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FILE 5.3

Syntactic Constituency

5.3.1 What Are Syntactic Constituents?

Suppose you were asked to break up the sentence *The fluffy cat was sleeping on the desk* into smaller syntactic units. Of course, you'd most likely immediately recognize that each lexical expression (*the, fluffy, cat,* etc.) is a unit in its own right. What about units larger than individual words but smaller than the entire sentence, however? You'd probably consider *on the desk* to be some kind of unit. Similarly, you might intuitively think of *the fluffy cat* as "belonging together." On the other hand, you might have the intuition that *on the* and *cat was* are less likely to be units.

In this file we discuss the idea that certain groups of expressions within a larger phrase can form a syntactic unit—a **syntactic constituent.** The syntactic constituents of a phrasal expression are the smaller expressions out of which the phrase is constructed. You can think of expressions that form a syntactic constituent as being tightly combined together, more tightly than they are combined with other expressions in the same sentence. For example, *an apple* in *Sally devoured an apple* is a syntactic constituent. Those two words together function as the complement of *devoured.* Or, *in July* in *Sally went to France in July* is also a syntactic constituent—we can omit both of those words and still have a sentence (*Sally went to France*). However, omitting either one individually results in ungrammaticality (**Sally went to France July*; **Sally went to France in*). Thus, the two words together form a syntactic constituent that functions as an adjunct in *Sally went to France in July.*

It is important to identify the syntactic constituents of a sentence because they reveal the syntactic structure of the sentence; in other words, they show how the sentence is built out of smaller expressions. There are several general constituency tests that can help you determine which groups of expressions form a constituent in a particular sentence. We discuss a few of these tests in the following sections.

5.3.2 Answers to Questions

Suppose you're trying to determine whether some string of words in a sentence forms a syntactic constituent or not. One way to do this is to construct a question based on the sentence and see if the string of words you're testing can serve as an answer. If it can, it forms a constituent; if it cannot, then the words in question do not form a constituent. Try to alter the sentence whose constituents you're testing as little as possible. Here are some examples of the application of this test:

(1) Is *on the desk* in *The cat was sleeping on the desk* a constituent? Yes.
   a. Where was the cat sleeping?
   b. On the desk.

(2) Is *sleeping on the desk* in *The cat was sleeping on the desk* a constituent? Yes.
   a. What was the cat doing?
   b. Sleeping on the desk.

(3) Is *the cat* in *The cat was sleeping on the desk* a constituent? Yes.
   a. Who was sleeping on the desk?
   b. The cat.

Because we can come up with questions based on the sentence *The cat was sleeping on the desk* that can be answered with *on the desk, sleeping on the desk,* and *the cat,* we know that these three strings each form a constituent. However, it's impossible to come up with a question based on this sentence

that we could answer with *on the*: **Was cat sleeping desk?* is not even a grammatical question, and we certainly couldn't answer *Where was the cat sleeping?* with *on the.* Consequently, we know that *on the* is not a syntactic constituent.

5.3.3 Clefting

Another constituency test involves constructing a **cleft**, a kind of sentence in which some constituent is displaced (or moved) to the left. It has the general form *It was X that Y* (or *It is X that Y*), where X is the displaced constituent and Y is the remainder of the sentence whose constituents you're investigating. If the cleft is grammatical, then the displaced expression is a constituent. If you try to move some expression that does not form a constituent, the cleft will not be grammatical. Here are some examples:

(4) Is *on the desk* in *The cat was sleeping on the desk* a constituent? Yes.
It was <u>on the desk</u> that the cat was sleeping.

(5) Is *the cat* in *The cat was sleeping on the desk* a constituent? Yes.
It was <u>the cat</u> that was sleeping on the desk.

(6) Is *on the* in *The cat was sleeping on the desk* a constituent? No.
*It was <u>on the</u> that the cat was sleeping desk.

Note that the cleft test will not work for all kinds of constituents. We know from the question-answer test that *sleeping on the desk* is a constituent. However, **It was sleeping on the desk that the cat was* is not a grammatical cleft. So, if a cleft is ungrammatical, it doesn't necessarily mean that the displaced expression does not form a constituent. However, if the cleft is grammatical, then you can be pretty sure that the displaced string truly does correspond to a constituent.

