

How to Make up Sentences

Syntax 1

Syntactic Categories
Phrases
Heads
LF 6.1- 6.4

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How sentences are constructed

- Morphemes
- Words
- Sentences

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How sentences are constructed

Morphemes:	Words:
ðə	ðə
dag	dag+z
z	bark+t
bark	
t	

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How Sentences are Constructed

Sentence:

ðə dag+z bark+t

dag+z ðə bark+t
bark+t ðə dag+z
dag+z bark+t ðə

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Notational Conventions

Usually write sentences in orthography of the language not in IPA

Ungrammatical sentences are preceded by an asterisk:

The dogs barked
*Dogs the barked
*Barked the dogs
*Dogs barked the

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How sentences are constructed

Of the six possible orders (for three words) only one is grammatical.

Why?

Syntax of the language: rules for combining words into larger units.

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Syntax of a Language

An important factor in determining whether a particular combination of words is possible or not is the syntactic category of the words involved.

Aka "Part of speech"

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Syntactic Category

Noun e.g. dog, clarification
Verb e.g. bark, clarify
Adjective e.g. large, incorrect
Adverb e.g. fast, loudly
Preposition e.g. in, at
Article e.g. the, a

NB These are the major ones, but there are others

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A Simple Clause

Noun e.g. dog, clarification
Verb e.g. bark, clarify
Article e.g. the, a

The dogs barked

Article -- Noun -- Verb

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Adding Adjectives and Adverbs

The dogs barked

Adjective e.g. large, incorrect
The large dogs barked

Adverb e.g. fast, loudly
The large dogs barked loudly

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Adding Prepositions

Preposition e.g. in, at

The large dogs barked loudly at the cats

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Syntactic Category

Evidence comes from the morphology of a word, and from its distribution.

e.g. Nouns are a class of words that all behave similarly with respect to morphology and with respect to their position in clauses

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Suffixation as Evidence for Syntactic Category

Morphology:

If a word is formed from a verb by suffixation of -er;

And it means “someone who verbs”, it’s a noun.

E.g. sing_V + er → singer_N

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This evidence can be used two ways:

If a word allows -er to be added, and makes a noun, the word must be a verb.

If a word is composed of a verb and -er, then it is a noun.

E.g. sell_V,
sell + er → seller_N
Therefore sell_V

E.g. filer_N,
file_V + er → filer_N,
Therefore filer_N

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Suffixation onto Verbs

Tense endings are added ONLY to verbs

An example from our class on morphology:

The past tense

Usually I **plan** my day at 8 a.m. Yesterday I **plann-ed** my day at 7.30.

Usually I collect my tomatoes in June. Last year I **collect-ed** my tomatoes in July.

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A Note of Warning

These tests can only tell us whether a word is a noun or a verb in a given sentence.

Yesterday I **planned** my day at 7.30.

Logic: since a past tense affix has been added to *plan*, it must be a verb in this sentence

Not: since a past tense affix can be added to *plan*, it must be a verb (always)

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A Note of Warning

Yesterday I **planned** my day at 7.30.

Logic: since a past tense affix has been added to *plan*, it must be a verb in this sentence

Not: since a past tense affix can be added to *plan*, it must be a verb (always)

NO: it can be a noun:

The plan is on the table

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Syntactic Ambiguity

A single morpheme such as “plan” can be syntactically ambiguous. E.g. It can be ambiguous between being a verb or a noun.

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Distribution as Evidence for Syntactic Category

Nouns can appear immediately after an article and before a verb

Verbs, Prepositions, Adverbs, Adjectives cannot

The dog barked
The plan evolved
A goat bleated
A hypothesis emerged

*The see emerged
*The at emerged
*A quickly emerged
*The broken emerged₁₉

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Evidence for Syntactic Categories

Morphological – the internal structure of a word

Syntactic – the external distribution of a word

NOT:

A noun is the name of a person, place or thing!!!!

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Why not?

Because it's simply not true.

belief is a noun (a common belief...)

hypothesis is a noun (the interesting hypothesis...)

weather is a noun (the foul weather ...)

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And

Verbs are not actions, either:

think is a verb (He thinks/thought about it)

fear is a verb (She fears/feared the exam)

be is a verb (She is/was a doctor)

last is a verb (e.g. It lasted three days)

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Summary – Syntactic Categories

Sentences are organized in terms of grammatical categories such as: noun, verb, preposition, adverb, adjective, article.

In order to determine which category a word belongs to we look for morphological or syntactic evidence.

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Phrases

Syntactic categories are organized into larger units called “phrases”.

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Noun Phrases

The dogs barked at the cats

What can occur before the verb in this sentence is the same as what occurs after the preposition

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Noun Phrases

A large dog barked at a large cat

A dog barked at a cat

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Noun Phrases

A large dog barked at a large cat

A dog barked at a cat

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Noun Phrases

A large dog barked at a large cat

A dog barked at a cat

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Noun Phrases

A large dog barked at a large cat

A dog barked at a cat

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Noun Phrases

The dogs hate cats

The dogs saw a cat

The dogs saw a large cat

The same options can occur immediately after a verb, too.

