# 3
# LANGUAGE AS FORM AND PATTERN: GRAMMAR AND ITS CATEGORIES

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## 1.
## WHAT IS GRAMMAR?

A language is basically a system of signs, i.e. of institutionalised sensory patterns that 'stand for' something beyond themselves, so that they 'mean' something. Linguistic signs are arbitrary sound patterns (or, in the case of written language, visual patterns) which have a particular meaning in the language in question, for example:

| | | |
|---|---|---|
| (1) | *(a)* | Watch! |
| | *(b)* | Shall I cook this meal for you? |

The word 'grammar' when applied to the study of these patterns is used in two slightly different ways: whereas 'a grammar' may cover a language in all its aspects, 'grammar' (without any article) covers only part of it. Let us try to specify which part.

Phonology studies the nature of the sound patterns used as linguistic signs —the kinds of sound, how they differ, how they combine, etc. Semantics studies the meanings that can be conveyed in this way—the kinds of meaning, how they differ, how they combine, etc. What then is left for grammar to study? Roughly, the signs themselves and their relationships to each other, particularly the relations between simple and complex signs, and between different kinds of complex sign. Hence, whereas phonology makes contact with the outside world in describing speech sounds, and semantics does so in describing meanings, grammar is more of a language-internal study. It studies form and pattern in a more abstract sense.

Let us look at the linguistic signs of (1)*(a)* and *(b)* a little more closely. They are both potential utterances and would count as 'sentences'. The second is clearly a complex sign and can be broken down into a number of smaller signs. Each of the words, for instance, has a meaning of its own, even *this* (by contrast with *that* or *a*). We can also recognise *this meal, cook this meal, for you,* and possibly also *shall I,* as constituent signs; we can further appreciate that the relationship between *cook* and *this meal* is a special one that is retained if we change *this meal* to *this food* but lost if we change it to *this time*. Compared with this complexity *Watch*! seems a simple sign, but its apparent simplicity is deceptive. Firstly, there are two words *watch,* but we immediately recognise this one as the one meaning 'observe' (not the one meaning 'wrist-clock'), and as the one that could be used in place of *cook* in (I)*(b),* to give a slight change of meaning. Consequently we realise that, although no other words occur with *watch* in (I)*(a),* 'you' must be understood as part of its meaning, corresponding to the *I* that occurs with *cook* in (I) *(b)* (as its 'subject'), and additionally something must be reconstructed from the context as the thing that is to be watched (the 'object').

All sentences, even the simplest ones, therefore have a grammatical aspect, separate from their phonology and their semantics; but this does not mean that there is no connection between these aspects. Obviously grammatical units must be expressed in some way, and, although many of them can be described quite simply as sequences of phonemes, there are more problematic modes of expression. For instance, if we change our phrase *this meal* into the plural *these meals,* we are impelled to ask what common phonological element or elements express the shared meaning of *this* and *these;* and if we compare the plural *meals* with a plural like *dishes,* we have a phonological (and orthographic) disparity in the realisation of the word-ending to account for. Such problems can be considered as part of phonology, or as part of grammar, or as the bridge-subject 'morphophonology'.

The boundary between grammar and semantics is more difficult to draw. We have noted that grammar deals with meaningful units of different sizes right up to the level of the sentence (and perhaps beyond); but so does semantics. Both subject areas take as basic a minimal meaningful unit, or 'morpheme': a word like *meals* consists of two such units, *meal* and *-s*. Again, both grammar and semantics are concerned with the question of which combinations of meaningful units may

occur, and which are excluded. Consider, for instance, whether (2) and (3) involve normal, doubtful (=?) or impossible (=*) word sequences:

| | | |
|---|---|---|
| (2) | *(a)* | This reason is important. |
| | *(b)* | *This reason are important. |
| | *(c)* | *This reason is principal. |
| (3) | *(a)* | This water is (im)pure. |
| | *(b)* | ?This water is wet. |
| | *(c)* | ?This water is dry. |
| | *(d)* | ?This water is intelligent. |

The first sentence, (2)*(a),* is unproblematic; but (2)*(b)* is unacceptable, and if, by any chance, it does occur, it will be assumed to be a mistaken version of (2)*(a)* and would be corrected to this (or just possibly to *These reasons…*). Similarly, (2)*(c)* must be corrected to…*is the/a principal one*. In both cases correction is possible, because we recognise what meaning was intended, and what grammatical rules have been transgressed: in the first case a singular subject requires a singular verb, and in the second case 'attributive-only' adjectives like *principal* (cf. also *main, only, utter*) can only occur as part of a noun phrase. Grammatical deviance is thus a matter of breaking generally valid rules.

The semantic oddity of the sequences of (3)*(b), (c)* and *(d),* compared with the normality of (3)*(a),* is different in nature. Here it is the meanings themselves that are deviant, not the manner of expressing them: (3)*(b)* is true by definition (tautologous), (3)*(c)* is false by definition (contradictory), and (3)*(d)* is nonsensical because of the inappropriacy of the notion of intelligence as applied in inanimate things or substances. Consequently it is not possible to propose a correct version of these hypothetical sentences. Indeed, they do not transgress a rule so much as go against a semantic tendency. It would even be possible to imagine contexts in which they might occur, albeit rarely.

The grammar-semantics dichotomy is related to a further distinction, between the grammatical and the lexical. Whereas the former is basically a distinction between formal patterns and patterns of meaning, the latter distinguishes different kinds of forms and meanings. In sentence (4), for instance:

(4) *Will the* new students aim *to* arrive *more* promptly *than* John *did?*

the main function of the non-italicised words is the lexical one of making direct reference to the shared world of speaker and listener, whereas the italicised words have a predominantly grammatical function, in that they indicate the structure of the speaker's sentence and the relations of its parts to each other. Lexical and grammatical functions are not mutually exclusive, and some words, such as prepositions like *in* and *before,* are equally important in their lexical function of referring to a particular spatio-temporal relation (and distinguishing it paradigmatically from other such relations) and in their grammatical function of marking a particular grammatical role, such as that of converting noun phrases to adverbials (and thus syntagmatically determining the nature of their neighbouring elements). Unequivocally lexical items (preeminently nouns, verbs and adjectives) typically belong to large substitution classes and can usually be replaced by hundreds with the same function: the word *new,* for instance, in (4) could have *old, rich, tall, French,* etc. substituted for it. Clearly grammatical items, on the other hand, are members of closed classes (or sets) and can therefore only be replaced by a limited number of alternative words (*the* with *some, my, many,* etc.), or just with one *(more by less),* or even by none at all (*than* is irreplaceable); these words act as markers of grammatical patterns, as we shall see. Open classes of words are also open in the sense that the class may be extended at any time by the addition of new words from various sources, such as *blasé, brattish* and *butch* as further replacements for *new* in (4), whereas the extension of closed grammatical classes in the same way is inconceivable.

While grammar studies grammatical words (and parts of words) and their associated patterns, the study of lexical items is called lexicology or lexis. This field is concerned not only with individual words, including unique context-bound items like *(to and) fro,* but also with idiosyncratic phrases like *(a) red herring* 'irrelevant issue' or *(to) beat about the bush* 'prevaricate', which, though superficially in line with standard grammatical patterns, have an unpredictable meaning. Words that lose their full semantic value in certain contexts only and are subject to arbitrary lexical restrictions (e.g. the prepositions of *comment on* beside *refer to,* or the 'empty' verbs of *have a try* beside *make an attempt*) belong to both lexis and grammar.

The field of grammar is generally divided into morphology, which covers patterns below the word level, and syntax, which deals with words within the sentence. Morphology thus studies the morphemes referred to above (*meal-s,* cf. also *un-cook-ed*) and their structures within words. Syntax studies the structures of words found in phrases, clauses and sentences. Some elements, such as the possessive (or 'genitive') -'s of *the professor of history's secretary,* or the *-ed* of *red-haired,* seem to straddle the border-line, and thus present problems.

Given that we know what aspects of a language constitute its grammar (in the narrower sense of the word), we must now ask what kind of grammatical study is required. The word 'grammar', for many educated language-users, is associated with

authority and rules for correctness—notions that stem from the traditional grammar they may have had the (mis)fortune to learn about. In countries like France and Spain authority is provided in the form of a national Academy, which makes recommendations about linguistic usage, but in other countries it is simply the mass of educated speakers, who try to adhere to the rules they were taught (however inadequately) at school. This traditional grammar was largely codified for English and other modern European languages by grammarians of the eighteenth and nineteenth centuries (by Lowth, Campbell, Murray and Cobbett for English, cf. Dinneen 1967:159–65, Robins 1967:121–2) whose classical education made them see modern languages largely as inferior analogues of Greek and Latin. They were intent on prescribing a standard grammatical usage for educated speakers and writers, but they based their prescriptions not only on what such people did say and write, but also on the forms they thought people really ought to use. This meant that grammarians based their prescriptions partly on the earlier history of the language, partly on logic, and, inevitably, partly on the model of the classical languages, especially Latin. Some of their prescriptions were inappropriate: for instance, the rules for the use of *will* and *shall were* an artificial construct, which few language-users were able to apply systematically; and their regulation of grammatical case for English (based on a Latin model, when English is closer to French in this respect) had English speakers saying not only *It was (John and)* I for the natural *It was (John and) me* but also, by false analogy, *It amused* (or *involved,* etc.) *John and I* for the approved and natural *It amused John and me*.

Modern linguistics aims to provide a descriptive grammar, not a prescriptive one. An exception has to be made in the case of bilingual grammars for foreign learners, who need to have the usage prescribed to them; even here, however, the prescriptions need to be based on a prior description of the linguistic system of native speakers. But how should the nature of this system be ascertained? And how should the facts about it be presented? Feeling that there was no possible justification for modelling one grammar on another in the manner of traditional grammarians, linguists in the forties and fifties, particularly Americans following Bloomfield (1935), declared that every language was unique. We can accept this as a global comment on each language, noting, for instance, that in French only pronouns show case yet in German nouns and adjectives do as well, while Chinese has no case at all. But we should not follow the Bloomfieldians in devoting all our energy to demonstrating the differentness of languages, because it is equally true that all languages share certain features. Some of these language 'universals' are quite abstract, such as those proposed by Chomsky (1965:27–30; 1972:124–7); but others are fairly concrete, for instance, that all languages have a word class that can suitably be termed 'noun' (though, of course, it differs from language to language). (Chapter 9, below, discusses such things.) It is essential, therefore, in describing languages, to achieve a balance between the language-specific and the language-universal.

If it is a mistake to remodel a language on the pattern of another language, it is equally unjustified to describe it as an aberration from some ideal earlier form of the same language. Nineteenth-century English for instance, may seem to us today to have venerable correctness about its grammar, but of course it was in some respects innovatory by comparison with the eighteenth and earlier centuries. Ferdinand de Saussure's distinction between synchronic studies of a language at a particular time and diachronic studies of linguistic change through time is as relevant in grammar as anywhere.

Assuming we wish to describe the grammar of a language as it is at a particular time, where do we find the entity 'grammar' that we want to describe? Grammar in this sense is obviously an abstraction based on observation by the grammarian, either of himself and what he thinks he would say (or write) or of other people actually talking (or writing) and understanding. These twin sources of information represent different aspects of the grammar distinguished by Saussure as *langue* and *parole,* which we might refer to, respectively, as the language-system itself and the use made of the language-system in the speech of individual language-users. Saussure's terms in fact quite unnecessarily link the basic distinction between the potential and the actual with the difference between the linguistic community and the individual speaker, though certainly this further variable of the language as a whole as against the dialects of individuals (so-called 'idiolects') is obviously an important one. Whether we look at our own intuitions about language or at the utterances of others, we are in either case dealing with individual human beings, with all their frailties. Chomsky's notion of 'competence' (1965:8–10; see below Chapter 4 section 2), however, is intended to designate the system of an idealised language-user, free from all the imperfections of 'performance' that automatically arise whenever an individual speaks or listens to others speaking; what he has in mind as factors adversely affecting linguistic performance are faults such as hesitations, repetitions, grammatical inconsistencies and incoherence (=anacolutha) rather than failure to follow the prescriptions of traditional grammarians.

A further aspect of grammatical competence that Chomsky has always stressed is its immense potential, which encompasses a myriad of sentences that never have a chance to occur in actual performance, and which means that many of those that do occur are occurring for the first time (at least for the speaker in question). Whether they are 'new' sentences or not, the vast majority of utterances are 'generated' by the individual speaker, in the sense that he uses his unconscious knowledge of the grammar of the language and of its vocabulary to construct a sentence to suit his needs for a particular occasion. He does not simply recall a previously used sentence, except in the case of rote-learnt formulae, such as greetings and other ritualised speech acts, or proverbs (e.g. *(Good) morning, Cheers, Never say die*).

