SYNTAX:
An Introduction to Minimalism

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Abbreviations
ant     anterior
asp     aspect, also in ASPP, Aspect Phrase
C(P)    Complementizer (Phrase)
Cl      Conceptional Intentional (Interface)
COCA    Corpus of Contemporary American English (http://corpus.byu.edu/coca/)
decl    declarative
D(P)    Determiner (Phrase)
E       Event
ECM     Exceptional Case Marking
F       feminine
fin     finite
gen     generic
i-      interpretable feature
M(P)    Mood (Phrase)
nom     nominative case
Num(P)  Number (Phrase)
OED     Oxford English Dictionary
P       plural
pass    passive
perf    perfect(ive), also used in PerpP
phi     person and number
pres    present
pro     zero subject of finite verbs
progr   progressive, also used in ProgrP
PRO     zero subject of non-finite verbs
S       singular or Speech time
T(P)    Tense (Phrase)
u-      uninterpretable feature
UG      Universal Grammar
VPISH   VP Internal Subject Hypothesis
1       first person
2       second person
3       third person
Chapter 1

Generative Grammar

In this chapter, I provide some background on the major ideas behind generative grammar and on some of the recent changes in its outlook. Generative Grammar has always emphasized the innate component to the Faculty of Language. In recent years, the focus has shifted from a rich Universal Grammar (UG) to innate mechanisms that are part of more general cognitive principles and principles of organic systems.

In section 1, we’ll look at reasons for assuming a UG and innate cognitive structure. In section 2, we’ll discuss the `Principles and Parameters’ approach, an intuitively appealing way to account for cross-linguistic differences. Section 3 sketches the basics of a Minimalist approach, the Borer-Chomsky Conjecture, and the `Problems of Projection’ approach to phrase/clause structure. Section 4 is a conclusion.

This chapter provides a broad picture of the aims of generative syntax. It is perfectly fine if there are areas you find difficult and might want to skip for now. We’ll come back to it all in chapter 10.

1 Universal Grammar (UG)

Chomsky’s (1957; 1965) generative model offers an approach to language that is focused on acquisition and the faculty of language as represented in the mind/brain. The answer as to how children acquire language so effortlessly is seen as rooted in Universal Grammar (UG). In this model, the focus is on the mind of the language learner/user (the competence) and ceases to be on the structures present in the language produced (the performance). Thus, children do not imitate what they hear but come up with their own system; see the difficulties this leads to in Figure 1.1.
The input to language learning is poor, a phenomenon known as the 'poverty of the stimulus'. Children hear parts of sentences, false starts, and so on, but still end up with a grammar in their minds/brains that is not dependent on that input.

Speakers know so much more than what they have evidence for from the input. For instance, speakers of English have never been taught that sentences of the type in (1a) are grammatical but those in (1b) are not. Yet, they know this difference.

(1) a. Who did I hear that John met?
   b. *Who did I hear when John met?

In (1a), who originates as the object of met and is fronted to form the wh-question; in (1b), the same happens but somehow changing that to when makes the sentence ungrammatical. We’ll talk about this phenomenon more in chapter 5. Note that prescriptive grammar demands whom in (1) but that this accusative wh-word is in decline in both spoken and written English.

When we look at c-command in the next chapter, we encounter another example of a phenomenon that depends on principles in the internal grammar rather than on something that is necessary for communicative purposes. So, in (2), the closest antecedent to the reflexive pronoun is the feminine Hillary but the correct form is himself, as in (2a), not herself. Why couldn’t (2b) mean that ‘he voted for her’?

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**Figure 1.1: The Internal Grammar**

*Baby Blues*
(2)  a. The husband of Hillary voted for himself.
    b. *The husband of Hillary voted for herself.

The parasitic gap in (3) is a construction native speakers of English have never been taught but which they have grammatical judgments on.

(3) Which articles did John file ___ without reading ___?

The interesting property is that which articles in (3) is connected to two different gaps and this is usually not grammatical, as (4) shows.

(4) *Who was he sent a picture of ___ to ___?
    [meaning: to whom and of whom was he sent a picture]

How do speakers know that it is grammatical to have an extra, i.e. parasitic, gap in (3) but not in (4)?

How is the acquisition of phenomena such those in (1) to (4) possible? It is based on impoverished input since native speakers may never actually have heard (1a), (2a), or (3) and still know that they are grammatical. The answer to this problem, Plato's problem in Chomsky (1986), is Universal Grammar, the initial state of the language faculty. This biologically innate organ helps the learner make sense of the data and build an internal grammar (I-language), which then produces the sentences a speaker utters (E-language). See Figure 1.2.

<table>
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<td>+</td>
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<td>=</td>
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Figure 1.2: Model of language acquisition
The innate language faculty, when "stimulated by appropriate and continuing experience, ... creates a grammar that creates sentences with formal and semantic properties", according to Chomsky (1975: 36). Thus, our innate language faculty (or Universal Grammar) enables us to create a set of rules, or grammar, by being exposed to (rather chaotic) language around us. The set of rules that we acquire enables us to produce sentences that we have never heard before. These sentences can also be infinitely long (if we have the time and energy).

Language acquisition, in this framework, is not imitation but an interaction between Universal Grammar and exposure to a particular language. "Learning is primarily a matter of filling in detail within a structure that is innate" (Chomsky 1975: 39). "A physical organ, say the heart, may vary from one person to the next in size or strength, but its basic structure and its function within human physiology are common to the species. Analogously, two individuals in the same speech community may acquire grammars that differ somewhat in scale and subtlety. ... These variations in structure are limited ..." (1975: 38).

Universal Grammar of the 1950s to 1970s has a lot of specific instructions and rules. If humans only had 100,000 years - although this date keeps changing – to develop the Faculty of Language, it makes sense to attribute less to it and that’s what has happened since about 2000. Currently, UG just contains a simple operation ‘merge’ that combines two elements into a set. The pre-linguistic conceptual structure plays a much larger role, as I now show.

In chapter 4, we’ll discuss the VP which is where the information is situated on ‘who does what to whom’, i.e. the argument structure. Arguments are obligatory elements for verbs. For instance, the verb *arrive* has one argument, as in (5), and give has three, as in (6).

(5) a. The bus arrived.
   b. *He arrived the bus.

(6) a. They gave us books.
   b. *They gave us.
There is a debate as to how much of this information is listed with the verb in the lexicon (Levin & Rappaport Hovav 1995) and how much added by the syntax (Borer 2005ab). The big question is how children acquire this structure, which is very complex. As for acquiring semantic roles, Snyder, Hyams & Crisma (1995), Costa & Friedmann (2012), and Ryan (2012) show that children distinguish intransitive verbs with Agents (swim) from those with Themes (fall) from immediately when they start using these verbs. We’ll talk about Agents and Themes more in chapter 4. Children also distinguish the aspectual manner from result verbs by using –ing in English for the former and past tense –ed for the latter.

Bickerton (1990: 67) sees “[a]rgument structure ... [a]s universal.” All languages have verbs for eating and drinking and those verbs would have an Agent and a Theme connected with them. Arguments are also represented in the syntax in predictable ways. Bickerton (1990: 185) suggests that the “universality of thematic structure suggests a deep-rooted ancestry, perhaps one lying outside language altogether.” Jackendoff (2002), based on Bickerton, suggests that pre-linguistic primate conceptual structure may already use symbols for basic semantic relations. This may include spatial and causal concepts. “Agent First, Focus Last ... are ‘fossil principles’ from protolanguage”. Homo erectus (1 million BP) may have had protolanguage.

If argument/thematic structure predates the emergence of language, an understanding of causation, intentionality, volition - all relevant to determining theta-structure - may be part of our larger cognitive system and not restricted to the language faculty. Chomsky’s main interest is not the cognitive structure but the syntax and he devotes only a few words to the acquisition of the lexical knowledge. Early on (1965: 142), he says that “semantic features ... too, are presumably drawn from a universal ‘alphabet’ but little is known about this today and nothing has been said about it here.” This tradition goes back to the Greeks. A French source from the 17th century says the following:

“Les idées ... ne tirent en aucune sorte leur origine des sens ... Notre ame a la faculté de les former de soi-même.”
‘Ideas do not in any fashion have their origin in the senses ... Our mind has the faculty to form those on its own.’ (Arnauld & Nicole 1662 [1965]: 45)

In the next section, I’ll describe the Principles and Parameters approach to UG because it was very influential in the 1980s and 1990s and still is used as a descriptive tool. Then, I show how it is seen now, namely as restricted to the lexicon.

2 Parameters: from syntax to lexicon

Early examples of parameters that UG made available are pro-drop (Rizzi 1982), headedness (Stowell 1981), and movement of wh-elements (Huang 1982).

Pro-drop is the cover term for a set of related phenomena and there are many ways to account for having unexpressed subjects. Not many linguists, however, believe that the phenomenon involves a +/- setting of an actual parameter called ‘pro-drop’. Pro-drop is a collection of related phenomena, the absence of the subject of a finite verb, subject-inversion, long wh-movement of the subject, and more (see Chomsky 1981: 240).

If a transitive verb has no subject or object, these arguments are nevertheless assumed to be present and are usually referred to as PRO (‘big PRO’), as in (7), or pro (‘little pro’), as in (8), the Spanish translation of (7). Modern English has PRO but not pro, since a tensed clause cannot have a null subject, as (9) shows.

