

SYNTAX

Syntax means the structure and ordering of components within a sentence. The word “syntax” comes originally from Greek and literally means “a putting together” or “arrangement.”

What are the goals of syntax?

- 1- To show whether or not a sentence, a clause, or a phrase is grammatical by putting an asterisk (*) before the ungrammatical sentence, e. g.
*The man are driving the car. *The car the man driving is. *The man is drove the car.
- 2- To have a small and finite (i.e. limited) set of rules that will be capable of producing a large and potentially infinite (i.e. unlimited) number of well-formed structures. This small and finite set of rules is sometimes described as a generative grammar because it can be used to “generate” or produce sentence structures and not just describe them, e.g.
When we have an effective rule such as “a prepositional phrase in English consists of a preposition followed by a noun phrase,” such as: near London, with you, near a tree, with the dog.
- 3- How a single underlying abstract representation can become different surface structures.

Deep and surface structure: Two superficially different sentences are shown in these examples:

- Charlie broke the window.
- The window was broken by Charlie.

In traditional grammar, the first is called an **active** sentence, focusing on what Charlie did, and the second is a **passive** sentence, focusing on The window and what happened to it. The distinction between them is a difference in their surface structure, that is, the different syntactic forms they have as individual English sentences. However, this superficial difference in form disguises the fact that the two sentences are very closely related, even identical, at some less superficial level.

This other “underlying” level, where the basic components (Noun Phrase + Verb+ Noun Phrase) shared by the two sentences can be represented, is called their deep structure. The **deep structure** is an abstract level of structural organization in which all the elements determining structural interpretation are represented. That same deep structure can be the source of many other surface structures such as (It was Charlie who broke the window) and (Was the window broken by Charlie?). In short, the grammar must be capable of showing how a single underlying abstract representation can become different surface structures.

Structural ambiguity: Let’s say we have two distinct deep structures. One expresses the idea that “Annie had an umbrella and she bumped into a man with it.” The other expresses the idea that “Annie bumped into a man and the man happened to be carrying an umbrella.” Now, these two different versions of events can actually be expressed in the same surface structure form: Annie bumped into a man with an umbrella. This sentence provides an example of structural ambiguity. It has two distinct underlying interpretations that have to be represented differently in deep structure.

Phrases can also be structurally ambiguous, as in expressions like small boys and girls. The underlying interpretation can be either “small boys and (small) girls” or

“small boys and (all) girls.” Our syntactic analysis will have to be capable of showing the structural distinction between these underlying representations.

Recursion: The rules of the grammar will also need the crucial property of recursion. Recursive (“repeatable any number of times”) rules have the capacity to be applied more than once in generating a structure. For example, we can have one prepositional phrase describing location (on the table) in the sentence The gun was on the table. We can also repeat this type of phrase, using different words (near the window), for as long as the sentence still makes sense (in the bedroom). So, in order to generate a sentence such as (The gun was on the table near the window in the bedroom), we must be able to repeat the rule that creates a prepositional phrase over and over again.

We must also be able to put sentences inside other sentences. For example, when we produce a sentence such as Cathy knew that Mary helped George, we do so with the sentence Mary helped George inside it. And those two sentences can be generated inside another sentence such as John believed that Cathy knew that Mary helped George. In principle, there is no end to the recursion that would produce ever longer versions of complex sentences with this structure.

Basically, the grammar will have to capture the fact that a sentence can have another sentence inside it or that a phrase can be repeated as often as required.

Tree diagrams: One of the most common ways to create a visual representation of syntactic structure is through tree diagrams. We can use the symbols (Art=article, N = noun, NP = noun phrase) to label parts of the tree as we try to capture the hierarchical organization of those parts in the underlying structure of phrases and sentences, e.g.

Phrase structure rules

There are two ways in representing the syntactic analysis. The first way is that of a tree diagram, the other is by 'phrase structure rules'. The following example shows the difference between the two representations:

According to this rule, "a noun phrase rewrites as an article followed by a noun." The first rule in the following set of simple (and necessarily incomplete) phrase structure rules states that "a sentence rewrites as a noun phrase and a verb phrase." The second rule states that "a noun phrase rewrites as either an article plus an optional adjective plus a noun, or a pronoun, or a proper noun." The other rules follow a similar pattern.

$$S \rightarrow NP VP$$
$$NP \rightarrow \{\text{Art (Adj) N, Pro, PN}\}$$
$$VP \rightarrow V NP (PP) (Adv)$$
$$PP \rightarrow \text{Prep NP}$$

The list of common symbols and abbreviations is summarized here.

S sentence	NP noun phrase	PN proper noun
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N noun	VP verb phrase	Adv adverb
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V verb	Adj adjective	Prep preposition
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Art article	Pro pronoun	PP prepositional phrase
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* ungrammatical sentence

→ consists of / rewrites as

() optional constituent

{ } one and only one of these constituents must be selected