Chomsky's idea that a grammar should 'generate' sentences (which had been present in the notion of 'innere Sprachform' propounded by the early-nineteenth-century grammarian-philosopher Wilhelm von Humboldt, cf. Robins 1967:175) is an

important one, and grammars which merely give a rough indication of patterns with a few examples, are seriously inadequate. But as Chomsky himself has emphasised, the notion of generation is not so much intended to provide a psychological model for the speaker-writer (–the listener-reader is, after all, almost equally important); rather, our grammar should be able to 'generate' sentences in the sense that it is so explicit that in principle it could be asked to list all the sequences that accord with its rules (even though in practice these might be infinite in number) and to provide each with a description indicating its relationship to other sentences. At the outset, however, we should note that even this limited interpretation of generativity is put at risk by the existence, first, of strings that we are unsure whether to regard as grammatical or not (e.g. *?the too heavy suitcase*) and, second, by types of structure that seem to have more than one appropriate grammatical description (e.g. *wait for John:* verb plus prepositional object, or prepositional verb plus object).

Before we embark on our study of grammar, we should know what kind of units we are going to use as the basis of our description. We can provisionally take the sentence as our highest unit of description; but it is equally important to know what kind of smaller element is going to be the basis for our analysis of sentences. Traditionally, this smaller unit has been the 'word'. In fact both Greek and Latin had a word that had the two senses of 'sentence' and 'word' (Greek *lógos,* Latin *verbum,* the latter having the further sense of 'verb'). Interestingly the English word *word* (with cognates in other Germanic languages) and Latin *verbum* have a common Indo-European source, which suggests that our ancestors have had such a word for thousands of years, since before the time when European languages were first written down; admittedly, the meaning(s) of the word must have originally been very imprecise.

But words alone do not suffice as units of analysis. First, words must be structured to give grammatical patterns, and that means grouping them into phrases and other intermediate units, such as clause. Second, we have already seen the need for morphemes as minimum grammatical-semantic units in describing structures within the word. We shall now examine this question more closely.

## 2.
## MORPHOLOGY AND THE MORPHEME: PATTERNS OF REALISATION

We have noted that a language-system contains within it the potential for a vast range of different sentences. How is this possible? First and foremost because words can be combined in a variety of different ways, and some of these ways are in principle infinitely extendable (e.g. *bacon and eggs and sausages and tomatoes and…, the house behind the pub opposite the bank next to*…. These are a matter of syntactic structure.

A second reason for the vastness of a language is the fact that the vocabulary of most languages is extremely large. Large dictionaries of English, for example, have in excess of 100,000 entries, and there are many individual speakers who make use of over 10,000 words. The load on the memory would be too great if many of these items were not linked in some way. For instance, in any dictionary, besides the word *friend* we will also find *befriend, friendly, friendliness, friendship, boyfriend, girlfriend,* etc.; and these are all separate words, even though they share the element *friend*. Even *friends,* the plural form, is in one sense, a different word from *friend,* just as *befriended* is from *befriend*. It is the task of morphology to explain the precise nature of the connections between these related words. Our first step in this must be the recognition that words are ultimately constructed out of morphemes—these smaller meaningful units *like friend, be-, -ly, -ness, boy,* etc., some of which can occur elsewhere as words in their own right. These truly minimal grammatical units are the building blocks of morphology; in fact morphology can be defined as the study of morpheme patterning within the word.

How can we tell how many morphemes a word consists of? We need to look at the phonological segments that make up the word and ask if any of them can recur in some other word or on their own as a word, while making the same semantic contribution as they do in the word under scrutiny. If we consider the word *boyish,* for instance, we recognise the element *boy,* which we have already noted (in *boy* itself, and in *boyfriend*), and the remainder of the word *-ish* can be found with a similar meaning (roughly 'having some of the typical qualities of a…') in *girlish,* a word we could add to our list. If, on the other hand, we inspect words like *boil* or *boycott,* we find that *boi-/boy-*(phonetically representing the same phoneme sequence /bɔɪ-/) does not have the required meaning; and that the rest of the word in each case is a segment that in this context could either not have any meaning at all (like *-l*) or could only have an unrelated meaning (like *-cot(t)*).

Bloomfieldian structuralists were amongst the first to practise morphemic analysis systematically; but their approach was coloured by behaviourist psychologists' suspicion of meaning and all other mental phenomena. The result was that scholars like B.Bloch and G.L.Trager (1947), and especially Z.S.Harris (1951), preferred to place more reliance on the recurrence of formal patterns than on intuitions about meaning. For example, on the evidence of word sets like *receive, deceive, perceive, retain, detain, pertain; desist, persist* they were prepared to set up morphemes *re-, de-, per-* and *-ceive, -tain, -sist*. But if the morpheme is to have any serious semantic basis in the living language, such analyses must be rejected. Whereas the comparison of the pair *boys/girls* with the pair *boyish/girlish* (in a context like *I think of them as*…) reveals the same difference of meaning, there is no such parallel to be obtained by comparing, say, *receive/deceive* with *retain/detain*. Such word-parts have a purely historical status and are only relevant in etymological studies. Purely formal recurrence of a segment is

not enough. In this connection it is interesting to compare the simple (i.e. unanalysable) word *recover* 'get back' (with the first syllable pronounced /rɪ-/ or /rə-/, just as in *receive, retain, resist*) with the analysable word *re-cover* 'cover again' (with initial /riː-/ as also in *re-build, re-enter, re-marry*), and to note that the opposite of *cover* is not the (unanalysable) *discover* but rather *uncover* with the prefix *un-*.

It is therefore essential for us to be clear about our semantic criteria for morphemic status. Ideally morphemes should always be 'semantic constituents' in the sense of Cruse (1986:24f), i.e. they should be semantically identifiable on the basis of semantic parallelism (like *boys/girls* beside *boyish/girlish*). If, however, we compare the phrase *(a) black berry* with the word *(a) blackberry,* we find that, whereas the phrase passes the semantic test (cf. *(a) red berry, (a) black shoe*), the word *blackberry* does not correspond to a word **redberry* or **yellowberry,* and, although there is a contrast between *blackberry* and *blackcurrant,* both of them are equally entitled to be called 'berry'. Compound words like *blackberry* thus contain an element of the arbitrary and the idiosyncratic; but this should not blind us to the semantic contribution made by their components, which, though perhaps only 'semantic indicators' (to use Cruse's term) are still worth calling morphemes.

A more problematic case is illustrated by the now classic example *cranberry*. Comparing this word with *blackberry (or strawberry)* we find that the *-berry* element seems familiar enough and indeed seems to make the same contribution to the meaning of the compound in all cases. But what about *cran-?* Its only semantic contribution is that of distinguishing cranberries from other berries; it tells us nothing about the semantic features of the berries, because *cran-* fails to recur outside this combination. The element *cran-* and its like (the *dor-* of *dormouse,* the *bon-* of *bonfire,* etc.) are often referred to as 'unique morphemes'. These 'single context' morphemes are, however, exceptional; normally morphemes occur in a variety of contexts. Across these contexts they should have a consistent meaning. This means that cases of homonymy (see Chapter 5) such as *bank* 'company specialising in financial transactions; strip of (sloping) land acting as a border' must be regarded as representing two different morphemes, which just happen to be identical in form.

Ideally there should also be constancy in the form of a morpheme; but on this level, too, there are discrepancies. Take the case of the plural form of nouns in English, which usually seems to involve the addition of a morpheme, as exemplified by the following words for animals:

(5) *(a)* (i) cheetah/cheetahs, dog/dogs, lion/lions, seal/seals, tiger/tigers;
(ii) cat/cats, duck/ducks, goat/goats, sloth/sloths;
(iii) giraffe/giraffes, snake/snakes;
(iv) horse/horses, tortoise/tortoises;
(v) bitch/bitches, fish/fishes [*alternatively:* fish], fox/foxes, walrus/ walruses;
*(b)* wolf/wolves;
*(c)* goose/geese, mouse/mice;
*(d)* deer/deer, sheep/sheep.

The examples of (5)*(a)* represent the regular pattern for noun plural formation which is followed by new nouns entering the language (e.g. *yeti*); the examples of (5)*(b), (c)* and *(d)* therefore represent irregular or minor patterns. In terms of the written shape of the words, type (5)*(a)* appears in two forms, -s in (i) and (ii), and also (iii) and (iv) (where the singular already ends in *-e*) but *-es* in (v). It seems arbitrary to add *-es* only to words ending in *-ch, -sh, -x* and *-s* (also *-z*), while adding only *-s* to words ending in *-h* and *-th* (also *-ph*)—until we realise that *-ch, -sh, -x, -s* and *-z* represent similar final sounds, viz. sibilants (including sibilant affricates). Such a sound is also found in (iv), so that in the plural forms *horses* and *tortoises* the letter *e* represents an actual vowel that is not present in the singular form. The words of (iii), on the other hand, have a different kind of consonant, and their *e* is silent in both singular and plural. Phonetically, moreover, the words of (i) and (ii) differ from each other in having the *-s* pronounced as /-z/ and /-s/ respectively.

The patterns of (5)*(a)* for the pronunciation of regular plural *-(e)s* can thus be summarised as (6):

(6) /-ɪz/ after sibilant types of fricative and affricate, viz. /s, ʃ, ʧ/ also /z, ʒ, ʤ/ as in (iv) and (v).
/-s/ after any other voiceless-fortis consonant, viz. /t, k, θ, f/ also /p/ as in (ii) and (iii).
/-z/ after any other voiced-lenis consonant or any vowel, as in (i).

The choice between these variant pronunciations of the morpheme—so-called 'allomorphs'—is thus determined by the phonetic context. What is more, this variation is automatic and predictable if we regard /-z/ as the basic form of the morpheme and say that, for ease of pronunciation, the vowel /ɪ/ is inserted to prevent a sequence of two sibilants, and that in any other resulting consonant sequence fortis /s/ is preferred to lenis /z/ after a fortis consonant.

We can in fact regard this alternation of forms as a kind of phonological rule that applies not only to the regular noun plural morpheme but also to other morphemes with basically the same form, like possessive -'s/-s' (as in *the horse's/cat's/dog's*

*eyes*) and unaccented is(as in *The horse's/cat's/dog's limping*). An analogous rule applies to the *-ed* of the regular English past tense suffix, distributing the allomorphs as follows:

(7) /-ɪd/ after /t, d/, e.g. *waited, wasted, waded*
/-t/ after other fortis consonants, e.g. *whipped, whacked, washed, bewitched.*
/-d/ after other lenis consonants and vowels, e.g. *wagged, wailed, waned, weighed.*

In this case the vowel is inserted to prevent a sequence of two alveolar plosives (either /-td/ or /-dd/); and again a fortis consonant, in this case /t/, is required to follow another fortis in any permitted sequence of consonants.

Such general phonological rules, requiring morphemes of a language to adapt their shape according to the phonetic context in which they appear, are common in the world's languages. In Portuguese, for instance, every morpheme ending in written *-s* (e.g. *mais* 'more') has four variant pronunciations with final /ʃ/, /ʒ/, /z/ or with no final consonant, depending on the nature of the initial phoneme of the following word. Similarly in Turkish, a language with 'vowel harmony', nearly every suffix has a variable vowel, and some have a variable consonant as well.

Some cases of allomorphy are phonologically conditioned but cannot be subsumed under a general phonological rule. A well-known example is the English indefinite article, which has two forms *a* /ə/ and *an* /ən/. Their occurrence is clearly determined by the phonetic nature of the immediately following sound—whether it is a consonant (including /w/ and /j/, even in words like *onestep* and *use*!) or a vowel. On the other hand, English has no general rule for inserting /n/ between a final unstressed vowel and an initial vowel in a following word (- if anything /j/, /w/, /r/ or a glottal stop is inserted); and equally no rule exists for dropping /n/ before an initial consonant. This alternation, though phonologically conditioned, is therefore word-specific; it can be compared with the variation in Latin of *ā* (only before consonants) and *ab* (most commonly before vowels) for the preposition meaning 'away from', beside the invariability of prepositions like *infrā* 'below' and *sub* 'under'. Even generative grammarians, following Chomsky (1964) and Chomsky and Halle (1968), accept the need to specify such variations on a partly individual basis in what they call 'spelling rules' or 're-adjustment rules' (cf. Dell 1980:62–3).

There is more disagreement, however, about cases of variation which affect several or many morphemes, but not all. Generative phonologists have made alternations like /t/ with /ʃ/ *(president—presidential)* or /k/ with /s/ *(elastic—elasticity)* the basis for wide-ranging phonological rules for English, but although these rules apply to many words, these are limited in number and also in origin—they are all of Latin-French origin and rely on the orthographic-phonetic correspondences for such words. (Imagine a formation *Warwickism* ('following the cause of Warwick'): this would preserve its /k/, unlike *Gallicism,* which has the alternation to /s/.)