(7) I want PRO to go
(8) pro quiro PRO venir
(9) *pro am talking to myself

Some criteria for distinguishing between PRO and pro; for instance, PRO is obligatorily empty, while pro is optionally so; and PRO is universally available, but pro exists only in certain languages. When we talk about the Pro-drop parameter, we mean small pro. A recent PhD thesis (Kinn 2015), argues that pro-drop is a collection of characteristics that have to be right to result in pro-drop.
A special kind of unexpressed subject is topic-drop which leaves out subject or object topics, as in (10) and (11). The topic occupies the Spec CP (of the root clause). Thus, if an empty subject occurs after a sentence-initial adverb or after a complementizer, as in (12) and (13), it cannot be topic-drop, but must be pro-drop. Modern English is therefore a language with topic-drop but no pro-drop.

(10) Hope to talk to you soon.
(11) Shouldn't have done it.
(12) *I knew that shouldn't have done it.
(13) *Later hope to talk to you

In short, Modern English has empty subjects with infinitives, as in (7), and when the subject is a topic, as in (10) and (11). It lacks unexpressed referential subjects, as (9), (12), and (13) show. There are other kinds of empty elements or copies. Thus, if an element moves, it leaves a copy or a trace, as who does in (1).

Headedness is a helpful way to characterize a language, with Arabic, Irish, and Chinese being head-initial and Japanese, Hindi/Urdu, and Korean head-final. Verbs, prepositions, and nouns precede their complements in head-initial languages but follow them in head-final ones. Examples are given in (14) and (15).

(14)  
a. wo  he  cha  
1S  drink  tea
`I drink tea.'

b. gen  ta  
with  3S
`with her/him.'

(15)  
a. Me  kitaab  perhti  hu  
1S  book  read  am
`I am reading the book.'
Following work by Kayne (1994), however, headedness has been abandoned as a formal parameter. In this framework, the basic word order is SVO and other word orders come about through movement.

The wh-movement parameter describes the variation languages show in whether they move the wh-pronoun or not, as in (16).

(16)  

\begin{align*}
  ni & \quad xiangxin & \quad ta & \quad hui & \quad shuo & \quad shenme \\
  \text{you} & \quad \text{think} & \quad \text{he} & \quad \text{will} & \quad \text{say} & \quad \text{what}
\end{align*}

`What do you think he will say?''

This phenomenon is now often seen as dependent on feature strength. Setting the Binding Domain (Chomsky 1981: 225, fn 35) and finding the relevant barriers for Subjacency (Chomsky 1973) are two other early parameters. They are now part of a theory of phases or of an Economy Locality Principle.

Though most introductory generative syntax books (Radford 2009ab) continue to cite this set of syntactic parameters, pro-drop/null subject, headedness, and wh-movement, these are often used in very descriptive ways, not to explain what goes on in language acquisition. Since Chomsky (1995), a major question is how these parameters would have arisen in the brain. If the shift in humans from no language to language was immediate, it makes sense that there is one crucial change in the way the brain functions and that change could have been the introduction of merge. Complex parameters of the pro-drop variety don’t fit in this non-gradual picture of evolution.

In addition, especially since Borer (1984), parameters have come to be seen as choices of feature specifications as the child acquires a lexicon (Chomsky 2007). The computational system of every language is seen as the same but the parametric choices are lexical and
account for the variety of languages. They also determine linear order but have no effect on the semantic component. Baker, while disagreeing with this view of parameters, calls this the Borer-Chomsky-Conjecture.

(17) **Borer-Chomsky-Conjecture**

"All parameters of variation are attributable to differences in the features of particular items (e.g., the functional heads) in the lexicon." (Baker 2008: 156)

The conjecture in (17) is part of the learning of the lexicon. Children need to combine the various (innate) semantic features into words.

3 **Minimalism**

Since Chomsky (2005; 2007), the emphasis is on innate principles not specific to the language faculty (UG), but to "general properties of organic systems" (Chomsky 2004: 105), ‘third factor principles' in. Chomsky identifies three factors crucial in the development of language.

**Three Factors**

“(1) genetic endowment, which sets limits on the attainable languages, thereby making language acquisition possible; (2) external data, converted to the experience that selects one or another language within a narrow range; (3) principles not specific to FL [the Faculty of Language]. Some of the third factor principles have the flavor of the constraints that enter into all facets of growth and evolution.... Among these are principles of efficient computation”. (Chomsky 2007: 3)

The first factor is the traditional Universal Grammar and the second factor is the experience that we saw in Figure 1.1. The third factor is new but somewhat related to the first; it is favored above the language-specific one (for reasons of simplicity). The third factor can be divided into several types, including principles of efficient computation, which are "of particular significance in determining the nature of attainable languages" (Chomsky 2005: 6). Economy Principles are
probably also part of more general cognitive principles, thus reducing the role of Universal Grammar even more.

The model for deriving a sentence from 1995 on is to make a selection from the lexicon, as in (18), and to merge these together, as in (19), from bottom to top.

(18) {They, read, will, the, books}
(19) a. {the, books}
    b. {read, {the, books}}
    c. {they, {read, {the, books}}}
    d. {will, {they, {read, {the, books}}}}
    e. {they, {will, {they, {read, {the, books}}}}}

In steps (19ab), we are just combining the object and the verb, i.e. making the VP. The other steps depend on the subject of the sentence being merged immediately with the VP (19c) before the auxiliary will is (19d), and the subject moving to a higher position (19e). We’ll talk about the details in chapters 4 and 5.

Another way of representing the derivation is through a tree, as in (20), which I have only partially filled in. The TP is the Tense Phrase, where all vital information on finiteness and agreement is stored.

(20) TP
  /   \
/     \  
They will VP
     /   \
    /     \ 
  they read DP
       /   \ 
      the books
The current Problems of Projection (PoP) approach to Minimalism insists that the derivation in (20) isn’t labelled by the projection. It says that syntax only combines objects and yields unordered sets \( \{X, Y\} \) without a label (Chomsky 2013: 42), as already shown in (19). The labeling is done when the syntax hands over its combined sets to the interfaces, as shown in Figure 1.3, which represents the current model. This labeling mechanism is a third factor principle.

![Diagram](Selection of lexical items + Merge Interfaces: Conceptual- Sensory- Intentional Motor Labeling)

Figure 1.3: The Minimalist model of language generation

Attractive in this model is that movement, as we'll see is frequent in chapters 4 and 5, is “driven by labeling failures” (Chomsky 2015: 7). For instance, if two phrases are merged together, their heads are both as accessible and could both label the result. This is a paradox that is resolved when one of the two moves.

The PoP approach is still being debated and, even if it is accepted that the syntax doesn’t label phrases, we still need to know the structure of sentences. Therefore, we will continue to use labeled trees in the chapters that follow.

4 Conclusion

In this chapter, I have introduced UG, innate structure, parameters, merge, and labeling. Some of this will sound very abstract at this stage but I wanted to give an indication of where syntax is going. Differences between languages arise through lexical choices learners make in building the lexicon of a particular language.
At the end of this chapter, you should be able to give an example of a traditional syntactic parameter and know a little about the role of UG in the Minimalist Program and we’ll practice how to do glosses to example sentences from languages other than (Modern) English.

**Keywords**
UG, I-language, E-language, parameters (syntactic and lexical), merge, minimalism.

**Exercises**

A  Radford (2009b: 35) provides the following sentence from Lucy. Descriptively speaking, when Lucy produces (1), what is she doing? Which parameters have been set?

(1) What doing? (i.e. What are you doing)

B  What is the word order in (2), head-initial or head-final? How would you translate this Hopi sentence?

(2) *Nu’ kwaahut tuwa*

   1S eagle saw

C  We will use two kinds of glosses for other languages: a morpheme-by-morpheme gloss, using abbreviated symbols, and a freer translation, enclosed in single quotation marks. Both are not always provided if the meaning is clear. The glosses list morphological features such as accusative (ACC) in cases where relevant for our discussion. Hyphens are used when we can clearly see the morphemes; periods if they are fused. Explain in words what the glosses in (3) mean.

(3) *mē kahaanii likh-tii hū* Urdu/Hindi

   1S.NOM(F) story(F) write-PRES.1SF be.PRES.1S

   ‘I am writing a story.’

(Much stricter glosses are suggested at  [www.eva.mpg.de/lingua/resources/glossing-rules.php](http://www.eva.mpg.de/lingua/resources/glossing-rules.php))

D  Find a language of your own choice and explore if it has pro-drop?
E  Which special characteristic of the faculty of language is shown in Figure 1.4?

Figure 1.4:  “I’m telling on you” (http://babyblues.com/comics/march-19-2007)
Chapter 2
Building blocks: categories

This chapter reviews the lexical and grammatical categories of English and provides criteria on how to decide whether a word is a noun or an adjective or a demonstrative. This knowledge of categories can then be applied to languages other than English. It also examines pronouns which have grammatical contents but may function like nouns and looks at how categories change.

Categories continue to be much discussed. Many people argue that the mental lexicon lists no categories, just acategorical roots, and that morphological markers (e.g. –ion, -en, and zero) make roots into categories. I will assume there are categories of two kinds, lexical and grammatical categories. This distinction between lexical and grammatical is relevant to a number of phenomena that are listed in Table 2.1. They speak for themselves, I hope.

| Grammatical categories contract and destress, e.g. He’s going |
| Code switching of grammatical categories is hard, e.g. *Ik ben talking to the neighbors. I am (Dutch – English) |
| First Language Acquisition starts with lexical categories, e.g. Mommy eating. |
| Borrowed words are mainly lexical |
| Aphasia differentiates between Broca’s and Wernicke’s |
| Forensic Linguistics: lexical and grammatical ‘fingerprints’ behave very differently |

Table 2.1: The practical use of a distinction between lexical and grammatical categories

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Figure 2.1: Parts of speech
The outline of this chapter is as follows. In section 1, we examine the lexical categories, N, V, A, and P. The grammatical categories D, T, and C are discussed in section 2. Section 3 treats pronouns separately because they have a little of both categories. Section 4 is a conclusion.