5.3.4 Pro-Form Substitution

The final constituency test we will look at is **substitution,** but we note that there are additional tests that can be used, e.g., coordination, deletion, and topicalization. We encourage you to look online for more information if you are interested in how these work.

The substitution test involves replacing a constituent with a single word (or simple phrase). If you can replace the string of words you are testing with one word and the result is a grammatical sentence, this indicates that the string of words is a single unit or syntactic constituent. The best words to use for this test are **pro-forms.** Pronouns (e.g., *he*/*him, she*/*her, it, they*/*them, one, that*) are the most familiar pro-forms, but there are others as well. For example, there are pro-verbs such as *do (so)* (see (2) above, and Section 5.4.2), *be,* and *have*; and *there, then,* and *such* can substitute for other types of constituents. Look again at our sentence to be tested:

(7) Is *the cat* in *The cat was sleeping on the desk* a constituent? Yes.
She was sleeping on the desk.

(8) Is *on the desk* in *The cat was sleeping on the desk* a constituent? Yes.
The cat was sleeping there.

(9) Is *sleeping on the desk* in *The cat was sleeping on the desk* a constituent? Yes.
The cat was doing so.

(10) Is *the desk* in *The cat was sleeping on the desk* a constituent? Yes.
The cat was sleeping on it.

(11) Is *on the* in *The cat was sleeping on the desk* a constituent? No.
*The cat was sleeping {it/there/then/such/do so} desk.

(12) Is *cat was* in *The cat was sleeping on the desk* a constituent? No.

*The {it/she/there/then/such/do so} sleeping on the desk.

For the strings of words tested in (7)–(10), the fact that they can be replaced with pro-forms indicates that they are constituents, as was also shown by the previous tests. In (11)–(12), by contrast, we are unable to find a pro-form that can substitute for the word strings and still give us a grammatical sentence, which indicates that these strings most likely are not constituents. Pro-form substitution tests will also be used to identify the distributional characteristics of specific types of constituents in the next file (Section 5.4.2).

Constituency tests are a useful tool for discovering the syntactic constituents of a sentence, but they are not perfectly reliable. As already noted, they can give inconsistent results—for example, the question-answer test can show that something is a constituent, while the cleft test suggests otherwise. It is always a good idea to use as many tests as possible before deciding whether some string of words forms a constituent or not.

Discovering which smaller expressions a sentence is built out of is necessary for understanding its syntactic structure. In File 5.5, in which we construct a simple grammar for English, we will return to the notion of syntactic constituency and discuss it in the context of syntactic rules, which specify how exactly expressions can combine to form larger expressions. We will see that these rules reflect the constituent structure of phrasal expressions.

5.3.5 Non-constituents

While constituents are intuitively useful units and exhibit certain behavioral regularities, there are other syntactic units that are useful and occur quite often in everyday speech, though they are not generally thought of as syntactic constituents. These **syntactic non-constituents** are nevertheless very important for a variety of reasons. First, when describing the syntactic grammar of a language, we want to be able to describe all of the kinds of things that speakers say and accept, that is, to identify everything that is

grammatical for speakers, and not simply the things that are constituents. Because the idea of constituents derives from syntactic theory, developing a theory that cares only about constituents puts the theoretical cart before the empirical horse. Rather, since linguistics is an empirical science, we want our theories to mirror the facts about how language is used. A second reason why non-constituents are important is because they can tell us things about areas of linguistic research where syntax interacts with other levels of analysis, such as semantics and pragmatics.

