1 Introduction and basic terms

The aim of this chapter is to explain why we actually study syntax (Section 1.1) and why it is important to formalize our findings (Section 1.2). Some basic terminology will be introduced in Sections 1.3–1.8: Section 1.3 deals with criteria for dividing up utterances into smaller units. Section 1.4 shows how words can be grouped into classes, that is I will introduce criteria for assigning words to categories such as verb or adjective. Section 1.5 introduces the notion of heads, in Section 1.6 the distinction between arguments and adjuncts is explained, Section 1.7 defines grammatical functions and Section 1.8 introduces the notion of topological fields, which can be used to characterize certain areas of the clause in languages such as German.

Unfortunately, linguistics is a scientific field with a considerable amount of terminological chaos. This is partly due to the fact that terminology originally defined for certain languages (e. g. Latin, English) was later simply adopted for the description of other languages as well. However, this is not always appropriate since languages differ from one another considerably and are constantly changing. Due to the problems caused by this, the terminology started to be used differently or new terms were invented. When new terms are introduced in this book, I will always mention related terminology or differing uses of each term so that readers can relate this to other literature.

1.1 Why do syntax?

Every linguistic expression we utter has a meaning. We are therefore dealing with what has been referred to as form-meaning pairs (de Saussure 1916b). A word such as *tree* in its specific orthographical form or in its corresponding phonetic form is assigned the meaning *tree′*. Larger linguistic units can be built up out of smaller ones: words can be joined together to form phrases and these in turn can form sentences.

The question which now arises is the following: do we need a formal system which can assign a structure to these sentences? Would it not be sufficient to formulate a pairing of form and meaning for complete sentences just as we did for the word *tree* above?

That would, in principle, be possible if a language were just a finite list of word sequences. If we were to assume that there is a maximum length for sentences and a maximum length for words and thus that there can only be a finite number of words, then the number of possible sentences would indeed be finite. However, even if we were to restrict the possible length of a sentence, the number of possible sentences would still be enormous. The question we would then really need to answer is: what is the maximum length of a sentence? For instance, it is possible to extend all the sentences in (1):

(1) a. this sentence goes on and on and on and on ...
b. [A sentence is a sentence] is a sentence.
c. that Max thinks that Julius knows that Otto claims that Karl suspects that Richard confirms that Friederike is laughing

In (1b), something is being said about the group of words *a sentence is a sentence*, namely that it is a sentence. One can, of course, claim the same for the whole sentence in (1b) and extend the sentence once again with *is a sentence*. The sentence in (1c) has been formed by combining *that Friederike is laughing* with *that*, *Richard* and *confirms*. The result of this combination is a new sentence *that Richard confirms that Friederike is laughing*. In the same way, this has then been extended with *that*, *Karl* and *suspects*. One thus obtains a very complex sentence which embeds a less complex sentence. This partial sentence in turn contains a further partial sentence and so on. (1c) is similar to those sets of Russian nesting dolls, also called *matryoshka*: each doll contains a smaller doll which can be painted differently from the one that contains it. In just the same way the sentence in (1c) contains parts which are similar to it but which are shorter and which involve different nouns and verbs. This can be made clearer by using brackets in the following way:

(2) that Max thinks [that Julius knows [that Otto claims [that Karl suspects [that Richard confirms [that Friederike is laughing]]]]]

We can build incredibly long and complex sentences in the ways that were demonstrated in (1).[1]

It would be arbitrary to establish some cut-off point up to which such combinations can be considered to belong to our language (Harris 1957: 208; Chomsky 1957: 23). It is also implausible to claim that such complex sentences are stored in our brains as a single complex unit. While evidence from psycholinguistic experiments shows that highly frequent or idiomatic combinations are stored as complex units, this could not be the case for sentences such as those in (1). Furthermore, we are capable of producing utterances that we have never heard before and which have also never been uttered or written down previously. Therefore, these utterances must have some kind of structure, there must be patterns which occur again and again. As humans, we are able to build such complex structures out of simpler ones and, vice-versa, to break down complex utterances into their component parts. Evidence for humans' ability to make use of rules for combining words into larger units has now also been provided by research in neuroscience (Pulvermüller 2010: 170).

[1] It is sometimes claimed that we are capable of constructing infinitely long sentences (Nowak, Komarova & Niyogi 2001: 117; Kim & Sells 2008: 3; Dan Everett in O'Neill & Wood (2012) at 25:19) or that Chomsky made such claims (Leiss 2003: 341). This is, however, not correct since every sentence has to come to an end at some point. Even in the theory of formal languages developed in the Chomskyan tradition, there are no infinitely long sentences. Rather, certain formal grammars can describe a set containing infinitely many finite sentences (Chomsky 1957: 13). See also Pullum & Scholz (2010) and Section 13.1.8 on the issue of recursion in grammar and for claims about the infinite nature of language.

It becomes particularly evident that we combine linguistic material in a rule-governed way when these rules are violated. Children acquire linguistic rules by generalizing from the input available to them. In doing so, they produce some utterances which they could not have ever heard previously:

(3) Ich festhalte die. (Friederike, 2;6)
I PART.hold them
Intended: 'I hold them tight.'

Friederike, learning German, was at the stage of acquiring the rule for the position of the finite verb (namely, second position). What she did here, however, was to place the whole verb, including a separable particle *fest* 'tight', in the second position although the particle should be realized at the end of the clause (*Ich halte die fest.*).

If we do not wish to assume that language is merely a list of pairings of form and meaning, then there must be some process whereby the meaning of complex utterances can be obtained from the meanings of the smaller components of those utterances. Syntax reveals something about the way in which the words involved can be combined, something about the structure of an utterance. For instance, knowledge about subject-verb agreement helps with the interpretation of the following sentences in German:

(4) a. Die Frau schläft.
the woman sleep.3SG
'The woman sleeps.'

b. Die Mädchen schlafen.
the girls sleep.3PL
'The girls sleep.'

c. Die Frau kennt die Mädchen.
the woman know.3SG the girls
'The woman knows the girls.'

d. Die Frau kennen die Mädchen.
the woman know.3PL the girls
'The girls know the woman.'

The sentences in (4a,b) show that a singular or a plural subject requires a verb with the corresponding inflection. In (4a,b), the verb only requires one argument so the function of *die Frau* 'the woman' and *die Mädchen* 'the girls' is clear. In (4c,d) the verb requires two arguments and *die Frau* 'the woman' and *die Mädchen* 'the girls' could appear in either argument position in German. The sentences could mean that the woman knows somebody or that somebody knows the woman. However, due to the inflection on the verb and knowledge of the syntactic rules of German, the hearer knows that there is only one available reading for (4c) and (4d), respectively.

It is the role of syntax to discover, describe and explain such rules, patterns and structures.

1.2 Why do it formally?

The two following quotations give a motivation for the necessity of describing language formally:

> Precisely constructed models for linguistic structure can play an important role, both negative and positive, in the process of discovery itself. By pushing a precise but inadequate formulation to an unacceptable conclusion, we can often expose the exact source of this inadequacy and, consequently, gain a deeper understanding of the linguistic data. More positively, a formalized theory may automatically provide solutions for many problems other than those for which it was explicitly designed. Obscure and intuition-bound notions can neither lead to absurd conclusions nor provide new and correct ones, and hence they fail to be useful in two important respects. I think that some of those linguists who have questioned the value of precise and technical development of linguistic theory have failed to recognize the productive potential in the method of rigorously stating a proposed theory and applying it strictly to linguistic material with no attempt to avoid unacceptable conclusions by ad hoc adjustments or loose formulation. (Chomsky 1957: 5)

> As is frequently pointed out but cannot be overemphasized, an important goal of formalization in linguistics is to enable subsequent researchers to see the defects of an analysis as clearly as its merits; only then can progress be made efficiently. (Dowty 1979: 322)

If we formalize linguistic descriptions, it is easier to recognize what exactly a particular analysis means. We can establish what predictions it makes and we can rule out alternative analyses. A further advantage of precisely formulated theories is that they can be written down in such a way that computer programs can process them. When a theoretical analysis is implemented as a computationally processable grammar fragment, any inconsistencies will become immediately evident. Such implemented grammars can then be used to process large collections of text, so-called corpora, and they can thus establish which sentences a particular grammar cannot yet analyze or which sentences are assigned the wrong structure. For more on using computer implementation in linguistics see Bierwisch (1963: 163), Müller (1999a: Chapter 22) and Bender (2008b) as well as Section 3.6.2.

1.3 Constituents

If we consider the sentence in (5), we have the intuition that certain words form a unit.

(5) Alle Studenten lesen während dieser Zeit Bücher.
all students read during this time books
'All the students are reading books at this time.'

For example, the words *alle* 'all' and *Studenten* 'students' form a unit which says something about who is reading. *während* 'during', *dieser* 'this' and *Zeit* 'time' also form a unit which refers to a period of time during which the reading takes place, and *Bücher* 'books' says something about what is being read. The first unit is itself made up of two parts, namely *alle* 'all' and *Studenten* 'students'. The unit *während dieser Zeit* 'during this time' can also be divided into two subcomponents: *während* 'during' and *dieser Zeit* 'this time'. *dieser Zeit* 'this time' is also composed of two parts, just like *alle Studenten* 'all students' is.

Recall that in connection with (1c) above we talked about the sets of Russian nesting dolls (*matryoshkas*). Here, too, when we break down (5) we have smaller units which are components of bigger units. However, in contrast to the Russian dolls, we do not just have one smaller unit contained in a bigger one but rather, we can have several units which are grouped together in a bigger one. The best way to envisage this is to imagine a system of boxes: one big box contains the whole sentence. Inside this box, there are four other boxes, which each contain *alle Studenten* 'all students', *lesen* 'reads', *während dieser Zeit* 'during this time' and *Bücher* 'books' respectively. Figure 1.1 illustrates this.

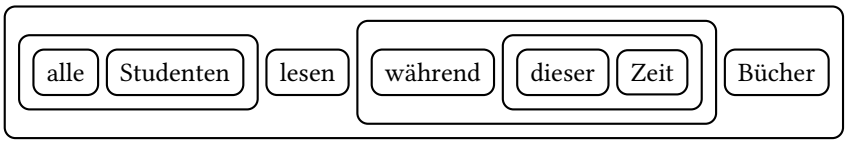

Figure 1.1: Words and phrases in boxes

In the following section, I will introduce various tests which can be used to show how certain words seem to "belong together" more than others. When I speak of a *word sequence*, I generally mean an arbitrary linear sequence of words which do not necessarily need to have any syntactic or semantic relationship, e. g. *Studenten lesen während* 'students read during' in (5). A sequence of words which form a structural entity, on the other hand, is referred to as a *phrase*. Phrases can consist of words as in *this time* or of combinations of words with other phrases as in *during this time*. The parts of a phrase and the phrase itself are called *constituents*. So all elements that are in a box in Figure 1.1 are constituents of the sentence.

Following these preliminary remarks, I will now introduce some tests which will help us to identify whether a particular string of words is a constituent or not.

1.3.1 Constituency tests

There are a number of ways to test the constituent status of a sequence of words. In the following subsections, I will present some of these. In Section 1.3.2, we will see that there are cases when simply applying a test "blindly" leads to unwanted results.

1.3.1.1 Substitution

If it is possible to replace a sequence of words in a sentence with a different sequence of words and the acceptability of the sentence remains unaffected, then this constitutes evidence for the fact that each sequence of words forms a constituent.

In (6), *den Mann* 'the man' can be replaced by the string *eine Frau* 'a woman'. This is an indication that both of these word sequences are constituents.

(6) a. Er kennt [den Mann].
he knows the man
'He knows the man.'

b. Er kennt [eine Frau].
he knows a woman
'He knows a woman.'

Similary to (7a), the string *das Buch zu lesen* 'the book to read' can be replaced by *der Frau das Buch zu geben* 'the woman the book to give'.

(7) a. Er versucht, [das Buch zu lesen].
he tries the book to read
'He is trying to read the book.'

b. Er versucht, [der Frau das Buch zu geben].
he tries the woman the book to give
'He is trying to give the woman the book.'