1 Lexical categories

The five lexical categories in English are Noun, Verb, Adjective, Adverb, and Preposition. They carry meaning, and often words with a similar (synonym) or opposite meaning (antonym) can be found. Frequently, the noun is said to be a person, place, or thing and the verb is said to be an event or act. These are semantic definitions. Semantic definitions are not completely adequate and we’ll need to define categories syntactically (according to what they combine with) and morphologically (according to how the words are formed).

As just mentioned, a noun generally indicates a person, place or thing (i.e. this is its meaning). For instance, chair, table, and book are nouns since they refer to things. However, if the distinction between a noun as person, place, or thing and a verb as an event or action were the only distinction, certain nouns such as action and destruction would be verbs, since they imply action. These elements are nevertheless nouns. In (1) and (2), actions and destruction are preceded by the article the, actions can be made singular by taking the plural –s off, and destruction can be pluralized with an –s. This makes them nouns.

(1) The actions by the government came too late.
(2) The hurricane caused the destruction of the villages.

Apart from plural -s, other morphological characteristics of nouns are shown in (3) and (4). Possessive ’s (or genitive case) appears only on nouns, e.g. the noun Jenny in (3), and affixes such as -er and -ism, e.g. writer and postmodernism in (4), are also typical for nouns.

(3) Jenny's neighbor always knows the answer.
(4) That writer has modernized postmodernism.
Syntactic reasons for calling nouns nouns are that nouns are often preceded by the, as actions and government are in (1), as destruction and villages are in (2), and as answer is in (3). Nouns can also be preceded by that, as in (4), and, if they are followed by another noun, there has to be a preposition, such as by in (1) and of in (2), connecting them.

The nouns action and destruction have verbal counterparts, namely act and destroy, and (1) and (2) can be paraphrased as (5) and (6) respectively.

(5) The government acted too late.
(6) The hurricane destroyed the villages.

Just as nouns cannot always be defined as people or things, verbs are not always acts, even though acted and destroyed are. The verb be in (7), represented by the third person present form is, does not express an action. Hence, we need to add state to the semantic definition of verb, as well as emotion to account for sentences such as (8).

(7) The book is red and blue.
(8) The book seemed nice (to me).

Some of the morphological characteristics of verbs are that they can express tense, e.g. past tense ending –ed in (5), (6), and (8); that the verb ends in -s when it has a third person singular subject and is present tense; and that it may have an affix typical for verbs, namely -ize, e.g. in modernized in (4) (note that it is -ise in British English). Syntactically, they can be followed by a noun, as in (6), as well as by a preposition and they can be preceded by an auxiliary, as in (4). Some of the major differences between nouns and verbs are summarized in Table 1 below.

In English, nouns can easily be used as verbs and verbs as nouns. Therefore, it is necessary to look at the context in which a word occurs, as in (9), for example, where Shakespeare uses vnckle, i.e. `uncle', as a verb as well as a noun.

(9) York: Grace me no Grace, nor Vnckle me,
I am no Traytors Vnckle; and that word Grace
In an vngracious mouth, is but prophane.

(Shakespeare, Richard II, II, 3, 96, as in the First Folio edition)

Thus, using the criteria discussed above, the first instance of `uncle' would be a verb since the noun following it does not need to be connected to the verb by means of a preposition, and the second `uncle' is a noun since `traitor' has the possessive `s. Note that I have left Shakespeare's spelling, punctuation, and grammar as they appear in the First Folio Edition.

Other examples where a word can be both a noun and a verb are table, to table; chair, to chair; floor, to floor; book, to book; fax, to fax; telephone, to telephone; and walk, to walk. Some of these started out (historically) as nouns and some as verbs. For instance, fax is the shortened form of the noun facsimile which became used as a verb as well. Currently, when people say fax, they often mean pdf (portable document format), another noun that is now used as a verb. A sentence where police is used as noun, verb, and adjective respectively is (10a); (10b) is nicely alliterating where pickle is used as a verb, adjective, and noun; and (10c) has fast as adjective, adverb, and noun.

(10)  
   a. Police police police outings regularly in the meadows of Malacandra.
   b. Did Peter Piper pickle pickled pickles?
      (Alyssa Bachman‘s example)
   c. The fast girl recovered fast after her fast.
      (Amy Shinabarger‘s example)

The nouns that are used as verbs have a special aspect, as we’ll see in chapter 4. Many verbs derive from adjectives, e.g. to widen, to redden, and these have a different aspect.

As a summary, I provide a table. Not all of these properties are always present of course. Morphological differences involve the shape of an element while syntactic ones involve how the element fits in a sentence. The semantic differences involve meaning, but remember to be careful here since nouns, for instance, can have verbal meanings as in (1) and (2) above.
Differences (e) and (l) will be explained in the next section. They are evident in (11), which shows the adjective expensive that modifies (i.e. says something about) the noun book and the adverb quickly that modifies the verb sold out.

(11) That expensive book sold out quickly.

Adverbs and Adjectives are semantically very similar in that both modify another element, i.e. they describe a quality of another word: quick/ly, nice/ly, etc. As just mentioned, the main syntactic distinction is as expressed in (12).

(12) The Adjective-Adverb Rule

An adjective modifies a noun;

an adverb modifies a verb and (a degree adverb) modifies an adjective or adverb.

Since an adjective modifies a noun, the quality it describes will be one appropriate to a noun, e.g. nationality/ethnicity (American, Navajo, Dutch, Iranian), size (big, large, thin), age (young, old), color (red, yellow, blue), material/personal description (wooden, human), or character trait.
(happy, fortunate, lovely, pleasant, obnoxious). Adverbs often modify actions and will then provide information typical of those, e.g. manner (wisely, fast, quickly, slowly), or duration (frequently, often), or speaker attitude (fortunately, actually), or place (there, abroad), or time (then, now, yesterday). As well and also, and negatives such as not and never, are also adverbs in that they usually modify the verb.

When adverbs modify adjectives or other adverbs, they are called degree adverbs (very, so, too). These degree adverbs have very little meaning (except some that can add flavor to the degree, such as exceedingly and amazingly) and it is hard to find synonyms or antonyms. It therefore makes more sense to consider this subgroup of adverbs grammatical categories. They also do not head a phrase of their own, and when it looks as if they do, there really is another adjective or adverb left out. The very in (13) modifies important, which is left out.

(13)  How important is your job to you? Very.
     (from CBS 60 Minutes 1995).

     Some instances of the use of the adjective nice are given in (14) and (15). Traditionally, the use in (14) is called predicative and that in (15) attributive.

(14)  The book is nice.
(15)  A nice book is on the table.

The adverbs very and quickly appear in (16) and (17).

(16)  This Hopi bowl is very precious.
(17)  He drove very quickly.

In (14) and (15), nice modifies the noun book. In (16), the degree adverb very modifies the adjective precious; and in (17), it modifies the adverb quickly, which in its turn modifies the verb drove. Sentence (16) shows something else, namely that the noun Hopi can also be used to
modify another noun. When words are put together like this, they are called compound words. Other examples are given in (18) and (19).

(18) So the principal says to the [chemistry teacher], “You'll have to teach physics this year.” (COCA Science Activities 1990)
(19) Relaxing in the living room of his unpretentious red [stone house], ...
       (COCA Forbes 1990)

Some of these compounds may end up being seen or written as one word, e.g. girlriend, bookmark, mail-carrier, fire engine, dog food, and stone age. When we see a noun modifying another noun, as in (18) and (19), we will just discuss if they are compounds or not. The space and hyphen between the two words indicate degrees of closeness.

Often, an adverb is formed from an adjective by adding -ly, as in (17). However, be careful with this morphological distinction: not all adverbs end in -ly, e.g., fast, hard, and low, whereas some adjectives end in -ly, e.g. friendly, lovely, lively, and wobbly. If you are uncertain as to whether a word is an adjective or an adverb, either look in a dictionary to see what it says, or use it in a sentence to see what it modifies. For instance, in (20), fast is an adjective because it modifies the noun car, but in (21), it is an adverb since it modifies the verb drove.

(20) That fast car must be a police car.
(21) That car drove fast until it hit the photo radar.

In a number of cases, words such as hard and fast can be adjectives or adverbs, depending on the interpretation. In (22), hard can either modify the noun person, i.e. the person looks tough or nasty, in which case it is an adjective, or it can modify look (meaning that the person was looking all over the place for something, i.e. the effort was great) in which case hard is an adverb.

(22) That person looked hard.
As a reader of this sentence, what is your preference? Checking a contemporary American corpus, i.e. a set of representative texts, I found that most speakers use *hard* as an adverb after the verb *look*. Do you agree?

Some of the `discrepancies` between form and function are caused by language change. For instance, the degree adverb *very* started out its life being borrowed as an adjective from the French *verrai* (in the 13th century) with the meaning ‘true’, as in (23).

(23) *Under the colour of a veray peax, whiche is nevertheles but a cloked and furred peax.*

`Under the color of a true peace, which is nevertheless nothing but a cloaked and furred peace.’ (Cromwell’s 16th century Letters)

Here, what looks like a –y ending is a rendering of the Old French *verrai*. What’s worse for confusing Modern English speakers is that, in Old English, adverbs did not need to end in –*lich* or –*ly*. That’s why ‘old’ adverbs sometimes keep that shape, e.g. *first* in (24) is a `correct` adverb, but *second* is not. The reason that *secondly* is prescribed rather than *second* is that it was borrowed late from French, when English adverbs typically received –ly endings.

