these would have been viewed as constructs of the PLURAL construction, the PAST TENSE construction, and the MORPHOLOGICAL COMPARATIVE construction. In short, if you know the word *cat*, and if you know how the plural is formed, there is technically no need for you to remember the form *cats*. However, the view that regular, but sufficiently frequent expressions are stored in the construct-i-con is not only theoretically viable, but also receives empirical support from psycholinguistic studies (Stemberger and MacWhinney 1988; Arnon and Snider 2010). We will come back to psycholinguistic evidence for Construction Grammar later in this book.

1.3 Identifying constructions

Armed with our definition of what a construction is, we are now in a position to analyse linguistic data in the pursuit of finding and identifying constructions. Think of it what you like – many researchers in Construction Grammar are genuine language lovers who enjoy nothing more than finding a construction with peculiar non-predicable characteristics, preferably one that no one has investigated before. Occasionally, Construction Grammarians even acknowledge their love of 'butterfly collecting' (Hilferty 2003: 49), though usually they hasten to add that finding generalisations is the ultimate purpose of their endeavours. Finding constructions is an activity that requires some practice, although there are people who seem to have a natural talent for sniffing out grammatical oddities. This section discusses a number of strategies that are useful for the detection and identification of constructions.

1.3.1 Does the expression deviate from canonical patterns?

A first strategy relates to Goldberg's criterion of non-predictability, especially the formal side of that criterion. If a linguistic expression exhibits formal characteristics that deviate from more canonical grammatical patterns, then you have an argument for calling that expression a construction. Formal deviation from canonical patterns can be identified in different ways. Take for instance the expression *by and large*. A first observation would be that a phrase consisting of a preposition, a

conjunction, and an adjective, in that order, is unique in the grammar of English. You do find sequences of those parts of speech in phrases such as *acquainted with and supportive of the school aims*, but note that *with and supportive* does not form a constituent in that expression. A second piece of evidence would be that *by and large* becomes completely unintelligible if the adjective *large* is replaced with the synonymous adjective *big*. Taken together, these pieces of evidence lead to the conclusion that there is no broader generalisation that would allow speakers to produce or comprehend the expression *by and large*. See for yourself if you can apply the same logic to the examples that are offered in (10).

(10) There was cat all over the road.
The tractor was driven by a 16 year old boy.
John is best friends with Eddie Murphy.

The first example, which describes the unfortunate result of a car accident involving a feline, is probably the easiest to analyse. The lexical item *cat* is, in most contexts of use, a count noun. In the example above, it behaves structurally as a mass noun. Constructions in which count nouns are used as mass nouns are aptly called GRINDING constructions (Fillmore et al. 2012). Two structural characteristics of the example are worth some consideration. First, *cat* occurs here without a determiner. Second, when used as a mass noun, *cat* disallows pluralisation. The sentence *There were cats all over the road* would enforce a count noun interpretation and thus refer to numerous intact felines occupying the road. Turning to the second example, the final noun phrase *a 16 year old boy* instantiates what could be called the MEASUREMENT AS MODIFIER construction. The idiosyncrasy that can be observed here is that the noun *year* is in the singular, despite the fact that *years* might be expected, given that the boy is 16 years old. This peculiarity is systematic, as is evidenced by expressions such as *a twelve-inch-thick wall* or *a six-foot-tall athlete*. The third example expresses a reciprocal relation between *John* and *Eddie Murphy*; the two are best friends. What is remarkable about the structure of the example is that we have a singular subject, *John*, but a plural subject complement, *best friends*. In canonical predicative constructions, subject and subject complement have to agree in number, as in *John is a doctor* or *They might be giants*. Note also that the RECIPROCAL PREDICATIVE construction, unlike canonical predicative constructions, requires a prepositional phrase such as *with Eddie Murphy*. Summing up, even though formal non-predictability is not a required criterion for constructions, finding formal idiosyncrasies is an excellent source of evidence for calling something a construction.

1.3.2 Does the expression carry non-compositional meaning?

The second strategy that will help you to find and identify constructions relates to Goldberg's criterion of non-predicable meaning. Can hearers work out the meaning of an expression by combining the meanings of its individual parts, or does the whole expression signify something in addition that cannot be worked out? If the meaning of an expression is 'more than the sum of its parts', there is evidence to speak of a construction. Non-compositional meanings are self-evident in idioms such as *get your act together*, *make waves*, or *call the shots*. A second language learner of English would be likely to know all component words of these idioms, but this would not allow her to work out their overall meanings. In the preceding sections, we have discussed expressions that may be less salient than these figures of speech, but which nonetheless convey non-compositional meanings. Recall that *in winter* conveys the idea of 'in winter, generally', or that *How has your day been?* is used as a conventional way to strike up a conversation. A second language learner would have little trouble understanding these expressions, but she would have no way of knowing beforehand that these are typical, idiomatic ways of expressing the respective meanings. Identifying non-compositional meanings essentially requires you to 'play dumb', pretending not to understand anything that cannot be worked out on the basis of the component parts of an expression. Use the following examples to get some practice.

(11)   During the game John broke a finger.
        The result was not much of a surprise.
        The Royal Shakespeare Company is a tough act to follow.

The first example conveys that John had an accident that left him with one of his fingers broken. Crucially, he did not break someone else's finger, even though there is nothing in the words of the example that would preclude that interpretation. In the second example, the phrase *not much of a surprise* does not refer to 'a small part of a surprise', whatever that might be, but rather, it is to be understood as 'no surprise at all'. Taylor (2012: 60) calls this the (NOT) MUCH OF A NOUN construction and points out some of its structural and semantic characteristics. The last example may be a little trickier than the two previous ones. What we are dealing with here is a special case of what has been called the TOUGH-RAISING construction (Langacker 1995). Adjectives such as *tough*, *difficult*, or *hard* occur in sentences such as *Proust is tough to read*, which ascribe toughness to 'reading Proust', rather than to 'Proust' himself. In the example above, the Royal Shakespeare Company is not

'a tough act', as a second language learner might conclude. Rather, following an act such as the Royal Shakespeare Company is considered a tough challenge.

At this point, we need to introduce a concept that is of central importance for the idea of non-compositional meaning in constructions. This concept is called **coercion**, and it describes the phenomenon that the meaning of a lexical item may vary systematically with the constructional contexts in which it is found. Laura Michaelis has formulated a **principle of coercion** that captures this phenomenon (2004: 25):

> If a lexical item is semantically incompatible with its morphosyntactic context, the meaning of the lexical item conforms to the meaning of the structure in which it is embedded.

What this means is that constructions may override word meanings, creating non-compositional constructional meanings in the process. The 'morphosyntactic context', that is, the construction in which a lexical item is found, thus has the power to change or suppress certain semantic characteristics of that lexical item. When word meanings can be observed to change within a constructional context, we speak of **coercion effects**. The principle of coercion can be seen at work in the examples below.

(12)   Three beers please!
        John sauced the pizza.
        Frank played the piano to pieces.

The first example illustrates the converse of expressions such as *There was cat all over the road*. The noun *beer* is usually a mass noun, and hence semantically incompatible with the plural inflection and the numeral *three*. The morphosyntactic context thus imposes an interpretation that differs from the default meaning of *beer*: instead of a mass, the example refers to three units of beer, as served in a bottle or a glass. Constructions that convert mass nouns to count nouns will be discussed in this book as INDIVIDUATION constructions. In the second example we find the noun *sauce* used as a verb. The entire expression conveys the meaning that John applied sauce to the pizza. This meaning cannot be derived from the individual words, and a second language learner might arrive at different interpretations, assuming for instance that John dipped a piece of pizza into sauce, or that John, using a heavy-duty blender, turned a pizza into a thick, unappetising sauce. Meanwhile, proficient speakers of English arrive at the intended interpretation because their linguistic knowledge includes a subpattern of the TRANSITIVE construction with denominal verbs that shows itself in expressions such as *pepper the steak*,

butter the toast, or *egg and breadcrumb the fish*. The construction coerces the lexical meanings of *pepper*, *butter*, *egg* and *breadcrumb* into the meaning 'apply to a surface', which is a substantial semantic enrichment. Finally, the third example illustrates the English RESULTATIVE construction. What is conveyed by the example is that Frank played the piano in such a violent manner that it ultimately fell to pieces. The lexical meaning of *play* does make reference to an instrument that is played, but it does not specify a possible change of state in that instrument. It is the morpho-syntactic context of the resultative construction that coerces *play* into the meaning 'bring about a change of state by means of playing'.

Spectacular coercion effects, as for instance in *John sneezed the napkin off the table* or in *She smiled herself an upgrade*, have served as a very compelling argument for the idea that constructions are symbolic units that carry meaning. After all, the only alternative explanation for the meanings of the above examples would be that verbs such as *sneeze* or *smile* have highly specific secondary senses, namely 'cause to move along a path by means of sneezing' or 'cause a transfer of a good between an agent and a recipient by means of smiling'. Goldberg (1995:9) points out that Construction Grammar obviates the need to posit such implausible verb senses. In the dictionary-and-grammar model of linguistic knowledge, there would be no other choice.

1.3.3 Does the expression have idiosyncratic constraints?

So far, we have discussed two strategies that allow the detection and identification of constructions: we could be looking for non-predictable formal aspects or for non-compositional meanings. This section will discuss a third strategy, which relates to both form and meaning of a construction. Suppose that we come across an expression that, on a cursory glance, would seem to be entirely unremarkable, such as *The dog over there is asleep*. In terms of its structure, every part of that sentence can be analysed as instantiating more general patterns of the grammar of English: *the dog over there* is a DEFINITE NOUN PHRASE construction that incorporates a prepositional phrase, not unlike *the book on the table*. The entire expression instantiates a PREDICATIVE construction, which gives rise to expressions such as *The book on the table is new*. Still, there is something about the example that necessitates a constructional analysis. To let the cat out of the bag, the adjective *asleep* belongs to a class of English adjectives that exhibit an idiosyncratic constraint: they cannot be used attributively. Whereas you could speak of *an interesting book*, the grammar of English does not allow you to refer to **the asleep dog*. Evidently, restrictions of this kind have to be learned, and there is

evidence to suggest that language learners pay close attention to the contexts in which elements such as *asleep* do and do not appear (Boyd and Goldberg 2011). At any rate, the positioning constraint on adjectives such as *asleep* is something that constitutes knowledge of language, and hence it needs to be included in the construct-i-con. The following examples show constraints that affect other English constructions.

(13) I brought John a glass of water.
*I brought the table a glass of water.

Mary is a smarter lawyer than John.
*Mary is the smarter lawyer than John.

She elbowed her way through the room.
*She elbowed her way.

I have long known your father.
*I have long read this book.

The first pair of examples illustrates a constraint on the English DITRANSITIVE construction, namely that the referent of the recipient argument be animate when actual transfers are at issue. In metaphorical examples such as *Give the table a good scrub!* that constraint is relaxed. Note that this is a semantic constraint, rather than a formal one. The second pair of examples shows a constraint on a DEGREE MARKER construction. As is shown by the examples, there is a constraint with regard to definiteness: only the example with the indefinite article is acceptable. In the third pair of examples, we see an example of the English WAY construction (Goldberg 1995). In present-day usage, this construction requires the presence of an argument that specifies a path, here instantiated by *through the room*. As was shown in a historical study by Israel (1996), this was not always the case: the WAY construction used to occur without path arguments, but as such arguments became increasingly frequent, a constraint developed that is categorical for present-day speakers of English and that renders the second member of the pair ungrammatical. Finally, the fourth pair of examples shows a use of *long* as an adverb with the meaning 'for a long time'. Whereas it could be presumed that all sentences of the structure *I have long V-ed NP for a long time* could be paraphrased as *I have long V-ed NP*, the unacceptability of the second example suggests otherwise. There are constraints on the HAVE LONG V-*ed* construction, and they form part of what speakers of English know about their language.

Discovering idiosyncratic constraints on the use of constructions is not as straightforward a task as the identification of non-predictable formal aspects or non-compositional meanings. Mainly, this is because

finding an example such as *The dog over there is asleep* or *I have long known your father* in a corpus will not tell you anything about constraints that might affect parts of those expressions. In the words of Noam Chomsky, 'A corpus never tells you what is impossible. In fact, it does not even tell you what is possible' (Aarts 2000: 6). Contrary to what Chomsky suggests, corpora in fact do both if quantitative tools of analysis are applied (Stefanowitsch 2008, 2011; Goldberg 2011). Still, Chomsky would have a point if the quote were altered to 'A single, isolated example never tells you what is impossible. In fact, it does not even tell you what is possible.' So, if that is the case, how can we determine what is possible and impossible? For a long time, linguists have approached the issue by constructing examples and judging the grammaticality of those examples, using their intuitions. Using intuitions as the only source of evidence is methodologically highly problematic (Schütze 1996), and for readers of this book who are non-native speakers of English it might not even be feasible. Still, it would be wrong to demonise linguistic intuitions. Intuitions are in fact necessary for the analysis of idiosyncratic constraints, but they are only half of the story. What I recommend for the analysis of constructions and their constraints is to use intuition to construct examples and to check those examples against a large database, such as Mark Davies' suite of corpora, which is freely accessible on the world wide web (e.g. Davies 2010). If your experience in doing corpus analyses is limited, Lindquist (2009) is an excellent resource to use. For a start, try to work out some restrictions on the constructions that are illustrated in (14). First, search for expressions that conform exactly to these sentences, altering at most the concrete lexical items. Determine the parts of speech for all components of the respective expressions. Then, move on to change some of their formal aspects and see if the results point to restrictions.

(14) Most at risk are the very young and the elderly.
      I check my email once every ten minutes.
      I'm willing to go thermonuclear war on this.

Even if your own intuitions at first do not generate the 'right' predictions about what is found in a corpus and what is not, chances are that you will get a clearer idea of how the respective constructions are used and what restrictions might be at play.

1.3.4 Does the expression have collocational preferences?

There is one strategy for finding constructions that we still need to discuss. Even if an expression seems formally regular, semantically

transparent, and without noticeable constraints on its behaviour, it might still be a construction in its own right, rather than an instantiation of a more general pattern. Take the following example.

(15) I will call you tomorrow morning.