This test is referred to as the *substitution test*.

1.3.1.2 Pronominalization

Everything that can be replaced by a pronoun forms a constituent. In (8), one can for example refer to *der Mann* 'the man' with the pronoun *er* 'he':

(8) a. [Der Mann] schläft.
the man sleeps
'The man is sleeping.'

b. Er schläft.
he sleeps
'He is sleeping.'

It is also possible to use a pronoun to refer to constituents such as *das Buch zu lesen* 'the book to read' in (7a), as is shown in (9):

(9) a. Peter versucht, [das Buch zu lesen].
Peter tries the book to read
'Peter is trying to read the book.'

b. Klaus versucht das auch.
Klaus tries that also
'Klaus is trying to do that as well.'

The pronominalization test is another form of the substitution test.

1.3.1.3 Question formation

A sequence of words that can be elicited by a question forms a constituent:

(10) a. [Der Mann] arbeitet.
the man works
'The man is working.'
b. Wer arbeitet?
who works
'Who is working?'

Question formation is a specific case of pronominalization. One uses a particular type of pronoun (an interrogative pronoun) to refer to the word sequence.

Constituents such as *das Buch zu lesen* in (7a) can also be elicited by questions, as (11) shows:

(11) Was versucht er?
what tries he
'What does he try?'

1.3.1.4 Permutation test

If a sequence of words can be moved without adversely affecting the acceptability of the sentence in which it occurs, then this is an indication that this word sequence forms a constituent.

In (12), *keiner* 'nobody' and *diese Frau* 'this woman' exhibit different orderings, which suggests that *diese* 'this' and *Frau* 'woman' belong together.

(12) a. dass keiner [diese Frau] kennt
that nobody this woman knows
b. dass [diese Frau] keiner kennt
that this woman nobody knows
'that nobody knows this woman'

On the other hand, it is not plausible to assume that *keiner diese* 'nobody this' forms a constituent in (12a). If we try to form other possible orderings by trying to move *keiner*

diese 'nobody this' as a whole, we see that this leads to unacceptable results:[2]

(13) a. * dass Frau keiner diese kennt
b. * dass Frau kennt keiner diese

Furthermore, constituents such as the *das Buch zu lesen* 'to read the book' in (7a) can be moved:

(14) a. Er hat noch nicht [das Buch zu lesen] versucht.
he has PART not the book to read tried
'He has not yet tried to read the book.'
b. Er hat [das Buch zu lesen] noch nicht versucht.
he has the book to read PART not tried
c. Er hat noch nicht versucht, [das Buch zu lesen].
he has PART not tried the book to read

1.3.1.5 Fronting

Fronting is a further variant of the movement test. In German declarative sentences, only a single constituent may normally precede the finite verb:

(15) a. [Alle Studenten] lesen während der vorlesungsfreien Zeit Bücher.
all students read.3PL during the lecture.free time books
'All students read books during the semester break.'
b. [Bücher] lesen alle Studenten während der vorlesungsfreien Zeit.
books read all students during the lecture.free time
c. * [Alle Studenten] [Bücher] lesen während der vorlesungsfreien Zeit.
all students books read during the lecture.free time
d. * [Bücher] [alle Studenten] lesen während der vorlesungsfreien Zeit.
books all students read during the lecture.free time

The possibility for a sequence of words to be fronted (that is to occur in front of the finite verb) is a strong indicator of constituent status.

1.3.1.6 Coordination

If two sequences of words can be conjoined then this suggests that each sequence forms a constituent.

[2] I use the following notational conventions for all examples: '*' indicates that a sentence is ungrammatical, '#' denotes that the sentence has a reading which differs from the intended one and finally '§' should be understood as a sentence which is deviant for semantic or information-structural reasons, for example, because the subject must be animate, but is in fact inanimate in the example in question, or because there is a conflict between constituent order and the marking of given information through the use of pronouns.

In (16), *der Mann* 'the man' and *die Frau* 'the woman' are conjoined and the entire coordination is the subject of the verb *arbeiten* 'to work'. This is a good indication of the fact that *der Mann* and *die Frau* each form a constituent.

(16) [Der Mann] und [die Frau] arbeiten.
the man and the woman work.3PL
'The man and the woman work.'

The example in (17) shows that phrases with *to*-infinitives can be conjoined:

(17) Er hat versucht, [das Buch zu lesen] und [es dann unauffällig verschwinden zu lassen].
he had tried the book to read and it then secretly disappear to let
'He had tried to read the book and then make it quietly disappear.'

1.3.2 Some comments on the status of constituent tests

It would be ideal if the tests presented here delivered clear-cut results in every case, as the empirical basis on which syntactic theories are built would thereby become much clearer. Unfortunately, this is not the case. There are in fact a number of problems with constituent tests, which I will discuss in what follows.

1.3.2.1 Expletives

There is a particular class of pronouns – so-called *expletives* – which do not denote people, things, or events and are therefore non-referential. An example of this is *es* 'it' in (18).

(18) a. Es regnet.
it rains
'It is raining.'

b. Regnet es?
rains it
'Is it raining?'

c. dass es jetzt regnet
that it now rains
'that it is raining now'

As the examples in (18) show, *es* can either precede the verb, or follow it. It can also be separated from the verb by an adverb, which suggests that *es* should be viewed as an independent unit.

Nevertheless, we observe certain problems with the aforementioned tests. Firstly, *es* 'it' is restricted with regard to its movement possibilities, as (19a) and (20b) show.

(19) a. * dass jetzt es regnet
that now it rains
Intended: 'that it is raining now'

b. dass jetzt keiner klatscht
that now nobody claps
'that nobody is clapping now'

(20) a. Er sah es regnen.
he saw it.ACC rain
'He saw that it was raining.'

b. * Es sah er regnen.
it.ACC saw he rain
Intended: 'he saw that it was raining.'

c. Er sah einen Mann klatschen.
he saw a.ACC man clap
'He saw a man clapping.'

d. Einen Mann sah er klatschen.
a.ACC man saw he clap
'A man, he saw clapping.'

Unlike the accusative object *einen Mann* 'a man' in (20c,d), the expletive in (20b) cannot be fronted.

Secondly, substitution and question tests also fail:

(21) a. * Der Mann / er regnet.
the man he rains

b. * Wer / was regnet?
who what rains

Similarly, the coordination test cannot apply either:

(22) * Es und der Mann regnet / regnen.
it and the man rains rain

The failure of these tests can be easily explained: weakly stressed pronouns such as *es* are preferably placed before other arguments, directly after the conjunction (*dass* in (18c)) and directly after the finite verb in (20a) (see Abraham 1995: 570). If an element is placed in front of the expletive, as in (19a), then the sentence is rendered ungrammatical. The reason for the ungrammaticality of (20b) is the general ban on accusative *es* appearing in clause-initial position. Although such cases exist, they are only possible if *es* 'it' is referential (Lenerz 1994: 162; Gärtner & Steinbach 1997: 4).

The fact that we could not apply the substitution and question tests is also no longer mysterious as *es* is not referential in these cases. We can only replace *es* 'it' with another

expletive such as *das* 'that'. If we replace the expletive with a referential expression, we derive a different semantic interpretation. It does not make sense to ask about something semantically empty or to refer to it with a pronoun.

It follows from this that not all of the tests must deliver a positive result for a sequence of words to count as a constituent, that is, the tests are therefore not a necessary requirement for constituent status.

1.3.2.2 Movement

The movement test is problematic for languages with relatively free constituent order, since it is not always possible to tell what exactly has been moved. For example, the string *gestern dem Mann* 'yesterday the man' occupies different positions in the examples in (23).

(23) a. weil keiner gestern dem Mann geholfen hat
because nobody yesterday the man helped has
'because nobody helped the man yesterday'

b. weil gestern dem Mann keiner geholfen hat
because yesterday the man nobody helped has
'because nobody helped the man yesterday'

One could therefore assume that *gestern* 'yesterday' and *dem Mann* 'the man', which of course do not form a constituent, have been moved together. An alternative explanation for the ordering variants in (23) is that adverbs can occur in various positions in the clause and that only *dem Mann* 'the man' has been moved in front of *keiner* 'nobody' in (23b). In any case, it is clear that *gestern* and *dem Mann* have no semantic relation and that it is impossible to refer to both of them with a pronoun. Although it may seem at first glance as if this material had been moved as a unit, we have seen that it is in fact not tenable to assume that *gestern dem Mann* 'yesterday the man' forms a constituent.

1.3.2.3 Fronting

As mentioned in the discussion of (15), the position in front of the finite verb is normally occupied by a single constituent. The possibility for a given word sequence to be placed in front of the finite verb is sometimes even used as a clear indicator of constituent status, and even used in the definition of *Satzglied*[3]. An example of this is taken from Bußmann (1983), but is no longer present in Bußmann (1990):[4]

[3] *Satzglied* is a special term used in grammars of German, referring to a constituent on the clause level (Eisenberg et al. 2005: 783).

[4] The original formulation is: **Satzgliedtest** [Auch: Konstituententest]. Auf der → Topikalisierung beruhendes Verfahren zur Analyse komplexer Konstituenten. Da bei Topikalisierung jeweils nur eine Konstituente bzw. ein → Satzglied an den Anfang gerückt werden kann, lassen sich komplexe Abfolgen von Konstituenten (z. B. Adverbialphrasen) als ein oder mehrere Satzglieder ausweisen; in *Ein Taxi quält sich im Schrittempo durch den Verkehr* sind *im Schrittempo* und *durch den Verkehr* zwei Satzglieder, da sie beide unabhängig voneinander in Anfangsposition gerückt werden können.

> **Satzglied test** A procedure based on → topicalization used to analyze complex constituents. Since topicalization only allows a single constituent to be moved to the beginning of the sentence, complex sequences of constituents, for example adverb phrases, can be shown to actually consist of one or more constituents. In the example *Ein Taxi quält sich im Schrittempo durch den Verkehr* 'A taxi was struggling at walking speed through the traffic', *im Schrittempo* 'at walking speed' and *durch den Verkehr* 'through the traffic' are each constituents as both can be fronted independently of each other. (Bußmann 1983: 446)

The preceding quote has the following implications:

- Some part of a piece of linguistic material can be fronted independently →
  This material does not form a constituent.
- Linguistic material can be fronted together →
  This material forms a constituent.

It will be shown that both of these prove to be problematic.

The first implication is cast into doubt by the data in (24):

(24) a. Keine Einigung erreichten Schröder und Chirac über den Abbau der
no agreement reached Schröder and Chirac about the reduction of.the
Agrarsubventionen.[5]
agricultural.subsidies
'Schröder and Chirac could not reach an agreement on the reduction of agricultural subsidies.'

b. [Über den Abbau der Agrarsubventionen] erreichten Schröder und
about the reduction of.the agricultural.subsidies reached Schröder and
Chirac keine Einigung.
Chirac no agreement

Although parts of the noun phrase *keine Einigung über den Abbau der Agrarsubventionen* 'no agreement on the reduction of agricultural subsidies' can be fronted individually, we still want to analyze the entire word string as a noun phrase when it is not fronted as in (25):

(25) Schröder und Chirac erreichten [keine Einigung über den Abbau der
Schröder and Chirac reached no agreement about the reduction of.the
Agrarsubventionen].
agricultural.subsidies

The prepositional phrase *über den Abbau der Agrarsubventionen* 'on the reduction of agricultural subsidies' is semantically dependent on *Einigung* 'agreement' cf. (26):

[5] tagesschau, 15.10.2002, 20:00.

(26) Sie einigen sich über die Agrarsubventionen.
they agree REFL about the agricultural.subsidies
'They agree on the agricultural subsidies.'

This word sequence can also be fronted together:

(27) [Keine Einigung über den Abbau der Agrarsubventionen] erreichten
no agreement about the reduction of.the agricultural.subsidies reached
Schröder und Chirac.
Schröder and Chirac

In the theoretical literature, it is assumed that *keine Einigung über den Abbau der Agrarsubventionen* forms a constituent which can be "split up" under certain circumstances. In such cases, the individual subconstituents can be moved independently of each other (De Kuthy 2002) as we have seen in (25).