(24) ... *first* I had to watch the accounts and *secondly* I’m looking at all this stuff for when I start my business. (from a conversation in the BNC Corpus)

A last point to make about adjectives and adverbs is that most (if they are gradable) can be used to compare or contrast two or more things. We call such forms the comparative (e.g. *better than*) or superlative (e.g. *the best*). One way to make these forms is to add -er/-est, as in *nicer/nicest*. Not all adjectives/adverbs allow this ending, however; some need to be preceded by *more/most*, as in *more intelligent, most intelligent*. Sometimes, people are creative with comparatives and superlatives, especially in advertising, as in (25) and (26), or in earlier forms as in (27).
mechanic: “the expensivest oil is…”

advertisement: “the bestest best ever phone”.

To take the basest and most poorest shape ... (Shakespeare, King Lear II, 3, 7)

There are also irregular comparative and superlative forms, such as good, better, best; bad, worse, worst. These have to be learned as exceptions to the rules, and can be played with, as in the pun ‘When I am bad, I am better’.

To summarize, the table below lists differences between adjectives and adverbs. Not all of these differences have been discussed yet, e.g. the endings –ous, -ary, -al, and –ic are typical for adjectives and –wise, and –ways for adverbs, but they speak for themselves.

<table>
<thead>
<tr>
<th>Morphology</th>
<th>Adjectives (Adj)</th>
<th>Adverbs (Adv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>end in –ous, -ary, -al, -ic; mostly have no –ly; and can be participles</td>
<td>end in -ly in many cases, –wise, -ways, etc. or have no ending (fast, now)</td>
</tr>
<tr>
<td>b.</td>
<td>modify N</td>
<td>modify V, Adj, or Adv</td>
</tr>
<tr>
<td>c.</td>
<td>describe qualities</td>
<td>describe qualities of verbs, e.g: place, manner, time, duration, etc. and of adjectives/ adverbs: degree</td>
</tr>
<tr>
<td>d.</td>
<td>typical of nouns, e.g: nationality, color, size.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.3: Differences between adjectives and adverbs

Prepositions typically express place or time (at, in, on, before), direction (to, from, into, down), causation (for), or relation (of, about, with, like, as, near). They are invariable in form and have to occur before a noun, as (28) shows, where the prepositions are in bold and the nouns they go with are underlined.

(28) With their books about linguistics, they went to school.

On occasion, what look like prepositions are used on their own, as in (29).

(29) He went in; they ran out; and he jumped down.
In such cases, these words are considered adverbs, not prepositions. The difference between prepositions and adverbs is that prepositions come before the nouns they relate to and that adverbs are on their own.

Some other examples of one word prepositions are *during, around, after, against, despite, except, without, towards, until, till, and inside*. Sequences such as *instead of, outside of, away from, due to,* and *as for* are also considered to be prepositions, even though they consist of more than one word. Infrequently, prepositions are transformed into verbs, as in (30).

(30) They **upped** the price.

Some prepositions have very little lexical meaning and are mainly used for grammatical purposes. For instance, *of* in (31) expresses a relationship between two nouns rather than a locational or directional meaning.

(31) The door **of** that car.

Prepositions are therefore a category with lexical and grammatical characteristics. Here, however, I will treat them as lexical, for the sake of simplicity. A partial list is given in Table 2.4.

<table>
<thead>
<tr>
<th>about, above, across, after, against, along, amidst, among, around, at, before, behind, below, beneath, beside(s), between, beyond, by, concerning, despite, down, during, except, for, from, in, into, inside, like, near, of, off, on, onto, opposite, outside, over, past, since, through, to, toward(s), under, underneath, until, up, upon, with, within, without</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 2.4:</strong> Some prepositions in English</td>
</tr>
</tbody>
</table>

2 **Grammatical Categories**

The main grammatical categories are Determiner, Auxiliary, Coordinator, and Complementizer. In structural terms, these will be D, T (for tense), and C. It is hard to define grammatical categories in terms of meaning because they have very little. Their function is to make the lexical categories fit together.
The determiner category includes the articles *a(n)* and *the*, as well as demonstratives, possessive pronouns, possessive nouns, some quantifiers, some interrogatives, and some numerals. So, determiner (or D) is an umbrella term for all of these. Determiners occur with a noun to specify which noun is meant or whose it is. If you are a native speaker, you know how to use the indefinite article *a* and the definite article *the*. For non-native speakers, figuring out their use is very difficult.

The indefinite article is often used when the noun that follows it is new in the text/conversation, such as the first mention of *a pitbull-cross dog* in (32) is. The second mention of *dog* is preceded by the definite article *the*.

(32) **A pitbull-cross dog** attacked two women at the entrance to a hospital's children's department after it managed to break loose from its owner's home. ... A witness, who did not want to be named, said *the dog* bit a middle-aged Indian woman as she was walking away from the Kidz First children's hospital. ([http://www.nzherald.co.nz](http://www.nzherald.co.nz), 2 May 2007)

Note some of the other instances of *the* and *a* follow this particular rule as well.

There are four demonstratives in English: *this, that, these, and those*, with the first two for singular nouns and the last two for plural ones. See (33a). Possessive pronouns include *my, your, his, her, its, our*, and *their*, as in (33b). Nouns can be possessives as well, but in that case they have an -'s (or ’) ending, as in (33c).

(33) a. **That** javelina loved **these** trails.
   b. **Their** kangaroo ate **my** food.
   c. **Gucci's** food was eaten by Coco.

In (33b), *their* and *my* specify whose kangaroo and whose food it was, and the possessive noun *Gucci's* in (33c) specifies whose food was eaten.
Determiners, as in (32) and (33), precede nouns just like adjectives but, whereas a
determiner points out which entity is meant (it specifies), an adjective describes the quality (it
modifies). When both a determiner and an adjective precede a noun, the determiner always
precedes the adjective, as in (34a), and not the other way round, as in (34b) (indicated by the
asterisk).

(34)  a. Their irritating dog ate my delicious food.
b. *Irritating their dog ate delicious my food.

Interrogatives such as whose in whose books, what in what problems, and which in
which computer are determiners. Quantifiers such as any, many, much, and all are usually
considered determiners, e.g. in much work, many people, and all research. Some are used
before other determiners, namely, all, both, and half, as in (35). These quantifiers are called
pre-determiners, and abbreviated Pre-D. Finally, quantifiers may be adjectival, as in the many
problems and in (36).

(35)  All the books; half that man's money; both those problems.
(36)  The challenges are many/few.

Numerals are sometimes determiners, as in two books, and sometimes more like adjectives, as
in my two books. Table 2.5 shows the determiners in the order in which they may appear. I
have added the category adjective to the table since some of the words that are clear
determiners can also be adjectives. The categories are not always a 100% clear-cut, and (37)
tries to shed some light on the difference.

(37)  **The Determiner-Adjective Rule**

A Determiner points to the noun it goes with and who it belongs to;
An Adjective gives background information about the noun.
In this book, and current generative grammar, the category of T stands for Tense and this category contains the finiteness, tense, and agreement information. T can be filled by auxiliaries, when it is finite, and the infinitival marker to, when it is non-finite. We’ll first look into finiteness and then at the kinds of auxiliaries English has.

The difference between finite and non-finite can be seen as follows. A complete sentence consists of a subject and a finite verb. A finite verb agrees with the subject (in the present tense) and indicates present or past. Its subject has nominative case, which can only be seen in the case of pronouns in Modern English, i.e. the subject pronoun of finite verbs must be nominative I, you, he, she, it, we and they, not accusative me, him, her, us or them (you and it are both nominative and accusative). Table 2.6 provides all personal and possessive pronouns in English.

<table>
<thead>
<tr>
<th>Nominative (subject)</th>
<th>1S</th>
<th>2S</th>
<th>3S</th>
<th>1P</th>
<th>2P</th>
<th>3P</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>you</td>
<td>he, she, it</td>
<td>we</td>
<td>you</td>
<td>they</td>
<td></td>
</tr>
<tr>
<td>Accusative (object)</td>
<td>me</td>
<td>you</td>
<td>him, her, it</td>
<td>us</td>
<td>you</td>
<td>them</td>
</tr>
<tr>
<td>Genitive (possessive)</td>
<td>my</td>
<td>your(s)</td>
<td>his, her(s), its</td>
<td>our(s)</td>
<td>your(s)</td>
<td>their(s)</td>
</tr>
</tbody>
</table>

Table 2.6: The case of personal and possessive pronouns

Finite sentences have a verb group with one finite verb as its first (or only) member. In (38), *have* is the finite verb that makes the entire sentence finite.

(38) I *[have been going]* there frequently.  (finite *have*)
Have is finite because it shows subject agreement (have rather than has, as in (39)), indicates present tense (have rather than had, as in (30)), and has a nominative subject (I rather than me, as in the ungrammatical (41)).

(39) He has been going there frequently.
(40) He had been going there frequently.
(41) *Me have been going there frequently.

Note that in some varieties of English, sentences such as (41) are grammatical.

Modals, as in (42), are finite even though (for historical reasons) they never display subject-verb agreement.

(42) I might have done that.

Only finite sentences are complete sentences. Most of us, however, use fragments in informal speech, in poetry, e.g. John Keats in the excerpt in (43), or even in formal writing.

(43) *Ode on a Grecian Urn
Thou still unravish'd bride of quietness!
Thou foster-child of silence and slow time,
...
What mad pursuit? What struggle to escape?
What pipes and timbrels? What wild ecstasy?

Nevertheless, incomplete sentences are generally frowned upon in formal writing. Sentence (44) below is not a complete sentence but is a sentence fragment. How can it be fixed?

(44) Mentioning finite sentences yesterday.
Sentence (55) can become a full sentence by adding a subject and a finite verb as in (45).

(45)  **I was** mentioning finite sentences yesterday.