The sentence is an example of the English WILL FUTURE construction. Let us for a moment ponder the question on what grounds, if any, we could make the case that a sentence-level construction with the auxiliary verb *will* and a following non-finite verb phrase should be called a construction. Evidently, pedagogical grammars call it a construction, but is it a construction according to the definitions and criteria that we have set up in the preceding sections? The argument from non-predictable structural criteria appears to fail: there is a more general pattern according to which auxiliary verbs can be paired with non-finite verbal complements. The argument from non-compositional meanings will not get us any further. The overall meaning of the example in (15) can clearly be worked out from the meanings of the individual words, for *will* we rely on the *OED* and adopt the definition 'auxiliary of the future tense with implication of intention or volition' (*OED*: *will*, v., 11). Can we identify constraints? It appears that *will* combines rather freely with verbs in the infinitive. Consequently, there would be nothing left for us to do but to concede that we are looking at a construct instantiating what we might call the AUXILIARY PLUS INFINITIVE construction.

However, there is evidence to suggest otherwise. Even though *will* is technically combinable with just about any verb of the English language, data from corpora show that *will* occurs more frequently with some verbs than with others. Well, you might say, is that not to be expected, given that some verbs, like *be*, are very frequent, and others, like *procrastinate*, are used less often? That is of course the case. But if you control for the respective frequencies of *be*, *procrastinate*, *arrive*, *eat*, *copy*, *argue*, and all the other verbs that are used with *will*, it turns out that some verbs occur more frequently than expected whereas others occur less frequently than expected. Gries and Stefanowitsch (2004a) have analysed the collocational preferences of *will* and *be going to*, finding that these two expressions of future time have markedly different preferences with regard to the verb types that occur with them. The basic result, which is replicated in Hilpert (2008), is that *be going to* exhibits a tendency to occur with verbs that are agentive, punctual, and high in transitivity. Conversely, *will* attracts verbs that are non-agentive, durative, and low in transitivity. Gries et al. (2005) present experimental evidence that speakers are acutely sensitive to the relation between constructions and their typical collocates. The construct-i-con, it turns

out, stores information about language use in a highly detailed fashion that includes rich information about how linguistic units combine with others. Hence, it is absolutely warranted to speak of WILL PLUS INFINITIVE as a construction. The question whether a construction has collocational preferences can be addressed with relative frequency counts on the basis of corpus data. Stefanowitsch and Gries (2003) have developed an elegant method that goes by the name of **collostructional analysis**, and that has been applied to a variety of English constructions (cf. Gries and Stefanowitsch 2004a; Gries and Wulff 2005; Hilpert 2006; Stefanowitsch 2006; inter alia).

1.4 Summing up

In this chapter, we have raised the question what speakers have to know when they know a language such as English. Common sense suggests that linguistic knowledge consists of several different kinds of knowledge. In linguistics, this idea has given rise to what is called the dictionary-and-grammar model of linguistic knowledge (Taylor 2012), which makes a clear distinction between knowledge of vocabulary on the one hand and knowledge of grammar on the other. Construction Grammar is a theory that takes a radically different perspective: knowledge of language is to be modelled as knowledge of constructions, and nothing else in addition. The main reasons for adopting such an approach are the following. First, it is observed that idiomatic expressions fully permeate ordinary language. Listing all idiomatic expressions in an appendix to the mental lexicon would greatly inflate its size. But a second point is more problematic. Many idioms cannot be reduced to fixed strings that could be memorised and represented as such. Rather, idiomatic expressions have slots that can accommodate different lexical items, and different grammatical structures. Furthermore, many idiomatic expressions are clearly productive, so that speakers can generate new and original utterances with them. The overall conclusion of these observations is that the line between the mental lexicon, containing knowledge of words, and the mental grammar, containing knowledge of rules, becomes increasingly blurry; so much so that Construction Grammarians propose to abandon it altogether. Instead, knowledge of language is seen as a large inventory of constructions, a construct-i-con.

Constructions, on this view, are defined as linguistic generalisations that speakers internalise. Specifically, this book adopts a definition of constructions under which they are form–meaning pairs which have either non-predictable formal characteristics, non-compositional meanings, or a high enough frequency to be remembered as such (Goldberg 2006: 5).

This chapter also discussed four strategies that allow you to identify constructions. The first strategy is to look out for structural traits of an expression that deviate from more canonical patterns. Second, constructions can be identified on the basis of non-compositional meanings. Third, idiosyncratic constraints that involve meaning or form serve as a powerful and flexible diagnostic. Fourth, even if the first three strategies fail to identify an expression as a construction, an analysis of collocational preferences may reveal that the expression in question does in fact have the status of a construction.

1.5 Outline of the following chapters

It was the aim of this chapter to give you a rough overview of the enterprise that is Construction Grammar. In the remaining chapters of this book, that overview will be successively fleshed out in order to address the many open questions that will be on your mind right now. So, what lies ahead? The rest of this book is structured into two main parts. Chapters 2–5 will further familiarise you with the central concepts of Construction Grammar. They will do so by describing a repertoire of constructions that illustrates how these concepts are applied. Specifically, we will be concerned with argument structure constructions (Chapter 2), abstract phrasal and clausal constructions (Chapter 3), morphological constructions (Chapter 4), and information packaging constructions (Chapter 5). What you can expect is thus a grand tour of English grammar. That tour will include several stops at locations that may seem more or less familiar, but I promise that these will appear in a new light. The second part of the book, comprising Chapters 6–8, will focus on interfaces between Construction Grammar and specific areas of linguistic study. What makes Construction Grammar attractive as a linguistic theory is not least that it connects usefully to many areas of research that may interest you. We will discuss constructional work in psycholinguistics (Chapter 6), research on language acquisition (Chapter 7), and language variation and change (Chapter 8). A concluding chapter will try to connect the most important ideas of this book, sending you off with a number of suggestions for research projects.

Study questions

- What is the dictionary-and-grammar model of linguistic knowledge?
- What is the construct-i-con?
- How are constructions defined?

- What are the reasons for rejecting non-predictability as a definitional criterion of constructions?
- What is the difference between a construction and a construct?
- What strategies can you use to identify a construction?
- What is meant by the term 'coercion'?

Further reading

The work of Adele E. Goldberg (1995, 2006) has been extremely influential. An excellent starting point for further reading is her synopsis article of Construction Grammar (Goldberg 2003). All of the issues raised in the present chapter are discussed in greater depth in *The Oxford Handbook of Construction Grammar* (Hoffmann and Trousdale 2013). I also highly recommend the chapters on Construction Grammar that are found in two introductory works on cognitive linguistics (Croft and Cruse 2004; Evans and Green 2006). The first two chapters in Fried and Östman (2004) provide further information on the intellectual background of Construction Grammar and on formalisation, the latter of which is also treated in Sag et al. (2003). Among the foundational works of Construction Grammar, Fillmore et al. (1988) and Kay and Fillmore (1999) stand out. Working through these papers is not easy, but very rewarding.

2 Argument structure constructions

2.1 Analysing 'simple sentences'

The last chapter made the point that language use is full of idiomatic expressions that exhibit idiosyncrasies with regard to form and meaning. Constructions of this kind have been addressed in many classic studies in Construction Grammar, for instance in Fillmore et al. (1988), who focus on sentences such as *I don't eat fish, let alone raw oysters*. Idiomatic expressions constitute the central theoretical motivation for Construction Grammar as a theory of language: if speakers have to memorise a large number of idiosyncratic, semi-fixed constructional schemas, then the dictionary-and-grammar model of linguistic knowledge cannot be maintained. Given the importance of idioms, it may come as a surprise to you that one of the most influential studies in Construction Grammar addresses 'simple sentences' that at first glance appear to behave much more regularly than constructions such as *let alone*. In her book *Constructions: A Construction Grammar Approach to Argument Structure*, Adele Goldberg (1995) discusses expressions such as the following.

(1) Pat gave Bill a book.
    John threw the ball over the fence.
    Bob hammered the metal flat.

On the face of it, these sentences seem to fail the most important criteria for constructionhood that were developed in the last chapter, as there does not appear to be anything unusual about either the form or the meaning of these examples. A learner of English who knew all of the words in these sentences would have no trouble understanding what they mean. Still, there is good evidence for viewing these examples as instances of a special kind of construction, namely **argument structure constructions**. This chapter will discuss what these constructions are

- What are the reasons for rejecting non-predicability as a definitional criterion of constructions?
- What is the difference between a construction and a construct?
- What strategies can you use to identify a construction?
- What is meant by the term 'coercion'?

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and it will explain why these constructions continue to attract substantial attention in current research.

The remaining sections of this chapter are organised in the following way. The next section will introduce the term **argument structure** and flesh out its role in a constructionist theory of linguistic knowledge. The subsequent section will discuss a number of valency-increasing constructions, that is, constructions that can add arguments to the event structure of a verb. The RESULTATIVE construction is one such construction, but there are quite a few more of them in English. The section after that will focus on the inverse process and discuss valency-decreasing constructions. In such constructions, a role that is present in the event structure of a verb is 'suppressed', that is, it is not overtly expressed. Perhaps the most conspicuous example of a valency-decreasing construction is the PASSIVE. In a sentence such as *Mistakes were made*, which passivises the verb *make*, the person making the mistakes is not identified. The PASSIVE construction thus reduces the valency of *make* by suppressing its agent argument. As this chapter will discuss, there are other constructions that behave in similar ways. The final section of this chapter will discuss relations between argument structure constructions, introducing the concept of **syntactic alternations**.

2.2 Argument structure

The phenomenon that is described by the term **argument structure** is often also referred to as **valency**. The term 'valency' is borrowed from chemistry, where it describes how many different atoms a chemical element can bind to itself to form a complex molecule. Chemical elements differ in this regard, such that hydrogen for instance can only bond with a single other atom, whereas carbon can bond with several others, thus forming larger molecules. The words of a language can be likened to this behaviour of chemical elements. The verb *yawn* usually forms a bond with just one element, namely its subject (*The cat yawned*). The verb *send* typically bonds with three elements, namely its subject and two objects (*Sylvia sent me a message*). Valency is first and foremost a characteristic of verbs, but the concept can also be applied to adjectives and nouns. For instance, the adjective *certain* can form a bond with a *that*-clause (*I'm certain that he left*) or an infinitival clause (*John is certain to win the election*). Nouns such as *factor suspicion* can bond to *that*-clauses as well (*the fact that he left, the suspicion that sausages contain dog meat*). Hence, the terms 'argument structure' and 'valency', as used in linguistics, refer to a relationship that holds between a **predicate** denoting an activity, state, or event and the respective participants, which are called **argu-**

Table 2.1 Thematic roles

Role	Definition	Example
AGENT	the initiator of an action	Pat ate a waffle.
PATIENT	the participant undergoing an action or a change of state	Pat ate a waffle.
THEME	the participant which is moving	Pat threw the rope over.
EXPERIENCER	the participant who is aware of a stimulus	Pat heard a sound.
STIMULUS	the participant that is experienced	Pat heard a sound.
BENEFICIARY	the participant who benefits from an action	Pat sang for me.
RECIPIENT	the participant receiving an item	Pat gave me a waffle.
INSTRUMENT	the participant serving as a means to an action	Pat opened it with a knife.
LOCATION	the place of an event	Pat was born in Florida.
GOAL	the end point of a movement	Pat threw it into the fire.
SOURCE	the starting point of a movement	Pat came home from work.

ments. In the sentence *John threw the ball over the fence*, the verb form *threw* is the predicate, and *John*, *the ball*, and also the prepositional phrase *over the fence* would be its arguments. Arguments are thus not only expressed by nominal structures; other phrase types and clauses may also express them.

What makes argument structure a difficult term to deal with is that it can be understood in two ways: semantically and syntactically. A verb such as *eat* evokes a scene with two participants, someone who is eating and something that gets eaten. This would be the semantic argument structure of *eat*, which is sometimes also called its **event structure**. In order to talk about event structure, linguists have developed a vocabulary that abstracts away from individual verbs and describes different semantic roles, which are sometimes also called thematic roles. Table 2.1 lists eleven semantic roles that are frequently referred to (Seed 2003: 153).

Naturally, this list is open-ended, the roles are not necessarily mutually exclusive, and it would be possible to make finer distinctions or to construct more abstract roles. For instance, recipients and beneficiaries share certain characteristics with patients, and goals and sources both encode locations. The event structure of a verb specifies the kinds of roles that may appear with that verb. As is illustrated by the first two examples in the table, the verb *eat* typically occurs with an agent and

with a patient, but other configurations are possible. Importantly, *eat* also has a syntactic argument structure. Speakers know that the verb *eat* usually occurs with a subject and a direct object, but they also know that *eat* is sometimes used intransitively, as in *Thanks, I have already eaten.* In the dictionary-and-grammar model of linguistic knowledge, the dictionary entry for a lexical element such as *eat* would include information on its event structure, including the roles of someone who is eating and something that is eaten, and information on syntactic argument structure patterns. Typically, there will be several patterns. For instance, the entry for *sweep* would list the following ones, amongst others:

(2) We still have to sweep.
     We still have to sweep the tiles.
     We still have to sweep the tiles squeaky clean.
     We still have to sweep the mud off the tiles.

It seems very natural to assume that speakers' knowledge of a verb such as *sweep* includes knowledge of the structures in which that verb typically appears. However, Goldberg (1995) argues that argument structure cannot be wholly explained in terms of lexical entries alone. An important piece of evidence in this regard is that speakers occasionally use verbs 'creatively', that is, with argument structures that are not conventionally associated with the respective verbs. The following examples illustrate that phenomenon.

(3) John played the piano to pieces.
     He pulled himself free, one leg at a time.
     No matter how carefully you lick a spoon clean, some goo will cling to it.

The verb *play* can be used intransitively (*The kids were playing*), transitively (*Sylvia played a Schubert sonata*), and in the PREPOSITIONAL DATIVE construction (*John played the ball to the centre forward*), to illustrate just three of its conventional argument structure patterns. It is typically the case that the meaning of a verb is not quite the same across different patterns. In the examples just mentioned, intransitive *play* evokes the idea of 'interacting with toys', transitive *play* conveys the meaning of 'using a musical instrument', and *play* in the PREPOSITIONAL DATIVE construction simply means 'pass'. Despite these differences, the respective activities of the kids, Sylvia, and John all count as instances of playing. With the use of *play* that is given in (3), things are not quite as straightforward. The example conveys that John's playing had an effect on the piano, such that it fell to pieces. This meaning cannot be explained as a conventional sense of the verb *play*. Rather, it is the

syntactic form of the sentence that leads hearers to understand this non-compositional meaning. Goldberg (1995) calls this form the English RESULTATIVE construction. Compare the phrase *played the piano to pieces* to *pulled himself free* and *lick a spoon clean*. In each case, the verb combines with a direct object and a predicate that expresses a resultant state. The RESULTATIVE construction is an argument structure construction, because it 'adds' an element to the conventional argument structure of verbs such as *play, pull,* or *lick*. In the case of the above example with *play,* this extra element is the prepositional phrase *to pieces*. Goldberg argues that syntactic constructions, such as the RESULTATIVE construction, are not just structural templates that are used to arrange words into phrases and sentences, but carry meaning. That is, speakers of English know that there is a syntactic pattern that conveys the meaning 'X causes Y to become Z', independently of the actual verb that is found in this pattern. This pairing of form and meaning is stored in the construct-i-con, and it allows speakers to create and understand sentences in which verbs are used resultatively, regardless of whether their conventional argument structure specifies a result, or even a direct object. The verbs *play, pull,* and *lick* frequently occur with direct objects, but even intransitive verbs such as *run, sneeze,* or *worry* can be inserted into the RESULTATIVE construction, as the following examples show.