The second implication ist problematic because of examples such as (28):

(28) a. [Trocken] [durch die Stadt] kommt man am Wochenende auch mit der
dry through the city comes one at.the weekend also with the
BVG.[6]
BVG
'With the BVG, you can be sure to get around town dry at the weekend.'

b. [Wenig] [mit Sprachgeschichte] hat der dritte Beitrag in dieser Rubrik
little with language.history has the third contribution in this section
zu tun, […][7]
to do
'The third contribution in this section has little to do with language history.'

In (28), there are multiple constituents preceding the finite verb, which bear no obvious syntactic or semantic relation to each other. Exactly what is meant by a "syntactic or semantic relation" will be fully explained in the following chapters. At this point, I will just point out that in (28a) the adjective *trocken* 'dry' has *man* 'one' as its subject and furthermore says something about the action of 'travelling through the city', that is it refers to the action denoted by the verb. As (29b) shows, *durch die Stadt* 'through the city' cannot be combined with the adjective *trocken* 'dry'.

(29) a. Man ist / bleibt trocken.
one is stays dry
'One is/stays dry.'

b. * Man ist / bleibt trocken durch die Stadt.
one is stays dry through the city

[6] taz berlin, 10.07.1998, p. 22.
[7] Zeitschrift für Dialektologie und Linguistik, LXIX, 3/2002, p. 339.

Therefore, the adjective *trocken* 'dry' does not have a syntactic or semantic relationship with the prepositional phrase *durch die Stadt* 'through the city'. Both phrases have in common that they refer to the verb and are dependent on it.

One may simply wish to treat the examples in (28) as exceptions. This approach would, however, not be justified, as I have shown in an extensive empirical study (Müller 2003a).

If one were to classify *trocken durch die Stadt* as a constituent due to it passing the fronting test, then one would have to assume that *trocken durch die Stadt* in (30) is also a constituent. In doing so, we would devalue the term *constituent* as the whole point of constituent tests is to find out which word strings have some semantic or syntactic relationship.[8]

(30) a. Man kommt am Wochenende auch mit der BVG trocken durch die
one comes at.the weekend also with the BVG dry through the
Stadt.
city
'With the BVG, you can be sure to get around town dry at the weekend.'

b. Der dritte Beitrag in dieser Rubrik hat wenig mit Sprachgeschichte zu
the third contribution in this section has little with language.history to
tun.
do
'The third contribution in this section has little to do with language history.'

The possibility for a given sequence of words to be fronted is therefore not a sufficient diagnostic for constituent status.

We have also seen that it makes sense to treat expletives as constituents despite the fact that the accusative expletive cannot be fronted (cf. (20a)):

(31) a. Er bringt es bis zum Professor.
he brings EXPL until to.the professor
'He makes it to professor.'

b. # Es bringt er bis zum Professor.
it brings he until to.the professor

There are other elements that can also not be fronted. Inherent reflexives are a good example of this:

(32) a. Karl hat sich nicht erholt.
Karl has REFL not recovered
'Karl hasn't recovered.'

[8] These data can be explained by assuming a silent verbal head preceding the finite verb and thereby ensuring that there is in fact just one constituent in initial position in front of the finite verb (Müller 2005c, 2015b). Nevertheless, this kind of data are problematic for constituent tests since these tests have been specifically designed to tease apart whether strings such as *trocken* and *durch die Stadt* or *wenig* and *mit Sprachgeschichte* in (30) form a constituent.

b. * Sich hat Karl nicht erholt.
REFL has Karl not recovered

It follows from this that fronting is not a necessary criterion for constituent status. Therefore, the possibility for a given word string to be fronted is neither a necessary nor sufficient condition for constituent status.

1.3.2.4 Coordination

Coordinated structures such as those in (33) also prove to be problematic:

(33) Deshalb kaufte der Mann einen Esel und die Frau ein Pferd.
therefore bought the man a donkey and the woman a horse
'Therefore, the man bought a donkey and the woman a horse.'

At first glance, *der Mann einen Esel* 'the man a donkey' and *die Frau ein Pferd* 'the woman a horse' in (33) seem to be coordinated. Does this mean that *der Mann einen Esel* and *die Frau ein Pferd* each form a constituent?

As other constituent tests show, this assumption is not plausible. This sequence of words cannot be moved together as a unit:[9]

(34) * Der Mann einen Esel kaufte deshalb.
the man a donkey bought therefore

Replacing the supposed constituent is also not possible without ellipsis:

(35) a. # Deshalb kaufte er.
therefore bought he

b. * Deshalb kaufte ihn.
therefore bought him

The pronouns do not stand in for the two logical arguments of *kaufen* 'to buy', which are realized by *der Mann* 'the man' and *einen Esel* à donkey' in (33), but rather for one in each. There are analyses that have been proposed for examples such as (33) in which two verbs *kauft* 'buys' occur, where only one is overt, however (Crysmann 2008). The example in (36) would therefore correspond to:

(36) Deshalb kaufte der Mann einen Esel und kaufte die Frau ein Pferd.
therefore bought the man a donkey and bought the woman a horse

[9] The area in front of the finite verb is also referred to as the *Vorfeld* 'prefield' (see Section 1.8). Apparent multiple fronting is possible under certain circumstances in German. See the previous section, especially the discussion of the examples in (28) on page 17. The example in (34) is created in such a way that the subject is present in the prefield, which is not normally possible with verbs such as *kaufen* 'to buy' for reasons which have to do with the information-structural properties of these kinds of fronting constructions. Compare also De Kuthy & Meurers 2003b on subjects in fronted verb phrases and Bildhauer & Cook 2010: 72 on frontings of subjects in apparent multiple frontings.

This means that although it seems as though *der Mann einen Esel* 'the man a donkey' and *die Frau ein Pferd* 'the woman a horse' are coordinated, it is actually *kauft der Mann einen Esel* 'buys the man a donkey' and *(kauft) die Frau ein Pferd* 'buys the woman a horse' which are conjoined.

We should take the following from the previous discussion: even when a given word sequence passes certain constituent tests, this does not mean that one can automatically infer from this that we are dealing with a constituent, that is, the tests we have seen are not a sufficient condition for constituent status.

Summing up, it has been shown that these tests are neither sufficient nor necessary for attributing constituent status to a given sequence of words. However, as long as one keeps the problematic cases in mind, the previous discussion should be enough to get an initial idea about what should be treated as a constituent.

1.4 Parts of speech

The words in (37) differ not only in their meaning but also in other respects.

(37) Der dicke Mann lacht jetzt.
the fat man laughs now
'The fat man is laughing now.'

Each of the words is subject to certain restrictions when forming sentences. It is common practice to group words into classes with other words which share certain salient properties. For example, *der* 'the' is an article, *Mann* 'man' is a noun, *lacht* 'laugh' is a verb and *jetzt* 'now' is an adverb. As can be seen in (38), it is possible to replace all the words in (37) with words from the same word class.

(38) Die dünne Frau lächelt immer.
the thin woman smiles always
'The thin woman is always smiling.'

This is not always the case, however. For example, it is not possible to use a reflexive verb such as *erholt* 'recovers' or the second-person form *lächelst* in (38). This means that the categorization of words into parts of speech is rather coarse and that we will have to say a lot more about the properties of a given word. In this section, we will discuss various words classes/parts of speech and in the following sections we will go into further detail about the various properties which characterize a given word class.

The most important parts of speech are *verbs*, *nouns*, *adjectives*, *prepositions* and *adverbs*. In earlier decades, it was common among researchers working on German (see also Section 11.6.1 on Tesnière's category system) to speak of *action words*, *describing words*, and *naming words*. These descriptions prove problematic however, as illustrated by the following examples:

(39) a. die *Idee*
the idea

b. die *Stunde*
the hour

c. das laute *Sprechen*
the loud speaking
'(the act of) speaking loudly'

d. Die *Erörterung* der Lage dauerte mehrere Stunden.
the discussion of.the situation lasted several hours
'The discussion of the situation lasted several hours.'

(39a) does not describe a concrete entity, (39b) describes a time interval and (39c) and (39d) describe actions. It is clear that *Idee* 'idea', *Stunde* 'hour', *Sprechen* 'speaking' and *Erörterung* 'discussion' differ greatly in terms of their meaning. Nevertheless, these words still behave like *Mann* 'man' and *Frau* 'woman' in many respects and are therefore classed as nouns.

The term *action word* is not used in scientific linguistic work as verbs do not always need to denote actions:

(40) a. Ihm gefällt das Buch.
him pleases the book
'He likes the book.'

b. Das Eis schmilzt.
the ice melts
'The ice is melting.'

c. Es regnet.
it rains
'It is raining.'

One would also have to class the noun *Erörterung* 'discussion' as an action word.

Adjectives do not always describe properties of objects. In the following examples, the opposite is in fact true: the characteristic of being a murderer is expressed as being possible or probable, but not as being true properties of the modified noun.

(41) a. der mutmaßliche Mörder
the suspected murderer

b. Soldaten sind potenzielle Mörder.
soldiers are potential murderers

The adjectives themselves in (41) do not actually provide any information about the characteristics of the entities described. One may also wish to classify *lachende* 'laughing' in (42) as an adjective.

(42) der lachende Mann
the laughing man

If, however, we are using properties and actions as our criteria for classification, *lachend* 'laughing' should technically be an action word.

Rather than semantic criteria, it is usually formal criteria which are used to determine word classes. The various forms a word can take are also taken into account. So *lacht* 'laughs', for example, has the forms given in (43).

(43) a. Ich lache.
I laugh

b. Du lachst.
you.SG laugh

c. Er lacht.
he laughs

d. Wir lachen.
we laugh

e. Ihr lacht.
you.PL laugh

f. Sie lachen.
they laugh

In German, there are also forms for the preterite, imperative, present subjunctive, past subjunctive and infinitive forms (participles and infinitives with or without *zu* 'to'). All of these forms constitute the inflectional paradigm of a verb. Tense (present, preterite, future), mood (indicative, subjunctive, imperative), person (1st, 2nd, 3rd) and number (singular, plural) all play a role in the inflectional paradigm. Certain forms can coincide in a paradigm, as (43c) and (43e) and (43d) and (43f) show.

Parallel to verbs, nouns also have an inflectional paradigm:

(44) a. der Mann
the.NOM man

b. des Mannes
the.GEN man.GEN

c. dem Mann
the.DAT man

d. den Mann
the.ACC man

e. die Männer
the.NOM men

f. der Männer
the.GEN men

g. den Männern
the.DAT men.DAT

h. die Männer
the.ACC men

We can differentiate between nouns on the basis of gender (feminine, masculine, neuter). The choice of gender is often purely formal in nature and is only partially influenced by biological sex or the fact that we are describing a particular object:

(45) a. die Tüte
the.F bag(F)
'the bag'

b. der Krampf
the.M cramp(M)
'cramp'

c. das Kind
the.N child(N)
'the child'

As well as gender, case (nominative, genitive, dative, accusative) and number are also important for nominal paradigms.

Like nouns, adjectives inflect for gender, case and number. They differ from nouns, however, in that gender marking is variable. Adjectives can be used with all three genders:

(46) a. eine kluge Frau
a.F clever.F woman

b. ein kluger Mann
a clever.M man

c. ein kluges Kind
a clever.N child

In addition to gender, case and number, we can identify several inflectional classes. Traditionally, we distinguish between strong, mixed and weak inflection of adjectives. The inflectional class that we have to choose is dependent on the form or presence of the article:

(47) a. ein alter Wein
an old wine

b. der alte Wein
the old wine

c. alter Wein
old wine

Furthermore, adjectives have comparative and superlative wordforms:

(48) a. klug
clever

b. klüg-er
clever-er

c. am klüg-sten
at.the clever-est

This is not always the case. Especially for adjectives which make reference to some end point, a degree of comparison does not make sense. If a particular solution is optimal, for example, then no better one exists. Therefore, it does not make sense to speak of a "more optimal" solution. In a similar vein, it is not possible to be "deader" than dead.