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Noun Phrases

The dogs hate cats
The dogs saw a cat
The dogs saw a large cat

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Noun Phrases

These are grammatical units, called Noun Phrases, which can occur in several different places in a sentence.

They consist of a Noun plus, optionally, an Article and an Adjective

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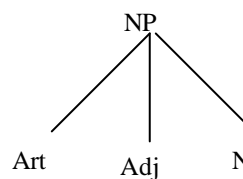
Noun Phrases

Dogs hate cats
A dog barked at a cat
A large dog saw the furry cats

NP → (Art) (Adj) Noun

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Constituents

A N(oun) P(hrase) is a unit– the technical term is a “constituent”.

The rule says that a N(oun) P(hrase) breaks down into three elements, one of which must always be present

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Constituents

The Article and Adjective can only appear when a Noun appears:

The dogs saw cats
*The dogs saw the
The dogs saw large cats
*The dogs saw large
The dogs saw the large cats
*I saw the large

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Constituents

A N(oun) P(hrase) can occur in several different positions in a sentence:

Before the verb:

The dogs barked

Immediately after the verb:

The dogs saw the cats

After a preposition

The dogs barked at the cats

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Constituents

Are there other constituents or phrases in the clause?

Evidence that P + NP form a constituent (a phrase)

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Prepositional Phrases

The dogs barked at the cats

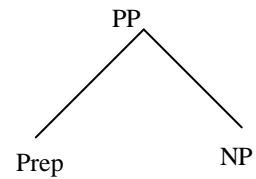
The books fell off the table

These consist of a preposition and a Noun Phrase (to be modified later)

PP → P NP

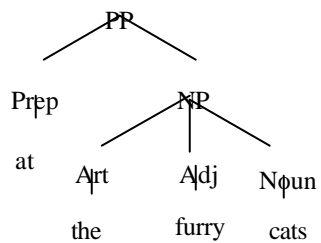
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Verb Phrases

V + NP and V + PP also form a constituent

NP and PP can both occur, and they occur in the order NP PP:

The boy gave the food to the dogs

The boy gave the food to the dogs

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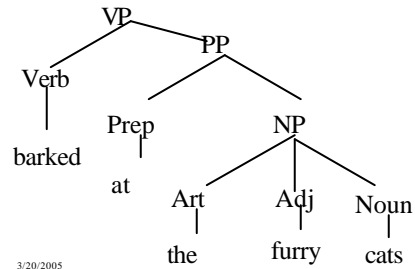
Verb Phrases

The rule must be:

$VP \rightarrow V (NP) (PP)$

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The whole sentence

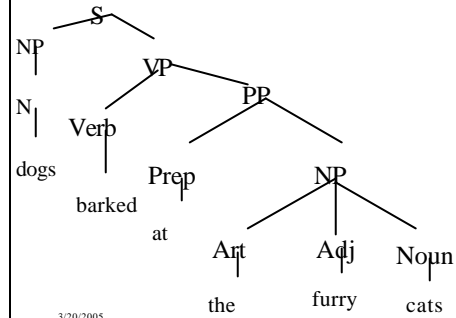
What occurs before the VP?

An NP

$S \rightarrow NP VP$

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Phrase Structure Rules

- $S \rightarrow NP VP$
- $NP \rightarrow (Art) (Adj) N$
- $VP \rightarrow V (NP) (PP)$
- $PP \rightarrow P NP$

Question: which elements are obligatory?

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Improvements to Phrase Structure Rules

The N in NP and the V in VP:
The word that the phrase is named after, because it's the one which determines what kind of phrase the unit forms.

The HEAD

- $VP \rightarrow V (NP) (PP)$
- $NP \rightarrow (Art) (Adj) N$

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Improvements to Phrase Structure Rules

But what about PPs?

PP → P NP

Leads us to expect that the NP here must be optional also.

The boys put the computer in the box

Then they put the printer in

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Improvements to Phrase Structure Rules

The girl left her homework outside the classroom

The girl left her homework outside

Conclusion:

PP → P (NP)

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The Lexicon for Verbs

Heads can vary as to whether they require, allow or do not allow other units to occur in their phrase.

E.g. each verb determines what other phrases can occur in the verb phrase.

What did you do last night?

I wrote	[]
I wrote a letter	[NP]
I wrote to my mother	[PP]
I wrote a letter to my mother	[NP PP]

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The Lexicon

Other verbs are not so tolerant:

work allows the VP to contain nothing, or a PP, but not an NP:

I worked
I worked on a project
*I worked a project

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The Lexicon

Other verbs are not so tolerant:

put requires the VP to contain both an NP and a PP:

*I put
*I put a book
I put a book on the desk

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Traditional Terms

Some of these types of verbs have traditional names:

E.g.

Transitive verb – one which allows or requires an NP after it

Intransitive verb – one which does not allow or does not require an NP after it

Difficult terms to understand! E.g. is *write* transitive or intransitive?

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The Lexicon for Prepositions

They also vary as to what can occur in the phrase that they head

E.g. What did you do with the book?

I put the book in the box

I put the book into the box

I put the book in

*I put the book into

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Theory of Phrase Structure

Every language has phrases

Every phrase has a head

The head is structurally obligatory

Non-heads are structurally optional

The head determines what other elements can appear in the phrase

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