1 Grammar

1.1 Overview

In broad terms, this book is concerned with aspects of grammar. Grammar is traditionally subdivided into two different but interrelated areas of study – morphology and syntax. Morphology is the study of how words are formed out of smaller units (called morphemes), and so addresses questions such as ‘What are the component morphemes of a word like antidisestablishmentarianism, and what is the nature of the morphological operations by which they are combined together to form the overall word?’ Syntax is the study of the way in which phrases and sentences are structured out of words, and so addresses questions like ‘What is the structure of a sentence like What’s the president doing? and what is the nature of the grammatical operations by which its component words are combined together to form the overall sentence structure?’ In this chapter, we begin (in §1.2) by taking a brief look at the approach to the study of syntax taken in traditional grammar: this also provides an opportunity to introduce some useful grammatical terminology. In the remainder of the chapter, we look at the approach to syntax adopted within the theory of Universal Grammar developed by Chomsky.

1.2 Traditional grammar

Within traditional grammar, the syntax of a language is described in terms of a taxonomy (i.e. classificatory list) of the range of different types of syntactic structures found in the language. The central assumption underpinning syntactic analysis in traditional grammar is that phrases and sentences are built up of a series of constituents (i.e. syntactic units), each of which belongs to a specific grammatical category and serves a specific grammatical function. Given this assumption, the task of the linguist analysing the syntactic structure of any given type of sentence is to identify each of the constituents in the sentence, and (for each constituent) to say what category it belongs to and what function it serves. For example, in relation to the syntax of a simple sentence like:

(1) Students protested
It would traditionally be said that the sentence consists of two constituents (the word students and the word protested), that each of these constituents belongs to a specific grammatical category (students being a plural noun and protested a past-tense verb) and that each serves a specific grammatical function (students being the subject of the sentence, and protested being its predicate). The overall sentence Students protested has the categorial status of a clause which is finite in nature (by virtue of denoting an event taking place at a specific time), and has the semantic function of expressing a proposition which is declarative in force (in that it is used to make a statement rather than, for example, ask a question). Accordingly, a traditional grammar of English would tell us that the simplest type of finite declarative clause found in English is a sentence like (1) in which a nominal subject is followed by a verbal predicate. Let’s briefly look at some of the terminology used here.

In traditional grammar, words are assigned to grammatical categories (called parts of speech) on the basis of their semantic properties (i.e. meaning), morphological properties (i.e. the range of different forms they have), and syntactic properties (i.e. word-order properties relating to the positions they can occupy within sentences): a set of words which belong to the same category thus have a number of semantic, morphological and syntactic properties in common. For example, nouns are traditionally said to have the semantic property that they denote entities: so, bottle is a noun (since it denotes a type of object used to contain liquids), horse is a noun (since it denotes a type of animal), and John is a noun (since it denotes a specific person). Typical nouns (more specifically, count nouns) have the morphological property that they have two different forms: a singular form (like horse in one horse) used to denote a single entity, and a plural form (like horses in two horses) used to denote two or more entities. Nouns have the syntactic property that only (an appropriate kind of) noun can be used to end a four-word sentence such as They have no... In place of the dots here we could insert a singular noun like car or a plural noun like friends, but not other types of word (e.g. not see, or slowly or up, since these are not nouns).

In contrast to nouns, verbs are traditionally said to have the semantic property that they denote actions or events: so, eat, sing, pull and resign are all (action-denoting) verbs. From a syntactic point of view, verbs have the property that only an appropriate kind of verb (in its uninflected form) can be used to complete a three-word sentence such as They can... So, words like stay, leave, hide, die, starve and cry are all verbs and hence can be used in place of the dots here (but words like apple, under, pink and if aren’t). From a morphological point of view, regular verbs like cry (in English) have the property that they have four distinct forms: e.g. alongside the dictionary citation form cry we find the present-tense form cries, the past-tense/perfect participle/passive participle form cried and the progressive participle form crying. Since chapter 2 is devoted to a discussion of grammatical categories, we shall have no more to say about them for the time being. Instead, we turn to look at some of the terminology used in
traditional grammar to describe the different grammatical functions that constituents fulfil.