There are some special cases such as colour adjectives ending in *-a* in German *lila* 'purple' and *rosa* 'pink'. These inflect optionally (49a), and the uninflected form is also possible:

(49) a. eine lilan-e Blume
a purple-F flower

b. eine lila Blume
a purple flower

In both cases, *lila* is classed an adjective. We can motivate this classification by appealing to the fact that both words occur at the same positions as other adjectives that clearly behave like adjectives with regard to inflection.

The parts of speech discussed thus far can all be differentiated in terms of their inflectional properties. For words which do not inflect, we have to use additional criteria. For example, we can classify words by the syntactic context in which they occur (as we did for the non-inflecting adjectives above). We can identify prepositions, adverbs, conjunctions, interjections and sometimes also particles. Prepositions are words which occur with a noun phrase whose case they determine:

(50) a. in diesen Raum
in this.ACC room

b. in diesem Raum
in this.DAT room

wegen 'because' is often classed as a preposition although it can also occur after the noun and in these cases would technically be a postposition:

(51) des Geldes wegen
the money.GEN because
'because of the money'

It is also possible to speak of *adpositions* if one wishes to remain neutral about the exact position of the word.

Unlike prepositions, adverbs do not require a noun phrase.

(52) a. Er schläft in diesem Raum.
he sleeps in this room

b. Er schläft dort.
he sleeps there

Sometimes adverbs are simply treated as a special variant of prepositions (see page 96). The explanation for this is that a prepositional phrase such as *in diesem Raum* 'in this room' shows the same syntactic distribution as the corresponding adverbs. *in* differs from *dort* 'there' in that it needs an additional noun phrase. These differences are parallel to what we have seen with other parts of speech. For instance, the verb *schlafen* 'sleep' requires only a noun phrase, whereas *erkennen* 'recognize' requires two.

(53) a. Er schläft.
he sleeps

b. Peter erkennt ihn.
Peter recognizes him

Conjunctions can be subdivided into subordinating and coordinating conjunctions. Coordinating conjunctions include *und* 'and' and *oder* 'or'. In coordinate structures, two units with the same syntactic properties are combined. They occur adjacent to one another. *dass* 'that' and *weil* 'because' are subordinating conjunctions because the clauses that they introduce can be part of a larger clause and depend on another element of this larger clause.

(54) a. Klaus glaubt, dass er lügt.
Klaus believes that he lies
'Klaus believes that he is lying.'

b. Klaus glaubt ihm nicht, weil er lügt.
Klaus believes him not because he lies
'Klaus doesn't believe him because he is lying.'

Interjections are clause-like expressions such as *Ja!* 'Yes!', *Bitte!* 'Please!' *Hallo!* 'Hello!', *Hurra!* 'Hooray!', *Bravo!* 'Bravo!', *Pst!* 'Psst!', *Plumps!* 'Clonk!'.

If adverbs and prepositions are not assigned to the same class, then adverbs are normally used as a kind of "left over" category in the sense that all non-inflecting words which are neither prepositions, conjunctions nor interjections are classed as adverbs. Sometimes this category for "left overs" is subdivided: only words which can appear in front of the finite verb when used as a constituent are referred to as adverbs. Those words which cannot be fronted are dubbed *particles*. Particles themselves can be subdivided into various classes based on their function, e. g. degree particles and illocutionary particles. Since these functionally defined classes also contain adjectives, I will not make this distinction and simply speak of *adverbs*.

We have already sorted a considerable number of inflectional words into word classes. When one is faced with the task of classifying a particular word, one can use the decision diagram in Figure 1.2 on the next page, which is taken from the Duden grammar of German (Eisenberg et al. 2005: 133).[10]

[10] The Duden is the official document for the German orthography. The Duden grammar does not have an

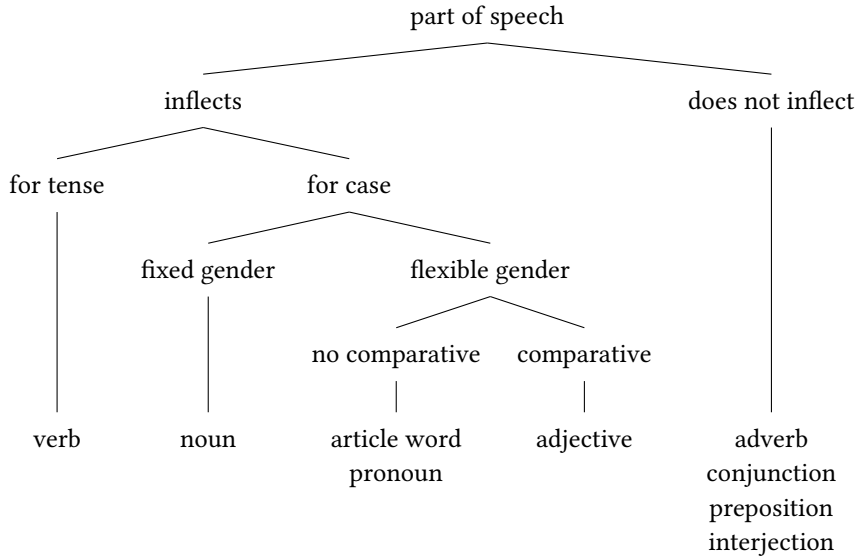

Figure 1.2: Decision tree for determining parts of speech following Eisenberg et al. (2005: 133)

If a word inflects for tense, then it is a verb. If it displays different case forms, then one has to check if it has a fixed gender. If this is indeed the case, then we know that we are dealing with a noun. Words with variable gender have to be checked to see if they have comparative forms. A positive result will be a clear indication of an adjective. All other words are placed into a residual category, which the Duden refers to as pronouns/article words. Like in the class of non-inflectional elements, the elements in this remnant category are subdivided according to their syntactic behavior. The Duden grammar makes a distinction between pronouns and article words. According to this classification, pronouns are words which can replace a noun phrase such as *der Mann* 'the man', whereas article words normally combine with a noun. In Latin grammars, the notion of 'pronoun' includes both pronouns in the above sense and articles, since the forms with and without the noun are identical. Over the past centuries, the forms have undergone split development to the point where it is now common in contemporary Romance languages to distinguish between words which replace a noun phrase and those which must occur with a noun. Elements which belong to the latter class are also referred to as *determiners*.

If we follow the decision tree in Figure 1.2, the personal pronouns *ich* 'I', *du* 'you', *er* 'he', *sie* 'her', *es* 'it', *wir* 'we', *ihr* 'you', and *sie* 'they', for example, would be grouped

official status but is very influential and it used for educational purposes as well. I will refer to it several times in this introductory chapter.

together with the possessive pronouns *mein* 'mine', *dein* 'your', *sein* 'his'/'its', *ihr* 'her'/'their', and *unser* 'our'. The corresponding reflexive pronouns, *mich* 'myself', *dich* 'yourself', *sich* 'himself'/'herself'/'itself', 'themselves', *uns* 'ourselves', *euch* 'yourself', and the reciprocal pronoun *einander* 'each other' have to be viewed as a special case in German as there are no differing gender forms of *sich* 'himself'/'herself'/'itself' and *einander* 'each other'. Case is not expressed morphologically by reciprocal pronouns. By replacing genitive, dative and accusative pronouns with *einander*, it is possible to see that there must be variants of *einander* 'each other' in these cases, but these variants all share the same form:

(55) a. Sie gedenken seiner / einander.
they commemorate him.GEN each.other

b. Sie helfen ihm / einander.
they help him.DAT each.other

c. Sie lieben ihn / einander.
they love him.ACC each.other

So-called pronominal adverbs such as *darauf* 'on there', *darin* 'in there', *worauf* 'on where', *worin* 'in where' also prove problematic. These forms consist of a preposition (e. g. *auf* 'on') and the elements *da* 'there' and *wo* 'where'. As the name suggests, *pronominal adverbs* contain something pronominal and this can only be *da* 'there' and *wo* 'where'. However, *da* 'there' and *wo* 'where' do not inflect and would therefore, following the decision tree, not be classed as pronouns.

The same is true of relative pronouns such as *wo* 'where' in (56):

(56) a. Ich komme eben aus der Stadt, *wo* ich Zeuge eines Unglücks gewesen
I come PART from the city where I witness of.an accident been
bin.[11]
am

'I come from the city where I was witness to an accident.'

b. Studien haben gezeigt, daß mehr Unfälle in Städten passieren, *wo* die
studies have shown that more accidents in cities happen where the
Zebrastreifen abgebaut werden, weil die Autofahrer unaufmerksam
zebra.crossings removed become because the drivers unattentive
werden.[12]
become

'Studies have shown that there are more accidents in cities where they do away with zebra crossings, because drivers become unattentive.'

c. Zufällig war ich in dem Augenblick zugegen, *wo* der Steppenwolf
coincidentally was I in the moment present where the Steppenwolf

[11] Drosdowski (1984: 672).
[12] taz berlin, 03.11.1997, p. 23.

zum erstenmal unser Haus betrat und bei meiner Tante sich einmietete.[13]
to.the first.time our house entered and by my aunt REFL took.lodgings
'Coincidentally, I was present at the exact moment in which Steppenwolf entered our house for the first time and took lodgings with my aunt.'

If they are uninflected, then they cannot belong to the class of pronouns according to the decision tree above. Eisenberg (2004: 277) notes that *wo* 'where' is a kind of *uninflected relative pronoun* (he uses quotation marks) and remarks that this term runs contrary to the exclusive use of the term pronoun for nominal, that is inflected, elements. He therefore uses the term *relative adverb* for them (also see Eisenberg et al. (2005: §856, §857)).

There are also usages of the relatives *dessen* 'whose' and *wessen* 'whose' in combination with a noun:

(57) a. der Mann, dessen Schwester ich kenne
the man whose sister I know

b. Ich möchte wissen, wessen Schwester du kennst.
I would.like know whose sister you know
'I would like to know whose sister you know.'

According to the classification in the Duden, these should be covered by the terms *Relativartikelwort* 'relative article word' and *Interrogativartikelwort* 'interrogative article word'. They are mostly counted as part of the relative pronouns and question pronouns (see for instance Eisenberg (2004: 229)). Using Eisenberg's terminology, this is unproblematic as he does not make a distinction between articles, pronouns and nouns, but rather assigns them all to the class of nouns. But authors who do make a distinction between articles and pronouns sometimes also speak of interrogative pronouns when discussing words which can function as articles or indeed replace an entire noun phrase.

One should be prepared for the fact that the term *pronoun* is often simply used for words which refer to other entities and, this is important, not in the way that nouns such as *book* and *John* do, but rather dependent on context. The personal pronoun *er* 'he' can, for example, refer to either a table or a man. This usage of the term *pronoun* runs contrary to the decision tree in Figure 1.2 and includes uninflected elements such as *da* 'there' and *wo* 'where'.

Expletive pronouns such as *es* 'it' and *das* 'that', as well as the *sich* 'him'/'her'/'itself' belonging to inherently reflexive verbs do not make reference to actual objects. They are considered pronouns because of the similarity in form. Even if we were to assume a narrow definition of pronouns, we would still get the wrong results as expletive forms do not vary with regard to case, gender and number. If one does everything by the book, expletives would belong to the class of uninflected elements. If we assume that *es* 'it' as well as the personal pronouns have a nominative and accusative variant with the same form, then they would be placed in with the nominals. We would then have to admit

[13] Herman Hesse, *Der Steppenwolf*. Berlin und Weimar: Aufbau-Verlag. 1986, p. 6.

that the assumption that *es* has gender would not make sense, that is we would have to count *es* as a noun by assuming neuter gender, analogous to personal pronouns.