A similar case is the irregular plural of (5)*(b)* above, viz. *wolf/wolves,* in which addition of plural *-(e)s* necessitates a change in the stem. Although many nouns follow the same pattern, e.g. *thief, loaf,* others are perfectly regular, e.g. *chief, roof.*

A consideration of morphemes with variable shape leads naturally on to the question of just what shapes morphemes can take. Consider the verb past tense forms in English shown in Table 3 (including some given before under (7)).

*Table 3*

| Infinitive (stem) | Past tense | Change needed to form past tense |
|---|---|---|
| *wait* | *waited* | addition of /-ɪd/ |
| *whip* | *whipped* | addition of /-t/ |
| *wag* | *wagged* | addition of /-d/ |
| *weep* | *wepl* | addition of /-t/ to modified stem |
| *go* | *went* | addition ot /-t/ to new stem |
| *be* | *was* | total replacement ('suppletion') |
| *bet* | *bet* | no change |
| *bend* | *bent* | replacement of (final) consonant |
| *win* | *won* | replacement of (medial) vowel |
| *bite* | *bit* | subtraction of vocalic segment [a]? |

The first three verbs, *wait, whip* and *wag* represent the regular pattern of phonological alternation that we have already discussed. The verb form *wept* shows the expected suffix /-t/, but it has an unpredictable vowel alternation in the basic 'stem' (/e/ beside /i:/); *went* is a similar case, except that the 'stem' has undergone a total change, and that the suffix is /-t/ rather than the expected /-d/. An even greater divergence is seen in *was,* which has no trace of either *be* or of a recognisable past tense allomorph; such cases are sometimes referred to as 'suppletion', and the problem they raise is that there are no criteria for making a phonological division of the supposedly complex form *was* (cf. French *au* /o/ beside *à la* /a la/). So does it represent

two morphemes or one? If, following Lyons (1968:183–4), we allow morphemes without a clear phonological realisation, we open the door to a totally abstract notion of morpheme, and we cannot then refuse to recognise a zero allomorph in the next example *bet* (N.B. a zero only in the past, not in the infinitive!); cf. also the noun plurals of (5)*(d)* above. Past tense forms like *bent* and *won* present the further problem that their pastness is manifested not in the simple addition of something but in a simultaneous addition and removal —in other words, in a replacement. If we have to identify a segment representing 'past' in *won,* this must be the vowel /ʌ/, but this has apparently been inserted in medial position into a sequence /w-n/ without a vowel, although the present *win* /wɪn/ clearly has one. The case of *bent* can be looked at similarly, but this time it involves the addition of final /-t/ to an allomorph /ben-/ of the basic form /bend/. Both *win/won* and *bend/bent* (and many similar verbs) appear to involve replacement of part of the original morpheme rather than simply addition of a new morpheme. Verbs of this kind with their apparently replacive morphemes (whether medial or final) are often cited as evidence of the need for a non-segmentational approach to morphological analysis. In this approach addition and replacement are regarded as alternative 'processes' to which basic words or morphemes can be subjected. Particularly striking evidence is afforded by some cases of replacement that involve changing a single phonetic feature of the final consonant like *bend/bent* (=devoicing) (cf. also verbs formed from nouns, such as *shelf/shelves, sheath/ sheathe,* etc. (=voicing), because if we insist that morphemes are segments, we overlook the importance of such features.

A further alternative process might be subtraction, as perhaps illustrated by *bit,* which has orthographically lost an *e* compared with *bite,* and phonologically has /ɪ/ in place of the diphthong (aɪ/, which superficially means loss of the phonetic segment [a]. In a similar vein Bloomfield (1935:217) once suggested that the feminine forms of most French adjectives like *laide* /lɛd/, *grise* /griz/ could serve as the basis for deriving the masculine forms by a simple rule of subtraction of the final consonant (providing that every item spelt with *-e* in both forms, e.g. *riche,* is lexically recorded as an exception and thus distinguished from cases like *blanc(he)*.

But a model of morphological description (sometimes called the IP (= Item and Process) model) which uses the various processes we have discussed, addition, replacement and subtraction (and presumably also zero-change), while side-stepping some of the problems of segmentation, forces us to make a division between 'derived' forms (like the past tense) and 'basic forms' (like the infinitive) and often gives us insufficient guidance as to what the precise shape of the basic form should be.

Our different past tense formations raise a further point of interest: the difference between the regular and the irregular forms. Of our past tense forms the first three were regular, and, what is more, subsumable under a phonological rule. But in all the other cases the choice of past tense form is not even phonologically conditioned, because knowing the phonological structure of the verb does not enable us to predict the type of past tense formation, whereas such information for nouns enables us to predict the form of the indefinite article (despite the idiosyncratic forms this takes). We need to know the individual verb involved before we can say precisely what the past tense form is; this point is well demonstrated by the three past tenses that can be formed from verbs with the phonological structure /rɪŋ/, viz. *rang, wrung* and *ringed*. English past tense formation is this a blend of regular phonological rule (e.g. *ringed*) and morphologically-conditioned selection of (irregular) forms (e.g. *rang, wrung*).

Many inflecting languages have patterns of purely morphologically conditioned alternation. The formation of masculine noun plurals in German given in Table 4 is a good example of this.

*Table 4*

| (9) | Singular | Plural | Change needed for plural |
|---|---|---|---|
| 'dog(s)' | *Hund* | *Hunde* | addition of *-e* |
| 'spirit(s)' | *Geist* | *Geister* | addition of *-er* |
| 'federation(s)' | *Bund* | *Bünde* | addition of *-e*+vowel-change |
| 'man/men' | *Mann* | *Männer* | addition of *-er*+vowel-change |
| 'father(s)' | *Vater* | *Väter* | vowel-change |
| 'pain(s)' | *Schmerz* | *Schmerzen* | addition of *-en* |
| 'uncle(s)' | *Onkel* | *Onkel* | no change |

Once again there is no unequivocal way of predicting a plural form on the basis of the singular, and there are many cases of a single phonological sequence having more than one plural form corresponding to it, depending on which morpheme it represents, e.g. *Band/Bände* 'volume(s)', *Band/Bänder* 'ribbon(s)', *Band/Bande* 'bond(s)', the first being masculine, the other two neuter. Unlike the English past tense forms, however, the German noun plural (for masculine nouns) has no regular formation—everything is irregular! In other words, it is a case of purely morphologically-conditioned allomorphy.

Such allomorphy can affect the lexical part of a word just as well as the grammatical part. The French verb *aller,* for instance, has the different tense forms *v-ais, all-ais, i-rais* compared with a regular verb like *porter* with *porte, port-ais, porte-rais*.

Finally, on the question of the form morphemes take, what about morphemes that have allomorphs with no rules at all for their use, neither phonological nor morphological? Some morphemes have two (or more) pronunciations, such that the choice between them is left to the individual speaker (though doubtless it is determined by his/her personal linguistic history). Such monomorphemic words as *either* /ˈaɪðə, ˈiːðə/. *graph* /græf, grɑːf/, *scone*/skɒn, skəʊn/ each have two pronunciations that are acceptable within educated Southern British English. They are cases of free variation, in other words, of non-conditioned allomorphy.

## 3.
## MORPHOLOGY AND THE WORD: WORD STRUCTURE

Apart from the diversity and variability of form exhibited by morphemes, it is their contribution to the structure of words that constitutes the main task of morphology. Let us therefore return to a consideration of the words listed at the beginning of the last section *(befriend(ed), boyfriend(s), friendly, friendliness,* etc.) to see how they have been built up out of morphemes. If we look at their constitutent morphemes, listed below under (8), we see that, while some are 'free' to occur as words in their own right, others are 'bound', in the sense that they only ever occur as part of a word and are thus dependent on other morphemes within the word:

(8)

| | |
|---|---|
| FREE (ROOTS): | *boy, friend, girl, berry (berri-), currant, black, enter, marry (marri-)* |
| BOUND (AFFIXES): | *be-, re-, un-, -ly (-li-), ish, -ness, -(e)s, -ed* |

As the use of the hyphen makes clear, bound morphemes need to be attached to something else inside a word. Free morphemes can occur as complete words, but they do not necessarily always do so: *boy,* for instance, occurs in the words *boyfriend, boyish* and *boys* merely as a constituent morpheme. Free morphemes are potential words, but not always actual ones.

The question of a morpheme's potentiality for occurrence alone as a word is sometimes complicated by allomorphic variation. Take the case of the word *blackberry,* which we analysed earlier as having two morphemes: the second one of these is usually pronounced /-bərɪ/ in the compound word but as /berɪ/ when it is an independent word; nevertheless, we can regard this as a case of one morpheme with two allomorphs (cf. also *enter/entr-ance*). If, however, we consider the word *friendless* (alongside *careless, cloudless,* etc.) we can certainly recognise a suffix *-less,* usually pronounced /-lɪs/ or (-ləs/, which often contrasts with *-ful* or *-y;* but the suffix *-less* has the meaning 'totally lacking in' by contrast with the meaning 'a smaller quantity of exhibited by the free morpheme *less,* pronounced /les/.

All of the bound morphemes given in the list above have a further characteristic: they are 'affixes', in the sense that they have been added or attached as minor appendages to their partner (free) morphemes. Semantically speaking, the basic form or 'stem' (such as *boy*) carries the basic lexical meaning, and the added affix (such as *-ish*) then has the task of modifying or adjusting this. But what are these 'stem' elements to which affixes are added? In all our examples so far in which the affix has been attached to a single morpheme (e.g. *be-friend, re-build, friend-ly, enter-ed*) this has been a free morpheme. But now consider these examples of the suffix *-ist* 'practitioner concerned with':

| | | |
|---|---|---|
| (9) | *(a)* | artist, Marxist, violinist; |
| | *(b)* | scientist, dramatist, tobacconist; |
| | *(c)* | atheist, chemist, hypnotist. |

In (9) *(a) -ist* has been added to a free morpheme; in (9)*(b) -ist* has been added to a bound allomorph of a free morpheme *(scient-=science, dramat-=drama, tobaccon-=tobacco)*; but in (9)*(c) -ist* has been added to a morpheme that is totally bound. Yet *athe-, chem-* and *hypnot-* (which also appear in *atheism, chemical* and *hypnotism* respectively) are not affixes, because they provide the core lexical meaning of the word in question. We call such morphemes 'roots', and these are bound roots; but the other free morphemes we listed earlier (*boy, friend,* etc.) were also roots. Roots may thus be free or bound: in English they are mostly free, but in highly inflectional languages like Latin or Russian, they are mostly bound (like Latin *mēns-(a)* 'table'). Affixes are bound non-roots. Grammatical particles like *the, to, than* also have a primarily relational meaning, but they are independent words; they are therefore free non-roots. We have thus arrived at the scheme:

| | Bound | Free |
|---|---|---|
| Relational (Grammatical) elements | affixes | particles |
| Core (Lexical) elements | bound roots | free roots |

Affixes are added not only to single root morphemes, as is evident from some of our previous examples, e.g. *befriend-ed, boyfriend-s, friendli-ness*. The element, whether simple or composite, to which an affix is added is usually termed a 'stem'. Roots can therefore be defined alternatively as 'minimum stems'. A word can be built up step-by-step by successively adding affixes, as in:

| (10) | | | |
|---|---|---|---|
| | *friend* | =ROOT (i.e. minimum stem) | |
| | *friend-ly* | =(ROOT) STEM+AFFIX | producing STEM/WORD |
| | *un-friendly* | =AFFIX+STEM | producing STEM/WORD |
| | *unfriendli-ness* | =STEM+AFFIX | producing ?STEM/WORD |

In principle *unfriendliness* could also count as a stem, but it is doubtful whether it could actually form a part of some larger combination. In English most stems also qualify as words, but in languages like Latin and Russian, as we have already noted, this is not the case.

Affixes are far from being homogeneous; in fact they differ from each other in a number of different ways. Firstly, affixes differ in the position in which they are placed relative to their stem: prefixes, like *be-* and *un-,* precede the stem, and suffixes, like *-ed, -(e)s, -ly/-li-* and *-ness,* follow the stem; further, some languages have infixes, which interrupt the stem (e.g. Tagalog, Cambodian; or Semitic languages like Arabic and Hebrew, in which they are discontinuous); and some languages have what we might term 'circumfixes' (e.g. Malay, cf. also the German past participle *ge-hoff-t* 'hoped'). Even the replacive and feature realisations of morphemes we noted earlier must be placed somewhere: thus English, as we saw, has final replacives, while in Welsh initial consonant mutations have partly morphological value, e.g. *ei ben* 'his head' and *ei phen* 'her head', deriving from *pen* 'head'. Stress patterns with morphological function, such as English *insult,* with first or second syllable stress in the noun or verb respectively, could be said to involve 'superfixes' (or 'suprafixes').