(4) John ran his feet sore.
     Frank sneezed his cat soaking wet.
     Bob's mother worried herself sick.

In these examples, the RESULTATIVE construction contributes not only a result argument, but also a patient argument. The phrases *his feet, his cat,* and *herself* denote patients, which undergo a change of state as a result of an action. One can take the argument even further and construct example sentences with invented words, which are associated neither with a conventional argument structure nor with a particular semantic event structure. The following examples draw on some nonce words that Lewis Carroll used in his famous poem *Jabberwocky.*

(5) The children were gimbling the cat frumious.
     Chortle the toves into small pieces. Season liberally with salt and pepper.
     David has whiffled my borogoves completely vorpal again!

Naturally, the interpretations of these sentences depend on contextual cues, such that hearers try to link the words *gimbling* and *frumious* to activities and states that ensue when children and cats interact in prototypical ways. Note, however, that the third example is largely devoid

of such contextual cues, and still, you are likely to have come up with an idea of what David might have done. Regardless of the specifics, your interpretation of the sentence will be consonant with the idea that David whiffled the borogoves, and that this act of whiffling made them vorpal again. Given that you have no idea what the words by themselves mean, this is a remarkable achievement?

To summarise these observations, the 'simple sentences' of English matter deeply to Construction Grammar because they instantiate argument structure constructions. These constructions have to be part of speakers' knowledge of language for two reasons. First, they can change the conventional valency patterns of verbs, thus generating expressions that are formally idiosyncratic. A verb such as *sneeze* does not usually take a patient argument, but it does take one in the RESULTATIVE construction. Second, argument structure constructions convey meanings that cannot be explained compositionally. The resultative meaning of the example sentences in (4) and (5) does not simply follow from combining the individual word meanings. Rather, it is the syntactic construction as such that imposes this meaning on the words. Goldberg (1995) points out that the combination of verbs and constructions is not entirely unconstrained. A verb can only be inserted into a given construction if the event structure of that verb and the argument structure of the construction match semantically. To illustrate, it is possible to insert *sneeze* into the resultative construction because both *sneeze* and the resultative construction require an agent argument in the subject position. Hence, the respective roles can be 'fused'. This idea is rendered more precise in what is called the **semantic coherence principle** (Goldberg 1995:50):

> Only roles which are semantically compatible can be fused. Two roles r_1 and r_2 are semantically compatible if either r_1 can be construed as an instance of r_2, or r_2 can be construed as an instance of r_1.

The semantic coherence principle explains why verbs such as *hear* or *sink* cannot readily be inserted into the resultative construction. Sentences such as **John heard his ears deaf with loud heavy metal* or **John sank himself drowned* are odd because neither of the verbs specifies in its conventional event structure the agent role that the resultative construction requires for its subject. The verb *hear* specifies an experiencer in its event structure, and the verb *sink* specifies a theme.

Argument structure constructions are important to the Construction Grammar enterprise for yet another reason. The 'simple sentences' of a language tend to have very basic meanings that reflect recurrent types of everyday experience. In other words, languages have a simple

sentence pattern to express the result of an action because acting on one's environment in order to bring about a result is a basic, recurrent, and important pattern of human behaviour on any given day, you will probably start your morning by dragging yourself out of bed, drawing the curtains open, and getting the coffee maker up and running. Several other resultative actions may follow before you have even had a shower. Similarly, languages have ditransitive constructions because situations of giving, sending, offering, and showing are just so central to the interaction between human beings. The general idea that grammatical structures reflect the realities of daily life has been captured in the slogan that 'Grammars code best what speakers do most' (Du Bois 1985:363). Goldberg (1995:39) translates this idea into what is called the **scene-encoding hypothesis**:

> Constructions which correspond to basic sentence types encode as their central senses event types that are basic to human experience.

The scene-encoding hypothesis predicts that across many languages, there should be basic syntactic patterns that express ideas such as bringing about a result, transferring an object, moving along a path, undergoing a change of state, or experiencing a stimulus. Of the English argument structure constructions that Goldberg discusses, the RESULTATIVE construction, the DITRANSITIVE construction, and the CAUSED MOTION construction do correspond closely to basic scenes of human experience.

2.3 Valency-increasing constructions

Across languages, constructions that increase the valency of verbs tend to have similar kinds of meanings, most notably RESULTATIVE constructions, CAUSATIVE constructions, and APPLICATIVE constructions (cf. Payne 1997 for a cross-linguistic overview). In English, valency-increasing constructions are exemplified by the RESULTATIVE construction that was discussed above, the DITRANSITIVE construction (*Sylvia wrote me an email*), the CAUSED MOTION construction (*John sneezed the napkin off the table*), and the WAY construction (*Frank cheated his way into Harvard*). The following sections will discuss each of these in turn.

2.3.1 The DITRANSITIVE construction

The DITRANSITIVE construction is exemplified by the following sentences.

(6) I gave John the keys.
Sylvia wrote me an email.
Sally baked her sister a cake.
Could you draw me a picture of the suspect?

The construction links a verb with three arguments, that is, a subject and two objects. These arguments map onto three distinct semantic roles. The subject argument is understood to be the agent of a transfer. This action involves the second object, which receives the role of the transferred object. This object is transferred from the agent to a recipient, who is expressed by the first object. Whereas *give*, *send*, *offer*, and many other English verbs conventionally include two objects in their argument structure, the same cannot be said of other verbs that occur with the DITRANSITIVE construction. The verbs *bake* and *draw*, although perfectly acceptable in the construction, only rarely occur with two objects in corpus data. In order to explain the acceptability of such examples, it is thus necessary to posit a construction that forms part of speakers' grammatical knowledge. By the same token, the verbs *bake* and *draw* can in no way account for the overall meaning of the respective examples, which convey the idea of a transfer. If *Sally baked her sister a cake*, that means that Sally produced a cake so that her sister could willingly receive it. Unless we assume an ad-hoc sense of *bake* along the lines of 'apply heat to an item of food with the purpose of creating a product that can then be transferred to a willing recipient', the overall meaning of the example cannot be derived from the respective word meanings. Alternatively, we can posit the DITRANSITIVE construction as a symbolic unit that carries meaning and that is responsible for the observed increase in the valency of *bake*. In this case, *bake* contributes its usual lexical meaning while the construction augments its argument structure to include a recipient argument.

Several semantic idiosyncrasies of the construction are worth pointing out. First, it appears that the agent needs to carry out the transfer consciously and willingly. For instance, it would be highly misleading to state that *Sylvia wrote me an email* when in fact Sylvia unintentionally hit 'reply to all', sending out a private message that I was never supposed to read. Second, it is equally necessary that the recipient be willing to receive the transferred objects. The sentence *We threw the squirrels some peanuts* evokes the idea of squirrels willingly accepting their peanuts. The example could not be used to describe the activity of throwing peanuts at dead squirrels. In the following examples, the respective recipients fail the criterion of being 'willing to accept'. The examples are therefore judged as odd by proficient speakers of English.

(7) ?Bill threw the coma victim a blanket.   (I threw John a blanket.)
?John gave the house new windows.   (I gave John a new key.)
?I left the baby some beer in the fridge.   (I left John some beer in the fridge.)

One might of course object that there are many uses of the DITRANSITIVE construction in which the recipient does not want to receive the transferred object, and which are nonetheless perfectly acceptable.

(8) The professor gave the student an F.
The plumber mailed me another invoice.
The criminals sent him a ransom note, asking for a million pounds.

It is probably fair to say few people enjoy receiving bad grades, unexpected bills, or ransom notes. In the light of these examples, it seems more adequate to say that the recipient has to be able to receive the transferred object, and perhaps conventionally expected to do so, which motivates the label of a 'socially qualified recipient'. But even so, there are further examples that seem to contradict what we have said so far about the DITRANSITIVE construction.

(9) The noise gave me a headache.
The music lent the party a festive air.
The flood brought us the opportunity to remodel our old bathroom.

A first thing to notice about these examples is that the 'transferred object' is immaterial. Headaches and opportunities are not the kind of thing that could be physically exchanged. Likewise, the examples contain subject noun phrases that refer to noise, music, and a flood, none of which can be said to be a volitional agent. Goldberg (1995: 144) argues that these examples metaphorically extend the basic meaning of the DITRANSITIVE construction. Whereas the basic meaning of the construction conveys the idea of a physical transfer, the examples in (9) express the relation between a cause and an effect. Causal relations are thus metaphorically understood as events of giving and receiving. A noise that causes a headache can be described as 'giving me a headache'. A flood that causes the destruction of a bathroom could, under a rather optimistic outlook on life, be construed as 'bringing an opportunity for remodelling'. The semantic spectrum of the DITRANSITIVE construction further includes transfers that will only occur in the future, acts that facilitate reception of an object, and acts that block a potential transfer.

(10) John ordered Margaret a gin and tonic.
The doctor allowed me a full meal.
The banks refused him a loan.

So far, we have identified a number of semantic idiosyncrasies that pertain to the DITRANSITIVE construction. Other idiosyncrasies of the construction concern the collocational behaviour of the construction. Specifically, there are certain verbs that do not occur in the DITRANSITIVE construction despite having a lexical meaning that would fit the constructional meaning.

(11) *Sally shouted John the news.
*John explained me the theory.
*Margaret donated the Red Cross £100.

Why do these verbs 'not work' in the DITRANSITIVE construction? While it could be suspected that we are seeing verb-specific idiosyncrasies here, some generalisations have been found. For instance, *shout* behaves just like a range of other verbs that describe manners of speech, including *scream, murmur, whisper,* or *yodel* (Goldberg 1995:128). The verbs *explain* and *donate* have in common that they represent Latinate, specialised vocabulary. Gropen et al. (1989) show that a number of morphophonological traits that characterise Latinate vocabulary, notably involving stress patterns and affixation, can to some extent predict which verbs do occur in the DITRANSITIVE construction and which ones do not. However, many open questions remain, and there is even considerable inter-speaker variation with regard to the acceptability of verbs such as *obtain* or *purchase*. Goldberg (1995:129) marks *Chris purchased him some food* as ungrammatical, but *Hannah purchased him a microscope* is one of several attested examples from corpus data. In Construction Grammar, idiosyncratic lexical preferences of constructions and even differences between speakers with regard to such preferences can be modelled as part of individual speakers' linguistic knowledge. Constructions will exhibit some regularities with regard to the kinds of verbs that they accommodate, but some amount of collocational idiosyncrasy is fully expected.

Summing up, the DITRANSITIVE construction conveys, as its basic sense, the meaning of a transfer between an intentional agent and a willing recipient. The construction conventionally occurs with verbs such as *give, send,* and *offer;* its occurrence with verbs such as *bake, feed,* or *leave* demonstrates that the construction can actively increase the valency of verbs that do not usually occur with two objects. Besides its basic sense, the construction metaphorically expresses relationships of cause and effect; additional meanings include future transfers, 'enabled'

transfers, and blocked transfers. The construction exhibits collocational restrictions so that it does not readily combine with several specific classes of verbs.

2.3.2 The CAUSED MOTION construction

The following examples illustrate the CAUSED MOTION construction.

(12) The audience laughed Bob off the stage.
John chopped carrots into the salad.
The professor invited us into his office.

Like the DITRANSITIVE construction, the CAUSED MOTION construction can alter and augment the argument structure of the verbs with which it combines. In the examples given above, the construction adds arguments to the verbs *laugh, chop,* and *invite.* Whereas the event structure of *laugh* merely specifies someone who is laughing, the example with *laugh* adds an argument of someone who is being moved, what is called a theme, and the goal of that movement. The event structure of *chop* includes a patient argument, that is, something that is being chopped. In the example above, this argument has a double role: the carrots are being chopped, for sure, but in addition to being a patient argument, they are further understood to be moving towards a goal, in this case into the salad. It is therefore appropriate to characterise the role of the carrots as both patient and theme in the context of the CAUSED MOTION construction. The construction can thus increase the valency of verbs, either by adding a path/goal argument, or by adding a theme and a path/goal argument.

Semantically, the construction indicates that an agent carries out an activity that causes a theme to move along a path or towards a goal. More succinctly, the construction conveys the meaning that 'X causes Y to move along or towards Z'. Laughter is hence presented as the ultimate cause of Bob's movement off the stage, even if it is presumably the case that Bob was walking. The CAUSED MOTION construction thus harmonises best with verbs such as *thrown, kick,* or *pull,* which are conventionally associated with an event structure containing a theme argument and a path/goal argument.

(13) John threw the ball over the fence.
Franz kicked the ball into the goal.
She pulled a handkerchief out of her pocket.

Besides its central sense, the construction conveys the meanings of assisted motion (*John helped Mary out of the car*), prevented motion (*John*

locked the dog into the bathroom), enabled motion (*Mary allowed the dog out of the bathroom*), and prompted motion (*The professor invited us into his office*).

Speakers' knowledge of the following constraints. First, the agent argument cannot be an instrument. Whereas instruments are commonly found as subjects of active clauses such as *The key opened the door* or *This knife chops and slices beautifully*, the CAUSED MOTION construction requires that the agent act autonomously.

(14) *The key allowed John into the house.
*The gun threatened the hostages into the back office.
*The knife chopped the carrots into the salad.

Another constraint on the CAUSED MOTION construction is that the path of the theme is usually intended. Hence, it is not possible to chop carrots onto the floor or pour milk next to one's glass. However, if the action that is specified by the verb is unintentional to begin with, as for instance with the verb *sneeze*, unintended paths do not pose any problem.