We have not yet discussed how we would deal with the italicized words in (58):

(58) a. das *geliebte* Spielzeug
the beloved toy

b. das *schlafende* Kind
the sleeping child

c. die Frage des *Sprechens* und *Schreibens* über Gefühle
the question of.the talking and writing about feelings
'the question of talking and writing about feelings'

d. Auf dem Europa-Parteitag fordern die *Grünen* einen ökosozialen
on the Europe-party.conference demand the Greens a eco-social
Politikwechsel.
political.change
'At the European party conference, the Greens demanded eco-social political change.'

e. Max lacht *laut*.
Max laughs loudly

f. Max würde *wahrscheinlich* lachen.
Max would probably laugh

geliebte 'beloved' and *schlafende* 'sleeping' are participle forms of *lieben* 'to love' and *schlafen* 'to sleep'. These forms are traditionally treated as part of the verbal paradigm. In this sense, *geliebte* and *schlafende* are verbs. This is referred to as lexical word class. The term *lexeme* is relevant in this case. All forms in a given inflectional paradigm belong to the relevant lexeme. In the classic sense, this term also includes the regularly derived forms, that is participle forms and nominalized infinitives also belong to a verbal lexeme. Not all linguists share this view, however. Particularly problematic is the fact that we are mixing verbal with nominal and adjectival paradigms. For example, *Sprechens* 'speaking.GEN' is in the genitive and adjectival participles also inflect for case, number and gender. Furthermore, it is unclear as to why *schlafende* 'sleeping' should be classed as a verbal lexeme and a noun such as *Störung* 'disturbance' is its own lexeme and does not belong to the lexeme *stören* 'to disturb'. I subscribe to the more modern view of grammar and assume that processes in which a word class is changed result in a new lexeme being created. Consequently, *schlafende* 'sleeping' does not belong to the lexeme *schlafen* 'to sleep', but is a form of the lexeme *schlafend*. This lexeme belongs to the word class 'adjective' and inflects accordingly.

As we have seen, it is still controversial as to where to draw the line between inflection and derivation (creation of a new lexeme). Sag, Wasow & Bender (2003: 263–264) view the formation of the present participle (*standing*) and the past participle (*eaten*) in English as derivation as these forms inflect for gender and number in French.

Adjectives such as *Grünen* 'the Greens' in (58d) are nominalized adjectives and are written with a capital like other nouns in German when there is no other noun that can be inferred from the immediate context:

(59) A: Willst du den roten Ball haben?
want you the red ball have
'Do you want the red ball?'

B: Nein, gib mir bitte den grünen.
no give me please the green
'No, give me the green one please.'

In the answer to (59), the noun *Ball* has been omitted. This kind of omission is not present in (58d). One could also assume here that a word class change has taken place. If a word changes its class without combination with a visible affix, we refer to this as *conversion*. Conversion has been treated as a sub-case of derivation by some linguists. The problem is, however, that *Grüne* 'greens' inflects just like an adjective and the gender varies depending on the object it is referring to:

(60) a. Ein Grüner hat vorgeschlagen, ...
a green.M has suggested
'A (male) member of the Green Party suggested ...'

b. Eine Grüne hat vorgeschlagen, ...
a green.F has suggested
'A (female) member of the Green Party suggested ...'

We also have the situation where a word has two properties. We can make life easier for ourselves by talking about *nominalized adjectives*. The lexical category of *Grüne* is adjective and its syntactic category is noun.

The word in (58e) can inflect like an adjective and should therefore be classed as an adjective following our tests. Sometimes, these kinds of adjectives are also classed as adverbs. The reason for this is that the uninflected forms of these adjectives behave like adverbs:

(61) Max lacht immer / oft / laut.
Max laughs always often loud
'Max (always/often) laughs (loudly).'

To capture this dual nature of words some researchers distinguish between lexical and syntactic category of words. The lexical category of *laut* 'loud(ly)' is that of an adjective and the syntactic category to which it belongs is 'adverb'. The classification of adjectives such as *laut* 'loud(ly)' in (61) as adverbs is not assumed by all authors. Instead, some speak of adverbial usage of an adjective, that is one assumes that the syntactic category is still adjective but it can be used in a different way so that it behaves like an adverb (see Eisenberg 2004: Section 7.3, for example). This is parallel to prepositions, which can occur in a variety of syntactic contexts:

(62) a. Peter schläft im Büro.
Peter sleeps in.the office
'Peter sleeps in the office.'

b. der Tisch im Büro
the table in.the office
'the table in the office'

We have prepositional phrases in both examples in (62), however in (62a) *im Büro* 'in the office' acts like an adverb in that it modifies the verb *schläft* 'sleeps' and in (62b) *im Büro* modifies the noun *Tisch* 'table'. In the same way, *laut* 'loud' can modify a noun (63) or a verb (61).

(63) die laute Musik
the loud music

1.5 Heads

The head of a constituent/phrase is the element which determines the most important properties of the constituent/phrase. At the same time, the head also determines the composition of the phrase, that is, the head requires certain other elements to be present in the phrase. The heads in the following examples have been marked in *italics*:

(64) a. *Träumt* dieser Mann?
dreams this.NOM man
'Does this man dream?'

b. *Erwartet* er diesen Mann?
expects he.NOM this.ACC man
'Is he expecting this man?'

c. *Hilft* er diesem Mann?
helps he.NOM this.DAT man
'Is he helping this man?'

d. *in* diesem Haus
in this.DAT house

e. ein *Mann*
a.NOM man

Verbs determine the case of their arguments (subjects and objects). In (64d), the preposition determines which case the noun phrase *diesem Haus* 'this house' bears (dative) and also determines the semantic contribution of the phrase (it describes a location). (64e) is controversial: there are linguists who believe that the determiner is the head (Hellan 1986; Abney 1987; Netter 1994, 1998) while others assume that the noun is the head of the phrase (Van Langendonck 1994; Pollard & Sag 1994: 49; Demske 2001; Müller 2007b: Section 6.6.1; Hudson 2004; Bruening 2009).

The combination of a head with another constituent is called a *projection of the head*. A projection which contains all the necessary parts to create a well-formed phrase of that type is a *maximal projection*. A sentence is the maximal projection of a finite verb.

Figure 1.3 shows the structure of (65) in box representation.

(65) Der Mann liest einen Aufsatz.
the man reads an essay
'The man is reading an essay.'

Unlike Figure 1.1, the boxes have been labelled here.

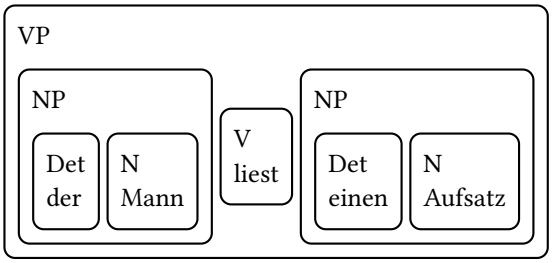

Figure 1.3: Words and phrases in annotated boxes

The annotation includes the category of the most important element in the box. VP stands for *verb phrase* and NP for *noun phrase*. VP and NP are maximal projections of their respective heads.

Anyone who has ever faced the hopeless task of trying to find particular photos of their sister's wedding in a jumbled, unsorted cupboard can vouch for the fact that it is most definitely a good idea to mark the boxes based on their content and also mark the albums based on the kinds of photos they contain.

An interesting point is that the exact content of the box with linguistic material does not play a role when the box is put into a larger box. It is possible, for example, to replace the noun phrase *der Mann* 'the man' with *er* 'he', or indeed the more complex *der Mann aus Stuttgart, der das Seminar zur Entwicklung der Zebrafinken besucht* 'the man from Stuttgart who takes part in the seminar on the development of zebra finches'. However, it is not possible to use *die Männer* 'the men' or *des Mannes* 'of the man' in this position:

(66) a. * Die Männer liest einen Aufsatz.
the men reads an essay
b. * Des Mannes liest einen Aufsatz.
of.the man.GEN reads an essay

The reason for this is that *die Männer* 'the men' is in plural and the verb *liest* 'reads' is in singular. The noun phrase bearing genitive case *des Mannes* can also not occur, only nouns in the nominative case. It is therefore important to mark all boxes with the

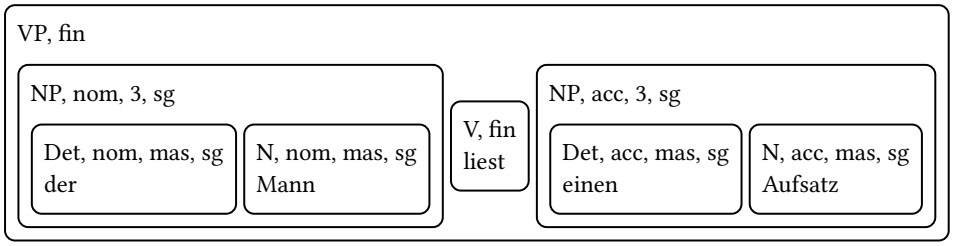

Figure 1.4: Words and word strings in annotated boxes

information that is important for placing these boxes into larger boxes. Figure 1.4 shows our example with more detailed annotation.

The features of a head which are relevant for determining in which contexts a phrase can occur are called *head features*. The features are said to be *projected* by the head.

1.6 Arguments and adjuncts

The constituents of a given clause have different relations to their head. It is typical to distinguish between arguments and adjuncts. The syntactic arguments of a head correspond for the most part to their logical arguments. We can represent the meaning of (67a) as (67b) using predicate logic.

(67) a. Peter helps Maria.
b. *help′*(*peter′*, *maria′*)

The logical representation of (67b) resembles what is expressed in (67a), however it abstracts away from constituent order and inflection. *Peter* and *Maria* are syntactic arguments of the verb *help* and their respective meanings (*Peter′* and *Maria′*) are arguments of the logical relation expressed by *help′*. One could also say that *help* assigns semantic roles to its arguments. Semantic roles include agent (the person carrying out an action), patient (the affected person or thing), beneficiary (the person who receives something) and experiencer (the person experiencing a psychological state). The subject of *help* is an agent and the direct object is a beneficiary. Arguments which fulfil a semantic role are also called *actants*. This term is also used for inanimate objects.

This kind of relation between a head and its arguments is covered by the terms *selection* and *valence*. Valence is a term borrowed from chemistry. Atoms can combine with other atoms to form molecules with varying levels of stability. The way in which the electron shells are occupied plays an important role for this stability. If an atom combines with others atoms so that its electron shell is fully occupied, then this will lead to a stable connection. Valence tells us something about the number of hydrogen atoms which an atom of a certain element can be combined with. In forming H_2O, oxygen has a valence of 2. We can divide elements into valence classes. Following Mendeleev, elements with a particular valence are listed in the same column in the periodic table.

The concept of valence was applied to linguistics by Tesnière (1959): a head needs certain arguments in order to form a stable compound. Words with the same valence – that is which require the same number and type of arguments – are divided into valence classes. Figure 1.5 shows examples from chemistry as well as linguistics.

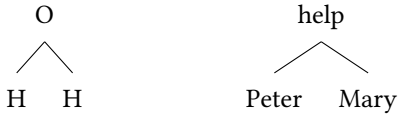

Figure 1.5: Combination of hydrogen and oxygen and the combination of a verb with its arguments

We used (67) to explain logical valence. Logical valence can, however, sometimes differ from syntactic valence. This is the case with verbs like *rain*, which require an expletive pronoun as an argument. Inherently reflexive verbs such as *sich erholen* 'to recover' in German are another example.

(68) a. Es regnet.
it rains
'It is raining.'

b. Klaus erholt sich.
Klaus recovers REFL
'Klaus is recovering.'

The expletive *es* 'it' with weather verbs and the *sich* of so-called inherent reflexives such as *erholen* 'to recover' have to be present in the sentence. Germanic languages have expletive elements that are used to fill the position preceding the finite verb. These positional expletives are not realized in embedded clauses in German, since embedded clauses have a structure that differs from canonical unembedded declarative clauses, which have the finite verb in second position. (69a) shows that *es* cannot be omitted in *dass*-clauses.

(69) a. * Ich glaube, dass regnet.
I think that rains
Intended: 'I think that it is raining.'

b. * Ich glaube, dass Klaus erholt.
I believe that Klaus recovers
Intended: 'I believe that Klaus is recovering.'

Neither the expletive nor the reflexive pronoun contribute anything semantically to the sentence. They must, however, be present to derive a complete, well-formed sentence. They therefore form part of the valence of the verb.

Constituents which do not contribute to the central meaning of their head, but rather provide additional information are called *adjuncts*. An example is the adverb *deeply* in (70):

(70) John loves Mary deeply.