Another way to think about constituents and non-constituents is to think about how sentences are constructed. We said in Section 5.3.1 that constituents are useful for learning how a sentence is built up from smaller pieces. So let us imagine that a constituent is like a brick. You can arrange many bricks together to form a wall, and eventually a building. Conveniently, it is also fairly easy and intuitive to see how an individual brick relates to the wall it is in, and how it helps support the wall. But bricks aren't used just for building walls. You might make a sidewalk of bricks, or simply use one to hold a door open. This is analogous to using constituents to form things other than full sentences, like the answers to questions in Section 5.3.2. On the other hand, people don't always use full bricks when building walls. Suppose you were building a wall next to an existing structure; this could be viewed as similar to making an utterance in the middle of an existing conversation. You might find spots where you need to put something, but a full brick either won't fit or isn't needed. In those places, it might be better to use a piece of a brick, or even something completely different, like a piece of wood. These are like non-constituents. They are perfectly useful for communicating all sorts of things, but their patterns of use are not as uniform or as easy to see as those of constituents. We'll look here at a few common patterns that include the use of syntactic non-constituents.

The first such syntactic pattern is called "right node raising." We know from tests like pro-form substitution (Section 5.3.4) that a verb + object is a constituent (13), while a subject + verb is not (14). Nonetheless,

right node raising can build a perfectly grammatical sentence that involves the coordination of two such syntactic non-constituents, as in (15).

(13) Is *bought the book* in *John bought the book* a constituent? Yes.
John did so.

(14) Is *John bought* in *John bought the book* a constituent? No.
*{It/He/There/Then/Such/Did so} the book.

(15) John bought, but Bob borrowed, the book.
- *John bought* is not a constituent.
- *Bob borrowed* is not a constituent.

A similar construction that involves non-constituents is the conveniently named "non-constituent coordination." Put simply, conjunctions like *and, or,* and *but* often don't seem to care whether their two arguments are constituents or non-constituents, as long as their general structures match, as in (16).

(16) I went to dinner with my dad last week and to lunch with my friends today.
- *to dinner with my dad last week* is not a constituent.
- *to lunch with my friends today* is not a constituent.

A final common syntactic structure that involves non-constituents is that of a continuation, which is somewhat like a normal constituent, except that it is missing a piece in the middle. Another way of thinking about these structures is that unlike *bought the desk,* which is missing a subject argument on its left side, or *John bought,* which is missing an object argument on its right side, a continuation is, in the same sense, missing an argument from somewhere inside itself. These kinds of expressions are especially common in answers to questions, and in special elliptical expressions like gapping.

(17) Q: Who is moving where?

A: Sally to France. (*Sally to France* is not a constituent.)
• Sally ~~is moving~~ to France.

(18) Q: Who said what?
A: Bob that he's going to be late. (*Bob that he's going to be late* is not a constituent.)
• Bob ~~said~~ that he's going to be late.

(19) Q: Did you go for a walk yesterday like you wanted to?
A: We tried to last night, but the weather didn't cooperate. (*We tried to last night* is not a constituent.)
• We tried to ~~go for a walk~~ last night, but the weather didn't cooperate.

(20) Gapping
Robin works best from home, but Terry at the office. (*Terry at the office* is not a constituent.)
• Robin works best from home, but Terry ~~works best~~ at the office.

Not everything that speakers utter are sentences—fragments are very common as answers, for instance—and similarly not everything that speakers use as linguistic building blocks are syntactic constituents. Concepts like non-sentential utterances and syntactic non-constituents are particularly useful when syntax brushes up against other levels of analysis, such as semantics and pragmatics. However, because syntactic constituents make up such a large chunk of the linguistic expressions that we typically produce or observe and because they exhibit useful regularities, it makes good sense to focus mainly on constituents when starting to develop a syntactic analysis of a language, as we do in the rest of this chapter.

FILE 5.4

Syntactic Categories

5.4.1 What Are Syntactic Categories?

Thus far, we have been using terms like *sentence, noun, noun phrase, attributive adjective,* etc., either relying on your intuitive understanding of them or pointing out particular examples. In this file, we discuss terms like these—names of **syntactic categories**—more explicitly and technically. The notion of syntactic category is similar to but distinct from the traditional notions of parts of speech or lexical categories (see File 4.1).

A syntactic category consists of a set of expressions that have very similar syntactic properties; that is, they have approximately the same word order and co-occurrence requirements. When two expressions have similar syntactic properties, they are usually interchangeable in a sentence; you can substitute them for one another and still have a grammatical sentence. Since such expressions can occur in almost all the same syntactic environments, we say that they have the same **syntactic distribution.**

For example, take any sentence that contains the constituent *the cat.* You can substitute *Fluffy* for *the cat* in all of them, and the result will be a grammatical sentence , as can be seen in the examples in (1) below. This indicates that *Fluffy* and *the cat* have the same distribution and, therefore, the same syntactic properties. We can thus conclude that they belong to the same syntactic category.