(15) *John chopped the carrots onto the floor.
*Bob poured milk next to his glass.
He sneezed his tooth right across town. (Goldberg 2006: 6)

The CAUSED MOTION construction is further constrained with regard to the path of the motion. Specifically, the causal event must fully determine the path of the theme. Paths with very specific goals, or goals that require independent movements along a path, therefore lead to the unacceptability of the following examples.

(16) *The audience laughed Bob home.
*Mary allowed the dog to the next village.
*Bob threw the stone to the bottom of the lake.

To summarise, the CAUSED MOTION construction conveys the meaning that 'X causes Y to move along or towards Z'. The construction can add the arguments of a theme and a path or goal to the event struc- ture of a verb, and it is associated with a range of senses that relate to the basic scenario of caused motion. The construction is chiefly constrained with regard to the subject, which cannot be an instrument, and the path, which must be fully determined by the causal action.

2.3.3 The WAY construction

The English WAY construction differs from the constructions that have been discussed up to now in this chapter because it specifies the lexical

element *way* and a possessive determiner such as *his, her*, or *their*, in its form. The following examples serve to illustrate the construction.

(17) Frank dug his way out of prison.
John elbowed his way across the room.
She slowly climbed her way up through the branches.

Just like the previously discussed constructions, the WAY construction can add arguments to the event structure of lexical verbs. The construc- tion evokes a scenario in which an agent moves along a path that is difficult to navigate. The verbs that occur in the WAY construction can be verbs of directed movement, such as *climb*, but also verbs such as *dig* or *elbow*, which do not inherently convey the idea of movement along a trajectory. The WAY construction thus imposes this meaning on its component words, adding up to two arguments in the process: the *way* argument and a path/goal argument not unlike the argument that was discussed in connection with the CAUSED MOTION construction. With a verb such as *dig*, which conventionally takes a direct object (*digging a hole, digging your own grave*), it could be argued that 'his way out of prison' is simply a noun phrase instantiating a direct object, so that nothing out of the ordinary would be going on with that example. However, the example states more than that Frank has dug a tunnel out of prison. What the example conveys is that Frank succeeded in actually travers- ing the tunnel, thus escaping from prison. Goldberg (1995: 200) points out that the WAY construction entails motion, so that examples such as the following are nonsensical.

(18) *Frank dug his way out of prison, but he hasn't gone yet.
*Staying behind the counter, the bank robbers shot their way through the crowd.

Verbs such as *climb* do specify a path argument in their event structure, but the construction adds the *way* argument, which cannot be replaced by other lexical elements that refer to paths or trajectories more broadly. The following examples are therefore unacceptable, despite their superficial similarity to the example with *climb* given above.

(19) *She quickly climbed her escape route down the stairs.
*She steadily climbed her track up to the summit.

In the basic sense of the WAY construction, the verb conveys the means by which a path is being forged: through digging, climbing, elbowing, or even shooting. In many instances of the WAY construc- tion, the path along which the agent moves is thus not pre-existing, but has to be created, prototypically with some effort. This aspect of the

constructional meaning explains that basic motion verbs such as *move* or *step* are not acceptable in the WAY construction.

(20) *She moved her way into the room.
    *She stepped her way down the stairs.

The WAY construction is very commonly used metaphorically, such that completing a demanding task is talked about in terms of the creation of a path and movement along that path. The following examples illustrate metaphorical usages of the construction.

(21) Sally was crunching her way through a bag of potato chips.
    Bob worked his way to the top of his profession.
    The three girls sang their way into the hearts of the audience.

The WAY construction is further used with a meaning that does not make reference to the means by which a path is created, but that rather describes the manner in which a movement is performed. In the examples below, the action denoted by the verb occurs simultaneously to a movement, but that action neither causes nor enables that movement. Discussions of the WAY construction hence distinguish the more common means interpretation from the manner interpretation of the construction.

(22) Sam joked his way into the meeting.
    John was whistling his way down the street.
    Triathlete Paula Finlay cried her way across the finish line.

Goldberg (1995: 212) identifies several semantic constraints on the WAY construction that have to do with the difficulty of creating a path or moving along that path. First, the activity denoted by the verb has to be unbounded or repetitive. Hence it is possible *to climb one's way up a cliff* but not *to jump one's way off a cliff*. A second constraint pertaining to the movement demands that it be self-propelled. Speakers therefore reject *The snow melts its way into the river*, in which the movement is not self-propelled, but they accept *The probe melts its way through the glacier*, in which the probe moves of its own accord. Third, Goldberg (1995: 214) suggests that the WAY construction encodes motion that is directed, not aimless. This is certainly the prototypical case, but many examples, including *James Bond romancing his way across the globe* or *young people drifting their way through life*, suggest that this constraint can be violated fairly easily.

To conclude this section, the WAY construction can be characterised as an argument structure construction that can increase the valency of a verb to include a lexically specified *way* argument and another argu-

ment that expresses a path or a goal. There are two basic interpretations of the WAY construction, namely the more common means interpretation, in which the verb encodes the means by which a path is created and/or traversed, and the manner interpretation, in which the verb specifies the manner of an action that occurs simultaneously to a movement. In the means interpretation of the construction, the agent's action is commonly quite difficult, which imposes a number of constraints on the kinds of movements that can be expressed by the WAY construction.

2.4 Valency-decreasing constructions

In the Construction Grammar literature, the discussion of argument structure constructions has been dominated by the topic of valency-increasing constructions. It is not hard to see why this should be the case: constructions that can add multiple arguments to the event structure of otherwise intransitive verbs provide compelling evidence for the idea that knowledge of language must include knowledge of constructions and for the idea that constructions can override lexical meanings. Specifically, speakers must know that it is acceptable to utter a sentence such as *Sally baked her sister a cake* and that the lexical meaning of the verb *bake* is enriched by the constructional context to convey the idea of a transfer. In the introductory chapter, the constructional override of lexical meaning was discussed as the principle of coercion (Michaelis 2004). Yet valency-increasing constructions only represent one half of the set of valency-changing constructions in English. It will be argued in this section that valency-decreasing constructions are no less important to the Construction Grammar enterprise than their more famous relatives.

Cross-linguistically common constructions that decrease the valency of a verb are PASSIVE constructions (*Mistakes were made*), REFLEXIVE constructions (*John shaved*), RECIPROCAL constructions (*Let's meet again soon*), and IMPERATIVE constructions (*Go!*). This section will further discuss NULL INSTANTIATION constructions, which can be illustrated with examples such as *Tigers only kill at night* or *I know*. In these examples, central participants of the actions that are described are left unexpressed, but are nonetheless understood.

2.4.1 The PASSIVE

The English PASSIVE construction with *be* is most often discussed as the marked counterpart of ACTIVE sentences with transitive verbs. The following examples thus form corresponding pairs.

(23) The reviewer rejected the paper.
The paper was rejected (by the reviewer).
John paid the bill.
The bill was paid (by John).

Because of the close relation between pairs such as these, and because the ACTIVE clearly represents a construction that is applicable in a much wider set of contexts, characteristics of the PASSIVE are typically phrased in terms of how PASSIVE sentences deviate from the less marked ACTIVE sentences. Huddleston and Pullum (2002: 1428) point out three correspondences. First, the subject of the ACTIVE (the reviewer, John) appears in the corresponding PASSIVE sentences as an oblique object marked with the preposition by. As the parentheses in the examples indicate, it is possible, and indeed the default option in actual language use, to omit this argument in the PASSIVE. It is this type of omission that justifies categorising the PASSIVE as a valency-decreasing construction. Second, the object of the ACTIVE (the paper, the bill) appears as the subject of the corresponding PASSIVE sentences. The PASSIVE thus functions to reverse the relative prominence of the two arguments in the event structure of a transitive verb. Whereas normally the agent of a transitive verb has to be expressed and the patient argument can be omitted under certain circumstances (Thanks, I have already eaten), the PASSIVE construction makes the patient argument obligatory and the agent argument optional. Third, the verb of the PASSIVE construction is more complex in form than the corresponding verb in the ACTIVE. It appears in the form of a past participle that is preceded by a form of the auxiliary be.

Given these clear-cut correspondences, it is a tempting idea to think of the PASSIVE as a grammatical rule that takes a transitive ACTIVE sentence as its input and yields a passivised counterpart. However, Huddleston and Pullum offer a range of examples that differ from the above description in several respects, but that arguably still instantiate the PASSIVE construction.

(24) John was given a large data set for the analysis.
*A large dataset was given John for the analysis.
Sally's papers are referred to a lot.
*The children are looked to a lot.

In the first example, the verb give is a ditransitive verb, not a transitive one. As the second example shows, only the recipient, not the theme, can appear as the subject of a PASSIVE sentence. This is not per se a problem for a putative passivisation rule: the rule would just have to include the additional information that theme arguments are not avail-

able for passivisation. The example with Sally's papers illustrates what is called a prepositional passive. In the example, the prepositional object of the verb refer appears as the subject of a passivised sentence. By contrast, this does not work with look. The difference between refer and look is difficult to explain with recourse to a general grammatical rule, but it can be made sense of if the PASSIVE is viewed as a construction that has distinct collocational preferences. As a rule of thumb, it appears that prepositional passives work well with highly entrenched or idiomatic combinations of verbs and prepositional objects. Hence, approve of a plan, pay for everything or deal with issues are good candidates for prepositional passives, whereas search under a bed, walk across a hallway, or choose between two theories yield questionable examples.

(25) The plan was approved of by my mother.
Everything was paid for in advance.
These issues will be dealt with in another paper.
?The bed was thoroughly searched under.
?This hallway was walked across by George Washington.
?These two theories have to be chosen between.

Examples of the PASSIVE also show varying degrees of acceptability in cases where clausal structures appear as the subject of the passivised sentence. The following examples show instances of -ing clauses, infinitive clauses, and wh-clauses. For each of these categories, it is possible to find examples that sound fully idiomatic and, conversely, other examples that seem rather unacceptable.

(26) Texting a marriage proposal is not recommended.
*Texting a marriage proposal was remembered (by John).
Not to go would be considered rude.
*Not to go was decided (by John).
Whether it was feasible had not yet been determined.
*Whether it was feasible was wondered (by John).

A general passivisation rule would be of limited use to account for such asymmetries. The only viable solution in a dictionary-and-grammar model of linguistic knowledge would be to inscribe these restrictions into the lexical entries of the respective verbs in an ad-hoc fashion. This, however, raises further questions, specifically with regard to novel verbs. Take for instance the recent verb blog. The verb is regularly passivised, and even if your experience with such examples is limited, you will probably agree that Our wedding was blogged about is an idiomatic sentence of English whereas *That we married was blogged by John is not. If you do, this suggests that your knowledge of language includes

knowledge of how *blog* behaves as a verb, how this behaviour compares to that of other verbs, and in what kind of PASSIVE constructions those verbs appear. This kind of knowledge can be accommodated by the construct-i-con in a straightforward way.

Finally, Huddleston and Pullum (2002: 1435) note that there are verbs which seem to be restricted to the PASSIVE, among them *be reputed to, be said to,* and *be rumoured.*

(27) Pat is reputed to be very rich.
Kim is said to be a manic depressive.
It is rumoured that there will be an election before the end of the year.

The fact that some examples of the PASSIVE cannot be transformed into a corresponding ACTIVE clause makes it difficult to maintain the idea of a grammatical rule that systematically links both constructions. To be sure, speakers will be aware that the two constructions correspond in important ways, that they often paraphrase one another, and that they express similar states of affairs. All of this does not run counter to the idea that the PASSIVE is a construction in its own right, a generalisation that speakers have to learn as an independent unit of grammatical knowledge.

2.4.2 The IMPERATIVE construction

The English IMPERATIVE construction is shown in the following examples.

(28) Call me after lunch.
For next time, please read chapters three and four.
Take one of these in the morning, and another one before bedtime.

The IMPERATIVE is a valency-decreasing construction because it suppresses a central argument of the respective verbs, namely the agent. It is easy to construct paraphrases of the above examples in which such an agent is overtly expressed. The sentence *I would ask you to call me after lunch* makes explicit that it is the addressee who is expected to perform the action denoted by the verb. The meaning of the IMPERATIVE construction is thus non-compositional. It cannot be derived from the lexical meanings of the words alone that the agent of *Call me after lunch* should be the addressee. Besides this basic observation, there are several other pieces of evidence that the IMPERATIVE is a construction. Most importantly perhaps, there are constrains on the combination of the

IMPERATIVE with other constructions. Proficient speakers of English find the following examples questionable.

(29) *Must/should/got to leave!
*Be called later!

The first example suggests that combining the IMPERATIVE with a modal auxiliary yields an intelligible but ungrammatical utterance. There is nothing semantically odd about such a request; it is the structure that speakers find unacceptable. Second, Takahashi (2012: 124) observes that some combinations of the IMPERATIVE with the PASSIVE yield unacceptable examples. Examples that do work would include *Be checked over by a doctor* or *Stand up and be counted for what you are about to receive.*

The IMPERATIVE further occurs relatively rarely with the perfect (*Have your homework done by 5!*) and the progressive (*Be waiting in the lobby at 9!*). Huddleston and Pullum (2002: 932) explain this by pointing out that requests typically prompt dynamic actions rather than states. The grammatical behaviour of the IMPERATIVE in this regard is thus a consequence of real-world circumstances.

An unpredictable semantic trait of the construction concerns its interpretation in coordinations of imperative clauses and declarative clauses. In the following examples, the initial IMPERATIVE clauses are understood as having conditional meaning.

(30) Take an aspirin and you'll feel better.
Ask him about his dissertation and he will be rambling on for hours.
Do that again and you will regret it for the rest of your life.

What is noteworthy about these examples is that quite often, their overall meaning directly contradicts the IMPERATIVE clause. Whereas the first example suggests that the hearer take an aspirin, the two other examples are meant to discourage the hearer from complying with the initial request.

The English IMPERATIVE further exhibits strong collocational preferences. Takahashi (2012: 24) observes that the verbs *let, tell, look,* and *come* are among the most frequently used verbs in the construction. Some of these even have preferred argument realisation patterns, for instance *tell*, which usually combines with *me*, as in the example below.

(31) Let's not argue any more.
Tell me about it.
Look, we all make mistakes sometimes.
Come on!

Takahashi's frequency results indicate that the function of the IMPERATIVE is not so much that of a vehicle for giving orders as that of the rather polite organisation of discourse, as in expressions such as *let's see, look, listen, trust me,* or *guess what.* This observation echoes a similar finding by Stefanowitsch and Gries (2003).