Let’s begin by looking at the following set of sentences:

(2) (a) John smokes
(b) The president smokes
(c) The president of Utopia smokes
(d) The former president of the island paradise of Utopia smokes

Sentence (2a) comprises the noun John which serves the function of being the subject of the sentence (and denotes the person performing the act of smoking), and the verb smokes which serves the function of being the predicate of the sentence (and describes the act being performed). In (2a), the subject is the single noun John; but as the examples in (2b–d) show, the subject of a sentence can also be an italicised phrase like the president, or the president of Utopia or the former president of the island paradise of Utopia.

Now consider the following set of sentences:

(3) (a) John smokes cigars
(b) John smokes Cuban cigars
(c) John smokes Cuban cigars imported from Havana
(d) John smokes a specific brand of Cuban cigars imported by a friend of his from Havana

Sentence (3a) comprises the subject John, the predicate smokes and the complement (or direct object) cigars. (The complement cigars describes the entity on which the act of smoking is being performed; as this example illustrates, subjects normally precede the verb with which they are associated in English, whereas complements typically follow the verb.) The complement in (3a) is the single noun cigars; but a complement can also be a phrase: in (3b), the complement of smokes is the phrase Cuban cigars; in (3c) the complement is the phrase Cuban cigars imported from Havana; and in (3d) the complement is the phrase a specific brand of Cuban cigars imported by a friend of his from Havana. A verb which has a noun or pronoun expression as its direct-object complement is traditionally said to be transitive.

From a semantic perspective, subjects and complements share in common the fact that they generally represent entities directly involved in the particular action or event described by the predicate: to use the relevant semantic terminology, we can say that subjects and complements are arguments of the predicate with which they are associated. Predicates may have one or more arguments, as we see from sentences such as (4) below, where each of the bracketed nouns is a different argument of the italicised predicate:

(4) (a) [John] resigned
(b) [John] felt [remorse]
(c) [John] sent [Mary] [flowers]
A predicate like *resign* in (4a) which has a single argument is said to function as a **one-place predicate** (in the relevant use); one like *feel* in (4b) which has two arguments is a **two-place predicate**; and one like *send* in (4c) which has three arguments is a **three-place predicate**.

In addition to predicates and arguments, sentences can also contain **adjuncts**, as we can illustrate in relation to (5) below:

(5) (a) The president smokes a cigar **after dinner**  
(b) The president smokes a cigar **in his office**

In both sentences in (5), *smokes* functions as a two-place predicate whose two arguments are its subject *the president* and its complement *a cigar*. But what is the function of the phrase *after dinner* which also occurs in (5a)? Since *after dinner* isn’t one of the entities directly involved in the act of smoking (i.e. it isn’t consuming or being consumed), it isn’t an argument of the predicate *smoke*.  
On the contrary, *after dinner* simply serves to provide additional information about the time when the smoking activity takes place. In much the same way, the italicised expression *in his office* in (5b) provides additional information about the location of the smoking activity. An expression which serves to provide (optional) additional information about the time or place (or manner, or purpose etc.) of an activity or event is said to serve as an **adjunct**. So, *after dinner* and *in his office* in (5a,b) are both **adjuncts**.