A second point of difference amongst affixes can be exemplified with the English suffixes *-ness* and *-ity,* which both form nouns from adjectives. The difference lies in the ways in which they combine phonologically with their stems: whereas *-ness* /-nəs, nɪs/ is phonologically neutral in being simply added to stems like *opaque* /əʊˈpeɪk/, *rapid* /ˈræpɪd/, giving *opaqueness* /əʊˈpeɪknəs/, *rapidness* /ˈræpɪdnəs/, the suffix *-ity* /-ətɪ/, on the other hand, can modify the final vowel and/or the final consonant and/or the stress pattern of its stem, as in *opacity* /əʊˈpæsətɪ/, *rapidity*/rəˈpɪdətɪ/. Non-neutral suffixes like *-ity* (cf. also *-ous, -ory, -(i)al* and various others of Latin origin) seem to form a close-knit combination with their stem; in fact the stems used with such suffixes are often bound, whereas neutral suffixes typically combine with free stems (cf. Selkirk 1982).

Probably the most important of all distinctions to be made amongst affixes is that between those that are inflectional and those that are derivational. These two affix-types differ in the role they play within the word and in relating different words and stems. We have already discussed the criteria by which a word is recognised as such, but we have not yet considered a related point that arose in our initial discussion of morphology: how can some different 'words' *(e.g. friend and friends,* or *befriend, befriending and befriended)* in some sense also be forms of the same 'word'? We are faced with two different senses of 'word' here. Members of such sets constitute the same word in the sense of 'vocabulary/dictionary item'—they are a single lexeme; but they are different 'word-forms' (or 'allolexes'), so that, for instance, *friend* is the singular, and *friends* is the plural of the lexeme FRIEND. We expect the same class of lexeme to have the same range of word-forms: thus an English noun has a singular and a plural, a verb has a gerund, a past tense, etc. We say that a word-form has been inflected (for a particular grammatical category), and the affixes used for this purpose (e.g. *-(e)s, -ing, -ed*) are inflectional affixes. These affixes are thus built into the very nature of the word-classes they are used with, so that in an inflectionally rich language each word-class has a range of different word-forms associated with it: Latin, for instance, has up to six different case forms for its nouns in the singular and another set of forms for the plural, with the further variable of three genders for adjectives and an even greater variety of verbal forms. Latin and English inflections are initially all suffixes, but in Arabic they are partly (discontinuous) infixes, and in Bantu languages like Swahili they are prefixes. Whatever their position, inflectional affixes have generality of application (despite their possible irregularities of form); this is the reason why the Roman grammarian Varro referred to them as involving 'declinatio naturalis' ('natural change in form') (cf. Robins 1967:50).

Derivational affixes are different with regard to both these points: first, they indicate not different forms of one lexeme but different lexemes; and, second, their use is not regular but highly lexeme-specific—hence Varro's term 'declinatio voluntaria'. It is evident, for instance, that *friend* and *befriend* cannot be regarded as forms of the same lexeme; they are clearly separate lexical items, as are also such pairs as *kind* and *unkind,* or *friend* and *friendly*. Equally the affixes *be-, un-* and

*-ly* have arbitrary lexical limitations on their use: so that while *befriend* exists as a word **beacquaintance* does not, while *unkind* exists **unnice* does not, and while *friendly* and *motherly* exist **relationly* and **auntly* do not; furthermore, while *befriend* has a fairly literal meaning 'make a friend of (by being friendly oneself)', *bewitch* means more like 'affect someone with witch-like or magical effects', so that each word has an individual specialisation of meaning.

Inflectional affixes like *-(e)s, -ed* and *-ing* mark a word with a particular grammatical feature like 'plural' or 'past', and this feature may play a wider role beyond the word in the phrase or sentence it is part of. As a result an inflected form of a word can often only be replaced with a similarly inflected word, as in:

(11) Mary liked reading those books.

where the word *liked* can only be replaced by words like *loved, hated,* etc. or *likes, loves, hates,* etc., where *reading* needs a replacement like *selling, checking, using,* etc., and where only plural nouns can be substituted for *books*. Derivational affixes, on the other hand, form new lexical items, which, though morphologically complex, occur in precisely the same contexts as simple stems, with the result that *befriend* can be replaced by *accept, unkind* by *bad,* and *friendly* by *kind*. Not only do derivational affixes produce new lexemes, they are also capable of producing lexemes of a grammatical class different to that of the stem: *be-,* for instance, is added to noun stems to produce verbs (e.g. *befriend, bewitch*), and *-ly* is added to nouns to produce adjectives (e.g. *friendly, motherly*); on the other hand, some derivational affixes leave the stem class unaffected, for instance *re-* (as in *re-enter*), *un-* (as in *unkind*), *-ess* (as in *hostess*). Inflectional affixes are obviously incapable of changing the class of their stems, because they leave the lexeme intact; their role is to specify the particular word-form, whereas derivational affixes serve to produce a different lexeme.

Adding a derivational affix to a stem is not the only way of producing a composite lexeme. In the alternative process of 'compounding', two stems are added together. In the simplest case, it is a matter of adding together two roots, e.g. *boyfriend, girlfriend, blackberry, blackcurrant*. Ideally, such compounds are written as a single word, e.g. as a sequence of letters surrounded by spaces; but unfortunately languages are not always consistent about what they treat as a single word. (To make things worse, in English, authorities seem to differ in what they write as a single word, dictionaries seeming to be very fond of hyphens and newspapers averse to them.)

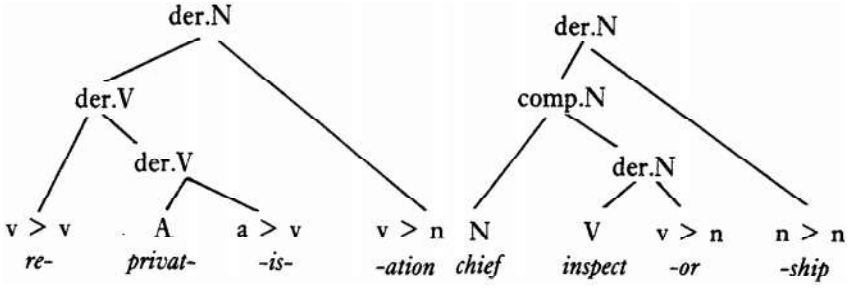
A majority of native speaker-writers of English would probably agree to the spellings *firewood, fire-engine* and *fire hazard;* and yet these are all basically the same kind of unitary element compounded of two morphemes, each of which makes a contribution to the meaning but not sufficient to predict the precise overall meaning of the whole. We know, for instance, that firewood is for keeping fires going, while fire-engines are not, but this is part of the idiosyncratic meaning of these lexical items, cf. our earlier example *blackberry* by contrast with the phrase *black berry,* the latter being a genuine sequence of independent words. In a technical linguistic sense, the 'word' can be defined as a 'minimum semantically and grammatically independent unit'; such units are usually spelt as one orthographic word, but English compound lexemes are frequently spelt with a space or hyphen in the middle, instead of having the natural spelling as a single written word, as such elements almost invariably have in German, cf. *Brennholz, Feuerwehrauto, Brandgefahr*. As we have seen, it is only the whole compound that has semantic independence. Grammatical independence is demonstrated by the tests of interruptibility and positional mobility (Lyons 1968:202); applied to our example *fire hazard,* they show **fire serious hazard and * hazard fire to* be impossible (without destroying the sense), whereas *fire hazard* as a unit may occur in a variety of sentence positions. The *items firewood, fire-engine and fire hazard must* therefore each be regarded as a single compound word.

We have seen that a compound can be formed by adding together two stems that are simply roots, cf. also *postmaster,* alternatively one or both of the items can itself be derived or compound, e.g. *postage stamp, post-office worker, post-office savings bank*. Furthermore, a compound stem can be used with an affix to form a derived word, as in *ex-boyfriend, blackberryade* (= 'blackberry-flavoured lemonade'), *schoolmasterly*.

It is not surprising that derivational formations and compounding should interact with each other in this way, because they are the two aspects of what is generally called 'word-formation', but might better be called 'lexeme-formation' or 'lexical morphology'. It is therefore only to be expected that the points that we listed as characteristic of derivational affixation (compared with inflection) should apply equally to compounding: compounds constitute different lexemes from their stems (e.g. *boyfriend* beside *boy* and *friend*); they are defective in their formation (e.g. *redcurrant* but not **redberry, playing field* but *playground*) and partly unpredictable in their individual semantic values (cf. *steamship, airship* and *cargo ship*). Finally, although most compound stems belong to the same class as one of their constituent stems (in English, usually the second, e.g. *boyfriend* (noun=noun+noun), *blackberry* (noun=adjective +noun), *seasick* (adjective=noun+adjective)), and thus have a clear nuclear element, this is not true of all: there are some that either have no nuclear element, e.g. *throwback* (noun=verb +adverb), or apparently have a missing one, e.g. *hothead* (noun=[adjective+noun]+Ø 'person'); there are also co-ordinative (or 'copulative') compounds with two heads of equal importance, e.g. *radio-recorder*.

As the two processes of word-formation, derivational affixation and compounding can clearly combine to form lexemes of different degrees of complexity, which can be displayed, as in (12), in the form of so-called 'tree-diagrams', e.g.:

(12)




The possibility of such structures is simply the result of the rules of affixal and compound derivation: for instance, *re-* is regularly prefixed to verb stems to produce derived verbs; similarly, *-ise* is suffixed to adjective stems to produce verbs; while any two nouns can in principle be combined to produce a compound with the second one (the so-called 'head') providing the basic meaning of the compound.

Rules like these provide a framework for word-formation. But whereas syntactic rules for the construction of sentences are only limited by psychological complexity and semantic plausibility, morphological rules of word-formation merely specify a theoretical potential which is only realised to a limited degree. Lexemes are only required for certain recurrent concepts, and, as we have seen, this means that derived and compound words are often 'lexicalised' with a very particular meaning (cf. further *fireman* and *coalman*), and their choice amongst the competing patterns is in part arbitrary (cf, further *histor-ian, geograph-er, geolog-ist*). Such competing affixes and patterns are not all equally likely to be used when it comes to creating a new lexeme: say, for instance, we wish to form a new abstract noun to denote the quality of being Tamil, then the likelihood of our using any one of the different suffixes available might be assessed in a ranked order, as follows: *-ness* > *-ity* > *-hood* > *-cy*. This aspect of an affix is usually termed its 'productivity' and is a very complex matter, involving semantic and phonological factors as well as purely morphological ones, but it is undoubtedly important.

How does inflectional affixation relate to these patterns of derivational morphology? Inflectional affixes supply the lexeme as a whole with those grammatical meanings and syntactic features that it needs to qualify as a word fit for use in a sentence. An English noun lexeme like *chief inspectorship,* for instance, can be made plural, or a verb like *reprivatise* (or *denationalise*) can be given an appropriate inflectional affix out of the range *-(e)s, -ed, -ing*. These infectional affixes are thus added as an outermost layer, usually in an extreme position, either at the very end of the lexeme (as in English or Latin) or at the very beginning (as in Swahili). Because of their special status some authorities, for instance Bauer (1983), prefer to reserve the term 'stem' for the stem to which inflectional affixes are added, and otherwise to use the term 'base'.

In an inflectionally rich language, like Latin, Russian or Eskimo, many more inflections may be added to a stem than in English, and sequences of such affixes are common. They present a number of special problems of analysis: it is sometimes difficult to say how many morphemes are to be found in a given segment (e.g. the Latin nominative plural suffix in *(ūs)ūs* '(use)s'), or where their boundaries are (e.g. Latin *amās* 'you (sing.) love', *amăt* 'he/she loves'), or why there is such excessive allomorphy (e.g. the German plural affixes given in Table 4 above), cf. further Matthews 1970:107–8. Inflectional morphology can therefore require a grammar of its own, and this is closely linked to syntax, because inflectional affixes make links with other words.

## 4.
## SYNTAX AND THE WORD: CLASSES AND CATEGORIES

Syntax is the (study of the) patterning of words within the sentence. Speakers of a language do not have total freedom in combining words to make sentences. They are obliged to follow certain rules or patterns of combination, which place limitations on the use of words, so that a sequence like:

(13) *You obligatory avoidance hesitant.

is unacceptable as a sentence on grammatical grounds. It is 'ungrammatical', even though it might be semantically interpretable. Words fall into different classes according to the grammatical limitations placed on their use, the members of each class having the same (or a similar) potential for occurrence. For instance, only nouns (e.g. *author, car, rowdiness, town, traffic, word*) can be substituted for the noun *hesitation* in:

(14) Any *hesitation* would be deplorable.