(1)

a. Sally likes the cat.	Sally likes Fluffy.
b. The cat is sleeping.	Fluffy is sleeping.
c. Sally gave the cat some food.	Sally gave Fluffy some food.

d. It was the cat that Sally hated. It was Fluffy that Sally hated.
e. Sally bought it for the cat. Sally bought it for Fluffy.
f. The cat's bowl was empty. Fluffy's bowl was empty.

On the other hand, *Fluffy* and *cat* are not interchangeable, as shown in (2). This indicates that they do not have the same distribution and, therefore, do not belong to the same syntactic category.

(2) a. The cat was sleeping. * The Fluffy was sleeping.
b. * Sally gave cat some food. Sally gave Fluffy some food.
etc.

But why are syntactic categories important? Suppose one night you're taking a stroll in your neighborhood and you run into a friendly Martian scientist who's working on a descriptive grammar of English. The Martian already knows a lot about English, including many of its syntactic categories. However, it has encountered some new English expressions whose syntactic properties it doesn't know, and it would like your help. All you would have to do is tell it which syntactic categories the expressions belong to. It would then immediately know the distribution of all of the new expressions: how they can combine with other expressions, how they have to be ordered with respect to other expressions, what their arguments are, etc. If you prefer, substitute "foreign language learner" or "computer program" for "Martian scientist" above, and you'll come to appreciate why syntactic categories are important.

In order for syntactic categories to successfully convey detailed syntactic information, they have to be distinguished based on the syntactic properties of the expressions that comprise them. It is important to appreciate the fact that expressions do not belong to a given syntactic category by virtue of their morphological or semantic properties. Rather, it is because of their syntactic properties.

You might have been told at some point in your education that nouns refer to people, places, or things, that verbs are action words, and that

adjectives are descriptive words. This is a semantically based classification system; that is, to say that nouns are words that stand for people, places, or things is to make a claim about what nouns are supposed to mean, not about how they behave syntactically. We observed early on in this chapter that semantic properties of expressions do not determine their syntactic properties. Therefore, we cannot successfully assign expressions to syntactic categories by examining their meanings.

For example, *exploded* and *destroyed* are both "action words," but they have different syntactic distributions: *Sally exploded, *Sally destroyed.* On the other hand, it is not clear that *slept* and *relaxed* could be called "action words," even though they have the same distribution as *exploded*: *Sally exploded, Sally relaxed,* and *Sally slept* are all sentences. The expressions *mountains* and *the hill* both refer to "places," but they have somewhat different distributions: first, they have different agreement features (plural vs. singular); and second, *mountains* can combine with determiners, but *the hill* can't (*Sally likes the mountains, *Sally likes the the hill*). Further, we pointed out at the beginning of this chapter that even expressions that mean essentially the same thing can be syntactically different (*my* vs. *mine, ate* vs. *devoured*). The point is that knowing the semantic class that some expression ostensibly belongs to does not help you figure out its syntactic properties.

Additionally, we cannot distinguish syntactic categories based on morphological properties. For example, verbs comprise a relevant lexical category in English (see File 4.1), so we can say that, morphologically, *sleep, tell, destroy,* and *devour* are all in the same category. However, because these expressions do not all have the same syntactic properties, they do not comprise a useful syntactic category. That is, if the Martian scientist knew that *sleep* and *tell* are verbs, and then you told it that *devour* is also a verb, it would know what kinds of morphemes can combine with *devour.* For example, it would know that *devouring* is a word. Nonetheless, it would not be able to predict the syntactic distribution of *devour* at all, and, as a result, it might go around producing non-sentences like **I'd like to*

devour now (cf. *I'd like to sleep now*) or **I'll devour you what I found* (cf. *I'll tell you what I found*).