So far, all the sentences we have looked at in (1)–(5) have been **simple sentences** which contain a single **clause**. However, alongside these we also find **complex sentences** which contain more than one clause, like (6) below:

(6) Mary knows John smokes

If we take the traditional definition of a clause as a predication structure (more precisely, a structure containing a predicate which has a subject, and which may or may not also contain one or more complements and adjuncts), it follows that since there are two predicates (*knows* and *smokes*) in (6), there are correspondingly two clauses – the *smokes* clause on the one hand, and the *knows* clause on the other. The *smokes* clause comprises the subject *John* and the predicate *smokes*; the *knows* clause comprises the subject *Mary*, the predicate *knows* and the complement *John smokes*. So, the complement of *knows* here is itself a clause – namely the clause *John smokes*. More precisely, the *smokes* clause is a **complement clause** (because it serves as the complement of *knows*), while the *knows* clause is the **main clause** (or **principal clause** or **independent clause** or **root clause**). The overall sentence (6) *Mary knows John smokes* is a **complex sentence** because it contains more than one clause. In much the same way, (7) below is also a complex sentence:

(7) The press clearly think the president deliberately lied to Congress

Once again, it comprises two clauses – one containing the predicate *think*, the other containing the predicate *lie*. The main clause comprises the subject *the*...
press, the adjunct clearly, the predicate think and the complement clause the president deliberately lied to Congress. The complement clause in turn comprises the subject the president, the adjunct deliberately, the predicate lied, and the complement to Congress.

As was implicit in our earlier classification of (1) as a finite clause, traditional grammars draw a distinction between finite clauses (which describe events taking place at a particular time) and non-finite clauses (which describe hypothetical or projected future events). In this connection, consider the contrast between the italicised clauses below (all three of which function as the complement of remember):

(8) (a) John couldn’t remember what pills he is taking
    (b) John couldn’t remember what pills he took
    (c) John couldn’t remember what pills to take

In (8a), the clause what pills he is taking is finite by virtue of containing present-tense is: likewise, the clause what pills he took in (8b) is finite by virtue of containing past-tense took. However, the clause what pills to take in (8c) is non-finite by virtue of containing no tense specification – take here is an infinitive form which is not inflected for tense, as we see from the fact that it could not be replaced by the past-tense form took here (cf. ‘John couldn’t remember what pills to took’ – the star indicating ungrammaticality).

Whether or not a clause is finite in turn determines the kind of subject it can have, in that finite clauses can have a nominative pronoun like he as their subject, but non-finite clauses cannot (as we see from the ungrammaticality of ‘John couldn’t remember what pills he to take’). Accordingly, one way of telling whether a particular clause is finite or not is to see whether it can have a nominative pronoun (like I/we/he/she/they) as its subject. In this connection, consider whether the italicised clauses in (9a,b) below are finite or non-finite:

(9) (a) I didn’t know students have problems with syntax
    (b) I have never known students have problems with syntax

The fact that students in (9a) can be replaced by the nominative pronoun they (as in ‘I didn’t know they have problems with syntax’) suggests that the italicised clause in (9a) is finite – as does the fact that the present-tense verb have can be replaced by its past-tense counterpart had in (9a). Conversely, the fact that students in (9b) can be replaced by the accusative pronoun them (as in ‘I have never known them have problems with syntax’) suggests that the italicised clause in (9b) is non-finite – as does the fact that we can optionally use the infinitive particle to in (9b) (as in ‘I have never known students to have problems with syntax’), and the fact that we can replace the have expression by one containing the infinitive form be (as in ‘I have never known students be worried about syntax’).

In addition to being finite or non-finite, each clause within a sentence has a specific force. In this connection, consider the following simple (single-clause) sentences:
(10) (a) He went home (b) Are you feeling OK?
(c) You be quiet! (d) What a great idea that is!

A sentence like (10a) is traditionally said to be **declarative** in force, in that it is used to make a statement. (10b) is **interrogative** in force in that it is used to ask a question. (10c) is **imperative** in force, by virtue of being used to issue an order or command. (10d) is **exclamative** in force, in that it is used to exclaim surprise or delight. In complex sentences, each clause has its own force, as we can see in relation to (11) below:

(11) (a) He asked where she had gone
(b) Did you know that he has retired?
(c) Tell her what a great time we had!

In (11a), the main (asked) clause is declarative, whereas the complement (gone) clause is interrogative; in (11b) the main (know) clause is interrogative, whereas the complement (retired) clause is declarative; and in (11c), the main (tell) clause is imperative, whereas the complement (had) clause is exclamative.