This says something about the intensity of the relation described by the verb. Further examples of adjuncts are attributive adjectives (71a) and relative clauses (71b):

(71) a. a *beautiful* woman
b. the man *who Mary loves*

Adjuncts have the following syntactic/semantic properties:

(72) a. Adjuncts do not fulfil a semantic role.
b. Adjuncts are optional.
c. Adjuncts can be iterated.

The phrase in (71a) can be extended by adding another adjunct:

(73) a beautiful clever woman

If one puts processing problems aside for a moment, this kind of extension by adding adjectives could proceed infinitely (see the discussion of (37) on page 67). Arguments, on the other hand, cannot be realized more than once:

(74) * The man the boy sleeps.

If the entity carrying out the sleeping action has already been mentioned, then it is not possible to have another noun phrase which refers to a sleeping individual. If one wants to express the fact that more than one individual is sleeping, this must be done by means of coordination as in (75):

(75) The man and the boy are sleeping.

One should note that the criteria for identifying adjuncts proposed in (72) is not sufficient, since there are also syntactic arguments, which do not fill semantic roles (e. g. *es* 'it' in (68a) and *sich* (REFL) in (68b)) or are optional (*pizza* in (76)).

(76) Tony is eating (pizza).

Heads normally determine the syntactic properties of their arguments in a relatively fixed way. A verb is responsible for the case which its arguments bear.

(77) a. Er gedenkt des Opfers.
he remembers the.GEN victim.GEN
'He remembers the victim.'
b. * Er gedenkt dem Opfer.
he remembers the.DAT victim
c. Er hilft dem Opfer.
he helps the.DAT victim
'He helps the victim.'

d. * Er hilft des Opfers.
he helps the.GEN victim.GEN

The verb *governs* the case of its arguments.

The preposition and the case of the noun phrase in the prepositional phrase are both determined by the verb:[14]

(78) a. Er denkt an seine Modelleisenbahn.
he thinks on his.ACC model.railway
'He is thinking of his model railway.'

b. # Er denkt an seiner Modelleisenbahn.
He thinks on his.DAT model.railway

c. Er hängt an seiner Modelleisenbahn.
He hangs on his.DAT model.railway
'He clings to his model railway.'

d. * Er hängt an seine Modelleisenbahn.
he hangs on his.ACC model.railway

The case of noun phrases in modifying prepositional phrases, on the other hand, depends on their meaning. In German, directional prepositional phrases normally require a noun phrase bearing accusative case (79a), whereas local PPs (denoting a fixed location) appear in the dative case (79b):

(79) a. Er geht in die Schule / auf den Weihnachtsmarkt / unter die
he goes in the.ACC school on the.ACC Christmas.market under the.ACC
Brücke.
bridge
'He is going to school/to the Christmas market/under the bridge.'

b. Er schläft in der Schule / auf dem Weihnachtsmarkt / unter der
he sleeps in the.DAT school on the.DAT Christmas.market under the.DAT
Brücke.
bridge
'He is sleeping at school/at the Christmas market/under the bridge.'

An interesting case is the verb *sich befinden* 'to be located', which expresses the location of something. This cannot occur without some information about the location pertaining to the verb:

(80) * Wir befinden uns.
we are.located REFL

The exact form of this information is not fixed – neither the syntactic category nor the preposition inside of prepositional phrases is restricted:

[14] For similar examples, see Eisenberg (1994b: 78).

(81) Wir befinden uns hier / unter der Brücke / neben dem Eingang / im Bett.
we are REFL here under the bridge next.to the entrance in bed
'We are here/under the bridge/next to the entrance/in bed.'

Local modifiers such as *hier* 'here' or *unter der Brücke* 'under the bridge' are analyzed with regard to other verbs (e. g. *schlafen* 'sleep') as adjuncts. For verbs such as *sich befinden* 'to be (located)', we will most likely have to assume that information about location forms an obligatory syntactic argument of the verb.

The verb selects a phrase with information about location, but does not place any syntactic restrictions on its type. This specification of location behaves semantically like the other adjuncts we have seen previously. If I just consider the semantic aspects of the combination of a head and adjunct, then I also refer to the adjunct as a *modifier*.[15] Arguments specifying location with verbs such as *sich befinden* 'to be located' are also subsumed under the term *modifier*. Modifiers are normally adjuncts, and therefore optional, whereas in the case of *sich befinden* they seem to be (obligatory) arguments.

In conclusion, we can say that constituents that are required to occur with a certain head are arguments of that head. Furthermore, constituents which fulfil a semantic role with regard to the head are also arguments. These kinds of arguments can, however, sometimes be optional.

Arguments are normally divided into subjects and complements.[16] Not all heads require a subject (see Müller 2007b: Section 3.2). The number of arguments of a head can therefore also correspond to the number of complements of a head.

1.7 Grammatical functions

In some theories, grammatical functions such as subject and object form part of the formal description of language (see Chapter 7 on Lexical Functional Grammar, for example). This is not the case for the majority of the theories discussed here, but these terms are used for the informal description of certain phenomena. For this reason, I will briefly discuss them in what follows.

1.7.1 Subjects

Although I assume that the reader has a clear intuition about what a subject is, it is by no means a trivial matter to arrive at a definition of the word *subject* which can be used cross-linguistically. For German, Reis (1982) suggested the following syntactic properties as definitional for subjects:

- agreement of the finite verb with it

[15] See Section 1.7.2 for more on the grammatical function of adverbials. The term adverbial is normally used in conjunction with verbs. *modifier* is a more general term, which normally includes attributive adjectives.

[16] In some schools the term complement is understood to include the subject, that is, the term complement is equivalent to the term argument (see for instance Groß 2003: 342). Some researchers treat some subjects, e. g. those of finite verbs, as complements (Pollard 1996b; Eisenberg 1994a: 376).

- nominative case in non-copular clauses
- omitted in infinitival clauses (control)
- optional in imperatives

I have already discussed agreement in conjunction with the examples in (4). Reis (1982) argues that the second bullet point is a suitable criterion for German. She formulates a restriction to non-copular clause because there can be more than one nominative argument in sentences with predicate nominals such as (82):

(82) a. Er ist ein Lügner.
he.NOM ist a liar.NOM
'He is a liar.'

b. Er wurde ein Lügner genannt.
he.NOM was a liar.NOM called
'He was called a liar.'

Following this criterion, arguments in the dative case such as *den Männern* 'the men' cannot be classed as subjects in German:

(83) a. Er hilft den Männern.
he helps the.DAT men.DAT
'He is helping the men.'

b. Den Männern wurde geholfen.
the.DAT men.DAT were.3SG helped
'The men were helped.'

Following the other criteria, datives should also not be classed as subjects – as Reis (1982) has shown. In (83b), *wurde*, which is the 3rd person singular form, does not agree with *den Männern*. The third of the aforementioned criteria deals with infinitive constructions such as those in (84):

(84) a. Klaus behauptet, den Männern zu helfen.
Klaus claims the.DAT men.DAT to help
'Klaus claims to be helping the men.'

b. Klaus behauptet, dass er den Männern hilft.
Klaus claims that he the.DAT men.DAT helps
'Klaus claims that he is helping the men.'

c. * Die Männer behaupten, geholfen zu werden.
the men claim helped to become
Intended: 'The men are claiming to be helped.'

d. * Die Männer behaupten, elegant getanzt zu werden.
the men claim elegantly danced to become
Intended: 'The men claim that there is elegant dancing.'

In the first sentence, an argument of the verb *helfen* 'to help' has been omitted. If one wishes to express it, then one would have to use the subordinate clause beginning with *dass* 'that' as in (84b). Examples (84c,d) show that infinitives which do not require a nominative argument cannot be embedded under verbs such as *behaupten* 'to claim'. If the dative noun phrase *den Männern* 'the men' were the subject in (83b), we would expect the control construction (84c) to be well-formed. This is, however, not the case. Instead of (84c), it is necessary to use (85):

(85) Die Männer behaupten, dass ihnen geholfen wird.
the men.NOM claim that them.DAT helped becomes
'The men claim that they are being helped.'

In the same way, imperatives are not possible with verbs that do not require a nominative. (86) shows some examples from Reis (1982: 186).

(86) a. Fürchte dich nicht!
be.scared REFL not
'Don't be scared!'

b. * Graue nicht!
dread not
'Don't dread it!'

c. Werd einmal unterstützt und …
be once supported and
'Let someone support you for once and …'

d. * Werd einmal geholfen und …
be once helped and
'Let someone help you and …'

The verb *sich fürchten* 'to be scared' in (86a) obligatorily requires a nominative argument as its subject (87a). The similar verb *grauen* 'to dread' in (86b) takes a dative argument (87b).

(87) a. Ich fürchte mich vor Spinnen.
I.NOM be.scared REFL before spiders
'I am scared of spiders.'

b. Mir graut vor Spinnen.
me.DAT scares before spiders
'I am dreading spiders.'

Interestingly, dative arguments in Icelandic behave differently. Zaenen et al. (1985) discuss various characteristics of subjects in Icelandic and show that it makes sense to describe dative arguments as subjects in passive sentences even if the finite verb does not agree with them (Section 3.1) or they do not bear nominative case. An example of this are infinitive constructions with an omitted dative argument (p. 457):

(88) a. Ég vonast til að verða hjálpað.
I hope for to be helped
'I hope that I will be helped.'

b. Að vera hjálpað í prófinu er óleyfilegt.
to be helped on the.exam is not.allowed
'It is not allowed for one to be helped during the exam.'

In a number of grammars, clausal arguments such as those in (89) are classed as subjects as they can be replaced by a noun phrase in the nominative (90) (see e. g. Eisenberg 2004: 63, 289).

(89) a. Dass er schon um sieben kommen wollte, stimmt nicht.
that he already at seven come wanted is.true not
'It's not true that he wanted to come as soon as seven.'

b. Dass er Maria geheiratet hat, gefällt mir.
that he Maria married has pleases me
'I'm glad that he married Maria.'

(90) a. Das stimmt nicht.
that is.true not
'That isn't true.'

b. Das gefällt mir.
that pleases me
'I like that.'

It should be noted that there are different opinion on the question of whether clausal arguments should be treated as subjects or not. As recent publications show, there is still some discussion in Lexical Function Grammar (see Chapter 7) (Dalrymple & Lødrup 2000; Berman 2003b, 2007; Alsina, Mohanan & Mohanan 2005; Forst 2006).

If we can be clear about what we want to view as a subject, then the definition of object is no longer difficult: objects are all other arguments whose form is directly determined by a given head. As well as clausal objects, German has genitive, dative, accusative and prepositional objects:

(91) a. Sie gedenken des Mannes.
they remember the.GEN man.GEN
'They remember the man.'

b. Sie helfen dem Mann.
they help the.DAT man.DAT
'They are helping the man.'

c. Sie kennen den Mann.
they know the.ACC man.ACC
'They know the man.'

d. Sie denken an den Mann.
they think on the man
'They are thinking of the man.'

As well as defining objects by their case, it is commonplace to talk of *direct objects* and *indirect objects*. The direct object gets its name from the fact that – unlike the indirect object – the referent of a direct object is directly affected by the action denoted by the verb. With ditransitives such as the German *geben* 'to give', the accusative object is the direct object and the dative is the indirect object.

(92) dass er dem Mann den Aufsatz gibt
that he.NOM the.DAT man.DAT the.ACC essay.ACC gives
'that he gives the man the essay'

For trivalent verbs (verbs taking three arguments), we see that the verb can take either an object in the genitive case (93a) or, for verbs with a direct object in the accusative, a second accusative object (93b):

(93) a. dass er den Mann des Mordes bezichtigte
that he the.ACC man.ACC the.GEN murder.GEN accused
'that he accused the man of murder'
b. dass er den Mann den Vers lehrte
that he the.ACC man.ACC the.ACC verse.ACC taught
'that he taught the man the verse'

These kinds of objects are sometimes also referred to as indirect objects.