If you wanted to categorize countries of the world by the size of their population, you would need to take into account how many people live in each country, rather than a country's surface area, its proximity to an ocean, or the level of education of its population. Similarly, if we want to categorize expressions of a language syntactically, we have to take into account their syntactic properties, not their meaning, their morphological properties, or what they sound like. In the following section, we discuss some major syntactic categories in English and the syntactic properties that distinguish them.

As a reminder, the grammar of English (as with any natural language) is very complex. Though we will cover many of its major syntactic categories and grammar rules here and in the next file, our discussion is necessarily quite simplified. We will mention a few specific issues where relevant, and we encourage you to carefully consider how one might account for each new piece of linguistic data you encounter, in this book or elsewhere. Various exercises and discussion questions in File 5.6 have also been provided to help you think through some of these issues.

5.4.2 Syntactic Categories in English

Although you probably have an intuitive understanding of what a sentence is, let's begin with a syntactic test for distinguishing the category **sentence.** This category (abbreviated as S) consists of expressions that can occur in the following syntactic environment:

(3) Sally thinks that _____.

Given this test, *the cat* is not a sentence (**Sally thinks that the cat*). On the other hand, *the cat is cute* is a sentence since we can say *Sally thinks that the cat is cute.*

The syntactic category of **noun phrases**, abbreviated NP, consists of personal pronouns (*he, she, you, it, we,* etc.), proper names, and any other expressions that have the same distribution. The most reliable test that you can use to check whether some constituent is an NP is to try to replace it with a pronoun (see Section 5.3.4). If the result is a grammatical sentence, then that constituent is an NP, and if the result is ungrammatical, then it is not. In each of the examples in (4) through (6), the test indicates that the underlined expression is an NP.

(4) Is *Fluffy* in *Fluffy was sleeping on the desk* an NP? Yes.
a. Fluffy was sleeping on the desk.
b. She was sleeping on the desk.

(5) Is *the cat* in *The cat was sleeping on the desk* an NP? Yes.
a. The cat was sleeping on the desk.
b. She was sleeping on the desk.

(6) Is *the desk* in *The cat was sleeping on the desk* an NP? Yes.
a. The cat was sleeping on the desk.
b. The cat was sleeping on it.

Note, however, that while *the cat* and *the desk* belong to the category NP, *cat* and *desk* do not. The pronoun replacement test indicates that they do not have the same distribution as NPs, as shown in (7) and (8).

(7) Is *cat* in *The cat was sleeping on the desk* an NP? No.
a. The cat was sleeping on the desk.
b. *The she was sleeping on the desk.

(8) Is *desk* in *The cat was sleeping on the desk* an NP? No.
a. The cat was sleeping on the desk.
b. *The cat was sleeping on the it.

Expressions such as *desk* and *cat* belong to the syntactic category of **nouns**, abbreviated N. As shown in (7) and (8), one way in which Ns and

NPs are syntactically different is that Ns can co-occur with **determiners** (abbreviated Det) like while NPs cannot. The category of nouns consists of those expressions that can combine with a determiner to their left to yield an expression of category NP. For example, we can combine *the* with *cat* and get *the cat,* which, as we have already observed, is an NP.

While this provides a clear distinction for some nouns, there are other expressions for which the situation is more complicated. Nouns like *cat* or *desk* are known as **count nouns**, defined in simple terms as being able to be counted (e.g., *one cat, five cats*); as such, these nouns can also be pluralized (*cats, desks*). As noted above, when these nouns occur in the singular, they must co-occur with a determiner (cf. **Cat is sleeping on desk*). These can be contrasted with **mass nouns**, which cannot be counted and cannot (normally) be pluralized (e.g., *advice*/**one advice*/**advices*; *gravel*/**one gravel*/**gravels*). As is often the case, this distinction is not always clear-cut, since most nouns can function as both types, given the right context (e.g., *He ordered two waters,* though *water* is typically mass, and *After I forgot to put the lid on the blender, I had blueberry all over me,* though *blueberry* is typically count); but we focus on the basic cases here.

