

cases of more general types of concept for which parallels can be found outside language.

In addition to these specifically linguistic concepts, a grammar must refer to a great many other kinds of non-relational concept, in dealing with the meanings and deictic or sociolinguistic properties of words – to general categories such as ‘person’, ‘time’ and ‘set’, and to particular categories such as ‘Scotsman’, ‘morning’ and ‘family’. We discussed some of these categories in chapter 4, and we shall refer to others as the need arises in later chapters.

5.2 AN OVERVIEW OF RELATIONAL CATEGORIES

We now turn to relational concepts. As mentioned earlier (section 2.2) these are only one of the two means for expressing relations, the other way being by means of predicates, so we can start with a category that has been used in one application of WG as an alternative to a predicate. The relational concept is ‘**quantity**’, and the corresponding predicate is ‘has’. Thus [1a] and [1b] are alternative ways of expressing the same fact, given that ‘[1–1]’ defines the minimum and the maximum of the quantity.

[1a] tensed verb has [1–1] subject.

[1b] quantity of subject of tensed verb = [1–1].

It is hardly necessary to point out that ‘quantity’ could be applied, in just the same way, in the analysis of non-linguistic concepts – e.g.

[2a] person has [1–1] mother.

[2b] quantity of mother of person = [1–1].

Another very general concept is ‘**structure**’, which is used for the internal structure of an event. As we have already seen, speech inherits the properties of events, including the fact that they have an internal structure, so this concept plays an important part in the grammar. One area in which it is applied is in defining the internal structure of a word, where a distinction is made between two sub-types of ‘structure’, ‘whole’ and ‘stem’.

[3a] whole of FOR = <for>.

[3b] stem of CAT = <cat>.

The use of ‘stem’ allows us to relate stems and affixes, as we shall see in the next section. However, ‘structure’ is also applied to word-strings, which are analysed in terms of constituent structure. Here ‘whole’ is contrasted with

'part', a more general notion which includes 'stem'; for word-strings, 'part' is further subdivided into 'conjunct' and 'linker'. A little more detail about these categories can be found in section 5.4 below. It should be clear that the notions 'structure', 'whole' and 'part' are widely used outside language, so no illustrations are needed.

The concept '**meaning**' is somewhat less general, but still applicable outside language (as we saw in section 4.7). We shall distinguish sharply between two types of 'meaning', namely 'referent' and 'sense' (section 7.2), using these terms with more or less their standard meanings (except that the referent is a mental object rather than an object either in the real world or in an imaginary one). Thus the sense of DOG is always 'dog', but its referent varies from occasion to occasion according to which particular dog is referred to. A non-linguistic parallel for the distinction between referent and sense is easy to find. For example, holding up three fingers has the sense 'three', but its referent is a particular set of three things.

A related concept is '**set-sense**', which provides an intensional definition of a set; this is the same as the notion 'set-model' which we mentioned in section 4.7, but the alternative name makes the relation to word senses clearer. This turns out to be important in the semantics of plural nouns, where the referent is a set whose set-sense is also the sense of the word concerned. For example, the referent of *cats* is some set, whose set-sense is 'cat' – i.e. each member of the set is a cat. Set-senses are also central to the semantic treatment of quantifiers. Presumably set-models are widely used in thinking, and not just in thoughts that are expressed linguistically – thus whenever I conceive of a set defined intensionally (e.g. the set of things that are on my desk) I must make use of a set-model.

A rather different kind of relational category that is found in language is '**companion**', which we discussed in section 4.5. A companion of a word is another word that occurs with it, and whose relation to the first word is governed directly by a rule. There are many different kinds of companion that a word may have, so we shall devote section 5.5 below to this kind of category. The discussion in section 4.5 showed that at a fairly general level 'companion' relations could also be found outside language, but we shall see that some of the particular kinds of companion are rather specific to language.

The discussion of 'words as actions' in section 4.3 introduced a number of relational categories that are referred to in a grammar, such as '**actor**' (which, when applied to words, means 'speaker'), '**addressee**' and '**time**'. There is no need for any further discussion of these categories in this chapter, but they should be included in our listing of relational categories for the sake of completeness. I should also mention '**type**', which links a relational concept to a non-relational one of which it must be an instance, as in the following linguistic and non-linguistic examples:

- [4a] type of object of verb = noun.
 [4b] type of actor of action = person.

We shall introduce a handful of other rather specialized relational concepts in later chapters, where it will be easier to explain them (e.g. 'lexeme', 'name', 'derivative', 'complementary', 'alternator' and 'projection'). A complete listing will be found in the index, where relations are specially marked.

The general point is that it is possible to identify, and list, the types of relation that need to be referred to in a grammar; and the list given above already covers virtually all types at the most general level. It seems clear that at least some of them are also needed for analysing non-linguistic experiences, but it remains to be seen whether the same is true of them all.

5.3 MORPHOLOGY

The morphological part of WG is relatively underdeveloped, having been applied so far only to English inflectional morphology and a single example of derivational morphology (adverbs formed by adding *-ly* to an adjective). Some detailed morphological facts will be found in chapter 8 and in the appendix to that chapter. No attempt has been made as yet to analyse morphological structures in terms of anything more complicated than affixation, which means that any other kind of pattern (e.g. the vowel alternation in *goose* versus *geese*) has to be treated in the same way as suppletion, by simply stipulating the entire word-structure of both forms. Fairly sophisticated WG treatments of such phenomena are not hard to imagine, but none has been developed as yet.

Even the limited amount of work done so far has made it clear that a distinction is needed between the analysis of a word in terms of its '**word-form**' and its analysis in terms of morpho-syntactic '**features**'. For example, the word *cats* is the 's-form' of CAT, but it also has the feature 'number', whose value is 'plural' (which we can notate as '[number: plural]'). The distinction between these two relational concepts allows one to say, for example, that the word THEM is plural (i.e. that it has the feature '[number: plural]') without having to say that it is the s-form of some other lexical item (one or all of HIM, HER and IT). The relevant WG rules are as follows.

- [5a] whole of s-form of *word* = stem of it + mS.
 [5b] whole of THEM = <them>.
 [5c] number of s-form of noun = plural.
 [5d] number of THEM = plural.

Another benefit of the distinction between word-form and morpho-syntactic features is that it provides a way of treating syncretism. For