On the other hand, any word that can replace *hesitate* in:

(15) You must not *hesitate* at all.

is a verb (e.g. *abscond, live, misbehave, sit, speak, write*). Further, *hesitant,* or any possible substitution for it in:

| | | |
|---|---|---|
| (16) | *(a)* | You must not seem at all *hesitant*. |
| | *(b)* | Quite *hesitant* officials can be a problem. |

is an adjective (e.g. *angry, exhausted, good, lively, personal, sleepy, verbose*). (The difference between (16)(a) and (16)(b) will concern us later.)

Word classes can thus be seen as generalised sets of words that are mutually substitutable in particular grammatical contexts. The examples used in (14), (15) and (16), the noun *hesitation,* the verb *hesitate* and the adjective *hesitant* show clearly that different word classes can be endowed with the same basic meaning; and yet in traditional grammar we are given mainly semantic definitions of the 'parts of speech' (=Latin 'partes orationis', as word classes are usually termed). This is mainly due to the influence of the Roman grammarians Palaemon and Priscian, who (unlike their more enlightened predecessor Varro) not only insisted on finding eight word classes, just because Greek had eight (they had to recognise interjections as a class, because Latin had no equivalent to the Greek definite article, cf. Robins 1967:52–3) but also defined their classes on a purely semantic basis. This is unfortunate, because, for instance, although verbs, e.g. *hesitate,* are meant to be the words that designate an activity, nouns like *hesitation* do so just as much, and even if the adjective *hesitant* does, as required, denote a quality, the derived noun *hesitancy* does so equally. It is true that prototypical nouns (such as *author, town, word*) designate a person, place or thing (or more generally an 'entity'), that verbs (like *abscond, write* and *sit*) designate an event, process or state, and that most adjectives denote qualities. The difficulty is with the large number of abstract nouns, verbs and adjectives. If there is a generally valid semantic difference, it is that while verbs are for asserting that events, etc. have taken place or are taking place, nouns look at these events, etc. as entities; similarly, while adjectives look at qualities as properties of things, nouns can consider the same properties as independent entities.

The grammatical basis of word classes must therefore remain paramount. Indeed whereas languages may all be similar in their semantic needs, they differ in important ways as far as the grammatical classes they distinguish are concerned. For instance, although all languages appear to have a word class that might reasonably be termed 'verb', only some languages have verbs that are characterised by tenses and/or aspects, and only some languages have a verb *be* (Spanish actually has two, and Japanese three) or a verb *have*. Moreover, whereas in some languages there is a clear distinction between verbs and adjectives, in others these seem to constitute subclasses of a single larger class (e.g. Mandarin Chinese, cf. Kratochvil 1968: 113–14).

In languages like English, it is worth distinguishing a class of 'determiners', embracing the articles and words such as *any* and its possible replacements in (14) above, i.e. words such as *the, a, any, some, all, my, your, this, that*. The words *my, your,* etc. are traditionally called either pronouns or adjectives: but they differ from true pronouns like *mine, yours* (which stand for a whole noun phrase) in that they occur with a noun; equally they differ from adjectives like those listed above as possible replacements for *hesitant*. An independent class of determiners is thus certainly justified in English, though not, for instance, in Chinese; by contrast in Chinese, but not in English, recognition is usually given to a separate class of 'classifiers' (or 'measures') which correspond roughly to the subset of English nouns that includes *piece, bar, pair* as in *piece of advice, bar of soap, pair of trousers* (cf. T'ung and Pollard 1982:43–5).

In English it is probably also worth recognising (verbal) auxiliaries as a word class separate from lexical (or 'main') verbs. For one thing, in most English sentences—all except those with simple present or past tense verbs like (17)*(a)*—both an auxiliary and a lexical verb are present, as in (17)*(b):*

| | | | |
|---|---|---|---|
| (17) | *(a)* | | You hesitate(d). |
| | *(b)* | (i) | You must/will/may/should/etc. hesitate, |
| | | (ii) | You have/had hesitated, |
| | | (iii) | You are/were hesitating. |

Moreover an auxiliary is obligatory in negative and interrogative sentences (DO is supplied, where necessary), and indeed it is the auxiliary that appears before the subject in questions. Auxiliaries are therefore almost as different from lexical verbs as determiners (e.g. articles) are from nouns.

If auxiliaries were not a separate class, they would have to be an important subclass of verbs—which leads us on naturally to the general question of subclassification (or subcategorisation) of the parts of speech. The division of words into major classes accounts for the most important differences in their use in sentences, but there are other significant differences to be taken account of. For instance, we noted earlier that a wide range of nouns (probably the majority of all nouns that are not proper names) could replace *hesitation* in sentence (14). But if we change the preceding determiner *any* to *a (single),* we find that of our sample words only *author, car, town* and *word* are possible, the sequences * *a (single) rowdiness/traffic* being ungrammatical; we get similar results with the determiner *(too) many,* but this time the nouns *author,* etc. must appear in their plural form. If, on the other hand, we change the determiner to *(too) much,* we discover that only *rowdiness* and *traffic* (out of

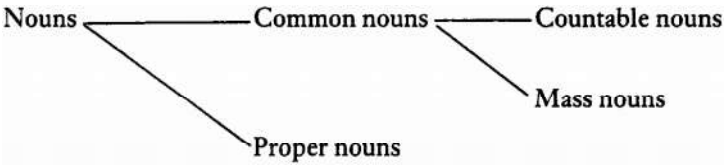
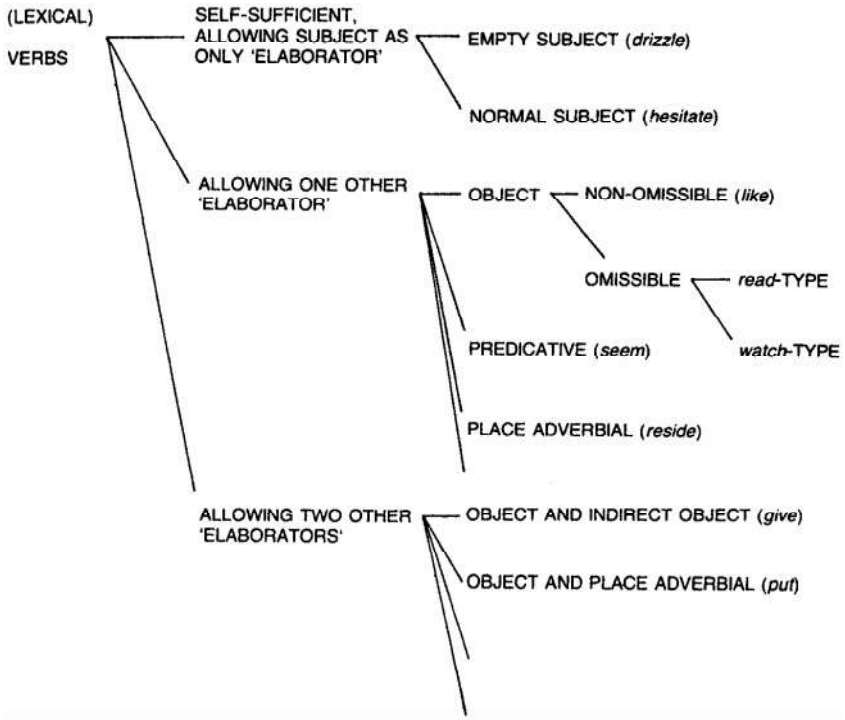



*Figure 8*




our set of words) are acceptable, and that *author,* etc. are impossible in singular and plural form alike. Words like *rowdiness* and *traffic* art termed 'mass' nouns, and they are uncountable in the sense that they are impossible not only with *a (single)* but also with *two, three,* etc. or *(too) many* and a number of other determiners. Countable nouns like *author,* etc., however, can occur with the indefinite article and with numerals but in the singular they are impossible with *(too) much, (too) little* and unstressed *some* (=/səm/, sometimes written *s'm* by linguists). Countable and mass nouns are not so much subclasses of nouns as of common nouns. Common nouns all occur with some determiners, as compared with proper nouns like *John (Smith), London, the Thames, England or the BBC,* which have either no determiner or a non-contrastive definite article as part of the name itself. The basic classification of nouns is thus: and the countable-mass distinction, strictly speaking, involves sub-sub-classes.

Lexical verbs also need to be subclassified in most, if not all, languages. The subdivision into transitive and intransitive is well-known. Transitive verbs are verbs such as *like, watch, read, give, put,* which take an object, while intransitive verbs like *hesitate, drizzle, seem, rain, reside* do not. But this simple division is inadequate in a number of ways: firstly, although intransitive verbs all occur without an object, some of them require something else, such as a predicative complement *(seem (an) expert)* or a place adverbial *(reside in London),* while others are self-sufficient *(hesitate, drizzle),* some of the latter, however, only taking an empty subject *it* (e.g. *drizzle*); secondly, amongst the transitive verbs, although they all occur with an object, some require the object always to be present *(like, put),* while others allow the object to be left out when it is of no significance *(read)* or when it is clear from the context *(watch),* and some of them, furthermore, permit, or even require, a further element, such as a second (indirect) object *(give)* or a place adverbial *(put).* A partial representation of the required subclassification would look like the one given in Figure 8.

Both the major classification of words into parts of speech and the minor classification into subclasses is complicated by the fact that many words have more than one use. For example, we noted the difference between the noun *hesitation* and the verb *hesitate,* but the word *pause* is used as both noun and verb; in a similar way, although *hesitate* and *hesitant* are clearly different, the verb *idle* and the adjective *idle* are identical in form. There are various ways of describing this state of affairs. We may simply say that words may belong to more than one class—that such words display multiple class membership (or 'class

cleavage', as Bloomfield (1935:204–6, 265–6) terms it). Alternatively we may say that there are two different words *pause* (NOUN) and *pause* (VERB), or *idle* (VERB) and *idle* (ADJECTIVE), which exhibit grammatical homonymy.

In some cases it may be worth grouping the two classes into a broader class, though not just for the sake of words like *pause* and *idle:* a super-class of 'nerbs' like *pause* or 'vadjectives' like *idle* would serve little purpose. But we do probably want to have a single comprehensive class of adjectives despite the fact that such words occur in two radically different positions (as illustrated in (16)*(a)* and *(b)* above), predicative (e.g.…*seem (at all) hesitant*) and attributive (e.g. *hesitant officials*), with some adjectives occurring in the one position but not the other, cf.…*seem (at all) awake; *…seem (at all) principal; * awake officials, principal officials*. From the point of view of morphology, as we noted earlier, zero elements cannot be ruled out as allomorphs of an otherwise overt morpheme: it would therefore also be possible to say that *pause* and *idle* involve derivation with a zero affix, though it is less easy to say which word class has the plain form, and which the zero affix, the history of the words being irrelevant in a synchronic account. This problem applies equally to another mode of description popular in works on word-formation, namely, 'conversion', which again makes one use of the word primary and thus makes the description appear quasi-historical. Nevertheless a morphological mode of explanation (i.e. zero-derivation or conversion) would be more in line with the idiosyncratic way in which the meanings within each pair of uses are related: for instance, the verb *pause* and the noun *pause* are related in a quite different way compared with the verb *shade* and the noun *shade*.

The phenomenon of class cleavage (or whatever else we like to call it) also operates at the level of subclasses. The subclassification of common nouns into mass and countable, for example, is clear, but many nouns have both uses, e.g. *astone, some stone; aglass, some glass; a hesitation, some hesitation;* and the members of each pair again display different kinds of semantic relationship. In some cases, one use is clearly secondary and limited in its use, e.g. the countable use of basically mass nouns in 'restaurantese', e.g. *an orange juice, two soups;* here it seems more natural to speak of '*(ad hoc)* conversion'. Proper nouns may be 'converted' to common nouns in this way, cf. *She sees herself as a female Churchill.*

Given that words can in principle belong to more than one class or subclass, how do we recognise the class or subclass being used in a particular sentence? Word classes are defined in terms of the syntactic potential of words; the syntactic context must therefore be our principal means of recognition. The word(s) *light,* for instance, in *(18)(a), (b)* and *(c)* appears as a noun, adjective and verb respectively:

| | | |
|---|---|---|
| (18) | *(a)* | The new light illuminates the room effectively. |
| | *(b)* | The new lamp makes the room light. |
| | *(c)* | The new lamps light the room effectively. |

In (18)*(a),* for example, it is its position between the unequivocal adjective *new* and the verb *illuminates* that marks it out as a noun; there is similar syntactic marking in (18)*(b)* and *(c)* for the other two uses. But, in addition, morphological factors may help identify a word as a member of a particular class. The word *illumination,* for instance, is unmistakably a noun because of the derivational suffix *-ion,* while the derivational suffix *-en* clearly marks *brighten* as a verb (derived from an adjective). Inflectional affixes are equally important in this respect, at least in languages that have a significant number of inflectional affixes. In Latin or Russian it is nouns, pronouns and adjectives that have a marker of grammatical case, and it is only verbs that may take tense-marking suffixes. Similarly, although English is not so rich in inflections, we may observe that the noun *light* in (18)*(a)* may be given a suffix *-s* to mark plurality, the adjective *light* in (18)*(b)* may be given a suffix *-er* to mark the comparative, and that the verb *light* in (18)*(c)* may be given the suffix *-ed* (or in this case, more commonly accept a medial replacive affix to become *lit*) to mark the past tense.