2.4.3 *Null Instantiation*

The term NULL INSTANTIATION refers to the phenomenon that not all arguments that a verb has in its event structure are overtly expressed. In many cases, the possibility of NULL INSTANTIATION has to be seen as a property that is inscribed in the lexical entry of a verb. For instance, the verb *eat* allows omission of the patient argument (*The children ate noisily*) whereas the verb *devour* does not (*The children devoured noisily*). An interesting aspect of NULL INSTANTIATION is that verbs differ with regard to the definiteness of the argument that can be omitted. Ruppenhofer (2005) distinguishes INDEFINITE NULL INSTANTIATION (INI), which can be observed with the verb *read,* from DEFINITE NULL INSTANTIATION (DNI), which shows itself in uses of the verb *understand.* The crucial difference is whether the speaker knows the exact identity of the omitted argument. Compare the following examples:

(32) Kim was reading. I just don't remember what.
     Kim understood. *I just don't remember what.

While it is perfectly acceptable for me to say that *Kim was reading* and to have only a vague idea of what it was that she was reading, saying that *Kim understood* conveys that I know more or less exactly what she understood. The behaviour of INI verbs and DNI verbs makes for an interesting topic, but this section will focus instead on a third type of NULL INSTANTIATION, namely cases in which a construction licenses the omission of an argument. Ruppenhofer and Michaelis (2010) report on several such constructions, which they find to be genre-specific, that is, tied to very specific communicative situations. Consider, for instance, the LABELESE construction.

(33) Contains sulphites.
     Creates visibly fuller, thicker hair.
     Eliminates pet odours.

The LABELESE construction suppresses the subject argument of a verb. This does not create any communicative problems because the construction can only appear printed on the very referent that is left unexpressed by the construction. The LABELESE construction not only occurs

with verbs but also works with a whole range of PREDICATIVE constructions, as is evidenced by statements such as *easy to use, for children 4 years and up, made in China,* and *dietary supplement.* In these examples, the reader understands that an expression such as *made in China* describes a characteristic of the product on which the expression is found. Another NULL INSTANTIATION construction is confined to the language of cooking recipes.

(34) Season liberally with salt and pepper.
     Chill before serving.
     Cut into one-inch-thick slices.

Ruppenhofer and Michaelis (2010: 181) call this the INSTRUCTIONAL IMPERATIVE construction. Like the LABELESE construction, it represents a generalisation that speakers must have learned. Whereas it might be argued that quite generally, an argument can be omitted in contexts where its identity is glaringly obvious, this theory fails to explain why *Cut into one-inch-thick slices* is fine as a written instruction but decidedly odd as a spoken request. The next time you are preparing a meal together with a friend, sprinkle your conversation with something like *Fry until lightly brown,* and see what happens.

2.5 Relations between argument structure constructions

Many argument structure constructions in English can be paraphrased in terms of another, formally and semantically related argument structure construction. The previous section has discussed the example of ACTIVE and PASSIVE sentences, which are mutually linked through a number of correspondences. A further example of an argument structure construction with a close paraphrase is the DITRANSITIVE construction, which has a 'twin' construction in the PREPOSITIONAL DATIVE construction. Consider the following examples.

(35) John gave Mary the book.
     John gave the book to Mary.

Another close relation exists between the CAUSED MOTION construction and what one might call the *With*-APPLICATIVE construction.

(36) John brushed barbecue sauce onto the ribs.
     John brushed the ribs with barbecue sauce.

Linguists of different theoretical persuasions have long been interested in the relations between these constructions. Pairs of constructions such as the ones given above have come to be known as **syntactic**

alternations; the pairs in (35) and (36) are known respectively as the DATIVE ALTERNATION and the LOCATIVE ALTERNATION. As with ACTIVE and PASSIVE sentences, the correspondences between the two members of those pairs invite the idea of a grammatical rule that systematically links one to the other. In a dictionary-and-grammar model of linguistic knowledge, such a rule would allow speakers to use one member of the pair as the input from which the second member of the pair can be derived as an output. The rule would apply across the board, for all manners of verbs, unless the lexical entry of a verb specifically disallows its application. For both the DATIVE ALTERNATION and the LOCATIVE ALTERNATION, there are what are called non-alternating verbs, as shown in the following examples.

(37) John took his son to the doctor.
*John took the doctor his son.
John filled the glass with water.
*John filled water into the glass.

The verb *take* does not readily enter the DITRANSITIVE construction, and the fact that *fill* cannot be used in the CAUSED MOTION construction is even being taught to learners of English as a second language. As you may guess, researchers in Construction Grammar view the idea of a grammatical rule linking the members of a pair of constructions as problematic. The alternative view is expressed by Goldberg under the heading of the **surface generalisation hypothesis** (2006: 25):

[T]here are typically broader syntactic and semantic generalizations associated with a surface argument structure form than exist between the same surface form and a distinct form that it is hypothesized to be syntactically or semantically derived from.

The phrase 'a surface argument structure form' here paraphrases the term 'construction' in a theory-neutral fashion. What the hypothesis claims is that each member of a pair of paraphrasable constructions is best analysed on its own terms, all correspondences notwithstanding. The hypothesis further predicts that each member of such a pair will exhibit systematic differences with regard to the other member and systematic generalisations that pertain to its own form and meaning. Both of these points can be illustrated with the behaviour of the DITRANSITIVE construction. Interestingly, examples of the DITRANSITIVE construction correspond not only to examples of the PREPOSITIONAL DATIVE construction, but also to examples of the *For*-BENEFACTIVE construction.

(38) John gave the book to Mary.   John gave Mary the book.
John poured a scotch for Mary.   John poured Mary a scotch.

On the dictionary-and-grammar view of linguistic knowledge, these pairs would need to be linked by two separate rules, which implies that the two DITRANSITIVE sentences on the right would in fact not instantiate the same construction, despite having the same surface argument structure form. This conclusion, however, is questionable. Goldberg (2006: 27) presents the examples shown in (39) to make the case that DITRANSITIVE sentences corresponding to PREPOSITIONAL DATIVE examples and DITRANSITIVE sentences corresponding to *For*-BENEFACTIVE examples show exactly the same behaviour. When one is fine, so is the other; when one is questionable or ungrammatical, so is the other.

(39) *Ditransitives*   *Paraphrases*
Mina bought Mel a book.   Mina bought a book for Mel.
Mina sent Mel a book.   Mina sent a book to Mel.
??Mina bought Mel it.   Mina bought it for Mel.
??Mina sent Mel it.   Mina sent it to Mel.
??Who did Mina buy a book?   Who did Mina buy a book for?
??Who did Mina send a book?   Who did Mina send a book to?
*Mina bought Mel yesterday a book.   Mina bought a book yesterday for Mel.
*Mina sent Mel yesterday a book.   Mina sent a book yesterday to Mel.

Goldberg concludes that the similarities between examples that show the surface form of the DITRANSITIVE construction are greater than similarities between the member constructions of a syntactic alternation. In her own words, '[t]he robust generalizations are surface generalizations' (2006: 33).

2.6 Summing up

This chapter introduced the idea of argument structure, which is a synonym for the term 'valency'. Argument structure describes the number and character of elements that can bond to a given linguistic item, and is a term that pertains both to the meaning of the bonding elements and to the form of those elements. The former aspect was called the event structure; the latter was called syntactic argument structure. The chapter introduced thematic roles such as agent, patient, and experiencer. It was argued that argument structure constructions are items of linguistic knowledge that allow speakers to use verbs in syntactic contexts in which they are not conventionally used. 'Famous' examples such as *John sneezed the foam off his capucino* illustrate this phenomenon.

Argument structure constructions are syntactic constructions that can be filled by all manners of lexical material and that convey some meaning of their own that goes beyond the meaning of their component words. There are hence two main pieces of evidence for argument structure constructions: first, they allow non-conventional combinations of verbs and syntactic contexts; second, they convey non-compositional meanings. The combination of verbs and argument structure constructions is not unconstrained: Goldberg's semantic coherence principle states that a verb can only be combined with a construction if the participants that are evoked by the verb and the construction match semantically. There are hence limits on the possible combinations of verbs and constructions. The importance of argument structure constructions to Construction Grammar at large was discussed in connection with the scene encoding hypothesis, that is, the idea that the basic syntactic patterns of a language encode recurrent event types that are basic to human experience.

The chapter then drew a distinction between valency-increasing constructions and valency-decreasing constructions. Valency-increasing constructions such as the RESULTATIVE construction, the DITRANSITIVE construction, the CAUSED MOTION construction, and the WAY construction can augment the argument structure of lexical verbs. The construction can augment the argument structure of lexical verbs. The constructions thus add participants to the event structure of the verb. By contrast, valency-decreasing constructions such as the PASSIVE, the IMPERATIVE, the LABELESE construction, and the INSTRUCTIONAL IMPERATIVE construction suppress the expression of participants that are in the event structure of the respective verb. Quite often, the suppressed arguments are easily recoverable from the context. Examples of the LABELESE construction such as Contains sulphites, read on a bottle of red wine, leave little doubt as to what could be meant. However, it was argued that contextual recoverability is not the only constraint on the use of these constructions.

The chapter closed with a discussion of relations between paraphrasable constructions, called syntactic alternations. In contrast to the idea of grammatical rules that systematically link argument structure patterns with similar meanings, what is called the surface generalisation hypothesis expresses the view that argument structure constructions are best analysed in their own right because similarities will be greater between examples with the same surface form than between members of a syntactic alternation.

In summary, despite the fact that 'simple sentences' such as Pat gave Bill a book or Bob hammered the metal flat give the initial impression of being completely regular and semantically compositional, they illustrate

constructions that yield strong evidence for a constructional view of linguistic knowledge. Any theory of grammar needs to have an explanation for the fact that John cut the rope in half with a knife is a fine sentence of English whereas *John heard bit ears deaf with loud heavy metal is not. Positing 'argument structure' constructions, in connection with principles that constrain possible combinations of verbs and constructions, provides an intuitive and testable account.

Study questions

- What is argument structure?
- Can you give an example of an expression where the event structure of a verb and its syntactic argument structure do not match?
- What are thematic roles?
- What does the surface generalisation hypothesis predict? What data would cast doubt on the hypothesis?
- What are the two main pieces of evidence for recognising argument structure constructions?
- What is the principle of semantic coherence?
- What is meant by the term NULL INSTANTIATION?
- Can you come up with an example of an English valency-changing construction that was not discussed in this chapter?

Further reading

The central reference for this chapter is Goldberg (1995), Chapters 2 and 9 in Goldberg (2006) represent continuations of that work. Boas (2003, 2005) and Goldberg and Jackendoff (2004) discuss English RESULTATIVE constructions. Foundational work on the topic of verbs and their argument structure is found in Pinker (1989), Levin (1993), and Levin and Rappaport Hovav (2005). A very useful resource is the Valency Dictionary of English (Herbst et al. 2004); see also Herbst and Götz-Votteler (2007). General overviews of valency-changing constructions are found in Payne (1997) and Haspelmath and Müller-Bardey (2004). These include many examples from languages other than English, which helps to put the English data into perspective.

3 Inside the construct-i-con

3.1 Meaningless constructions?

The previous two chapters presented the view that knowledge of language should be modelled as a construct-i-con, that is, as a large network of form–meaning pairs that accommodates words, idioms, semi-specified patterns such as THE X-ER THE Y-ER, and also argument structure constructions such as the DITRANSITIVE construction or the RESULTATIVE construction. For all of these constructions, it is fairly straightforward to make the case that aspects of their form or meaning cannot be predicted from more general patterns that exist in the grammar of English. In short, it is intuitively clear that words such as *dog* or *green* are forms that have lexical meanings; it is equally clear that the phrase *pushing up daisies* has an idiomatic meaning; and the non-compositional meaning of an example such as *John sneezed his cat coaking wet* is evidence for including the English RESULTATIVE construction as part of speakers' knowledge of language. However, you might wonder, is this enough evidence to make the case that *all* of linguistic knowledge consists of form–meaning pairs? Do all syntactic forms carry meaning? On the view that knowledge of language is a large repository of symbolic units, the answer would have to be a 'yes' – a symbol is only a symbol by virtue of having a form *and* a meaning. At the same time, there are syntactic forms for which it is quite difficult to establish a meaning in anything but the most general of terms. Consider the following examples.

The first example illustrates what must be one of the most funda-mental principles of English grammar: verbs agree with their subjects, showing inflections that correspond to the categories of number and

(1) John sings.
    Bob heard a noise.
    One sock lay on the sofa, the other one under it.

person. A third person singular subject, in the simple present tense, combines with verb forms that end in the suffix /-s/. Speakers obvi-ously know this, but does that knowledge represent a construction? The second example, *Bob heard a noise*, combines a verb with a subject and an object, thus forming a transitive clause. The previous chapter discussed argument structure constructions as units of linguistic structure that have meaning. By analogy with the DITRANSITIVE construction and the RESULTATIVE construction, does the example represent something that could be called the TRANSITIVE construction? If so, what would be its meaning? One answer to the latter question, motivated by examples such as *Bob hit the nail* or *Bob ate the sandwich*, would be to characterise the prototypical transitive clause as one in which an agent intentionally affects an individuated, inanimate patient argument (cf. Hopper and Thompson 1980; Thompson and Hopper 2001). But if the TRANSITIVE construction were to include examples such as *Bob remembered his appointment*, *Bob walked a mile*, or *Bob weighed 15 stone*, such a semantic characterisation would be difficult to maintain. Moving on to the third example, *One sock lay on the sofa, the other one under it* illustrates a syntactic pattern in which two clauses are coordinated and the second clause omits an element that is common to both, in this case the verb form *lay*. Evidently, speakers know that this particular pattern is an acceptable way to express a given idea, whereas **One sock lay on the sofa, the other one under* would not be acceptable, despite only a seemingly minor differ-ence. Is this kind of knowledge still knowledge of constructions?

The fundamental question whether all constructions are meaningful has been answered in conflicting ways in the Construction Grammar literature. Goldberg (2006: 166-82) takes the position that even highly abstract patterns are meaningful. She discusses the example of SUBJECT–AUXILIARY INVERSION, which is a syntactic pattern that occurs in questions, conditionals, and exclamatives, amongst several other con-struction types. A few examples are shown below.

(2) Would you mind if I smoke in here?
    Had I known this, I would have stayed at home.
    May he rest in peace!
    Rarely have I heard such nonsense.