As will be shown in a later chapter, non-finite sentences can only be part of other sentences. It is always a good idea to count the number of lexical verbs. For instance, how many lexical verbs are there in (46)?

(46)  I have heard her sing too often.

In (46), there are two lexical verbs, *heard* and *sing*, but only the first Verb Group is finite since *have* is finite (e.g. the subject of *have* is nominative *I*). The Verb Group that *sing* is the sole member of is non-finite since its subject is accusative *her*.

Other sentences that include a non-finite verb are (47) and (48), with the non-finite verbs in bold. Note that the infinitive marker *to* is part of the verbal group.

(47)  **Seeing** the ordinary as extraordinary is something we all like to do.
(48)  She forgot **to google** them.

In (47), *seeing, is, like, and do* are lexical verbs, but only *is* and *like* are finite. In (48), *forgot* and *google* are the lexical verbs, but only *forgot* is finite.

A sentence can contain many groups of verbs, a (potentially) indefinite number if the speaker had enough energy and could continue, as in (49).

(49)  I noticed that she mentioned that he was saying that she should tell him ...

Imperatives are used to order someone to do something. They often lack a subject, as in (50), but this need not be the case, as (51) shows. Imperatives are complete sentences and not sentence fragments.
Draw the trees for these sentences.
You, draw trees for this.

As its name implies, the auxiliary verb functions to help another verb, but does not itself contribute greatly to the meaning of the sentence. Verbs such as *have*, *be*, and *do* can be full verbs, as in (52), or auxiliaries, as in (53). In (52), *have* has a meaning ‘to possess’ and occurs without any other lexical verb. In (53), on the other hand, *have* does not mean ‘possess’ or ‘hold’, but contributes to the grammatical meaning of the sentence, namely past tense with present relevance. The same is true for *be* in (54); it contributes to the grammatical meaning emphasizing the continuous nature of the event.

I *have* a book in my hand.
I *have* worked here for 15 years.
That reindeer may *be* working too hard.

Because auxiliaries help other verbs (except when they are main verbs as in (38)), they cannot occur on their own. Thus, (55) is ungrammatical.

*I must a book.*

The characteristics of auxiliaries in English are summarized in Table 2.7 and a list of some of them appears in Table 2.8.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>They must be used with a lexical verb (unless the verb is elided)</td>
</tr>
<tr>
<td>b.</td>
<td>They have little meaning; rather, they express tense, mood, and aspect</td>
</tr>
<tr>
<td>c.</td>
<td>They invert in questions, as in (3)</td>
</tr>
<tr>
<td>d.</td>
<td>They occur before <em>n’t</em>, as in (4)</td>
</tr>
<tr>
<td>e.</td>
<td>They are used in tags, as in (5)</td>
</tr>
<tr>
<td>f.</td>
<td>They are used for emphasis, as in (6)</td>
</tr>
</tbody>
</table>

Table 2.7: Characteristics of auxiliary verbs
Coordinators are relatively simple and join similar categories or phrases. Complementizers introduce subordinate clauses and look remarkably similar to prepositions and adverbs. We abbreviate both as C.

Coordinators such as and and or join two elements of the same kind, e.g. the nouns in (56).

(56) Rigobertha and Pablo went to Madrid or Barcelona.

They are also sometimes called coordinating conjunctions, as in Figure 2.1, but in this book, we'll use coordinator. There are also two-part coordinators such as both ... and, either ... or, and neither ... nor.

Complementizers such as that, because, whether, if, and since join two clauses where one clause is subordinate to the other, as in (57). The subordinate clause is indicated by means of brackets.

Table 2.8: Auxiliaries in English
Rigobertha and Pablo left [because Isabella was about to arrive].

They are also called subordinating conjunctions or subordinators. We will use complementizer. Like prepositions, coordinators and complementizers are invariable in English (i.e. never have an ending), but complementizers introduce a new clause whereas prepositions are connected to a noun. Some examples of complementizers and some of their other functions (if they have them) are provided in Table 2.9.

<table>
<thead>
<tr>
<th>C</th>
<th>example of C use</th>
<th>other use</th>
<th>example of other use</th>
</tr>
</thead>
<tbody>
<tr>
<td>after</td>
<td><em>After</em> she left, it rained.</td>
<td>preposition</td>
<td><em>after</em> him</td>
</tr>
<tr>
<td>as</td>
<td><em>Fair as</em> the moon is, it…</td>
<td>degree adverb</td>
<td><em>as</em> nice</td>
</tr>
<tr>
<td>because</td>
<td><em>(43)</em> it snowed, it rained.</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>before</td>
<td><em>Before</em> it snowed, it rained.</td>
<td>preposition</td>
<td><em>before</em> me</td>
</tr>
<tr>
<td>for</td>
<td>I expect <em>for</em> you to do that.</td>
<td>preposition</td>
<td><em>for</em> Santa</td>
</tr>
<tr>
<td>if</td>
<td><em>If</em> she wins, that will be great</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>so</td>
<td>He was tired, <em>so he</em> went to sleep</td>
<td>adverb</td>
<td><em>so</em> tired</td>
</tr>
<tr>
<td>that</td>
<td><em>I know</em> that the earth is round.</td>
<td>D</td>
<td><em>that</em> book</td>
</tr>
<tr>
<td>when</td>
<td>I wonder <em>when</em> it will happen.</td>
<td>adverb</td>
<td>He left <em>when</em>?</td>
</tr>
<tr>
<td>while</td>
<td><em>She played soccer,</em> <em>while</em> he slept</td>
<td>noun</td>
<td>A short <em>while</em></td>
</tr>
</tbody>
</table>

Table 2.9: A few complementizers

We can now formulate another rule, namely the one in (58).

(58) **The Preposition-Complementizer-Adverb Rule**

A Preposition introduces a noun (e.g. *about* the book);

a Complementizer introduces a sentence (e.g. *because* he left); and

an Adverb is on its own (e.g. *She went* out; and *Unfortunately,* *she* left).

These categories are often ambiguous in Modern English because prepositions and adverbs can change to complementizers.
Pronouns

Pronouns are a hybrid category since they do not carry much lexical meaning but they can function on their own, unlike articles and complementizers, which need something to follow them. This makes them hard to classify as lexical or grammatical categories.

Personal pronouns, such as I, me, she, he and it, and reflexive pronouns, such as myself, yourself, and herself, are seen as grammatical categories by many (myself included). The reason is that they don't mean very much: they are used to refer to phrases already mentioned. However, personal and reflexive pronouns are similar to nouns, since they function as Noun Phrases as Subjects and Objects. Thus, a determiner such as the cannot stand on its own, but she, as in (59), can.

(59) She knows that she's a con artist (COCA 2012 ABC)

Personal pronouns can be divided according to number into singular and plural and according to person into first, second, and third person. For example, I and me are first person singular, and we and us are first person plural. The second person pronoun you is used both as singular and as plural. Third person singular pronouns he/him, she/her, and it are further divided according to gender; the third person plural pronouns are they and them.

Some pronouns look like the determiners we saw in the previous section. Almost all determiners, except the articles, can stand on their own, e.g. demonstratives, such as that in that is a problem. Thus, they are very much like pronouns but they can in principle have a noun following.

Apart from personal and reflexive pronouns, there are some possessive pronouns that occur on their own, and are therefore not determiners. Examples are mine, yours, his, hers, ours, and theirs, as in (60a). These pronouns appear when the noun they specify has been left unspecified. Thus, (60a) could be rewritten as (60b), with mine replaced by my mess.

(60) a. That mess is not mine, but it is yours.
   b. That mess is not my mess, but it is your mess.
The result is awkward, however, and I will suggest that *mine* and *yours* are really independent pronouns, not determiners with the noun left out.

The other determiners, namely interrogatives, quantifiers, and numerals can occur independently too, as in (61). It will be up to you as the reader to decide whether these are independent pronouns or are really determiners preceding nouns that have been left out.

(61) **What** would be solved if **all** chose **two**?

Indefinite pronouns, such as *anyone*, *anybody*, *everyone*, *someone*, *something*, and *nothing*, occur frequently and are in many ways similar to personal pronouns. There are many other indefinites that are similar to adverbs, e.g. *anywhere*, *nowhere*, *sometime*, and *somewhere*, or to degree adverbs, e.g. *somewhat*. They are pro-forms and can stand in for an adverb.

Concluding, this book will label something a determiner if it can have a noun following it but a pronoun if it can’t. In a tree, I’ll use D for determiner and DP for pronoun (though some people use D for both).

4 **Conclusion**

This chapter reviews how to distinguish the basic building blocks of English that we’ll use to build phrases in the next chapter. We’ve seen a lot of ambiguity among lexical categories. For instance, nouns can often be verbs because English has lost many of the endings that earlier made nouns and verbs distinguishable. Rules such as (58), repeated here as (62), are needed because grammatical categories are also often polysemous. I have added the description for determiner from (37).

(62) **The Grammatical Categories Rule**

A Preposition introduces a noun;

a Complementizer introduces a sentence;
an Adverb is on its own; and
a Determiner points to the noun it goes with and who it belongs to.

Take *that*. It can be a complementizer and a determiner and a (demonstrative) pronoun. The complementizer *for* can also be a preposition and the complementizer *before* can be a preposition, an adverb, and a noun (according to the OED).

At the end of this chapter you should be able to label the categories of the words in any text and provide reasons for your answers.

Keywords
Lexical and grammatical categories (N, V, A, P, D, T, C), finiteness, case, agreement, types of auxiliaries, pronouns.

Exercises
A   Look at the below text and identify the lexical verbs and prepositions.