Inflectional affixes, unlike derivational ones, are used regularly with the appropriate word-class (ignoring irregularities of form): virtually every noun has a plural form, every verb a past tense, etc. in so far as the language has these categories. Inflections characterise individual words, not lexemes; indeed, they form pan-lexeme categories like number and tense, which play a part beyond the boundaries of their particular word. Each category involves choosing one of a fixed range of options, depending on the required meaning and grammatical pattern, and the subcategory selected is indicated in the inflectional affixes of predetermined words in the given structure.

In Latin, for instance, every noun belongs to one of five or six declensional classes (with subvarieties), and this determines the form of the inflectional affixes of case and number, e.g. nominative singular and plural *mālus/mālī* 'mast' but *frūctus/ frūctūs* 'fruit'; for adjectives there are two models of declension. This category of declensional class is perhaps the only one to have no significance outside the noun or adjective itself; but it has a close association with another category, gender, in that for most declensional classes there is a typical gender. For instance, most words of the declensional class of *mālus* 'mast' are masculine (e.g. *amīcus* 'friend', *hortus* 'garden'), but there are exceptions, including an absolute homonym of *mālus* with the meaning 'apple-tree', which is feminine; similarly most words with nominative forms like *mēnsa/ mēnsae* 'table' are feminine, but some, like *poēta* 'poet' are masculine. Gender is thus an arbitrarily fixed characteristic of individual nouns but is not directly indicated in the noun itself; rather, it shows itself in the inflectional affixes of dependent adjectives which agree

with it. Latin (like Russian, Sanskrit, etc.) has three genders, masculine, feminine and neuter; many languages have just two, usually dispensing with neuter (e.g. French, Hindi) but in some cases merging masculine and feminine to give a 'common' gender (as in Dutch). Some languages have more than three genders: Swahili, for instance, has six.

The grammatical category of case applies not only to nouns but to a whole noun phrase and may be shown by nouns, adjectives and determiners. Cases indicate the grammatical and/or semantic role of a noun phrase in a sentence. They are sometimes determined directly by the role: for example, a genitive case is often used to signal a noun being used to modify a higher noun phrase, just as the preposition *of* is; a special case, the nominative, is commonly used for the subject; the Russian instrumental (or Latin ablative) can mark an adverbial of instrument; there can be special cases for location and direction (Turkish has three, Finnish six). Otherwise the choice of case depends on the requirement of the individual verb or preposition: for instance, some German verbs take (or 'govern') an accusative object, others a dative; in Basque intransitive verb 'subjects' and transitive verb 'objects' have the absolutive (also called the 'nominative'), while transitive verb 'subjects' have the ergative (which makes identification of transitive clause functions problematic); in Russian prepositions can demand any one of five different cases (accusative, genitive, dative, instrumental or prepositional). A language may, like Chinese, lack case entirely, but to have a case system it needs more than one case. Swedish has two cases for nouns, Rumanian three, German four, Ancient Greek five, Russian six, Serbo-Croatian seven, Sanskrit eight, Basque twelve and Finnish fourteen.

Number is a primarily nominal category with a relatively clear semantic basis. But many languages have no such category, so that nouns are neutral between singular and plural. Many languages do have a singular-plural distinction, however, and a few distinguish a dual number (e.g. Arabic). Number is often multiply marked in a noun phrase, cf. Spanish *la(s) playa(s) español(es)* 'the Spanish beach(es)'. Furthermore, the number of the subject is often indicated in the verb *(It hurts/They hurt),* and in some languages the same applies to the object.

The remaining major inflectional categories, person, tense, aspect, mood and voice, belong primarily to the verb. The distinction of person, though, also characterises pronouns—ordinary noun phrases are normally third person—and, as with number, the subcategory of the subject (and sometimes the object) is indicated in the verbal inflection. Tense and aspect are chosen according to the time, timing, duration and stage-of-completion of the eventuality referred to by the verb. Mood involves a choice between indicative, imperative, subjunctive, etc. on the semantic basis of the factuality or otherwise of the eventuality, although it may partly be grammatically determined by the choice of subordinating conjunction.

Voice is a rather more complex matter than the others. Although it resides in the verb (morphologically speaking), it is intimately linked to the structure of its clause in terms of subject, object, etc. Languages which have a passive voice opposed to the active (e.g. Latin, English) use it in a sentence pattern with the active subject moved to another structural position, and possibly another element, for instance the active object 'promoted' to subject position. Ancient Greek had a third ('middle') voice which had a meaning that was indirectly reflexive (with the subject as agent as well as beneficiary or sufferer) or causative (with the subject as instigator of action by some other(s)). Languages like Basque that have an ergative-absolutive pattern (see above) sometimes have a so-called 'anti-passive' which shifts the originally ergative noun phrase to a structural position in which it takes the absolutive case.

These inflectional categories are thus displayed by individual words; but the words of a phrase or sentence interact with each other in the selection of the value for each category. This subselection takes two forms, government and concord. In government, as when a verb or preposition selects a particular case, an inflectionally unmarked word selects a subcategory in another word or group of words; the gender of nouns is also usually a matter of government, since gender itself need not be not strictly indicated in the noun itself—only its declensional class.

In concord the selection of subcategory is made outside the structure in question, as in number or case in a noun phrase (in Latin or German, say) where it is either directly semantic or is controlled by something outside the phrase, but inside it all words are equally marked. Thus in German *mit den Büchern* 'with the books' (compared with *ohne die Bücher* 'without the books') the preposition *mit* governs the dative of *denBüchern* but *den* and *Büchern* are in concord for case and number. Concord implies a redundant use of inflectional affixes, but some languages use their affixes more sparingly: for instance, although both Finnish and Basque have similar case systems, Finnish makes adjective agree with nouns, whereas Basque has one case marker for the whole noun phrase; a rather different economy is seen in Welsh and Turkish, which both have plural suffixes for nouns but do not use one with a (plural) numeral, cf. Welsh *pum ci* 'five dogs' but *cwn* 'dogs'.

It frequently happens that the full range of grammatical distinctions made through inflectional means is reduced under certain conditions. When a theoretically possible inflectional subcategorisation is suspended, we speak of grammatical 'neutralisation'. It can come about in one of three ways. In system-determined neutralisation, a distinction systematically fails to apply in combination with another grammatical feature in a related paradigm, as when in German the gender distinction of singular noun phrases is non-applicable in the plural; this is also termed 'syncretism'. Context-determined neutralisation can be exemplified by the loss of the present-future tense contrast in French subordinate clauses: with reference to future eventualities only the present is permitted after *si* 'if', but only the future after *quand* 'when' etc. Finally, lexically-determined neutralisation applies by accident, so to speak, to certain lexical items that fail to make the expected inflectional distinctions,

e.g. *sheep* (singular/plural), *hit* (present/past). Whatever the mechanism involved, neutralisation has the effects of reducing the number of grammatical distinctions made and of thereby complicating the system.

## 5.
## SYNTAX AND THE SENTENCE: STRUCTURES AND FUNCTIONAL RELATIONS

Syntax is in the main about putting words together to form phrases and sentences, with the right grammatical form for the required meaning. Let us imagine an impossibly bad learner of English who wants to say sentence (19)*(a)* but instead comes out with (19)*(b):*

| | | |
|---|---|---|
| (19) | *(a)* | The head teacher does not treat my children well. |
| | *(b)* | *Head teacher treat not good mine childs. |

Obviously our learner has not used the right grammatical form for his meaning, but his mistakes can be instructive. They can be classified under different headings, the first three of which we have already discussed:

(i) *Morpheme Realisation.* The word *children* has been given the wrong form (i.e. allomorph) for its inflectional morpheme.
(ii) *Morphological Structure (of Words).* The word *treat* (or whatever other verb is used) needs to have a third person singular suffix in the present after a singular subject.
(iii) *Syntactic Class of Word.* The adjective *good* has been wrongly substituted for the corresponding adverb *well,* and the pronoun *mine* has been wrongly used in place of the determiner *my*.
(iv) *Use of Grammatical Marker Words.* In the absence of any other determiners, English (unlike Russian, etc.) requires the use of an article (in this case a definite one) before a singular countable noun like *teacher*. Similarly sentence negation with *not* requires the presence of an auxiliary, and if none is present, the 'empty' verb DO must be used (here in the form *does*).
(v) *Word Order.* The word *not* needs to precede the verb *treat* (to give *does not treat*), and the word *well* (in place of *good*) needs to be placed in final position.

Leaving aside prosodic factors (such as selecting the correct element to stress in the compound *head teacher,* and choosing a suitable intonation pattern), the above points are the grammatical factors that a speaker needs to take account of and therefore that a grammarian needs to describe. The first two are morphological; so to describe the syntax of a sentence do we simply need to specify word classes, grammatical marker words and word order? In a sense, yes. But there is a danger of missing the wood for the trees, because these individual grammatical features combine to form part of an overall pattern for the sentence, and this may not be immediately obvious—indeed, we often meet pairs of sentences that in terms of superficial features (like those of (i) to (v) above) are identical but which nevertheless represent different structural patterns with different meanings. We have already seen that many words are ambivalent as regards syntactic class, but a different kind of grammatical ambiguity is seen in (20)*(c):*

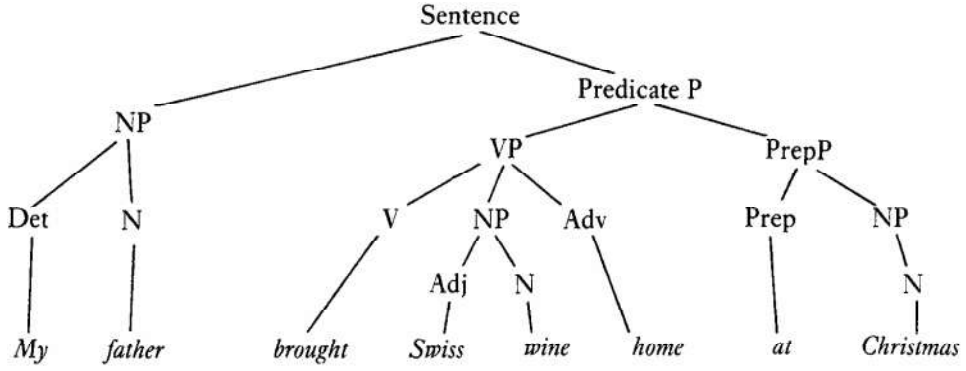
| | | |
|---|---|---|
| (20) | *(a)* | The head teacher surprised the man with a limp. |
| | *(b)* | The head teacher surprised the man with a kick. |
| | *(c)* | The head teacher surprised the man with a cane. |

In this case (20)*(a)* and *(b)* clearly have different grammatical structures, with the result that the semantic interpretation is different, whereas (20)*(c)* allows both structures and is therefore structurally ambiguous. This difference may be reflected in the rhythmical and intonational patterns used.

How are we to detect the syntactic structure that lies behind such sentences? Just as a chemist has tests for identifying a particular substance, so a syntactician needs operational tests (in addition to his own intutitions) to help establish the structure of a sentence. As in a scientist's test our assumption would be that sentences that respond to tests in the same way have the same structure. Taking sentence (21) as an example we can carry out a whole series of operational tests which give us different kinds of grammatical information:

(21) My father brought Swiss wine home at Christmas.

Substitution for single words is a test we have already considered: it tells us about the class of element under examination, and as we saw in the first section of this chapter, words belonging to small substitution sets, or having no possible substitution, are grammatical markers, e.g. *my, at* in (21). Substituting a single word for a whole phrase in effect reduces the size of an element, and this reduction test tells us which elements form a single construction (that acts as a constituent in a larger




construction), e.g. *my father (→ he), Swiss wine (→ some, wine), at Christmas (→ later, then)*. A special case of reduction is when we simply omit one of the existing words, thereby reducing to the other word, as when we reduce *Swiss wine* to *wine;* this omission test identifies the two parts of the construction as optional and obligatory, thus *(Swiss) wine,* although sometimes we know an element to be optional without being sure which element in the context is its (obligatory) partner. It frequently happens that neither of two elements may be omitted individually, but they can be omitted as a group, e.g. *at Christmas;* this joint omission test simultaneously establishes the group as a construction and shows that it is optional within a wider framework. A further test for construction status is that of joint permutation: for instance, *at Christmas* can be moved to initial position as a group, but neither of its constituent words can be moved alone. Permutation of a single word, such as moving *home* to the pre-object position (between *brought* and *Swiss*) demonstrates its relative independence, and perhaps its structural relations (*home* is just as closely related to *brought* as *Swiss wine* is, though the relationship is a different one). A final simple operational test is that of insertion: basically, insertions can be made at construction boundaries but not inside a construction, so that, for instance, an adverb like *occasionally* can be introduced into our sentence not only in initial and final positions but also between subject and predicate (=verb phrase, in this case) or between the place adverb *home* (which belongs to the verb phrase) and the more independent time adverbial *at Christmas*—but not in the middle of the verb phrase. We also need to consider more complex operational tests, but we shall do this later under the heading of 'transformations.'