Whereas earlier research had pointed to this large range of contexts as evidence that SUBJECT-AUXILIARY INVERSION is a purely formal phenomenon with no semantic substance (Green 1985), Goldberg argues that all construction types that share this particular syntax also share semantic traits, notably the characteristic of non-assertiveness. Especially, questions, conditionals, and wishes describe states of affairs

that are not factual. Arguing against this idea, Fillmore et al. (2012: 326) explicitly proclaim 'the legitimacy of semantically null constructions'. Constructions without meanings would be linguistic generalisations not unlike traditional phrase structure rules, such as the generalisation that noun phrases can be formed through the combination of a determiner, an attributive adjective, and a noun. All that such a generalisation specifies is that a certain configuration of syntactic structures yields a grammatically acceptable phrase of English. Note that we are talking about precisely the kind of thing that would be handled by the grammatical component in the dictionary-and-grammar model of linguistic knowledge. So, is there something to the distinction of grammar and lexicon after all? Would the construct-i-con be able to accommodate purely formal generalisations? In order to answer these questions, we need to have a closer look at 'meaningless' constructions.

Fillmore et al. (2012) identify three construction types that they view as meaningless. The first kind is exemplified by examples such as *John sings*, which combines a subject with an agreeing verb in what is called the SUBJECT–PREDICATE construction. This construction reflects a formal generalisation, but it does not contribute any meaning of its own that would go beyond the combined meanings of the component lexical items. Fillmore et al. even reject the idea that the SUBJECT–PREDICATE construction might evoke a highly general meaning, such as 'the establishment of a topic about which something is said'; in examples such as *There's a problem* or *It's a shame* the subject constituents (*there*, *it*) are not referential and hence cannot be the topics. The case for viewing the SUBJECT–PREDICATE construction as meaningful is thus highly tenuous. Another purely formal construction would be the MODIFIER–HEAD construction, which is instantiated by the combination of an adjective with a noun (*red ball*), or an adverb and an adjective (*completely full*). What the construction formally specifies is that the first element modifies the second and that the second element determines the type of phrase that the whole construct represents. Whereas one might be tempted to argue that the construction conveys the meaning of 'an X that has the quality of being Y', it turns out that this paraphrase only works for a subset of all examples that instantiate that construction. Consider the following examples.

(3) John smoked a fat cigar.
   I never see any of my old friends any more.
   The judge found the alleged murderer innocent.
   Bob's restaurant was closed down for hygienic reasons.

Whereas *a fat cigar* is 'a cigar that is fat', *old friends* are not 'friends that are old', and an *alleged murderer* is no more 'a murderer who is alleged'

than *hygienic reasons* are 'reasons that are hygienic'. So even though the syntactic mechanism of combining a modifier with a head is the same across these examples, the respective interpretations differ.

The second type of construction that Fillmore et al. discuss is not so much meaningless in itself as highly heterogeneous in the meanings that are associated with different examples of the respective constructions. In this category, Fillmore et al. include SUBJECT–AUXILIARY INVERSION, criticising Goldberg's account of a common core meaning as too vague (Fillmore et al. 2012: 327). While there may be common semantic traits of questions, conditionals, and exclamatives, Fillmore et al. doubt that ordinary speakers of English entertain semantic generalisations at such high levels of abstractions. However, they maintain that speakers know the formal pattern of SUBJECT–AUXILIARY INVERSION. Another highly abstract formal generalisation that maps onto a variety of separate meanings is exemplified by FILLER–GAP constructions (Sag 2010). These constructions have in common that an argument of a verb, typically a direct object, appears in a place that differs from its canonical position in a simple declarative clause. For instance, in the sentence *Bob ate the sandwich*, the object directly follows the verb. Compare that to the following sentences that include the verb *eat*.

(4) What kind of sandwich did you eat?
   How many sandwiches he ate!
   Keep track of all the sandwiches you eat!
   Normally the kids don't touch sandwiches, but this one they'll eat.
   The more sandwiches you eat, the hungrier you get.

The examples above illustrate different constructions, namely *Wh*-QUESTIONS, EXCLAMATIVES, RELATIVE CLAUSES, the TOPICALISATION construction, and the THE X-ER THE Y-ER construction. In each of these examples, the thing that is eaten is expressed, but it appears in a place before the verb, not after it. As a technical way of referring to this state of affairs, we can say that the thing eaten, the filler, appears in a non-argument position. The argument position, which directly follows the verb *eat*, is not taken up by any linguistic material in these examples, so that we speak of it as a 'gap'. In the published literature on FILLER–GAP constructions you will often find example sentences in which filler and gap are co-indexed and shown as such, as illustrated in the example below.

(5) [What kind of sandwich] did you eat ___?
        filler   gap

As with SUBJECT–AUXILIARY INVERSION, it does appear that FILLER–GAP constructions reflect a broad syntactic generalisation specifying that an argument of a verb may appear in a non-argument position.

A linguistic theory would be considered 'elegant' if it could state that generalisation and explain, in one fell swoop, the syntactic behaviour of the whole range of construction types that are shown in (4). By the same token, it is clear that these construction types do not share common semantic core. Fillmore et al. (2012) thus posit FILLER–GAP an abstract syntactic generalisation that is at work in different constructions. The generalisation has no meaning in itself; rather, the construction types (Wh-QUESTIONS, EXCLAMATIVES, RELATIVE CLAUSES, TOPICALISATION construction, and the THE X-ER THE Y-ER) are associated with their respective meanings.

Third, Fillmore et al. identify ELLIPSIS constructions as syntactic generalisations that do not carry meaning. Three specific cases that the discuss are called GAPPING, STRIPPING, and SHARED COMPLETION (also known as RIGHT NODE RAISING).

(6) One sock lay on the sofa, the other one under it.
     John put the bowls in the dishwasher, and the plates, too.
     The South remains distinct from and independent of the North.

In typical examples of GAPPING, two phrasal constituents are juxtaposed, and the second one is missing a verb form that is present in the first one, which is called the 'gap'. The term is motivated by the fact that the remaining parts of the phrase are still there. In the example above the phrases *the other one* and *under it* would be called 'remnants'. The second example illustrates STRIPPING (Hankamer and Sag 1976), a term which is meant to convey that a full sentence is stripped of everything except one constituent. The example conveys that 'John put the plates in the dishwasher' by means of just mentioning *the plates*. STRIPPING can thus be seen as a more radical form of GAPPING. A typical feature of STRIPPING is the presence of the adverbial *too* or the negative particle *not*, as in *Eric played the guitar role, not George*. The third of the examples given above is a case of SHARED COMPLETION. It is useful to think of *distinct from* and *independent of* as two adjectival phrases that share a common ending, namely *the North*. The common ending in SHARED COMPLETION can be the noun phrase part completing a prepositional phrase, but the following examples show that other patterns are also possible.

(7) His theory is based on – but more complicated than – string theory.
     Stretching can help prevent or at least reduce soreness.

He is one of the most – if not in fact THE most – tragic figure in sports history.

each of these examples contains a phrasal head that requires a complement: the preposition *on*, the verb *prevent*, and the determiner *one* all require a nominal complement to follow them. However, what follows these elements is a conjunction (*but, or, if*), which is followed by further linguistic material before the projected nominal structure (*string theory, at least reduce* or *one if not the most* are not syntactic constituents. Rather, it seems more appropriate to view the strings *or at least reduce* and *if not the most* as parenthetical structures that are inserted between a head and its complement. The role of PARENTHETICAL constructions in Construction Grammar is discussed in more detail in, for example, Imo (2007). To sum up, elliptical constructions such as GAPPING, STRIPPING, and SHARED COMPLETION do not lead to coercion, they do not convey meanings of their own, and they yield sentences with meanings that can be worked out by processing the meanings of the component words.

Where does this survey of 'meaningless' construction leave the idea of a construct-i-con as a repository of form–meaning pairs? Does the construct-i-con perhaps need an appendix of syntactic rules, just as the traditional view of grammar needed an appendix of idiomatic expressions? The least problematic for the Construction Grammar view, as outlined in the previous two chapters, are construction types such as the family of SUBJECT–AUXILIARY INVERSION constructions or FILLER–GAP constructions. Here, there are actually two possible routes for analysis, which are outlined by Stefanowitsch (2003: 420) in a study that addresses the different semantic relations between modifier and head in the two English GENITIVE constructions:

There are two ways in which this issue can be approached [...]: by a prototype analysis that takes one of the semantic relations [between modifier and head] as basic and finds a principled way of accounting for all other relations as extensions from this basic prototype; or by a schematic analysis that finds an abstract characterization that covers all and only the relations encoded by the given construction.

We have already seen that Goldberg (2006) takes the 'schematic' approach for her analysis of SUBJECT–AUXILIARY INVERSION, looking for a common semantic core that is shared by all constructions that have this syntactic pattern. Taylor (1996: 343–7) takes the 'prototype' approach in an analysis of the English S-GENITIVE construction, trying to relate the different interpretations of that construction semantically.

Both approaches are viable in principle, as the question at what levels of abstraction speakers make generalisations is essentially an empirical one that has to be determined individually for each and every speaker and each and every grammatical phenomenon. It is further possible that schematic analyses and prototype analyses are not even mutually exclusive, as speakers may entertain several generalisations at the same time, some at lower levels, and some at higher, more abstract levels. So far then, no appendix to the construct-i-con is needed, but what about the other meaningless constructions?

The first construction type discussed by Fillmore et al. (2012), illustrated by the SUBJECT–PREDICATE construction, requires an analysis that combines the schematic approach with the prototype approach. As Fillmore et al. point out, positing a schematic meaning for all combinations of a subject with a predicate seems like a project with little hope of success. Existential and presentational constructions such as *There are no unicorns* or *There's beer in the fridge* pose difficulties for a schematic analysis. Conversely, it seems difficult to relate such an abstract meaning to the more concrete meanings that are conveyed by existential and presentational constructions. The prototype approach, as one of the solutions advocated by Stefanowitsch, is thus also of limited use. A way out of the dilemma would be a combination of the two: one could assume a schematic analysis for instances such as *John sings* and *A man walks into a bar*, while positing separate constructional schemas for sentences such as *There's beer in the fridge*. In fact, one of the foundational studies in Construction Grammar does this and presents a prototype-based analysis of English THERE constructions (Lakoff 1987). The main idea would be that specialised constructions can share selected formal and functional aspects of more general constructions, while at the same time displaying characteristics that are not shared by the more general schema. With a little goodwill, generalisations such as SUBJECT–PREDICATE and MODIFIER–HEAD can thus be brought into the fold of the construct-i-con.

What remains as a true problem, however, is the case of elliptical constructions. It seems that constructions such as SHARED COMPLETION, GAPPING, and STRIPPING have all the characteristics of traditional phrase structure rules, while not conveying any substantial meaning of their own. If we were to assign degrees of 'meaninglessness' to different constructions, these construction types would surely top the list, even when compared to SUBJECT–PREDICATE and MODIFIER–HEAD constructions. Furthermore, it is not immediately clear whether these syntactic patterns would exhibit other tellale signs of constructions, namely either idiosyncratic constraints (cf. Section 1.3.3) or collocational pref-

erences (cf. Section 1.3.4). If all of the criteria for constructionhood fail, it would have to be conceded that these syntactic patterns do nor form part of the construct-i-con, as envisioned by current practitioners of the Construction Grammar framework.

Summing up, purely formal generalisations, that is, constructions without meanings, have no natural place in the construct-i-con. In fact, if Construction Grammar is to be seen as a veritable theory of linguistic knowledge, then this theory will make the strong claim that there should not be any constructions without meanings. A scientific theory is usually considered 'good' if it makes claims that can be falsified. Construction Grammar is thus only a good theory of linguistic knowledge if it is clear what empirical observations could show that it is wrong. Hence, Construction Grammarians need to face the critical evidence of patterns such as SHARED COMPLETION, GAPPING, and STRIPPING in order either to save the current idea of the construct-i-con or to adapt the theory in an ad-hoc way to accommodate the empirical facts. As elliptical constructions are fairly frequent and productive, and as the 'problem' of meaningless constructions extends to phrasal constructions such as the VERB PHRASE construction or the PREPOSITIONAL PHRASE construction, clear answers are needed. The worst that Construction Grammarians could do would be to look the other way, towards nice meaningful patterns such as THE X-ER THE Y-ER or the WAY construction, and pretend that the problem of meaningless constructions does not exist.

3.2 The construct-i-con: a network of interlinked constructions

Up to now, the construct-i-con has been described in quite vague terms, as a large repository of form–meaning pairs that represents speakers' knowledge of language. A rather important addendum is that this repository is not a flat list or even an unordered 'bag of constructions', but instead a highly structured, hierarchical network in which constructions are interlinked. The following sections discuss how constructions are linked to one another in the construct-i-con.

3.2.1 Inheritance

A central concept in this regard is the notion of inheritance. Inheritance captures a relation between more abstract constructions, which are situated towards the top of the constructional network, and more specific constructions, which are found in lower levels of the constructional hierarchy. Naturally, there is no simple binary distinction between abstract constructions and concrete constructions. Rather,

Transitive

face OBJ
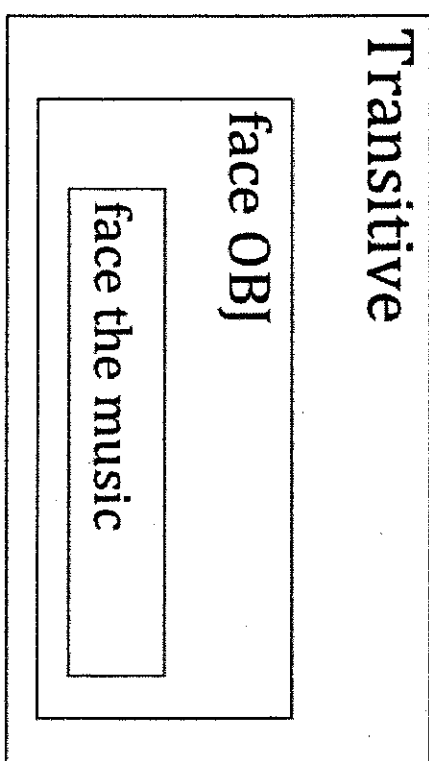
face the music

Figure 3.1 *face the music* and the constructions it instantiates

constructional generalisations are situated along a continuum from very abstract schemas down to lexically specified patterns. Concrete patterns thus instantiate more abstract patterns at increasingly schematic levels. Figure 3.1 visualises the idea that a lexically specified idiom such as *face the music* 'accept unpleasant consequences of one's actions' instantiates a number of more abstract constructions, such as the transitive use of the verb *face* and the more general TRANSITIVE construction.