We can summarise this section as follows. From the perspective of traditional grammar, the syntax of a language is described in terms of a **taxonomy** (i.e. a classificatory list) of the range of different phrase-, clause- and sentence-types found in the language. So, for example, a typical traditional grammar of (say) English will include chapters on the syntax of negatives, interrogatives, exclamatives, imperatives and so on. The chapter on interrogatives will note (e.g.) that in main-clause questions in English like ‘Is he winning?’ the present-tense **auxiliary** *inverts* with (i.e. moves in front of) the subject he, but not in complement-clause questions like the *if*-clause in ‘I wonder if he *is* winning’, and will typically not be concerned with trying to explain why **auxiliary inversion** applies in main clauses but not complement clauses: this reflects the fact that the primary goal of traditional grammar is **description** rather than **explanation**.

### 1.3 Universal Grammar

In contrast to the **taxonomic** approach adopted in traditional grammar, Chomsky takes a **cognitive** approach to the study of grammar. For Chomsky, the goal of the linguist is to determine what it is that native speakers know about their native language which enables them to speak and understand the language: hence, the study of language is part of the wider study of **cognition** (i.e. what human beings know). In a fairly obvious sense, any native speaker of a language can be said to know the grammar of his or her native language. For example, any native speaker of English can tell you that the negative counterpart of *I like syntax* is *I don’t like syntax*, and not e.g. *I no like syntax*: in other words, native speakers know how to combine words together to form expressions (e.g. negative sentences) in their language. Likewise, any native speaker of English can tell you that a sentence like *She loves me more than you* is ambiguous and has two
interpretations which can be paraphrased as ‘She loves me more than she loves you’ and ‘She loves me more than you love me’: in other words, native speakers also know how to interpret (i.e. assign meaning to) expressions in their language. However, it is important to emphasise that this grammatical knowledge of how to form and interpret expressions in your native language is tacit (i.e. subconscious) rather than explicit (i.e. conscious): so, it’s no good asking a native speaker of English a question such as ‘How do you form negative sentences in English?’, since human beings have no conscious awareness of the processes involved in speaking and understanding their native language. To introduce a technical term devised by Chomsky, we can say that native speakers have grammatical competence in their native language: by this, we mean that they have tacit knowledge of the grammar of their language – i.e. of how to form and interpret words, phrases and sentences in the language.

In work dating back to the 1960s, Chomsky has drawn a distinction between competence (the native speaker’s tacit knowledge of his or her language) and performance (what people actually say or understand by what someone else says on a given occasion). Competence is ‘the speaker–hearer’s knowledge of his language’, while performance is ‘the actual use of language in concrete situations’ (Chomsky 1965, p. 4). Very often, performance is an imperfect reflection of competence: we all make occasional slips of the tongue, or occasionally misinterpret something which someone else says to us. However, this doesn’t mean that we don’t know our native language or that we don’t have competence in it. Misproductions and misinterpretations are performance errors, attributable to a variety of performance factors like tiredness, boredom, drunkenness, drugs, external distractions and so forth. A grammar of a language tells you what you need to know in order to have native-like competence in the language (i.e. to be able to speak the language like a fluent native speaker): hence, it is clear that grammar is concerned with competence rather than performance. This is not to deny the interest of performance as a field of study, but merely to assert that performance is more properly studied within the different – though related – discipline of psycholinguistics, which studies the psychological processes underlying speech production and comprehension.

In the terminology adopted by Chomsky (1986a, pp. 19–56), when we study the grammatical competence of a native speaker of a language like English we’re studying a cognitive system internalised within the brain/mind of native speakers of English; our ultimate goal in studying competence is to characterise the nature of the internalised linguistic system (or I-language, as Chomsky terms it) which makes native speakers proficient in English. Such a cognitive approach has obvious implications for the descriptive linguist who is concerned to develop a grammar of a particular language like English. According to Chomsky (1986a, p. 22) a grammar of a language is ‘a theory of the I-language . . . under investigation’. This means that in devising a grammar of English, we are attempting to uncover the internalised linguistic system (= I-language) possessed by native speakers of English – i.e. we are attempting to characterise a mental state (a state of competence, and thus linguistic
knowledge). See Smith (1999) for more extensive discussion of the notion of I-language.