Normally, only those objects which are promoted to subject in passives with *werden* 'to be' are classed as direct objects. This is important for theories such as LFG (see Chapter 7) since passivization is defined with reference to grammatical function. With two-place verbal predicates, the dative is not normally classed as a direct object (Cook 2006).

(94) dass er dem Mann hilft
that he the.DAT man.DAT helps
'that he helps the man'

In many theories, grammatical function does not form a primitive component of the theory, but rather corresponds to positions in a tree structure. The direct object in German is therefore the object which is first combined with the verb in a configuration that is assumed to be the underlying structure of German sentences. The indirect object is the second object to be combined with the verb. On this view, the dative object of *helfen* 'to help' would have to be viewed as a direct object.

In the following, I will simply refer to the case of objects and avoid using the terms direct object and indirect object.

In the same way as with subjects, we consider whether there are object clauses which are equivalent to a certain case and can fill the respective grammatical function of a

direct or indirect object. If we assume that *dass du sprichst* 'that you are speaking' in (95a) is a subject, then the subordinate clause must be a direct object in (95b):

(95) a. Daß du sprichst, wird erwähnt.
that you speak becomes mentioned
'The fact that you're speaking is being mentioned.'

b. Er erwähnt, dass du sprichst.
he mentioned that you speak
'He mentioned that you are speaking.'

In this case, we cannot really view the subordinate clause as the accusative object since it does not bear case. However, we can replace the sentence with an accusative-marked noun phrase:

(96) Er erwähnt diesen Sachverhalt.
he mentions this.ACC matter
'He mentions this matter.'

If we want to avoid this discussion, we can simply call these arguments clausal objects.

1.7.2 The adverbial

Adverbials differ semantically from subjects and objects. They tell us something about the conditions under which an action or process takes place, or the way in which a certain state persists. In the majority of cases, adverbials are adjuncts, but there are – as we have already seen – a number of heads which also require adverbials. Examples of these are verbs such as *to be located* or *to make one's way*. For *to be located*, it is necessary to specify a location and for *to proceed to* a direction is needed. These kinds of adverbials are therefore regarded as arguments of the verb.

The term *adverbial* comes from the fact that adverbials are often adverbs. This is not the only possibility, however. Adjectives, participles, prepositional phrases, noun phrases and even sentences can be adverbials:

(97) a. Er arbeitet sorgfältig.
he works carefully

b. Er arbeitet vergleichend.
he works comparatively
'He does comparative work.'

c. Er arbeitet in der Universität.
he works in the university
'He works at the university.'

d. Er arbeitet den ganzen Tag.
he works the whole day.ACC
'He works all day.'

e. Er arbeitet, weil es ihm Spaß macht.
he works because it him.DAT fun makes
'He works because he enjoys it.'

Although the noun phrase in (97d) bears accusative case, it is not an accusative object. *den ganzen Tag* 'the whole day' is a so-called temporal accusative. The occurrence of accusative in this case has to do with the syntactic and semantic function of the noun phrase, it is not determined by the verb. These kinds of accusatives can occur with a variety of verbs, even with verbs that do not normally require an accusative object:

(98) a. Er schläft den ganzen Tag.
he sleeps the whole day
'He sleeps the whole day.'

b. Er liest den ganzen Tag diesen schwierigen Aufsatz.
he reads the.ACC whole.ACC day this.ACC difficult.ACC essay
'He spends the whole day reading this difficult essay.'

c. Er gibt den Armen den ganzen Tag Suppe.
he gives the.DAT poor.DAT the.ACC whole.ACC day soup
'He spends the whole day giving soup to the poor.'

The case of adverbials does not change under passivization:

(99) a. weil den ganzen Tag gearbeitet wurde
because the.ACC whole.ACC day worked was
'because someone worked all day'

b. * weil der ganze Tag gearbeitet wurde
because the.NOM whole.NOM day worked was

1.7.3 Predicatives

Adjectives like those in (100a,b) as well as noun phrases such as *ein Lügner* 'a liar' in (100c) are counted as predicatives.

(100) a. Klaus ist *klug*.
Klaus is clever

b. Er isst den Fisch *roh*.
he eats the fish raw

c. Er ist *ein Lügner*.
he is a liar

In the copula construction in (100a,c), the adjective *klug* 'clever' and the noun phrase *ein Lügner* 'a liar' is an argument of the copula *sein* 'to be' and the depictive adjective in (100b) is an adjunct to *isst* 'eats'.

For predicative noun phrases, case is not determined by the head but rather by some other element.[17] For example, the accusative in (101a) becomes nominative under passivization (101b):

(101) a. Sie nannte ihn einen Lügner.
she called him.ACC a.ACC liar
'She called him a liar.'

b. Er wurde ein Lügner genannt.
he.NOM was a.NOM liar called
'He was called a liar.'

Only *ihn* 'him' can be described as an object in (101a). In (101b), *ihn* becomes the subject and therefore bears nominative case. *einen Lügner* 'a liar' refers to *ihn* 'him' in (101a) and to *er* 'he' in (101b) and agrees in case with the noun over which it predicates. This is also referred to as *agreement case*.

For other predicative constructions see Eisenberg et al. (2005: § 1206) and Müller (2002a: Chapter 4, Chapter 5) and Müller (2008a).

1.7.4 Valence classes

It is possible to divide verbs into subclasses depending on how many arguments they require and on the properties these arguments are required to have. The classic division describes all verbs which have an object which becomes the subject under passivization

[17] There is some dialectal variation with regard to copula constructions: in standard German, the case of the noun phrase with *sein* 'to be' is always nominative and does not change when embedded under *lassen* 'to let'. According to Drosdowski (1995: § 1259), in Switzerland the accusative form is common which one finds in examples such as (ii.a).

(i) a. Ich bin dein Tanzpartner.
I am your.NOM dancing.partner

b. Der wüste Kerl ist ihr Komplize.
the wild guy is her.NOM accomplice

c. Laß den wüsten Kerl [...] meinetwegen ihr Komplize sein.
let the.ACC wild.ACC guy for.all.I.care her.NOM accomplice be
'Let's assume that the wild guy is her accomplice, for all I care.' (Grebe & Gipper 1966: § 6925)

d. Baby, laß mich dein Tanzpartner sein.
baby let me.ACC your.NOM dancing.partner be
'Baby, let me be your dancing partner!' (Funny van Dannen, Benno-Ohnesorg-Theater, Berlin, Volksbühne, 11.10.1995)

(ii) a. Er lässt den lieben Gott 'n frommen Mann sein.
he lets the.ACC dear.ACC god a pious.ACC man be
'He is completely lighthearted/unconcerned.'

b. * Er lässt den lieben Gott 'n frommer Mann sein.
he lets the.ACC dear.ACC god a pious.NOM man be

as *transitive*. Examples of this are verbs such as *love* or *beat*. Intransitive verbs, on the other hand, are verbs which have either no object, or one that does not become the subject in passive sentences. Examples of this type of verb are *schlafen* 'to sleep', *helfen* 'to help', *gedenken* 'to remember'. A subclass of transitive verbs are ditransitive verbs such as *geben* 'to give' and *zeigen* 'to show'.

Unfortunately, this terminology is not always used consistently. Sometimes, two-place verbs with dative and genitive objects are also classed as transitive verbs. In this naming tradition, the terms intransitive, transitive and ditransitive are synonymous with one-place, two-place and three-place verbs.

The fact that this terminological confusion can lead to misunderstandings between even established linguistics is shown by Culicover and Jackendoff's (2005: 59) criticism of Chomsky. Chomsky states that the combination of the English auxiliary *be* + verb with passive morphology can only be used for transitive verbs. Culicover and Jackendoff claim that this cannot be true because there are transitive verbs such as *weigh* and *cost*, which cannot undergo passivization:

(102) a. This book weighs ten pounds / costs ten dollars.
b. * Ten pounds are weighed / ten dollar are cost by this book.

Culicover and Jackendoff use *transitive* in the sense of a verb requiring two arguments. If we only view those verbs whose object becomes the subject of a passive clause as transitive, then *weigh* and *cost* no longer count as transitive verbs and Culicover and Jackendoff's criticism no longer holds.[18] That noun phrases such as those in (102) are no ordinary objects can also be seen by the fact they cannot be replaced by pronouns. It is therefore not possible to ascertain which case they bear since case distinctions are only realized on pronouns in English. If we translate the English examples into German, we find accusative objects:

(103) a. Das Buch kostete einen Dollar.
the book costs one.ACC dollar
'The book costs one dollar.'
b. Das Buch wiegt einen Zentner.
the book weighs one.ACC centner
'The book weighs one centner.'

In the following, I will use *transitive* in the former sense, that is for verbs with an object that becomes the subject when passivized (e. g. with *werden* in German). When I talk about the class of verbs that includes *helfen* 'to help', which takes a nominative and dative argument, and *schlagen* 'to hit', which takes a nominative and accusative argument, I will use the term two-place or bivalent verbs.

[18] Their cricitism also turns out to be unjust even if one views transitives as being two-place predicates. If one claims that a verb must take at least two arguments to be able to undergo passivization, one is not necessarily claiming that all verbs taking two or more arguments have to allow passivization. The property of taking multiple arguments is a condition which must be fulfilled, but it is by no means the only one.

1.8 A topological model of the German clause

In this section, I introduce the concept of so-called *topological fields* (*topologische Felder*). These will be used frequently in later chapters to discuss different parts of the German clause. One can find further, more detailed introductions to topology in Reis (1980), Höhle (1986b) and Askedal (1986). Wöllstein (2010) is a textbook about the topological field model.

1.8.1 The position of the verb

It is common practice to divide German sentences into three types pertaining to the position of the finite verb:

- verb-final clauses
- verb-first (initial) clauses
- verb-second (V2) clauses

The following examples illustrate these possibilities:

(104) a. (Peter hat erzählt,) dass er das Eis gegessen *hat*.
Peter has told that he the ice.cream eaten has
'Peter said that he has eaten the ice cream.'

b. *Hat* Peter das Eis gegessen?
has Peter the ice.cream eaten
'Has Peter eaten the ice cream?'

c. Peter *hat* das Eis gegessen.
Peter has the ice.cream eaten
'Peter has eaten the ice cream.'

1.8.2 The sentence bracket, prefield, middle field and postfield

We observe that the finite verb *hat* 'has' is only adjacent to its complement *gegessen* 'eaten' in (104a). In (104b) and (104c), the verb and its complement are separated, that is discontinuous. We can then divide the German clause into various sub-parts on the basis of these distinctions. In (104b) and (104c), the verb and the auxiliary form a "bracket" around the clause. For this reason, we call this the *sentence bracket* (*Satzklammer*). The finite verbs in (104b) and (104c) form the left bracket and the non-finite verbs form the right bracket. Clauses with verb-final order are usually introduced by conjunctions such as *weil* 'because', *dass* 'that' and *ob* 'whether'. These conjunctions occupy the same position as the finite verb in verb-initial or verb-final clauses. We therefore also assume that these conjunctions form the left bracket in these cases. Using the notion of the sentence bracket, it is possible to divide the structure of the German clause into the prefield (*Vorfeld*), middle field (*Mittelfeld*) and postfield (*Nachfeld*). The prefield describes everything

preceding the left sentence bracket, the middle field is the section between the left and right bracket and the postfield describes the position after the right bracket. Table 1.1 on the next page gives some examples of this. The right bracket can contain multiple verbs and is often referred to as a *verbal complex* or *verb cluster*. The assignment of question words and relative pronouns to the prefield will be discussed in the following section.

1.8.3 Assigning elements to fields

As the examples in Table 1.1 show, it is not required that all fields are always occupied. Even the left bracket can be empty if one opts to leave out the copula *sein* 'to be' such as in the examples in (105):

(105) a. […] egal, was noch passiert, der Norddeutsche Rundfunk
regardless what still happens the north.German broadcasting.company
steht schon jetzt als Gewinner fest.[19]
stands already now as winner PART
'Regardless of what still may happen, the North German broadcasting company is already the winner.'

b. Interessant, zu erwähnen, daß ihre Seele völlig in Ordnung war.[20]
interesting to mention that her soul completely in order was
'It is interesting to note that her soul was entirely fine.'

c. Ein Treppenwitz der Musikgeschichte, daß die Kollegen von Rammstein
an afterwit of.the history.of.music that the colleagues of Rammstein
vor fünf Jahren noch im Vorprogramm von Sandow spielten.[21]
before five years still in.the pre.programme of Sandow played
'One of the little ironies of music history is that five years ago their colleagues of Rammstein were still an opening act for Sandow.'