B   Do the same for the C-elements and adverbs.
Text (from the East Valley Tribune, 5 November 2015)
Mayor Mark Mitchell and the Tempe City Council recently approved a 20-year agreement with SolarCity that will put Tempe on the map as an energy efficient city. Mitchell and the council hope the approval will advance the city’s plan to provide 20 percent of energy through renewable sources by 2025. “We just recently installed solar panels on the fire and courts building and we are just now breaking ground on the Library Complex Solar Project, which will provide about 35 percent of energy to the complex,” said Tempe Public Information Officer Melissa Quillard.

C   Which verbs in the text are finite?
D. Select a text in a language other than English (100 words) and provide word-by-word glosses. Then identify the determiners and prepositions (or postpositions).
Chapter 3
Structure: phrases

Sentences can be divided into groups of words that belong together. The group of words is called a phrase. If the most important part of the phrase, i.e. the head, is an adjective, the phrase is an Adjective Phrase; if the most important part of the phrase is a noun, the phrase is a Noun Phrase, and so on. A structural representation of a sentence expresses which words go together and what modifies what; it renders the sentence clearer and less ambiguous. One could indicate structures by putting brackets around phrases, but that gets confusing when the sentence is complex. Instead, we use `trees' because they are more transparent.

The main goal of this chapter is to explain how the words we have seen in chapter 2 can combine into phrases and build trees. A second aim is to look at how structural hierarchies determine certain linguistic phenomena. Finally, phrases serve functions in a sentence that can be read off the tree.

The outline is as follows. In section 1, we look at basic phrases, first for those where the head is a lexical category and then for those where the head is a functional category. The section ends with testing phrases and a way of looking at the structure of phrases that is known as X-bar Theory. Having seen how to construct a tree for a basic sentence in section 1, we turn to movement of phrases in section 2. The hierarchy of trees can explain a number of phenomena, e.g. which nouns can serve as antecedents and when negative polarity items can be used. This is discussed in section 3. Section 4 discusses a point from traditional grammar, namely that phrases have functions in the sentence. Section 5 is a conclusion.

1 Phrases
In this section, I show that the categories from chapter 2 can be used to build phrases and sentences. In 1.1, we consider the lexical categories and in 1.2 the grammatical ones. In 1.3, we test structure and constituents, and we look at a way to account for the uniformity of the phrases through X’. The latter was until recently seen as part of UG but, with the recent change towards having less in UG, this is no longer the case.
1.1 The Phrase (for lexical categories)

A Noun Phrase (NP) such as *the nice unicorn* is built around a noun, namely, *unicorn*. This noun (N) is called the head of the NP. We can find the head in a simple way by thinking how we’d shorten the phrase and still keep the essential part, as in a telegram. For instance, we might shorten (1) to (2).

\[(1) \quad \text{[The nice unicorns from that planet] are visiting us regularly.}\]
\[(2) \quad \text{Unicorns visit regularly.}\]

In addition to the head, NPs can contain determiners (e.g. *the*) and adjectives (*nice*). A tree structure for a simple NP is given in (3). The lines, called 'branches', indicate how the phrase is divided up, and branches come together in 'nodes'.

\[(3) \quad \text{NP}\]
\[\quad \text{D Adj N}\]
\[\quad \text{the nice unicorn}\]

A different structure for (3) looks like (4).

\[(4) \quad \text{NP}\]
\[\quad \text{D N'}\]
\[\quad \text{the}\]
\[\quad \text{Adj N}\]
\[\quad \text{nice unicorn}\]
A structure such as (4) expresses the relationships more accurately than (3). In (3), it is unclear whether the is more closely connected to the adjective or the noun, but from (4), it is clear that the specifies nice unicorn. A structure as in (3) with more than two branches is a flat structure since the hierarchies are not clear.

There are a number of things to note. First, the top node of (4), i.e. where the branches come together, is an NP because the head of the phrase is an N. Shortening the NP would tell us that. Secondly, the node in between the NP and N is called N' (pronounced N-bar). It is an intermediate node. Third, note that nice in (4) is itself the head of an Adjective Phrase and we could indicate that as in (5).

(5)

```
NP
  /   \
D     N'
the
  \   /  \N
 |         \AdjP
|      unicorn
|      Adj
  \   nice
```

One way to go about constructing this tree is (a) to find the head unicorn, (b) to label the entire phrase as NP, and (c) to draw branches from the NP down to D on the left and, if there is more than one word left, to N' on the right. The N' functions as placeholder until you can put the N down.

On occasion, it may be hard to find the head of an NP, or to identify the entire NP. For instance, the initial group of words in (6), adapted from one of Dr. Seuss’ books, is centered around the noun wocket.

(6) [The pleasant wocket in my pocket that I adore] loves cranberry chutney.
Wocket is the head because if you had to shorten the sentence, you might say the wocket loves chutney. Thus, pleasant and in my pocket and that I adore add additional information. Another way to shorten the sentence is to use a pronoun, as in (7). This is called pronominalization. If the group of words in the pleasant wocket in my pocket that I adore can be replaced by one pronoun, it has to be a phrase.

(7) It loves cranberry chutney.

You can also find the entire phrase by examining which parts say something about the head, i.e. modify it. For instance, in (6), both pleasant and in my pocket have no other function in the sentence than to modify the head wocket.

An important function of the head is to determine the agreement with the verb. I have adapted (1) as (8) with brackets indicating that the head of the subject NP is unicorns. The singular and plural number underneath the nouns and verb show that the head of the NP, unicorns, agrees with the auxiliary verb are in (plural) number, not the closer noun planet:

(8) [The nice [unicorns] from that planet] are visiting us regularly.

We could represent (6) as (9), where I have left the that I adore out for simplicity.

(9) NP
   
   D Adj N P D N ...
   the pleasant wocket in my pocket
This structure indicates that the NP is composed of six words, but it does not say whether \textit{in} is more connected to \textit{my pocket} or to \textit{wocket}. This is again a flat structure since we don't see what goes with what. It is even worse than (3). Therefore, we will avoid this kind of tree. See Figure 3.1 as to why we need to keep track.

![Vegetarian Chickens](http://blondie.com/comics/november-5-2002)

As we'll see in section 1.2, the D is the real head of the phrase that includes the NP, which I have shown in (10ab). These also provide clear, hierarchical structures for the sentence. The N' levels are needed because the NP contains more than two parts.

(10) 

\begin{align*}
\text{(a) } & \text{DP} \\
& \quad \text{DP} \\
& \quad \text{D} \quad \text{NP} \\
& \quad \text{The} \\
& \quad \text{AdjP} \quad \text{N'} \\
& \quad \text{Adj} \\
& \quad \text{pleasant} \quad \text{N} \\
& \quad \text{wocket} \\
& \quad \text{PP} \\
& \quad \text{P} \\
& \quad \text{in} \\
& \quad \text{DP} \\
& \quad \text{pleasant} \\
& \quad \text{D} \quad \text{N} \\
& \quad \text{my pocket} \\
\text{(b) } & \text{DP} \\
& \quad \text{DP} \\
& \quad \text{D} \quad \text{NP} \\
& \quad \text{The} \\
& \quad \text{AdjP} \quad \text{N'} \\
& \quad \text{Adj} \\
& \quad \text{wocket} \\
& \quad \text{PP} \\
& \quad \text{P} \\
& \quad \text{in} \\
& \quad \text{DP} \\
& \quad \text{pleasant} \\
& \quad \text{D} \quad \text{N} \\
& \quad \text{my pocket}
\end{align*}
In (10a), *in my pocket* goes together with *wocket*. In a structure, this close connection is expressed by having the line, i.e. 'branch', that goes upwards connect to the same point, i.e. 'node'. This means they are 'sisters' in the structure. In (10b), *pleasant* and *wocket* are put closer together, i.e. are sisters. Both structures are possible. The meaning difference between (10a) and (10b) is minimal, but this is not always the case as sentences such as (20) and (22) below show. Note again that *pleasant* is itself the head of a phrase and that I indicate that by means of and Adj head inside an AdjP. The ultimate tree is not as important as understanding why you represent a tree in a particular way, as I have just tried to do for (10).

Pronouns and names such as *Jennifer, Edward, Malacandra* cannot have other elements modify/specific them and therefore we will see them as full phrases, as in (11ab). They are not lexical because they refer to nouns but do not have semantic features themselves. That’s why they are DPs and not NPs.

(11) a. DP      b. DP
       |         |
       she    Edward

Under very special circumstances, proper names can be modified, as when there are many persons called *Edward* and you want to make sure it is *the nice Edward*. This is not common with names, and it is very uncommon with pronouns in English.

Some heads are trickier to identify than others. For instance, in *one of those pages*, the head is *one*, and in *a piece of paper, piece* is the head. Frequently, a relative clause, such as *who wore that ugly hat* in (12) is part of another phrase, as shown by brackets, modifying the head *person*.

(12) [The person [who wore that ugly hat]] is the queen.
Structures such as (10) are called trees. As mentioned, the lines connecting parts of the trees are called branches, and the points where the branches come together are called nodes. The nodes are usually labelled, e.g. N, N', or NP. Remember that N' is an intermediate node between the top NP and the N. Such intermediate nodes allow one to indicate which elements are grouped together and thus make trees less flat. They are placeholders for a group of words that go together.

AdjPs are built around adjectives, which indicate properties of nouns; AdvPs are built around adverbs which indicate qualities of verbs, adverbs, and adjectives. Since adjectives and adverbs have this qualifying function, they themselves are (optionally) accompanied by a degree marker such as very, too, extremely, really. The latter are adverbs of a special kind: they always modify another adverb or adjective and never modify a verb. They are comparable to the determiner in the NP, and more like grammatical than lexical categories. They do not expand into an AdvP of their own since degree markers such as extremely very do not occur.

An example of an AdjP is given in (13a) and of an AdvP in (13b). The (D)Adv indicates a degree adverb but, from now on, just Adv will be used.