Mass nouns, in contrast to count nouns, can occur without a determiner and can be replaced with a pronoun (*Advice can be helpful*/*It can be helpful*; *The road was covered with gravel*/*The road was covered with it*). Going by the criteria given above, this would seem to indicate that mass nouns are NPs, like pronouns and proper names. In contrast to those categories, however, mass nouns may also co-occur with a determiner (*The advice was helpful*; *The road was covered with the gravel,* vs. **The Fluffy was sleeping*; **The she was sleeping*). So mass nouns cannot simply fall into the same category as NPs. A similar pattern is seen with plural nouns: they can be replaced by pronouns and do not require the co-occurrence of a determiner in order to form a grammatical sentence (*Cats were sleeping on desks*/*They were sleeping on them*), but they may co-occur with one (*The cats were sleeping on the desks*). In the very basic grammar we are describing here, there is no simple answer to the question of how to

categorize mass nouns and plural nouns. For this reason, we do not include them in most examples and exercises in the rest of this chapter.[1]

English does not have many determiners. In fact, there are so few of them that we could in principle list them all. However, since understanding the syntactic properties of determiners will enable you to figure out which expressions are determiners, we provide just a partial list in (9).

(9)
a.	*this, that, these, those*	[demonstrative determiners]
b.	*my, your, his, her, our,* etc.	[possessive determiners]
c.	*a, some, the, every, all, few, most,* etc.	[quantificational determiners]

A determiner is any expression that can be combined with an N to its right to form an expression of category NP. Thus, for example, *some* is a determiner because *some cat* is an NP.

In addition to NPs that consist of a determiner and an N, and single-word NPs (pronouns and proper names), there are also NPs that contain attributive **adjectives** (abbreviated as Adj). For example, the expression *the cute gray cat* has the same distribution as *Fluffy* or *she,* as shown in (10), and consequently we know that it is an NP.

(10)
The cute gray cat is sleeping.	Fluffy is sleeping.
Sally likes the cute gray cat.	Sally likes Fluffy.

Expressions like *cute* and *gray* belong to the category Adj, which consists of expressions that can occur between a determiner and an N in an NP. Note that an N and the Adj-N sequence have the same syntactic distribution—wherever *cat* can occur, so can *cute cat* or *gray cat,* as shown in the following examples.

(11)
a.	The cat is sleeping.	The gray cat was sleeping.
b.	Sally likes her cat.	Sally likes her gray cat.
c.	The fluffy cat is sleeping.	The fluffy gray cat is sleeping.

We can thus define attributive adjectives as those expressions that can occur immediately to the left of an N, with the resulting expression having the same distribution as a plain N.[2]

Now that we know what NPs are, we can describe another major syntactic category, namely, the **verb phrase**, abbreviated as VP. The category VP consists of those expressions that, when combined with an NP on their left, will result in a sentence, that is, an expression of category S. The NP that occurs to the left of the VP is referred to as the subject of the sentence. For example:

(12) a. Sally slept.
b. Sally likes Bob.
c. Sally gave Bob some money.
d. Sally traveled to France.
e. Sally put the book on the desk.
f. Sally persuaded Bob to study French.

All of the underlined expressions in the sentences in (12) are of category VP, and in each of these sentences, the NP *Sally* is the subject. If some expression is a VP, it will have the same distribution as a verb form like *slept.* It will also have the same distribution as *did so.* Therefore, if it is possible to replace some expression with *slept* or *did so* and still have a grammatical sentence, then the expression in question is of category VP. Take a minute to verify that each underlined expression in (12) can be replaced with *did so* without loss of grammaticality. This should remind you of our earlier observation regarding expressions of category NP: all noun phrases can be replaced in a sentence with a pronoun or a proper name.

Another way to describe a VP syntactically is to say that it consists of a verb (as a morphological category) and any complements it may have.[3] Optionally, a VP can include one or more adjuncts as well. A verb like *slept* requires only a subject argument, so it is a VP all by itself. Traditionally, verbs that require no complements are called **intransitive verbs.** So in the system presented here, intransitive verbs like *slept* are of category VP.

Other verbs, such as *liked* or *devoured,* require both an NP complement (an object) and a subject NP argument. Providing these verbs with an NP complement results in a VP. Consider the following example:

(13) Sally liked her cute gray cat.