Chomsky’s ultimate goal is to devise a theory of Universal Grammar/UG which generalises from the grammars of particular I-languages to the grammars of all possible natural (i.e. human) I-languages. He defines UG (1986a, p. 23) as ‘the theory of human I-languages ... that identifies the I-languages that are humanly accessible under normal conditions’. (The expression ‘are humanly accessible’ means ‘can be acquired by human beings’.) In other words, UG is a theory about the nature of possible grammars of human languages: hence, a theory of UG answers the question: ‘What are the defining characteristics of the grammars of human I-languages?’

There are a number of criteria of adequacy which a theory of Universal Grammar must satisfy. One such criterion (which is implicit in the use of the term Universal Grammar) is universality, in the sense that a theory of UG must supply us with the tools needed to provide a descriptively adequate grammar for any and every human I-language (i.e. a grammar which correctly describes how to form and interpret expressions in the relevant language). After all, a theory of UG would be of little interest if it enabled us to describe the grammar of English and French, but not that of Swahili or Chinese.

However, since the ultimate goal of any theory is explanation, it is not enough for a theory of Universal Grammar simply to list sets of universal properties of natural language grammars; on the contrary, a theory of UG must seek to explain the relevant properties. So, a key question for any adequate theory of UG to answer is: ‘Why do grammars of human I-languages have the properties they do?’ The requirement that a theory should explain why grammars have the properties they do is conventionally referred to as the criterion of explanatory adequacy.

Since the theory of Universal Grammar is concerned with characterising the properties of natural (i.e. human) I-language grammars, an important question which we want our theory of UG to answer is: ‘What are the defining characteristics of human I-languages which differentiate them from, for example, artificial languages like those used in mathematics and computing (e.g. Java, Prolog, C etc.), or from animal communication systems (e.g. the tail-wagging dance performed by bees to communicate the location of a food source to other bees)?’ It therefore follows that the descriptive apparatus which our theory of UG allows us to make use of in devising natural language grammars must not be so powerful that it can be used to describe not only natural languages, but also computer languages or animal communication systems (since any such excessively powerful theory wouldn’t be able to pinpoint the criterial properties of natural languages which differentiate them from other types of communication system). In other words, a third condition which we have to impose on our theory of language is that it be maximally constrained: that is, we want our theory to provide us with technical devices which are so constrained (i.e. limited) in their expressive power that they can only be used to describe natural languages, and are not appropriate for the description of other communication systems. A theory which
is constrained in appropriate ways should enable us to provide a principled expla-
nation for why certain types of syntactic structure and syntactic operation sim-
ply aren’t found in natural languages. One way of constraining grammars is to
suppose that grammatical operations obey certain linguistic principles, and that
any operation which violates the relevant principles leads to ungrammaticality: see
the discussion below in §1.5 for a concrete example.

A related requirement is that linguistic theory should provide grammars which
make use of the minimal theoretical apparatus required: in other words, gram-
mars should be as simple as possible. Much earlier work in syntax involved the
postulation of complex structures and principles: as a reaction to the excessive
complexity of this kind of work, Chomsky in work over the past ten years or so has
made the requirement to minimise the theoretical and descriptive apparatus used
to describe language the cornerstone of the Minimalist Program for Linguistic
Theory which he has been developing (in work dating back to Chomsky 1993,
that language is a perfect system with an optimal design in the sense that natural
language grammars create structures which are designed to interface perfectly
with other components of the mind – more specifically with speech and thought
systems. (For discussion of the idea that language is a perfect system of optimal
design, see Lappin, Levine and Johnson 2000a,b, 2001; Holmberg 2000; Piattelli-
Palmarini 2000; Reuland 2000, 2001b; Roberts 2000, 2001a; Uriagereka 2000,
2001; Freidin and Vergnaud 2001; and Atkinson 2003.)