What exactly do such tests tell us? If we indicate with brackets all the groupings into constructions that our test on sentence (21) has indicated, presupposing that the sentence as a whole is also a construction, we arrive at something like:

(21′) [[My father] [brought [Swiss wine] home] [at Christmas]]]

The only pair of brackets we have not so far justified is that grouping the whole predicate from *brought* to *Christmas* together as a unit; this can be defended on the grounds that the whole sequence can be reduced quite naturally to the auxiliary *did* in a context like (21 ):

(21 ) Who brought Swiss wine at Christmas? My father did.

The bracketing of (21′) thus represents the different degrees of 'togetherness' displayed by the words of sentence (21) with respect to each other.

An alternative representation to bracketing is the so-called 'tree diagram' (actually, it looks more like a root diagram). The bracketing of (21′) can be converted to the tree diagram of (21 ) by starting at the innermost bracketings (each pair effacing brackets) and drawing lines to a joint higher 'node', then proceeding in the same way until the 'top of the tree' has been reached:

(21 )

The tree diagram of (21 ) has had labels added to the nodes (and is thus equivalent to labelled bracketing). The word-class labels can be justified along the lines discussed earlier. The labels for the phrases here are based on the name given to the principal constituent (the Predicate Phrase could just as well be called the 'Higher Verb Phrase'). There are problems with this approach, and it certainly needs supplementation, as we shall see. There are equally problems with determining some constituent boundaries.

One such problem concerns word boundaries, and can be illustrated with the phrase *my father's Swiss wine,* in which it is clear that *father's* is not (like *Swiss*) a modifier of *wine;* rather, *my father's* is a construction equivalent to *his,* giving a structure *[[[myfather]'s] Swiss wine].* A second problem is whether we should be happy with constructions of three constituents. We can be happy with *brought+Swiss wine+home*, and we are forced to recognise three constitutents in coordinate patterns like *red and white,* but should we try to subdivide, for instance, *the Swiss watch* into *the+Swiss watch* or *the Swiss+watch?* There is even the further possibility of regarding *the…watch* as a construction, but are such discontinuous constituents permitted? Such problems were well-known to the Bloomfieldians, who studied distributional methods of Immediate Constituent (=I.C.) analysis in detail (cf. Wells 1947); exactly the same problems arise in the grammatical

descriptions of Chomsky and his followers, but they are not always so willing to discuss them (for a notable exception, see Radford 1981: chapters 2 and 3).

In some cases the existence of discontinuous constructions seems undeniable—unless of course they are ruled out *a priori* by the theory. Consider the following adjective phrases, as candidates for appearing in a context like *Mary is…:*

(22) *(a)* helpful, quite helpful, very helpful; more helpful, less helpful; as helpful.
*(b)* *helpful than John, *quite helpful than John, *very helpful than John; more helpful than John, less helpful than John; *as helpful thanJohn.
*(c)* *helpful as John, *quite helpful as John, *very helpful as John; *more helpful as John, *less helpful as John; as helpful as John.

It is clear that *than John* is dependent on *more/less* for its occurrence, and that it therefore forms a construction with it; the same applies to *as John* and *as*. But linking these elements in a tree diagram would mean a crossing of lines, something excluded by the conventional theory of tree diagrams. Transformational-generative grammarians got around such problems by positing a 'deep structure' (in the form of a tree) in which the linked elements were adjacent, and a transformational rule linking this to the 'surface structure', in which they are separated with the tree not showing the link. Such movement rules were said to be necessary anyway to link alternative structures like… *brought Swiss wine home* and…*brought home Swiss wine;* but in cases like *more/ less…than* the transformational movements were said to be obligatory. Thus 'deep structure' representations were being proposed that never appeared at the surface.

Since the advent of transformational-generative grammar in the mid-fifties the role of transformations in this type of grammar has become progressively specialised, so that they are now no more than movement rules (cf. chapter 4). Yet Harris's (1952,1957) and Chomsky's (1957) original transformations in the main corresponded to a set of relationships between grammatical structures which was recognised in traditional grammar and has remained in the armoury of many modern grammarians of different theoretical persuasions. To distinguish them from transformational-generative rules, we can refer to the traditional notion as 'transformational relation(ship)s'. They are well illustrated by the active-passive relationship, and also by what Jespersen (1969 [1937]: 73–4) called 'cleft' sentences. Take the following semantically similar sentences:

(23) *(a)* The postman contacted the students yesterday in the lecture-room.
*(b)* The students were contacted by the postman yesterday in the lecture-room.
*(c)* It was the students that the postman contacted yesterday in the lecture-room.
*(d)* It was in the lecture-room that the postman contacted the students yesterday.

If we compare (23)*(a),* the basic sentence, with (23)*(b),* the passive one, we find only the slightest difference in meaning, but a whole series of differences in form: the originally initial subject has been shifted to final position and has gained a *by,* the original object has been moved to subject position, and the verb has been converted to a passive form. Elsewhere in grammar and in lexis we expect each difference in expression to correspond to a separate difference in meaning; but in these transformationally-related sets of sentences, a complex difference in expression corresponds to a simple (and often slight) difference in meaning. The same applies to our cleft sentence (23)*(c)* and *(d),* which differ only in emphasis from (23)*(a)*: the emphasised element (which can be subject, object, place adverbial or time adverbial) is moved to initial position, and then has *it is/was* inserted before it and *that* inserted after it. Needless to say, passivisation and clefting are only two of a wide range of such transformational relationships.

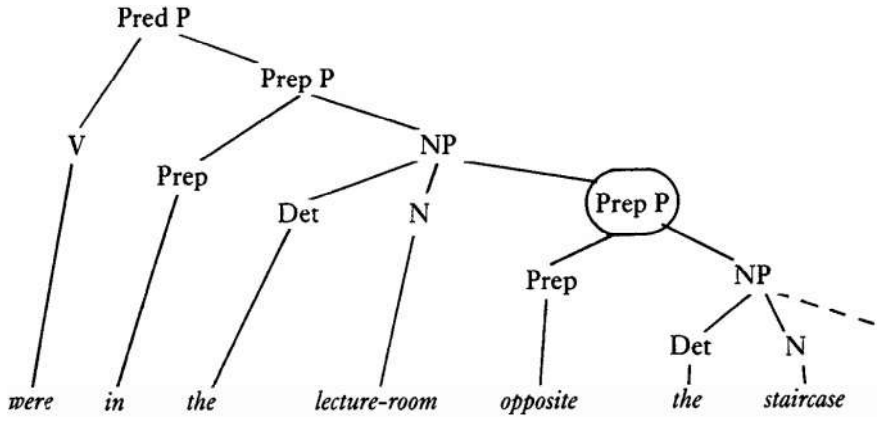
Let us now look at a rather different phenomenon, which has some affinities with transformational relations, and might be regarded as a special case of them:

(24) *(a)* The students were in the lecture-room (opposite the staircase (behind the toilets (next to the…))).
*(b)* The secretary encouraged the professor to help the porter to persuade the postman to contact the students.

The sentence (24)*(a),* like (23)*(a),* has the preposition phrase *in the lecture-room* as a direct constituent of the predicate phrase, and as a construction its constituents are the preposition *in* and the noun phrase *the lecture-room;* this noun phrase in turn can be modified by a preposition phrase *(opposite the staircase),* which only plays a role within the noun phrase, schematically:

(24)*(a′)*

This lower preposition phrase (ringed in the tree diagram), though occurring in a position where a simple adverb like *nearby* could have occurred, is a structure that has the same potential as the higher one, and is thus a structure 'embedded' within a (similar) structure. It is clear that the phenomenon of 'embedding' has a capacity for recursion, as indicated by the




further parentheses. This also applies to the structure of (24)*(b),* in which an infinitive clause-like element (=*to*+a verb phrase) has been successively embedded as a second 'elaborator' of a verb alongside its direct object, with the infinitival proclitic *to* acting as a marker of the embedding. Such differences between the embedded and non-embedded forms of the structure are akin to a transformational relationship, in that an indicative verb form corresponds to an infinitive (or a subjunctive in some languages), cf. also the Latin accusative-and-infinitive construction, in which the embedded subject has the accusative corresponding to the normal nominative.

In an embedding, one element is downgraded and used as a constituent (or constituent of a constituent) of a higher element, to which it is in principle equal, formulaically: $X_0$ [=A+$X_1$, or $X_0$ [=A+B [=C+$X_1$]. In co-ordination two similar elements are added together as equals in a combination which could have been represented by one of them alone, formulaically: $X_0$ [=$X_1$… & $X_n$], where n 1. This normally means that each of the co-ordinated items is of the same class as the other(s) and of the whole. For instance, in the examples of (25)*(a), (b)* and *(c)* both the co-ordinated elements and the whole structure are (semantically related) nouns, noun phrases and verb phrases respectively:

(25) *(a)* my mother and father, those cups and saucers;
*(b)* my mother and my headmaster, John's new cups and my German coffee;
*(c)* I've dropped a cup and broken it.
*(d)* [[[plaice and chips] and [strawberries and cream]] and [[goulash and rice] and [apple-pie and custard]]].

In co-ordinations, then, a compound element paradoxically consists of a series of elements equivalent to itself (just as a compound word is superficially often a sequence of potential words). This has the consequence that co-ordination within co-ordination is possible, as in (25)*(d).*

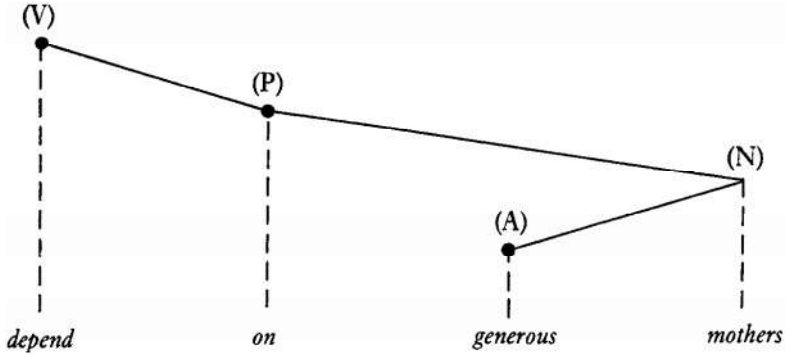
Both embedding and co-ordination involve combining constituents of the same size and class. We have already discussed the question of class, but how many different size-units are there? Clearly words are combined into phrases, but phrases of different size and class occur within each other without the need for any downgrading of the kind associated with embedding. For instance, in:

(26)…[might [live in [a [very poor] area]]]]

we might distinguish an adjective phrase inside a noun phrase inside a preposition phrase inside a verb phrase inside a predicate phrase. The term 'clause' is used to indicate an embedded or co-ordinated sentence like the inner elements of (27) *(a)* or *(b)* respectively:

(27) *(a)* [[Whoever arrives last] washes up].
*(b)* [[John arrived last] and [he washed up]].

But we should beware of the idea that a sentence can be exhaustively divided into clauses. In (27)*(a)* the subordinate clause *Whoever arrives last* is a sentence embedded inside another sentence, not alongside another clause. Similarly we should be clear that the co-ordinate 'clauses' of the compound sentence (27)*(b)* are nothing more than co-ordinated sentences, just as a compound noun phrase like that of (25)*(b)* consists simply of co-ordinate noun phrases. In the hierarchy of different size-units in syntax (sometimes referred to as 'rank' in 'systemic-functional grammar', cf. Halliday 1985:25–6) we only need to have words, different levels of phrases and sentences; 'clauses' are just embedded or co-ordinated sentences.




In describing grammatical patterns, so far we have seen that the two main factors are the extent of each construction and the classes of its member constituents. Given the various complications involved, including transformations, are these factors enough to explain all the subtleties of grammatical patterning? Or is it also necessary to take account of the relations of the constituents to each other and their functions within the whole construction— in short, of functional relations? Chomsky (1965:68–74) asserts that this information is redundant. Let us consider the evidence.