The examples in (105) correspond to those with the copula in (106):

(106) a. Egal ist, was noch passiert, …
regardless is what still happens
'It is not important what still may happen …'

b. Interessant ist zu erwähnen, dass ihre Seele völlig in Ordnung war.
interesting is to mention that her soul completely in order was
'It is interesting to note that her soul was completely fine.'

c. Ein Treppenwitz der Musikgeschichte ist, dass die Kollegen von Rammstein
an afterwit of.the music.history is that the colleagues of Rammstein

[19] Spiegel, 12/1999, p. 258.
[20] Michail Bulgakow, *Der Meister und Margarita*. München: Deutscher Taschenbuch Verlag. 1997, p. 422.
[21] Flüstern & Schweigen, taz, 12.07.1999, p. 14.

Table 1.1: Examples of how topological fields can be occupied

Prefield	Left bracket	Middle field	Right bracket	Postfield
Karl	schläft.			
Karl	hat		geschlafen.	
Karl	erkennt	Maria.		
Karl	färbt	den Mantel	um	den Maria kennt.
Karl	hat	Maria	erkannt.	
Karl	hat	Maria als sie aus dem Zug stieg sofort	erkannt.	
Karl	hat	Maria sofort	erkannt	als sie aus dem Zug stieg.
Karl	hat	Maria zu erkennen	behauptet.	
Karl	hat		behauptet	Maria zu erkennen.
	Schläft	Karl?		
	Schlaf!			
	Iss	jetzt dein Eis	auf!	
	Hat	er doch das ganze Eis alleine	gegessen.	
	weil	er das ganze Eis alleine	gegessen hat	ohne mit der Wimper zu zucken.
	weil	er das ganze Eis alleine	essen können will	ohne gestört zu werden.
wer		das ganze Eis alleine	gegessen hat	
der		das ganze Eis alleine	gegessen hat	
mit wem		du	geredet hast	
mit dem		du	geredet hast	

vor fünf Jahren noch im Vorprogramm von Sandow spielten.
before five years still in pre.programme of Sandow played
'It is one of the little ironies of music history that five years ago their colleagues of Rammstein were still an opening act for Sandow.'

When fields are empty, it is sometimes not clear which fields are occupied by certain constituents. For the examples in (105), one would have to insert the copula to be able to ascertain that a single constituent is in the prefield and, furthermore, which fields are occupied by the other constituents.

In the following example taken from Paul (1919: 13), inserting the copula obtains a different result:

(107) a. Niemand da?
nobody there
b. Ist niemand da?
is nobody there
'Is nobody there?'

Here we are dealing with a question and *niemand* 'nobody' in (107a) should therefore not be analyzed as in the prefield but rather the middle field.

In (108), there are elements in the prefield, the left bracket and the middle field. The right bracket is empty.[22]

(108) Er gibt der Frau das Buch, die er kennt.
he.M gives the woman(F) the book.(N) that.F he knows
'He gives the book to the woman that he knows.'

How should we analyze relative clauses such as *die er kennt* 'that he knows'? Do they form part of the middle field or the postfield? This can be tested using a test discussed in (Bech 1955: 72) (*Rangprobe*): first, we modify the example in (108) so that it is in the perfect. Since non-finite verb forms occupy the right bracket, we can clearly see the border between the middle field and postfield. The examples in (109) show that the relative clause cannot occur in the middle field unless it is part of a complex constituent with the head noun *Frau* 'woman'.

(109) a. Er hat [der Frau] das Buch gegeben, [die er kennt].
he has the woman the book given that he knows
'He has given the book to the woman that he knows.'
b. * Er hat [der Frau] das Buch, [die er kennt,] gegeben.
he has the woman the book that he knows given
c. Er hat [der Frau, die er kennt,] das Buch gegeben.
he has the woman that he knows the book given

[22] The sentence requires emphasis on *der* 'the'. *der Frau, die er kennt* 'the woman' is contrasted with another woman or other women.

This test does not help if the relative clause is realized together with its head noun at the end of the sentence as in (110):

(110) Er gibt das Buch der Frau, die er kennt.
he gives the book the woman that he knows
'He gives the book to the woman that he knows.'

If we put the example in (110) in the perfect, then we observe that the lexical verb can occur before or after the relative clause:

(111) a. Er hat das Buch [der Frau] gegeben, [die er kennt].
he has the book the woman given that he knows
'He has given the book to the woman he knows.'

b. Er hat das Buch [der Frau, die er kennt,] gegeben.
he has the book the woman that he knows given

In (111a), the relative clause has been extraposed. In (111b) it forms part of the noun phrase *der Frau, die er kennt* 'the woman that he knows' and therefore occurs inside the NP in the middle field. It is therefore not possible to rely on this test for (110). We assume that the relative clause in (110) also belongs to the NP since this is the most simple structure. If the relative clause were in the postfield, we would have to assume that it has undergone extraposition from its position inside the NP, that is, we would have to assume the NP-structure anyway and then extraposition in addition.

We have a similar problem with interrogative and relative pronouns. Depending on the author, these are assumed to be in the left bracket (Kathol 2001; Eisenberg 2004: 403) or the prefield (Eisenberg et al. 2005: §1345; Wöllstein 2010: 29–30, Section 3.1) or even in the middle field (Altmann & Hofman 2004: 75). In Standard German interrogative or relative clauses, both fields are never simultaneously occupied. For this reason, it is not immediately clear to which field an element belongs. Nevertheless, we can draw parallels to main clauses: the pronouns in interrogative and relative clauses can be contained inside complex phrases:

(112) a. der Mann, [mit dem] du gesprochen hast
the man with whom you spoken have
'the man you spoke to'

b. Ich möchte wissen, [mit wem] du gesprochen hast.
I want.to know with whom you spoken have
'I want to know who you spoke to.'

Normally, only individual words (conjunctions or verbs) can occupy the left bracket,[23]

[23] Coordination is an exception to this:

(i) Er [kennt und liebt] diese Schallplatte.
he knows and loves this record
'He knows and loves this record.'

whereas words and phrases can appear in the prefield. It therefore makes sense to assume that interrogative and relative pronouns (and phrases containing them) also occur in this position.

Furthermore it can be observed that the dependency between the elements in the *Vorfeld* of declarative clauses and the remaining sentence is of the same kind as the dependency between the phrase that contains the relative pronoun and the remaining sentence. For instance, *über dieses Thema* 'about this topic' in (113a) depends on *Vortrag* 'talk', which is deeply embedded in the sentence: *einen Vortrag* 'a talk' is an argument of *zu halten* 'to hold', which in turn is an argument of *gebeten* 'asked'.

(113) a. Über dieses Thema habe ich ihn gebeten, einen Vortrag zu halten.
about this topic have I him asked a talk to hold
'I asked him to give a talk about this topic.'

b. das Thema, über das ich ihn gebeten habe, einen Vortrag zu halten
the topic about which I him asked have a talk to hold
'the topic about which I asked him to give a talk'

The situation is similar in (113b): the relative phrase *über das* 'about which' is a dependent of *Vortrag* 'talk' which is realized far away from it. Thus, if the relative phrase is assigned to the *Vorfeld*, it is possible to say that such nonlocal frontings always target the *Vorfeld*.

Finally, the Duden grammar (Eisenberg et al. 2005: §1347) provides the following examples from non-standard German (mainly southern dialects):

(114) a. Kommt drauf an, mit wem dass sie zu tun haben.
comes there.upon PART with whom that you to do have
'It depends on whom you are dealing with.'

(115) a. Lotti, die wo eine tolle Sekretärin ist, hat ein paar merkwürdige Herren
Lotti who where a great secretary is has a few strange gentlemen
empfangen.
welcomed
'Lotti, who is a great secretary, welcomed a few strange gentlemen.'

b. Du bist der beste Sänger, den wo ich kenn.
you are the best singer who where I know
'You are the best singer whom I know.'

These examples of interrogative and relative clauses show that the left sentence bracket is filled with a conjunction (*dass* 'that' or *wo* 'where' in the respective dialects). So if one wants to have a model that treats Standard German and the dialectal forms uniformly, it is reasonable to assume that the relative phrases and interrogative phrases are located in the *Vorfeld*.

1.8.4 Recursion

As already noted by Reis (1980: 82), when occupied by a complex constituent, the prefield can be subdivided into further fields including a postfield, for example. The constituents *für lange lange Zeit* 'for a long, long time' in (116b) and *daß du kommst* 'that you are coming' in (116d) are inside the prefield but occur to the right of the right bracket *verschüttet* 'buried' / *gewußt* 'knew', that is they are in the postfield of the prefield.

(116) a. Die Möglichkeit, etwas zu verändern, ist damit verschüttet für lange
the possibility something to change is there.with buried for long
lange Zeit.
long time
'The possibility to change something will now be gone for a long, long time.'

b. [Verschüttet für lange lange Zeit] ist damit die Möglichkeit, etwas
buried for long long time ist there.with the possibility something
zu verändern.
to change

c. Wir haben schon seit langem gewußt, daß du kommst.
we have PART since long known that you come
'We have known for a while that you are coming.'

d. [Gewußt, daß du kommst,] haben wir schon seit langem.
known that you come have we PART since long

Like constituents in the prefield, elements in the middle field and postfield can also have an internal structure and be divided into subfields accordingly. For example, *daß* 'that' is the left bracket of the subordinate clause *daß du kommst* in (116c), whereas *du* 'you' occupies the middle field and *kommst* 'come' the right bracket.

Comprehension questions

1. How does the head of a phrase differ from non-heads?
2. What is the head in the examples in (117)?

(117) a. he
b. Go!
c. quick

3. How do arguments differ from adjuncts?
4. Identify the heads, arguments and adjuncts in the following sentence (118) and in the subparts of the sentence:

(118) Er hilft den kleinen Kindern in der Schule.
he helps the small children in the school
'He helps small children at school.'

5. How can we define the terms prefield (*Vorfeld*), middle field (*Mittelfeld*), postfield (*Nachfeld*) and the left and right sentence brackets (*Satzklammer*)?

Exercises

1. Identify the sentence brackets, prefield, middle field and postfield in the following sentences. Do the same for the embedded clauses!

(119) a. Karl isst.
Karl eats
'Karl is eating.'

b. Der Mann liebt eine Frau, den Peter kennt.
the man loves a woman who Peter knows
'The man who Peter knows loves a woman.'

c. Der Mann liebt eine Frau, die Peter kennt.
the man loves a woman that Peter knows
'The man loves a woman who Peter knows.'

d. Die Studenten haben behauptet, nur wegen der Hitze einzuschlafen.
the students have claimed only because.of the heat to.fall.asleep
'The students claimed that they were only falling asleep because of the heat.'

e. Dass Peter nicht kommt, ärgert Klaus.
that Peter not comes annoys Klaus
'(The fact) that Peter isn't coming annoys Klaus.'

f. Einen Mann küssen, der ihr nicht gefällt, würde sie nie.
a man kiss that her not pleases would she never
'She would never kiss a man she doesn't like.'

Further reading

Reis (1980) gives reasons for why field theory is important for the description of the position of constituents in German.

Höhle (1986a) discusses fields to the left of the prefield, which are needed for left-dislocation structures such as with *der Mittwoch* in (120), *aber* in (121a) and *denn* in (121b):

(120) Der Mittwoch, der passt mir gut.
the Wednesday that fits me good
'Wednesday, that suits me fine.'

(121) a. Aber würde denn jemand den Hund füttern morgen Abend?
but would PART anybody the dog feed tomorrow evening
'But would anyone feed the dog tomorrow evening?'

b. Denn dass es regnet, damit rechnet keiner.
because that it rains there.with reckons nobody
'Because no-one expects that it will rain.'

Höhle also discusses the historical development of field theory.