To make this discussion rather more concrete, let’s suppose that a grammar of
a language is organised as follows. One component of a grammar is a Lexicon
(= dictionary = list of all the lexical items/words in the language and their
linguistic properties), and in forming a given sentence out of a set of words, we
first have to take the relevant words out of the Lexicon. Our chosen words are
then combined together by a series of syntactic computations in the syntax (i.e.
in the syntactic/computational component of the grammar), thereby forming a
syntactic structure. This syntactic structure serves as input into two other
components of the grammar. One is the semantic component which maps (i.e.
‘converts’) the syntactic structure into a corresponding semantic representa-
tion (i.e. to a representation of linguistic aspects of its meaning); the other is a
PF component, so called because it maps the syntactic structure into a PF
representation (i.e. a representation of its Phonetic Form, telling us how it is
pronounced). The semantic representation interfaces with systems of thought,
and the PF representation with systems of speech – as shown in diagrammatic
form below:

\[
\text{Lexicon} \quad \rightarrow \quad \text{syntactic structure} \quad \rightarrow \quad \text{semantic component} \quad = \quad \text{THOUGHT SYSTEMS} \\
\text{Syntax} \quad \rightarrow \quad \text{semantic representation} = \quad \text{THOUGHT SYSTEMS} \\
\text{PF component} \quad \rightarrow \quad \text{PF representation} = \quad \text{SPEECH SYSTEMS}
\]
In terms of the model in (12), an important constraint is that the (semantic and PF) representations which are ‘handed over’ to the (thought and speech) interface systems should contain only elements which are legible by the appropriate interface system – so that the semantic representations handed over to thought systems contain only elements contributing to meaning, and the PF representations handed over to speech systems contain only elements which contribute to phonetic form (i.e. to determining how the sentence is pronounced).

The neurophysiological mechanisms which underlie linguistic competence make it possible for young children to acquire language in a remarkably short period of time. Accordingly, a fourth condition which any adequate linguistic theory must meet is that of learnability: it must provide grammars which are learnable by young children in a short period of time. The desire to maximise the learnability of natural language grammars provides an additional argument for minimising the theoretical apparatus used to describe languages, in the sense that the simpler grammars are, the simpler it is for children to acquire them.

### 1.4 The Language Faculty

Mention of learnability leads us to consider the related goal of developing a theory of language acquisition. An acquisition theory is concerned with the question of how children acquire grammars of their native languages. Children generally produce their first recognisable word (e.g. Mama or Dada) by the age of twelve months. For the next six months or so, there is little apparent evidence of grammatical development in their speech production, although the child’s productive vocabulary typically increases by about five words a month until it reaches around thirty words at age eighteen months. Throughout this single-word stage, children’s utterances comprise single words spoken in isolation: e.g. a child may say Apple when reaching for an apple, or Up when wanting to climb up onto her mother’s knee. During the single-word stage, it is difficult to find any clear evidence of the acquisition of grammar, in that children do not make productive use of inflections (e.g. they don’t add the plural -s ending to nouns, or the past-tense -d ending to verbs), and don’t productively combine words together to form two- and three-word utterances.

At around the age of eighteen months (though with considerable variation from one child to another), we find the first visible signs of the acquisition of grammar: children start to make productive use of inflections (e.g. using plural nouns like doggies alongside the singular form doggy, and inflected verb forms like going/gone alongside the uninflected verb form go), and similarly start to produce elementary two- and three-word utterances such as Want Teddy, Eating cookie, Daddy gone office etc. From this point on, there is a rapid expansion in their grammatical development, until by the age of around thirty months they have typically acquired most of the inflections and core grammatical constructions used in English, and are able to produce adult-like sentences such as Where’s Mummy.