(13) a. AdjP
    \[ \begin{array}{c}
        (D)Adv \\
        \text{so}
    \end{array} \begin{array}{c}
        \text{Adj}
        \text{nice}
    \end{array} \]

b. AdvP
    \[ \begin{array}{c}
        (D)Adv \\
        \text{very}
    \end{array} \begin{array}{c}
        \text{Adv}
        \text{quickly}
    \end{array} \]

In (13a), the head of the AdjP is the adjective nice, and this head is modified by a degree adverb so; in (13b), the adverb quickly expands into a phrase and is modified by the degree adverb very that does not form a phrase of its own. That's why I choose not to make very the head of an AdvP.

An AdjP can be pronominalized, as in (14), but pronominalizing an AdvP, as in (15), sounds slightly awkward.

(14) I was happy and so was she.
He behaved nicely, and she behaved so/thus.

A VP is built around a verb, which can indicate an action, as in (16a), a state, as in (16b), or a sensation, as in (16c). Verbs can be in the present or past tense (they are past in (16abc)). Some VPs include other obligatory material, i.e. words or phrases that cannot easily be left out, such as the NP in (16a), the PP in (16b), and the AdjP in (16c). These obligatory parts are called complements.

(16)  

\[
\begin{align*}
\text{a. VP} & \quad \text{b. VP} & \quad \text{c. VP} \\
V & \quad \text{DP} & \quad V & \quad \text{PP} & \quad V & \quad \text{AdjP} \\
\text{wrote} & \quad \text{NP} & \quad \text{was} & \quad \text{PP} & \quad \text{was} & \quad \text{Adj} \\
\text{the letter} & \quad \text{in} & \quad \text{very quiet} & \quad \text{NP} & \quad \text{the garden}
\end{align*}
\]

The VP can also include optional material that explains when, where, why, and how the action or state that the verb describes took place. These optional elements function as adverbials.

As in the case of the NP, a VP can be pronominalized. An example is given in (17), where the (bolded) VP washed the dishes is replaced by do so. Some linguists call these pro-VPs or pro-forms, since they do not stand for nouns. It is up to you whether you call them pronoun or pro-form.

(17)  

Gijsbert washed the dishes and Mariken did so as well.

A PP is built around a preposition. As mentioned in the previous section, prepositions indicate relations in space and time. PPs include a P, an NP, and a DP, as in (18).
PPs can be replaced (pronominalized) by the adverbs *then, when, how, there*, etc.

Up to now, we have looked at the names of categories and phrases, e.g. N and NP. Depending on where phrases are situated in the tree, they play a particular function, such as subject and object. Functions will not be put in the tree structure because it should be clear from the tree what they are.

With respect to PPs, it is not always easy to determine what role they play and their function in a sentence is manifold. For instance, in the ambiguous (19), an often used sentence in linguistic circles, does the PP function inside the NP, or are the NP and PP independent of one another?

(19) She saw the hobbit with glasses.

The answer to both questions can be 'yes' because the sentence is ambiguous. In the one case, the PP *with glasses* modifies the *hobbit* and functions inside the DP *the hobbit with glasses*; in the other case, the PP is independent of the N since it modifies the VP and specifies how the seeing was done. The structure for the former reading is as in (20a) and for the latter reading as in (20b).
Thus, a particular tree structure disambiguates the sentence. In (17a), the PP with glasses is right next to the N hobbit (i.e. PP is sister to N) and therefore modifies hobbit; in (17b), the same PP is right next to the V' saw the hobbit (i.e. PP is sister to V') and hence says something on how the seeing of the man is done. For now, don't worry about (17b) too much. You may have noticed the use of V' (pronounced V-bar) in (17b). A V' (like the N' in an NP) is an intermediate category in the VP. In (17b), we need to group the V and NP together so we need a label for that and we use a `small VP' or placeholder until we can put down a branch for the V.

1.2 Phrases of Functional/Grammatical Categories
In the previous section, it has been shown how lexical categories, such as N, project to a phrase. In the late 1980s, grammatical categories, such as D(eterminer), C(omplementizer), and T(ense) also came to head phrases. So, a C such as that is the head of the CP, a D such as the is the head of the DP, which we have already seen in the previous section, and an AUX such as have is the head of the TP. As in the case of lexical categories, there are intermediate categories, such as C', D', and T'. The C and T form the spine of the basic sentence, which looks like (21) where I have also added DPs.
(21) TP
   She T'
   T VP
   will V DP
   want D NP
   some N
   icecream

Sentences can be part of other sentences, i.e. embedded in other sentences, as in (22).

(22) TP
   They T'
   T VP
   had V CP
   believed C TP
   that C
   she T'
   T VP
   would
   go to Mars
Other trees where the embedded clause functions as subject or adverbial are given in (23) and (24).

(23)
As you see, the trees can be explicit in labeling every word (it as DP in (24)), or not (she in (24)). It all depends what you want to express in the tree. If pronouns are important, label them carefully but, if not, you might want to focus on the bigger picture.

C links the TP to another sentence or indicates that the sentence is a question, as we'll see later in this chapter and in chapter 6. T indicates whether or not the sentence is finite and whether it is past or present tense. It contains modal verbs, the `dummy do, and infinitival to in English. If none of these elements occur, I will place the tense features in T.

1.3 Testing and X'

A phrase is a group of words forming a unit and is united around a head, e.g. a noun or a verb. Since phrases are syntactic units, a number of rules apply to them. We discuss that now after which we’ll look at some similarities between phrases.

Five rules are listed in Table 3.1. Let’s apply them to some phrases in (25).
(25) She ran to the store.

For instance, if I have a hunch that to the store is a phrase, I can pronominalize to the store as there, coordinate it, delete it, replace it, and move it, as shown in the Table. The same is true for the VP.

<table>
<thead>
<tr>
<th>PP</th>
<th>VP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. it can be pronominalized:</td>
<td>She ran [there]</td>
</tr>
<tr>
<td>b. it can be coordinated with</td>
<td>She [ran to the store] and [yelled]</td>
</tr>
<tr>
<td>a phrase of the same kind:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[to the library];</td>
</tr>
<tr>
<td>c. it can be deleted:</td>
<td>She ran [...];</td>
</tr>
<tr>
<td></td>
<td>She wants to [...];</td>
</tr>
<tr>
<td>d. Replaceable by a wh-element:</td>
<td>[Where] did she run?</td>
</tr>
<tr>
<td></td>
<td>not applicable</td>
</tr>
<tr>
<td>e. it can be moved:</td>
<td>[To the store] she ran.</td>
</tr>
<tr>
<td></td>
<td>[Run to the store] she did</td>
</tr>
</tbody>
</table>

Table 3.1: Finding a phrase

The five criteria in Table 3.1 confirm that to the store in (25) is a phrase and four confirm that the VP is. All phrases can be pronominalized and coordinated. However, not all phrases can be deleted or replaced by a wh-element. The initial NP is very important, and in English, sentences are ungrammatical without it. Thus, changing (25) into (26) produces an ungrammatical sentence.

(26) *Ran to the store.

As mentioned phrases have heads, both lexical and grammatical heads. Most heads have complements, e.g. a verb has an object in (20) and (21) above, and so do a noun and adjective. The same is true with T and C. C has TP as complement and T has VP. As mentioned above, adverbials can be added, as in (24), but they are optional.

If we consider the TP, we notice another position, namely the one that the subject is in. This position is called the Specifier position, and is present with the CP as well, as we'll see in the next section. It is also present with the other phrases but we won't go into that here.
the Specifier added, the structure of a phrase is a head, a complement, a specifier, and optionally an adverbial (also called adjunct or modifier), as in (27).

(27)  
```
TP
    /
   /
She T'
    /
AdvP T'
    /
probably T VP
    /
has done so
```

The fact that structures look very similar is sometimes explained by resorting to X-bar structure, and generalized as (28), where X can be replaced by N, V, C, T, etc.

(28)  
```
XP
    /
   /
X'
    /
adverbial X'
    /
specifier X'
    /
X YP
```

In this section, we have identified groups of words that go together as phrases. Each of the categories we have seen in chapter 2 can project to a phrase and their internal organization is fairly uniform.
2 Movement

With the trees in section 1, we can build a basic sentence structure. However, to ask a question or to focus something, movement occurs rearranging the basic structure. (These were the transformations in the early generative model of the 1950s and 1960s). Movement is highly constrained: only phrases move to other phrase positions, heads move to other head positions, and movement can't be too far. These restrictions used to be seen as due to UG but are now seen as general cognitive strategies.

2.1 Yes/No Questions

In yes/no questions, the only appropriate answer is Yes or No (or perhaps/maybe). To make a question, e.g. of (29), the auxiliary is fronted, as in (30).

(29) She has gone.
(30) Has she gone?

If there is no auxiliary present, a dummy do is used, as in (31).

(31) Did you see Santa?

A structure for yes/no questions is given in (32), where the auxiliary moves to C (indicated by the struck-through copy that is left in T).

(32) CP
   /   
  C     TP
   /     
Can   
   /   
  NP     T'
   /     
  she   
   /   
  T     VP
     / 
    ean  go
One piece of evidence for this movement to C is that when the complementizer is filled, as in subordinate clauses such as (33), this movement is not possible.

(33) *I wondered whether can she go.

2.2 Wh-questions

The characteristics of a wh-clause that is a main clause are that it starts with a wh-word (who, what, why, when, where, how) and that the auxiliary is in second position. There is also a copy left in the original position. Examples are given in (34) to (36).

(34) Who will you see who?
(35) How heavy is that package how heavy?
(36) How much wood would a wood chuck chuck how much wood, if a wood chuck could chuck wood?