Looking at examples like those of (28)*(a), (b)* and *(c),* Bloomfield and his followers distinguished three main types of construction:

| | | |
|---|---|---|
| (28) | *(a)* | netting, wire (that type of thing); netting and wire, |
| | *(b)* | thick wire, |
| | *(c)* | with wire. |

In (28)*(a)* two nouns *netting* and *wire* occur, possibly linked by a conjunction, and either one of them could stand in place of the whole construction, which is a nominal element; in (28)*(b)* only *wire,* the noun, could replace the whole construction. Both constructions have (at least) one central element or 'head', and are therefore described as 'endocentric'; but whereas (28)*(a)* is co-ordinative, (28)*(b)* is subordinative, with the adjective *thick* acting as an optional modifier. In (28)*(c),* on the other hand, we have a combination made up of a preposition and a noun, but together they make an element of a further category, either adverbial (as in *(mend it) with wire)* or adnominal (=quasi-adjectival) (as in *(puppets) with wire);* this is therefore termed an 'exocentric' construction, consisting of a basic element and a relational element. But are these construction types and functional labels predictable on the basis of the classes involved? Is it not precisely the function of a preposition to convert a noun(phrase) into an adverbial or adnominal, and of an adjective to act as optional modifier of a noun? This is true; but then what about *wire netting*? In this phrase, which is not a compound noun but a regular syntactic pattern (cf. *gold watch, cotton shirt,* etc.), two nouns occur side by side but not as coordinates—rather with the first as 'modifier' and the second as 'head'.

Let us take a further example of the need for functional relations:

| | | |
|---|---|---|
| (29) | *(a)* | (Mary) consulted/saw/interviewed an expert. |
| | *(b)* | (Mary) became/was/sounded an expert. |

In each case the verb phrase (which is also the predicate phrase) consists of a verb followed by a noun phrase, but the function of the noun phrase differs: in (29)*(a)* it is an object (and accepts subject position in a corresponding passive sentence), while in (29)*(b)* it is a predicative (complement) and has a similar function to that of an adjective phrase (cf. *very expert*). There are two ways in which we might make good this lack of a functional-relational specification: we might replace our constituent structures with a different model, or we might try supplementing them in some way. The more radical policy is to abandon constituent structure altogether, and this is done in the various versions of dependency grammar (cf. Hays 1964, Korhonen 1977). Dependency grammar takes as its basis the relations between lexical elements, and the dependency involved is not so much one of a unilateral requirement for occurrence (as in a subordinative endocentric construction) as a semantic dependency for interpretation. For instance in the predicate phrase *(Students…)*:

(30) the word *generous* depends on *mothers,* which depends on *on,* which depends on *depend*. Only the first of these relations involves optionality, and in the case of *mothers* and *on,* it is difficult to see the latter as the dominating element. But, it is argued (with less than total conviction), in each case the 'dependent' relies on the 'governor' for its semantic interpretation.

Closely related to dependency grammar is valency grammar, which (following Tesnière 1959) emphasises that certain 'governors', especially verbs, have the power to require a particular number and particular types of 'dependent' (i.e. subject, object, adverbial, etc.), cf. for instance the different needs of the verbs in Figure 8 above. But dependency and valency grammar, if interpreted too narrowly, are in danger of failing to give sufficient attention to the structure of the superficial form of sentence, and a functionally-supplemented constituency grammar might be preferable. Candidates in this field include the rather programmatic Relational Grammar (cf. Johnson 1977, Perlmutter 1983: chapters 1–3) and Functional Grammar (cf. Dik 1978), in which functional notions like subject and object are basic but occur at different levels of description to allow for the different applications of the notions to cases like:

| | | |
|---|---|---|
| (31) | *(a)* | Someone's broken a window, have they? |
| | *(b)* | A window's been broken (by someone), has it? |
| | *(c)* | There's been a window broken (by someone), has there? |

In (31)*(a) someone* is clearly the subject and has the semantic role of agent, but it retains the role of agent and is in some sense still the underlying subject in *(b)* where superficially *a window* is the subject; and in *(c)* even the empty word *there* shows some sign of being at least a surface subject (by being echoed in the final tag question). Bresnan's lexical-functional grammar, on the other hand (cf. Bresnan 1982: chapter 4), has attempted to link active and passive forms lexically by giving each transitive verb a double syntactic potential.

In his 'case grammar' Fillmore (1968, 1977) tried to make a direct link between surface subjects, etc. and semantic roles like agent. The allied movement of 'generative semantics' (associated with the names of G.Lakoff, J.D. McCawley, P.M.Postal and J.R.Ross) aimed at a full integration of syntax and semantics (on which see Chapter 4). These projects now seem to have been abandoned; but we should note that recent work in Montague grammar/semantics has similar aims but works on a logical basis of truth conditions, 'possible worlds' and abstract mathematical models (cf. Dowty *et al.* 1981). An integration of syntax and semantics is also called for by the proponents of Generalized Phrase Structure Grammar (cf. Gazdar *et al.* 1985).

Chomsky has always maintained that syntax is autonomous of semantics, although in his recent work grammatical deep structures have given way to semantic rules (cf. Chapter 4). Whatever the theory to be adopted, syntax and semantics need to be brought together, because it is insufficient to establish grammatical patterns without being able to describe their meanings. The difficulty is that, whereas in syntax we try to work with discrete structures, in semantics we are faced with a multidimensional continuum of partly overlapping subtle distinctions. Consider, for a moment, the meanings of (32)*(a)* and *(b)* with their reflexive and reciprocal pronouns (which have been one of Chomsky's recurring themes in recent years, cf. Chomsky 1981):

| | | |
|---|---|---|
| (32) | *(a)* | They liked themselves/each other. |
| | *(b)* | They said they liked themselves/each other. |

Both versions of (32)*(a)* involve a kind of reflexiveness: assuming two people A and B, the *each other* version clearly has the meaning 'A liked B, and B liked A', while at first sight the *themselves* version means 'A liked A, and B liked B'; yet, on reflection, we realise that the version with *themselves* can also mean 'A liked A and B, and B liked A and B'. With (32)*(b)* the situation is more complex: in the *themselves* version did A, for instance, say that he liked B, or that he liked A and B, or that B liked A (and B), and did B say the same or something different? (We can leave aside here the question of whether the liking is present or past.) Needless to say, if more than two people are involved, the possibilities become even more complex, and the question naturally arises: how much such semantic detail can a grammar cope with?

There is a further question to be considered about the limits of a grammar in another direction: what are its upper limits in terms of the size of its units? The sentence was traditionally regarded as the upper limit of grammatical analysis, and this was re-affirmed by Bloomfield (1935:170). But in recent years the developing fields of text-linguistics, discourse analysis and pragmatics (see Chapters 6, 7 and 8) have all given attention to the links between sentences, and some of these links are undoubtedly grammatical. 'Preforms', like pronouns (both 'pro-noun phrases' like *she, it,* and the pronoun in the narrower sense, *one* of *a big one*) and the pro-verb *do,* often rely on anaphoric reference to previous sentences for their interpretation. Equally the selection between sentence-types such as active vs. passive, cleft vs. non-cleft, is made on the basis of the wider text. Furthermore, a choice often available to the speaker is between articulating two sentences separately and combining them through embedding or coordination.

## 6.
## FORMALISATION IN GRAMMAR

At the beginning of this chapter it was suggested that full explicitness, possibly even generativity, was a desirable quality for a grammar. Various attempts have been made to achieve this in the history of modern linguistics. One of the first was Jespersen's *Analytic syntax* (1969 [1937]), which, although it presents mere 'formulas', does have a double system of description to refer to both functions (S(ubject), P(redicate), etc.) and to 'ranks' (1=primary, etc.) of modification, as well as a system of brackets for representing subordination and embedding; but the system is not really fully explicit and only works through examples and intuition.

Harris's (1951) system was much more rigorous. Starting from a set of word classes (N, V, A, etc.) he attempted to relate these to word-sequence classes ($N^1$, $N^2$, etc.) through a series of equations, some of which were 'repeatable' (i.e. recursively applicable), others not. This came very close to the explicitness claimed for generative grammar by Chomsky, Harris's pupil. In later work (1952,1957) Harris suggested transformations as a way of stating relations between different sentences and of accounting for similarities of lexical collocational restrictions between different structures (e.g. *write the poem/*house, wire the house/*poem* compared with *The *house/poem is written,* etc.); these were also presented in the form of equations, which can, of course, be read in either direction.

Chomsky's rewrite rules, first presented in 1955–7, were, however, unidirectional (e.g. S→NP+VP, VP→V+NP, etc.) and were fundamentally different in that they were intended to specify (='generate') sentences and assign structural descriptions automatically in one fell swoop. From the beginning he argued that both context-free and context-sensitive rules were necessary; he also claimed that transformational rewrite rules were required not only to relate different sentences, but also to relate 'deep' and 'surface' forms of the same sentence. With the development of transformational grammar, it became apparent that the overall rewriting potential of the model was so powerful that restrictions came to be suggested.

The variant of generative grammar that has gone furthest in this direction is GPSG (Gazdar *et al.* 1985), which has abandoned context-sensitive rules and transformational rules, and redesigned context-free rules so that the constituency of constructions ('Immediate Dominance') and the sequence of constituents ('Linear Precedence') are stated separately; this gets around the problem of discontinuous constructions. Furthermore metarules are introduced to allow new rules to be based on existing rules, thus taking care of some transformational relations. Although this theory has some attractive features, it is apparently too concerned with the form grammar should take rather than with making it accurately reflect the structure of a language. The same criticism can be made of Montague grammar (Dowty *et al.* 1981), which seems more concerned with the niceties of mathematical logic than with the analysis of the language actually used by speakers.

There is no reason to suppose that natural language as a social or psychological reality comes close to either a computer program (often the inspiration of work in GSPG) or the formulae of mathematical logic. Nevertheless Chomsky made explicit rule-formulation fashionable, and even some already established grammatical theories suddenly found that (rather like Molière's Monsieur Jourdain) they had been practising generative grammar for years without realising it, for instance tagmemics (Cook 1969:144, 158f) and systemic grammar (Hudson 1974).

One of the simplest and earliest mathematical modes of representation for grammar which was implicitly generative, actually came from a logician. The Pole Ajdukiewicz (1935; following Leśniewski, see Lyons 1968; 227–31) developed a 'categorial grammar', which, rather in the manner of Harris, related word categories and construction categories to the basic units 'sentence' and 'noun' through a series of equations involving fractions: for instance, a verb is something that when combined with, or 'multiplied by', a noun (phrase) gives a sentence, and therefore must be a sentence 'divided by' a noun (phrase). A verb is thus an element that converts nouns to sentences, and an adjective is an element that can be added to nominal elements without changing their category. There is no clear place for the articles in Ajdukiewicz's scheme, but then Polish has none!

'Categorial grammar' shares certain features with dependency and valency grammar. Tesnière, for instance, defines prepositions as convertors ('translatifs') of noun elements into adverbials or adjectivals. On the other hand, in dependency grammar the verb is not seen merely as a convenor but as the principal element in the sentence, which achieves sentence status with the aid of its dependent nominals and adverbials. A formalised system of dependency grammar must therefore make provision for verbs (at least) that 'govern' but also require certain 'complements'. Hays (1964) proposes a formalism for achieving this with rules of the form $V_a(N_1, *)$ for intransitive verbs and $V_b$ $(N_1, * N_2)$ for transitive ones, with the asterisk indicating the linear position of the 'governor' relative to its 'dependents'. But, as we have already seen, there are different kinds of relationship subsumed under 'dependency', and any formalism, however attractive, is likely to obscure this.

We need to ask ourselves why such a degree of formalism is required. Chomsky himself denied that his formalism was intended as a model for linguistic performance, either for speaking, or (still less) for understanding; he proposed it, rather, as a model for linguistic competence. But is the grammar of a language really like that? Is there a clearly defined list of sentences which are as grammatical in the language in question? For example, does the grammar of English allow sentences with phrases like *?the too heavy suitcases* (cited above) or sentences like those of (33)?

(33) *(a)* John wasn't enjoying starting driving.
*(b)* Who did the students say the professor claimed he wanted to write a poem in honour of?

Equally, in view of the complex subtleties of structures like English prepositional verbs or indirect object constructions, can we be sure that one mode of analysis is ever going to give us a perfect description? If the answer to either of these questions is 'No', and language is not well-defined in the fullest sense, we are entitled to ask whether a closed system of fully-formalised rules can ever capture the natural elasticity of language. Certainly, though, we can accept the view expressed by Mephistopheles (in Goethe's *Faust Part I*), roughly:

With words one can have a splendid fight,
With words devise a system right,

or, as the original has it:

Mit Worten läßt sich trefflich streiten,
Mit Worten ein System bereiten.

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