Constructional characteristics, that is, characteristics of form and meaning, are inherited in a downwards direction, from higher, more schematic levels towards lower, more concrete levels. To give an example, one of the most abstract constructions we have encountered so far would be the SUBJECT–PREDICATE construction. Almost all clausal constructions in English share the formal characteristic of the verb agreeing in number and person with its subject. Specific clausal constructions thus inherit this characteristic from the SUBJECT–PREDICATE construction. Goldberg (2013) offers another example that illustrates inheritance. Consider the following set of examples.

(8) He is in prison.
    She came from school.
    John is going to university.
    They are on vacation.
    Herbert has been at sea for three years.

Each of these examples contains a sequence of a preposition and a bare count noun. Goldberg calls this pattern the PN construction.

The construction inherits a very basic formal aspect from the more general PREPOSITIONAL PHRASE construction, namely the linear order of preposition and nominal complement. Apart from this inherited formal feature, the PN construction shows several constructional idiosyncrasies: first, the construction conveys a stereotypical role in that someone can only be *in prison* as an inmate, not as a warden. Students go to university but not their lecturers, or the janitors, or the vice-chancellor. Second, unlike in regular prepositional phrases, the nominal cannot be modified with an adjective ('*They are on sunny vacation*'). Third, whereas regular prepositional phrases can be formed with all manner of nouns, the PN construction is clearly restricted. People may *go to bed*, but not **go to couch*. All of these idiosyncrasies are specific to the PN construction; they are not shared with prepositional phrases in general. Inheritance is thus a 'downwards' relation; more specific constructional characteristics are not projected 'upwards'.

Inheritance is not only a matter of language form, but can also be a matter of meaning. To illustrate, Michaelis and Lambrecht (1996: 237) point out that noun phrases can occasionally receive an exclamative interpretation, as in the following examples.

(9) The time he takes!
    The amount of plastic waste!
    My car payments!

What is conveyed by these examples is that the referents of the respective noun phrases represent an extreme point on a scale that has to be understood by the listener. Even for examples in decontextualised form, this is not hard to do. The first example states that someone is taking quite a long time; the second example refers to an enormous amount of waste; and the third one refers to the fact that the car payments are relatively high. Michaelis and Lambrecht call this semantic pattern the METONYMIC NP construction. The semantics of that construction is inherited by noun phrases in formally more specialised constructions, as in the following examples.

(10) I can't believe the money I spent on clothes!
     It's ridiculous the amount of plastic waste!

The first of these examples Michaelis and Lambrecht (1996: 244) identify as an instance of the NP–COMPLEMENT EXCLAMATIVE construction. The exclamative noun phrase is, in this context, an argument of the verb *believe*. The second example instantiates the NOMINAL EXTRAPOSITION construction, which consists of a predicative clause and the exclamative

noun phrase. Both of these constructions thus inherit aspects of their meaning from the METONYMIC NP construction.

To summarise our first pass at the concept of inheritance, we can state that it is a relation between more abstract and more specific construction in which the more specific ones exhibit formal and functional features of the more abstract ones. Much as a squirrel is a rodent, a mammal, and an animal at the same time, an idiom such as *face the music* simultaneously instantiates a range of more abstract constructions.

3.2.2 Kinds of inheritance links

From the previous discussion it could be concluded that inheritance is more or less just a matter of organising the constructions of a language into a hierarchy; we have talked about more abstract types and more concrete instantiations of those types. While this is certainly an important part of the picture, there are several different kinds of inheritance links in the construct-i-con that deserve discussion. The basic kind of inheritance link, which was discussed above and which connects *face the music* with transitive *face* and the TRANSITIVE construction, is called an **instance link** (Goldberg 1995: 79); the idiom *face the music* is a special case of transitive *face*, which in turn is a special case of the TRANSITIVE construction.

Goldberg (1995: 75) identifies **polysemy links** as another type of inheritance link. As was discussed in Chapter 2, many argument structure constructions have several conceptually related meanings; the technical term for this is that these constructions are **polysemous**. This holds, for instance, for the DITRANSITIVE construction, which has the basic sense of 'X causes Y to receive Z', and several extended senses, such as 'X enables Y to receive Z' or 'X intends Y to receive Z in the future'. The examples below illustrate the respective senses.

(11) John gave Mary the book.
     The doctor allowed me a full meal.
     I promise you a rose garden.

In the construct-i-con, the central sense of the DITRANSITIVE construction would be linked to the extended senses by means of polysemy links. Note that we are not dealing with a taxonomical relation here, as an 'intended transfer' is not, strictly speaking, a type of transfer. Nonetheless, it is clear that the sense of an 'intended transfer' inherits a substantial amount of its semantics from the more general 'transfer' sense. It is useful to think of polysemy links as metonymic relations, that is, relations between a whole scenario and parts of that scenario.

Typically, the extended sense of a construction will represent a scenario that inherits central parts of the scenario that is associated with the basic sense of the construction. Another example of polysemy links can be seen in the semantic spectrum of the English S-GENITIVE construction. Taylor (1989) identifies 'possession' as the central sense, which is related to extended senses of the construction via polysemy links. Consider the following examples.

(12) John's book
     John's office
     John's train
     the country's president
     yesterday's events
     inflation's consequences

Whereas the first of these examples denotes ownership or possession, the remaining examples convey associative relations of fairly different kinds. Taylor (1989, 679) lists several features of prototypical possession, such as the possessor being animate, the possessed being a concrete object, the possessor having exclusive access to the possessed, and the possession relation being a long-term one, amongst several others. Whereas a phrase such as *John's book* may fulfil all criteria of the prototype, the remaining examples fail an increasing number of them. For instance, *John's train* 'the train John is riding on' is not owned by John and there is just a short-term relation between John and the train. These extended senses of the S-GENITIVE construction would nonetheless be connected to the central sense through polysemy links.

Constructions may further be connected through **metaphorical links**. Like the polysemy links that were discussed above, links of this kind are semantic in nature and connect a basic sense of a construction with an extended sense. The special hallmark of metaphorical links is that the two connected senses represent the source domain and the target domain of a conceptual metaphor (Lakoff and Johnson 1980). Goldberg (1995: 81) argues for a metaphorical link between the CAUSED MOTION construction (cf. Section 2.1) and the RESULTATIVE construction (cf. Section 2.3.2). The conceptual metaphor that links the two is CHANGE IS MOTION. The source domain, movement through space, is represented by the central sense of the CAUSED MOTION construction in examples such as *John combed his hair to the side*. Interestingly, speakers commonly use exactly the same syntactic pattern to express a resultative event, as in *Anne tied her hair into a bun*. Goldberg's explanation for this observation is based on the CHANGE IS MOTION metaphor, which motivates the link between these two constructional meanings.

Another example of metaphorical links between basic and extended senses of constructions can be seen in the English MODAL AUXILIARY constructions. The English core modals (*must, may, can, should*, etc.) display a systematic pattern of polysemy that has been interpreted as metaphorical. Sweetser (1990) argues that the following pairs of sentences are linked through a metaphor that has the sociophysical world as its source domain and as its target domain the world of possibility, necessity, and likelihood. The first sentences thus represent what is known as deontic modal meaning, while the second sentences convey epistemic meaning.

(13) You must be home by ten!   You must be David's brother!
     You may now kiss the bride.   He may have escaped through the
                                            window.

     I can't open the door.   That can't possibly be true.
     You should try the sushi.   Prices should go down sooner or
                                            later.

The kind of construction that we are dealing with in these examples consists of a modal auxiliary such as *must* and a non-finite verbal complement such as *be home*. The semantic difference between *You must be home by ten!* and *You must be David's brother!* is that the first is a command whereas the second is a conclusion. In the construct-i-con, deontic and epistemic uses of each MODAL AUXILIARY construction would be connected through a metaphorical link.

A fourth type of inheritance link connects constructions that show partial similarities in their respective forms or meanings. What are called **subpart links** (Goldberg 1995:78) relate constructions that show either formal or semantic overlap, but which do not allow the classification of one construction as an instance of the other. To illustrate, the TRANSITIVE construction and the DITRANSITIVE construction have quite a few features in common: both have a subject with the role of an agent and a direct object that assumes the role of a patient or theme. Consider the following examples.

(14) John wrote a letter.
     John wrote Mary a letter.

There are clearly correspondences between these two sentences, and it would not be too unreasonable to assume that speakers' knowledge of language includes the fact that the TRANSITIVE construction and the DITRANSITIVE construction have a number of characteristics in common. Associations between constructions that share formal or semantic structures but cannot be seen as instances of one another are

represented in the construct-i-con as subpart links. Trivially, every complex syntactic construction consists of a range of smaller phrasal constructions. Every instance of the TRANSITIVE construction is necessarily linked to the NOUN PHRASE construction and the VERB PHRASE construction via subpart links. The concept of subpart links is, however, more interestingly elucidated with the example of constructions that are called syntactic amalgams. The following example has been discussed by Lakoff (1974).

(15) John invited you'll never guess how many people to his party.

For want of a better label, this type of sentence will be called the MATRIX CLAUSE AS MODIFIER construction here. The sentence can be thought of as a combination of different constructions, one of which, however, only contributes a subpart of itself. In the example, one component construction would be the COMPLEMENT CLAUSE construction that is instantiated by sentences such as *You'll never guess how many people John invited to his party*. This construction is partly overlaid with the TRANSITIVE construction, which produces examples such as *John invited very many people to his party*. The string *you'll never guess how many* is a subpart of the COMPLEMENT CLAUSE construction that can stand in for the phrase *very many* in the TRANSITIVE construction, thus creating a syntactic amalgam, a mixture of constructions. The amalgamated construction would be related to the COMPLEMENT CLAUSE construction with a subpart link, and to the TRANSITIVE construction with an instance link, since it properly instantiates that construction.

The above example makes clear that constructions in the construct-i-con form a network, rather than just a hierarchy. Besides instance links, polysemy links, and metaphorical links, which relate higher and lower levels of abstraction in the construct-i-con, subpart links may connect constructions that occupy the same level of abstraction. Rather than one construction linking to just one other construction, the construct-i-con is thus a network with many-to-many links. In the Construction Grammar literature, subpart links are often discussed in connection with the phenomenon of **multiple inheritance**, which describes the way that one construction may instantiate several, successively more abstract constructions at the same time. Consider the following example.

(16) The Smiths felt it was an important enough song to put on their last single.

Like the previous example, this sentence can be considered a syntactic amalgam in which two constructions are interlaced. The first of these is the ATTRIBUTIVE ADJECTIVE construction, which is instantiated by noun

phrases such as *an important song* or *the red ball*. The second construction is the ENOUGH TO-INFINITIVE construction, which is further illustrated by the following examples.

(17) You're old enough to know better.
    I had trained enough to finish my first marathon in good shape.
    This fridge contains enough food to feed a small village.
    John remembered the incident clearly enough to identify the suspect.
    I was not in control enough to stop this from happening.

In its basic form, the ENOUGH TO-INFINITIVE construction consists of a phrase in which the phrasal head is modified by the element *enough*, and that phrase is followed by a *to*-infinitive clause. Semantically, the phrase with *enough* encodes an enabling precondition that allows the event or state expressed in the *to*-infinitive clause to take place. Hence, an adjectival phrase such as *old enough* can be followed by the clause *to know better*, a verb phrase such as *bad trained enough* can be followed by *to finish my first marathon in good shape*, and the noun phrase *enough food* can be followed by *to feed a small village*. If you compare this kind of structure to example (16), you will notice a syntactic difference. In the noun phrase *an important enough song* the element *enough* modifies not the head of the phrase, but the adjective *important*. Accordingly, the noun phrase is followed by a *to*-infinitive clause that connects back semantically to the adjective. A way to deal with the structure of the example would be to analyse it as a syntactic amalgam of the two sentences shown below. As the layout suggests, the two constructions are mutually interwoven. The material of each source construction appears in full in the syntactic amalgam, which is linked to both of them via subpart links.

(18) It was   an   important   song.
    It was   important   enough   to put on their last single.

A different example of multiple inheritance is offered by Michaelis and Lambrecht (1996). Michaelis and Lambrecht argue that the EXTRAPOSED EXCLAMATIVE construction and the METONYMIC NP construction that was discussed in the previous section can be combined into a syntactic amalgam that they call the NOMINAL EXTRAPOSITION construction. The following examples show the respective source constructions and the syntactic amalgam.

(19) It's unbelievable what he can do with the piano!
    The things he can do with the piano!
    It's unbelievable the things he can do with the piano!

The examples discussed in the previous paragraphs may give you the idea that multiple inheritance always results in syntactically quite complex structures, which is not necessarily the case. For instance, all of the cases of coercion that were discussed in Chapter 2 on argument structure constructions can be seen as cases of multiple inheritance. An example such as *Bob sliced the carrots into the salad* instantiates the CAUSED MOTION construction, but it also is connected to the TRANSITIVE construction with a subpart link, since *Bob sliced the carrots* is a typical transitive clause. In summary, subpart links are extremely pervasive in the construct-i-con, and it is the pervasiveness of these links that turns the construct-i-con into a densely woven fabric of constructions, rather than a mere hierarchy of constructions.

3.2.3 Complete inheritance vs. redundant representations

The previous section introduced the concept of instance links, describing how more specific constructions inherit characteristics from more general ones as part of their formal and functional profile. Within the Construction Grammar community, there is a broad consensus that instance links are an important structuring principle in speakers' knowledge of language. A point of divergence, however, concerns the question whether the inherited information is to be represented just once in the grammar, as associated with the most general construction, or whether this kind of information is redundantly represented across all of the constructions that share it. Put simply, if the SUBJECT–PREDICATE construction already specifies that a verb has to agree in number and person with its subject, does this information have to be associated directly with each and every construction that inherits part of its form from the SUBJECT–PREDICATE construction? It is clear that the more economical strategy would be to store information just once, so that constructions at lower levels of abstractions could be processed by 'looking up' all inherited pieces of information in the higher levels of the construct-i-con. At the same time, however, the most economical theory of linguistic knowledge need not necessarily be the most plausible theory from a psycholinguistic point of view, as will be discussed below. So, what information about language do speakers memorise, and what information do they look up in the construct-i-con? To get a sense of the point that is at issue, consider the following quote by Fillmore et al. (1988: 502).

All of the many competing accounts of the workings of language draw a distinction in one way or another between what it is that speakers know

outright about their language and what it is that they have to be able to figure out. For example, speakers of English have to know what *red* means and that it is an adjective, and they have to know what *ball* means and that it is a noun. They have to know that adjectives can co-occur with nouns in a modification structure (as in a phrase like *red ball*), and they have to know the proper strategies for giving a semantic interpretation to such adjective–noun combinations. But they do not have to know separately, or to be told, what the phrase *red ball* means. That is something which what they already know enables them to figure out.