In (13), *her cute gray cat* is the complement of *liked,* whereas *Sally* is its subject argument. We can confirm that *liked,* together with its complement, is a VP because we can replace *liked her cute gray cat* with *slept* or *did so* and still have a sentence. However, we cannot replace *liked* with *did so* or *slept,* which tells us that *liked* itself is not a VP, as shown in (14).

(14) a. Sally liked her cute gray cat.
b. Sally did so.
c. Sally slept.
d. *Sally did so her cute gray cat.
e. *Sally slept her cute gray cat.

Verbs such as *liked,* which require an NP complement to form a VP, are called **transitive verbs** (abbreviated TV) and form their own syntactic category. Other verbs, such as *gave,* require two NP complements and a subject NP argument, for example, *Sally gave Bob a book.* Combining them with two NP objects results in a VP, which we can verify with *do so* replacement, as shown in (15b). However, neither *gave* by itself (15e) nor *gave* combined with just one of its objects, as in (15c) and (15d), forms a VP. Verbs such as *gave* belong to the syntactic category of **ditransitive verbs,** abbreviated as DTV.[4]

(15) a. Sally gave Bob a book.
b. Sally did so.
c. *Sally did so a book.
d. *Sally did so Bob.
e. *Sally did so Bob a book.

There are also verbs that require a complement of category S to form a VP, for example, *thought.* We call such verbs **sentential complement verbs,** abbreviated as SV. Example (16) shows that only the combination of an SV with its complement S is a VP since it is replaceable by *did so* (16b).[5] An SV without its complement is not a VP (16c).

(16) a. Sally thought Bob liked her.
b. Sally did so.
c. *Sally did so Bob liked her.

Apart from verbs and their complements, recall from our earlier discussion that VPs can optionally contain adjuncts as well. Many expressions that can occur in a verb phrase as adjuncts are of the category **adverb** (abbreviated Adv). For example, the underlined expressions in (17) are all adverbs.[6]

(17) a. Sally wrote the letter carefully.
b. Sally walked fast.
c. Sally put the book on the desk yesterday.
d. Sally ate her dinner quickly.

Any expression that consists of a VP followed by an Adv has the same distribution as a VP. For example, you can replace a verb and its complements with *did so,* leaving the Adv behind, as in (18b), or you can replace the verb, its complements, and an Adv with *did so,* as in (18c).

(18) a. Sally wrote the letter carefully.
b. Sally did so carefully.
c. Sally did so.

Examples like (18) show that VPs with or without adjuncts have the same distribution. From this we can conclude that adverbs combine with a VP to form an expression of category VP, and for this reason they're called **VP adjuncts.** This may remind you of adjectives, which can combine with

Ns. Since the resulting expression is also of category N, we call them **N adjuncts**. Thus, both adverbs and attributive adjectives combine with expressions of certain categories (VP and N, respectively), and the resulting expression belongs to that same category. This is true of all adjuncts. However, in contrast to adjuncts, combining an expression with its arguments changes the syntactic category of the resulting expression. For example, *liked* does not have the same distribution as *liked Bob*; *slept* does not have the same distribution as *Sally slept*; etc.

Another kind of VP adjunct is a **prepositional phrase** (PP), which consists of a **preposition** (P) and an NP.

(19) a. Sally wrote the letter with a pen.
b. Sally walked down the street.
c. Fluffy slept on the desk.
d. Sally ate her dinner at the table.

All of the underlined expressions in (19) are PPs, and words like *with, down, on, in, over, under, for, from, of,* and *at* are prepositions. Just like determiners, there are relatively few prepositions in English, and we could in principle list them all. Yet, instead of doing so, we will describe their syntactic properties so that it is always possible to figure out whether a given expression is a preposition based on its syntactic behavior.

Prepositions need an argument of category NP in order to form a PP. Example (19) shows PPs in the same distribution as adverbs—as VP adjuncts. However, PPs can also occur as adjuncts inside NPs, whereas adverbs cannot.

(20) a. That bar down the street is my favorite.
b. Sally likes all cats with long hair.
c. That cat under the bed is Fluffy.