A structure for (34) is given in (37).
Evidence for the copy is that, with special intonation, movement is not necessary. Thus, (38) is possible with special emphasis on *what*.

(38) You saw *what*?

Questions such as (38) are called `echo-questions'.

3 Hierarchical structural and c-command

In this section, I first provide some evidence that syntax is hierarchically ordered and then provide a definition of structural hierarchy that is necessary in a number of cases.

The evidence that the hierarchical, structural representations that we have suggested in the first section are the right ones comes from question-formation, reflexives, and negative polarity items, to name a few. To form a yes/no question in English, as we have just seen, we need to take an auxiliary and move it to C. This auxiliary can’t be just any auxiliary, as (39) shows, a sentence slightly adapted from one used by Chomsky.

(39) a. Can eagles that have flown so far __ still swim?
    b. *Have eagles that __ flown so far can still swim?

(39) consists of two clauses but only the auxiliary that goes with the main clause can be moved to C. It has to be the structurally dominant one, as the tree in (40) shows.
Another case where structure is relevant is reflexives (and pronouns). As was shown in chapter 1, repeated here as (41), reflexives do not select the closest antecedent. Another example like that appears in (42).

(41) The husband of Hillary voted for himself.
(42) John seemed to Mary to have perjured himself.

If we draw the trees for these sentences, the higher DP (in bold) wins. The precise definition will be given below.
Negative polarity items are words or phrases that need a negative or irrealis environment, such as *ever in (44) and *any in (45). These need to have the negative or question word in a relatively high position too, as the ungrammaticality of (46) shows, with the tree as in (47).

(44)  a. I won’t ever do that.
     b. *I will ever do that.
(45)  a. Does he have any idea?
     b. *He has any idea.
(46)  *The people who can’t find a job will ever get benefits.
In order to account for the precise relationships in (43) and (47), we need a definition of c-command, as in (48).

(48) A node $a$ c-commands a node $b$ if every branching node dominating $a$ also dominates $b$, and neither $a$ nor $b$ dominates the other.

In (43), the DP *Hillary* is not c-commanding *himself* but the DP *the husband of Hillary* is and that determines the reference of the reflexive. In (44a), *ever* is c-commanded by the negative but in (44b), it is not.

In short, language is organized using hierarchical structures, as shown in three different constructions.

4 Functions

This section will discuss the functions of the phrases. There are four main functions that can be assigned to constituents or phrases: subjects, objects, predicates, and adverbials.
Subjects can be distinguished by means of three tests, as shown in Table 3.1. They are well-known so examples are not given.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Inversion with the AUX in Yes/No questions</td>
</tr>
<tr>
<td></td>
<td>The pig from Malacandra will want to eat soon</td>
</tr>
<tr>
<td></td>
<td>Will the pig from Malacandra want to eat soon?</td>
</tr>
<tr>
<td>b.</td>
<td>Agreement with the Verb/AUX</td>
</tr>
<tr>
<td></td>
<td>The pfittrigg is nice</td>
</tr>
<tr>
<td></td>
<td>The pfittriggs are nice.</td>
</tr>
<tr>
<td>c.</td>
<td>Tag questions</td>
</tr>
<tr>
<td></td>
<td>The hross is nice, isn't he?</td>
</tr>
</tbody>
</table>

Table 3.1: Subject tests (subject is in italics; verb is in bold)

Object is a cover term for a number of functions: direct object, as in (49), indirect object, as in (50), or prepositional object, as in (51).

(49) I saw [the man with the red hat] in the garden.
(50) I gave [the man with the green hat] some flowers.
(51) I referred [to that article].

Objects can be passivized, as in (52), and indirect objects can have to or for precede them, as in (53).

(52) a. The man was seen (by me) in the garden. Direct object
    b. The man was given some flowers (by me). Indirect object
    c. The article was referred to (by me). Prepositional object
(53) I gave some flowers to the man.

Predicates say something about subjects, and contain the element (verb) that determines how many objects and other material the sentence will have. The VP will always be the predicate but APs, PPs, and DPs can also be subject or object predicates, depending on what they modify. A subject predicate appears in (54) and an object predicate in (55).
(54) I am [a student with a lot of work].
(55) I found the students [hard-working].

**Adverbials (or adjuncts or modifiers)** are optional and tell you about when, where, how and why the action took place. Examples can be found in (56).

(56) He talked to his conscience [condescendingly][for an hour][while driving home][because it had been a nuisance all day].

They also occur inside phrases and are then typically referred to as modifiers, as in (57).

(57) The energetic, motivated students from Antarctica.

Functions can be read off the tree, e.g. the sister of the V is its complement. The adverbial (modifier) can be read off from the tree as well, it is the sister of a bar-level category, as in (58). Many people refer to these two types as complements and modifiers respectively.

(58)

```
         VP
           /\  
          /  \ 
         V'   PP
          |   /  \ 
         V   DP   P   DP
        /    |    /    |    |
   teach  Klingon  in  space
```

We can find out the difference between object/complement and adverbial/modifier by looking at who is whose 'sister'. For instance in (59) *of physics* is sister to N and is therefore the complement, whereas *from England* is sister to N' and therefore the modifier. There can only be one complement but many modifiers and the order between complement and modifier cannot be reversed as (60) shows.
The N and the complement and/or the modifier, i.e. the N', can be replaced by one, as (61) shows. The N can NOT be replaced by one, shown in (62).

(61)  I know the teacher of physics from England and the one from France.
(62)  *I know the teacher of physics from England and the one of chemistry.

Complements and modifiers can also precede the N as in (63). Again the complement is closer to the head N and the modifier is further away. Their order cannot be reversed as (64) shows and there can only be one complement but many modifiers.
5 Conclusion

The main topics in this chapter have been phrases, sentence structure, hierarchy, and functions. The categories from chapter 2 all project into phrases and these provide the building blocks of the sentence, which consists of a spine of a CP, TP, and VP. Structural hierarchy is important for many linguistic phenomena, e.g. how to construct questions, interpret reflexives, and use negative polarity items. We ended the chapter by discussing the functions. These are important for determining subject verb agreement and word order.

There are many other issues that come into play, some of which we have considered already. For instance, what is the role of the lexicon and how do native speakers in fact construct a sentence? In chapter 1, we saw a model for a derivation, repeated as Figure 3.2. Let’s look back at that and reflect on how that relates to our sentences, e.g. (34).

Select items from Lexicon
Merge them together
Agree and Move

Figure 3.2: Simplified derivation
To form the tree for (34), we start with a selection from the lexicon: \{\text{who, see, you, T, C, will}\}. The T and C will have specific features for finiteness and tense which we’ll ignore here. After taking elements from the lexicon, they ‘merge’ into phrases such as (65).

(65) a. VP > b. TP > c. CP

\[
\begin{array}{c}
\text{DP} & \text{V'} & \text{DP} & \text{T'} & \text{who} & \text{C'} \\
\text{you} & \text{you} & \\
\text{V} & \text{DP} & \text{T} & \text{VP} & \text{C} & \text{TP} \\
\text{see} & \text{who} & \text{will} & \triangle & \text{will} & \triangle \\
\text{you see who} & \text{...} \\
\end{array}
\]

After (65a), the T is added, as in (65b), and because the T in English has certain features, a DP needs to be in its specifier position and \text{you} is moved there. Finally the C is merged with certain features that attract the \text{wh}-pronoun to the specifier of the CP, as in (65c). Thus, the tree is built from bottom to top in the syntax. After this, it is transferred to the interfaces and is pronounced (or signed or typed) and interpreted. That process proceeds from left to right, i.e. from top to bottom.

At the end of this chapter, you should be able to draw trees for simple phrases and sentences, find hierarchical relationships between phrases, and be able to assign functions to the phrases.

**Keywords**

Phrases headed by lexical and grammatical categories (NP, VP, AP, PP and DP, TP, CP), X-bar theory, structural hierarchy, c-command, negative polarity, reflexive, functions of phrases (subject, object, predicate, adverbial)
Exercises

A What is the name of the bracketed constituent in (1)? Why is it a constituent (2 reasons)?

(1) They so love to [visit the elephants in Kashmir].

B Groucho Marx uses structural ambiguity a lot, as in (2) below. Explain in words how the PP in my pajamas in (2) is ambiguous, in at least two ways.

(2) I once shot an elephant in my pajamas. How he got in my pajamas I'll never know.

C Which of your meanings of (2) goes with which tree in (3)?

(3) a. VP b. VP
   V DP V' PP
   shot D NP V DP P DP
   an shot in
   N PP D NP/N D NP/N
   elephant an elephant my pajamas
   P DP
   in
   D NP/N
   my pajamas

D Draw trees for (4) and (5).

(4) Canadian students of English ...

(5) Where did the English student live?

E Does not c-command any in (6)? Draw a tree.
In the below texts, circle the adverbials and underline the objects, i.e. look at the verbs.

**Easier**

Arizona continues to have a sunny outlook on water security during the prolonged Southwestern drought. This attitude is accurately contradictory. The state is building a sprawling Sun Belt metropolis right now but there’s also an urgency about keeping millions of newcomers well-supplied decades into the future. (from http://www.azcentral.com/story/news/arizona/investigations/2015/12/19/beyond-the-drought-how-does-arizona-grow-from-here/76104258/)

**More difficult**

The office setting may be a familiar one, but navigating its complex politics can be fraught. Some find their way by forging machiavellian alliances, others try candy to get in the good books but making the tea might represent the best path to making office life bearable. It can be tricky, but here’s a five-point plan to earn the respect of your colleagues and ensure your bibitory work is fully appreciated. (from http://www.theguardian.com/lifeandstyle/2015/dec/08/tea-time-at-work-office-tips)