Theories of linguistic knowledge that leave a maximal amount of information to be worked out, rather than stored, endorse a view that is known as **complete inheritance**. This point of view is usually taken in branches of Construction Grammar that have the computational implementation of grammatical knowledge as their primary aim. This view assumes that inherited information is only stored once, namely with the most general construction that carries this information. A second assumption that follows from this view is that only constructional schemas are stored, not their specific instantiations. For instance, the PRESENT TENSE construction specifies that verbs in the third person carry the suffix -*s*, yielding forms such as *thinks, walks,* or *sits*. Since both form and meaning of these forms are completely transparent, a speaker would not have to memorise them. Knowing the schema is enough; the rest can be worked out. By contrast, the view that is taken in this book makes the assumption of **redundant representations**, that is, multiple memorisations of the same pieces of information across different levels of abstraction. It is assumed that besides general schemas, speakers memorise a great many concrete instantiations of those schemas. The main argument for adopting such a view is fuelled by empirical evidence for the idea that speakers retain a highly detailed record of linguistic usage events in memory (Bybee 2010). This record includes fine phonetic detail of concrete utterances, structural characteristics of utterances, and their situational context. The richness of each record of course fades with time, like any kind of memory, but it is refreshed by new usage events. Crucially, speakers do not 'strip down' the record to a more schematic representation. Gurevich et al. (2010) show that speakers retain verbatim memory of language from short stories, even when they are not explicitly asked to do so. A high level of detail is thus maintained in memory, leading to redundant representations of linguistic knowledge. There is evidence that even fully regular inflected forms are stored in memory, provided that they occur frequently enough (Stemberger and MacWhinney 1988). On this view, the construct-i-con

is usage-based, that is, created through experience with language and continuously influenced by experience with language (Bybee 2010). This point will be further elaborated in Chapter 8 on variation and change.

3.3 'Normal syntax' in Construction Grammar

If you have taken an introductory linguistics course, the sessions on syntax will have introduced you to different word classes such as nouns, verbs, prepositions, and so on. In all likelihood, your class will also have covered how these types of words combine into phrases and sentences. Most textbooks that are currently on the market offer some discussion of syntactic schemas that allow the composition of noun phrases, verb phrases, prepositional phrases, and several others. These schemas, which are sometimes called phrase structure rules, are meant to represent knowledge of language. Speakers know that different types of words can be combined to form larger units of language, as for instance in the following examples, all of which are noun phrases.

(20) milk
an old donkey
the big one with the two horns
all of my personal belongings
my friend Amy, who recently moved to Italy

The fact that all of these examples are noun phrases can easily be demonstrated with a battery of syntactic tests. It is, for instance, possible to finish the string *Let me tell you a story about …* with any of the above examples. Likewise, someone could, after hearing you say that, ask *What did you want to tell me a story about?*, to which you would be answering with the respective example in its bare form. All of this strongly suggests that speakers have formed a generalisation across different kinds of noun phrases. However, having come this far in the book that you are reading, you may wonder how the phrase structure rules that you have learned for noun phrases in your introductory course fit into the picture of the construct-i-con that has been sketched in the previous sections. How does Construction Grammar handle 'normal syntax'? Is there a NOUN PHRASE construction? And is that construction just a phrase structure rule that is called something else?

The short answer to these questions is that there is in fact a NOUN PHRASE construction, but that this construction differs in many respects from phrase structure rules as they are commonly understood. One crucial difference between the two concepts is that phrase structure

rules are meant to be assembly instructions, like manuals that allow you to put together a piece of furniture, whereas abstract phrasal constructions are thought of as generalisations across different linguistic structures that allow you to identify a given structure as belonging to a certain category. The NOUN PHRASE construction is thus not primary to more specific constructions such as the ATTRIBUTIVE ADJECTIVE construction (*an old donkey, the red ball*), the NOMINAL QUANTIFIER construction (*all of my personal belongings, some of the juice*), or the RELATIVE CLAUSE construction (*the man who left, the sandwich that I kept in the drawer for too long*). Rather, the NOUN PHRASE construction is an emergent phenomenon that results from speakers perceiving certain similarities across these different kinds of construction. In summary, whereas phrase structure rules would be seen as an essential tool for putting together phrases and sentences, abstract phrasal constructions are really a case of cognitive luxury: they are certainly nice to have, but nothing crucial depends on them, either in language production or in comprehension. The crucial work is done by constructions that occupy lower levels of abstraction in the construct-i-con.

Some researchers in Construction Grammar have expressed quite serious doubts about the existence of high-level syntactic generalisations such as the noun phrase, subject and object, or even part-of-speech categories such as noun or verb. For instance, Croft (2001: 55) states that 'no schematic syntactic category is ever an independent unit of grammatical representation', which means that high-level syntactic generalisations only ever become part of knowledge of language when speakers make out similarities across constructions and form a generalisation. To take a concrete example, Croft argues that there really is no overarching syntactic category of a grammatical subject. Rather, there is a certain kind of subject that occurs in the TRANSITIVE construction, there is another kind of subject that occurs in the INTRANSITIVE construction, and so on and so forth. The subject of the TRANSITIVE construction in turn is a generalisation that speakers would have made across more concrete transitive constructional schemas such as transitive *kick*, transitive *read*, transitive *eat*, and so on and so forth. Since many different constructions combine a subject constituent with a verbal constituent, speakers may perceive this similarity and arrive at a higher-order generalisation, which would correspond to the SUBJECT–PREDICATE construction, or, for that matter, to a phrase structure rule for clausal constructions. But whereas such a phrase structure rule would represent the very bedrock of grammatical knowledge in the dictionary-and-grammar model of linguistic knowledge, the SUBJECT–PREDICATE construction in usage-based Construction Grammar is nothing more

than a vague idea entertained by speakers who are analytically minded enough to see similarities between different kinds of construction. Croft (2001: 57) points out that not all speakers may in fact make these high-level generalisations, so that any claim to their psychological reality would rest on shaky foundations. Importantly, Croft's arguments do not only relegate abstract syntactic schemas to a rather marginal place in the construct-i-con; they also force us to reconsider the cognitive status of word classes such as noun, verb, preposition, and determiner. In the dictionary-and-grammar model of linguistic knowledge, each lexical item that is listed in the mental dictionary has a category label that identifies it as belonging to a certain word class. Word classes are seen as the building blocks of phrases and sentences, and phrase structure rules crucially depend on them: a phrase structure rule defines a construction (say, the NOUN PHRASE construction) through parts of speech that occur in that construction. Construction Grammar stands this relation on its head: the constructions are basic, and parts of speech come into being as generalisations across different types of construction. In the construct-i-con, categories such as 'determiner' or 'preposition' thus represent generalisations at an extremely high level of abstraction, like the SUBJECT–PREDICATE construction.

Expressing a similar point of view, other researchers have stressed the importance of low-level generalisations for the overall structure of the construct-i-con. Boas (2003) offers an analysis of the RESULTATIVE construction, which he views not as a unified phenomenon, but rather as a cluster of generalisations at a slightly lower level. Importantly, the RESULTATIVE construction occurs with a wide range of verbs and resultative phrases, but there are restrictions on the kinds of elements that may occur in a given example. For instance, *Jerry danced himself to exhaustion* and *Nancy talked herself hoarse* are perfectly acceptable examples, whereas *Jerry danced himself exhausted* or *Nancy talked herself to hoarseness* are decidedly unidiomatic (Boas 2005: 449). Rather than positing a high-level argument structure construction, Boas advocates a solution that recognises several low-level generalisations, each of which may serve as the basis for further extensions. Whereas one general construction would not be able to account for the unacceptability of the above examples, the empirical facts could be explained by a cluster of 'productivity islands', that is, small-scale constructions that speakers use to form analogies.

Low-level generalisations are of course also important when it comes to the cognitive representation of word classes or even words themselves. Whereas abstract constructions would seem to suggest that when an adjective is called for, any adjective will do, this is demonstrably not

the case. The ATTRIBUTIVE ADJECTIVE construction, which combines a determiner, an adjective, and a noun, yields grammatical constructs such as *the blue book*. Applied across all kinds of adjectives, it also yields ungrammatical examples such as the following.

(21) * the awake child
      * the ready food
      * the on computer
      * the fond of children lady

Clearly, speakers' knowledge of the ATTRIBUTIVE ADJECTIVE construction includes the fact that some adjectives do not appear in that construction. This means that the construction cannot just specify that it requires an adjective, any adjective. Rather, the construction is a rich and detailed representation of speakers' experience with attributive adjectives. Adjectives such as *awake*, *ready*, or *on* are conspicuously absent from this experience, which leads to the effect of ungrammaticality in the examples above. Turning to an even finer level of detail, it has to be pointed out that even a word represents something of a generalisation. The linguistic forms *walk*, *walks*, *walked*, and *walking* all instantiate the verb *walk*, which is listed in dictionaries under the latter form only – the **lemma** *walk*. In the dictionary-and-grammar model of linguistic knowledge, it is a matter of course that only the lemma, the base form, is memorised in the mental dictionary, and the inflected forms are produced by grammatical rules. Not so in Construction Grammar, where inflected forms can be redundantly represented in the construct-i-con, and where these inflected forms may develop some independence with regard to their respective meanings. Newman and Rice (2006) compare inflected forms of the verbs *eat* and *drink*, finding that there are differences, for example, with regard to the presence or absence of an object. This means argument structure is not so much a property of a verb lemma as a property of an inflected verb form. Newman and Rice conclude that a lemma-based conception of speakers' knowledge of words is inadequate.

Summarising the paragraphs of this section, Construction Grammar handles 'normal syntax' in a way that necessitates a shift of perspective away from the common view of words, word classes, and phrase structure rules. These categories do exist in the construct-i-con, but not as building blocks and assembly manuals for syntactic structures; rather, they are generalisations at a fairly high level of abstraction. Work in Construction Grammar has furthermore stressed the importance of low-level generalisations in the representation of linguistic knowledge. Generalisations at high levels of abstraction are desirable from

a theoretical point of view, as they allow the construction of 'elegant' models of linguistic knowledge. At the same time, most of the available evidence from corpora and psycholinguistic experiments points to the crucial role of low-level generalisations.

3.4 Summing up

This chapter has discussed the question how speakers' knowledge of language is organised in the construct-i-con, which has been introduced earlier as a large network of form-meaning pairings. The first section addressed the question whether the claim that constructions have meanings can in fact be maintained for all constructions, even highly abstract syntactic patterns such as the SUBJECT–PREDICATE construction or ellipsis constructions such as SHARED COMPLETION. Whereas researchers such as Goldberg (1995, 2006) maintain the idea of the construct-i-con as a repository of meaningful forms, other proponents of Construction Grammar, notably Fillmore and colleagues (2012), allow meaningless constructions into the construct-i-con. They identify three types of construction for which semantic analyses are problematic. The first type is illustrated by the SUBJECT–PREDICATE construction or the MODIFIER–HEAD construction. These constructions represent highly general formal generalisations that contribute little in the way of meaning to the utterances in which they are found. A second type of construction, illustrated by SUBJECT–AUXILIARY INVERSION or FILLER-GAP constructions, conveys a heterogeneous range of different meanings, so that a common semantic generalisation appears problematic. The third type covers ELLIPSIS constructions such as GAPPING, STRIPPING, and SHARED COMPLETION. These construction types specify particular syntactic patterns, but do not convey recognisable meanings and do not lead to coercion effects either. The chapter discussed two strategies for the analysis of these constructions as form-meaning pairs. One strategy would look for an overarching, schematic meaning whereas the second would posit a network of lower-level constructions, each of which would have a meaning of its own.

The second section of the chapter introduced the concept of inheritance, which describes links between constructions in the construct-i-con. These links concern aspects of form as well as aspects of meaning. Different kinds of inheritance links were distinguished. Instance links connect constructions in a hierarchical fashion, linking construction types with particular instances of those types. Polysemy links connect constructions that share the same form but display a variety of different senses. Examples for such constructions include the DITRANSITIVE

construction and the *S-GENITIVE* construction. Metaphorical links are similar to polysemy links, since they also connect basic and extended senses of a construction. A metaphorical link is found, for instance, between the CAUSED MOTION construction and the RESULTATIVE construction. Finally, subpart links connect constructions that exhibit partial similarities in their respective forms or meanings. Subpart links establish relations between complex syntactic constructions and all those constructions that instantiate their parts. These links are largely responsible for the network-like structure of the construct-i-con. A phenomenon that was discussed in connection with subpart links is multiple inheritance, the idea that one construction may instantiate several constructions at the same time. Syntactic amalgams were examined as illustrations of multiple inheritance. The section finished with a discussion of two opposing views on how inherited information would be represented in the construct-i-con. On the view of complete inheritance, this kind of information is represented only once, namely at the most general level where it is necessary. By contrast, the view maintained in this book, and in usage-based Construction Grammar in general, is that inherited information is represented redundantly across different levels of abstraction, with every construction that shares this information.

The final section of the chapter considered the role of 'normal syntax' in Construction Grammar. In the dictionary-and-grammar model of linguistic knowledge, syntax rests on the notions of words, word classes, and phrase structure rules. It was explained that these concepts have a proper status in Construction Grammar, but that they are seen as an epiphenomenon of knowledge of constructions, rather than as the basis of syntactic knowledge.

Study questions

- Why are 'meaningless constructions' problematic for the idea of the construct-i-con?
- What types of constructions do Fillmore et al. (2012) identify as meaningless?
- What is meant by the term 'inheritance'?
- What kinds of inheritance links are there?
- What is the difference between complete inheritance and redundant representations?
- Discuss the concept of multiple inheritance with regard to the following examples.

This summer, John is travelling to I think it's the Bahamas. That's what bothers me is that he never really listens.

- What are the similarities and differences between phrase structure rules and abstract phrasal constructions?

Further reading

The concept of inheritance, with reference to different types of inheritance links, is discussed in Goldberg (1995: ch. 3). Zeschel (2009) elaborates on the distinction of complete inheritance vs. redundant representations of linguistic knowledge. A useful discussion of abstract phrasal and clausal constructions is found in Hoffmann (2013). The question of the 'right' level of abstractness for the description of constructions is discussed in Gries (2011). Finally, Croft (2001) presents central arguments for viewing constructions as the basis for high-level generalisations such as parts of speech and categories such as subject and object.