Inside NPs, PPs occur immediately to the right of the noun, and the resulting expression has the same distribution as an N. For example, verify

for yourself that *bar down the street* has the same distribution as *bar*.

Table (21) summarizes the main syntactic categories in English and their syntactic properties.

(21) Major syntactic categories in English and their properties

Syntactic Category	**Relevant Properties**	**Example**
S (sentence)	can occur in *Sally thinks that* _____	Fluffy is cute
NP (noun phrase)	has the same distribution as a personal pronoun or a proper name	she Sally the cat this cute dog that cat under the bed
N (noun)	needs a determiner to its left to form an NP	cat cute dog cat under the bed
Det (determiner)	occurs to the left of an N to form an NP	the every this
Adj (adjective)	occurs in between a determiner and an N; can be an N adjunct, that is, combines with an N to its right which results in an expression that is also of category N	cute fluffy gray
VP (verb phrase)	consists minimally of a verb and all of its complements; combines with an NP to its left which results in a sentence; has the	slept wrote the letter quickly liked Bob told John a story believed she liked that man

	same distribution as *slept* or *did so*	
TV (transitive verb)	needs an NP complement to form a VP	liked devoured
DTV (ditransitive verb)	needs two NP complements to form a VP	gave sent
SV (sentential complement verb)	needs a complement S to form a VP	believed said
Adv (adverb)	can be a VP adjunct, that is, combines with a VP to its left which results in an expression that is also of category VP	fast quickly tomorrow
P (preposition)	combines with an NP to form a PP	at for with
PP (prepositional phrase)	can be a VP or an N adjunct; consists of a preposition and its NP complement	at the table for Sally under the bed

Long Description

[1]We realize, however, that it can be hard to avoid mass nouns and plural nouns in spontaneously constructed examples or examples taken from other sources, since they are very common in everyday language. So while we encourage you to think carefully about how these may best be analyzed (and discussion question 22 in File 5.6 deals with a related issue), we offer two basic suggestions for how one might deal with them. The first option would simply be to say that when they appear in a grammatical sentence without a determiner, then they are acting as NPs and fall into that category; and when they co-occur with a determiner, they are acting as Ns and fall into that category (see Section 5.5.3 on ambiguity). A second option would be to assign them to a separate category or

categories with their own set of criteria. Neither of these options is without complications, but these are the sorts of questions and messy data that syntacticians must grapple with.

[2]We are again ignoring mass nouns and plurals here; if we categorize them as Ns, it will allow them to take adjective adjuncts like other Ns, but unlike *cute cat, cute cats* does not require co-occurrence with a determiner in order to form an NP.

[3]To simplify our task here, we do not discuss the syntactic details of verb phrases containing one or more auxiliary verb plus main verb (e.g., *was sleeping on the desk*; *had been working at home*), or verb phrases where the main verb is a form of the "being"-verb (also known as the copula; e.g., *I am hungry*; *Sally is an engineer*; *The cat was cold and wet*; *We were at home*) or a verb that patterns like it (but see exercise 29 in File 5.6).

[4]Ditransitive verbs in English can take two different structures: the alternative form of *Sally gave Bob a book* is *Sally gave a book to Bob,* where the verb takes an NP and a PP (prepositional phrase; see below) complement instead of two NP complements. For simplicity, we focus here on the type of ditransitive that takes two NP complements. See exercise 28 in File 5.6 for a verb that shares some similarities with the type of ditransitive that takes an NP and a PP complement.

[5]Some of you may have noticed that the word *that* can appear between SVs and their S category complement, as in (3) above; for example, *Sally thought (that) Bob liked her*; *Bob said (that) he liked Sally*; *I believe (that) I can fly.* As indicated by the parentheses in these examples, in most cases the sentence is equally grammatical with or without the *that* (known as a complementizer). For the sake of simplicity, we set aside this variation and focus on the forms of these sentences without a complementizer.

[6]Adverbs can sometimes occur in other locations within a sentence: *Carefully, Sally wrote the letter*; *Sally carefully wrote the letter*; *Sally wrote the letter carefully.* We focus on the sentence-final position here for simplicity. Can you think of a way to account for these other orders?