Syntax: Phrase Structure Rules

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Syntax: Words ⇒ Phrases ⇒ Sentences

Syntax studies how words are combined together to form sentences..

One of the fundamental insights of syntax is that the rules that assemble sentences largely care about what **category** each word belongs to. Additionally, words are first grouped into subunits that we call **phrases**, and then phrases are what sentences are made of.

Phrase structure rules

So we introduced the intermediate tier of phrases between words and sentences— Why do we need it?

(1) a. Dogs eat. S→ N V
b. Small dogs eat. S→ A N V

If we simply state that sentences are comprised of strings of words, we would need a separate rule for each of (1a) and (1b). However, we have solid reasons to argue that, in some sense, “dogs" and “small dogs" in (1) are *interchangeable* (/ *have the same function*). This approach allows us to have just one rule for the two sentences, formulated with the same category, NP.

(2) S → NP V

Let’s revise the **phrase structure rules** we have seen in the lectures.

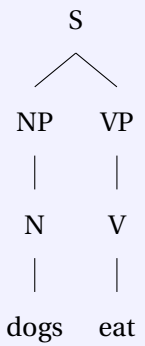
(3) a. **S**entences: S → NP VP
b. **N**oun **P**hrases: NP → (D) (A*) N (PP*)
c. **P**reposition **P**hrases: PP → P (NP)
d. **V**erb **P**hrases: VP → V (NP) (NP) (PP*)
Where,

- Parentheses indicate that an item is optional;
- The star ‘*’ indicates that an item can be repeated;
- **Order matters**: $\boxed{\text{VP} \rightarrow \text{V (NP)}} \neq \boxed{\text{VP} \rightarrow \text{(NP) V}}$

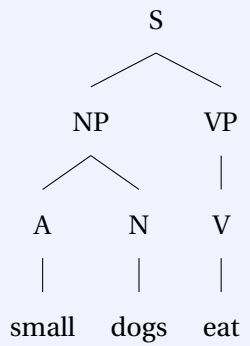
Let’s see it in action

(4) The (many lives of the) NP rule

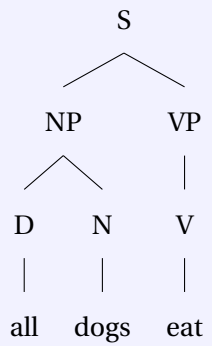
a. Dogs eat.



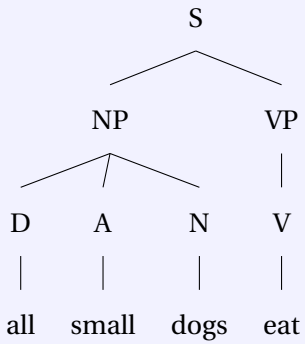
b. Small dogs eat.



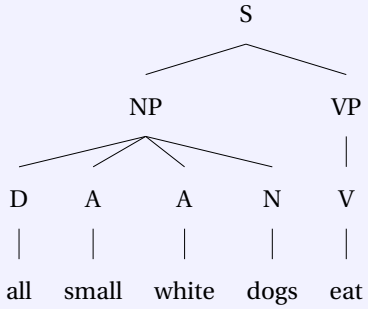
c. All dogs eat.



d. All small dogs eat.

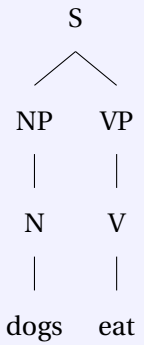


e. All small white dogs eat.

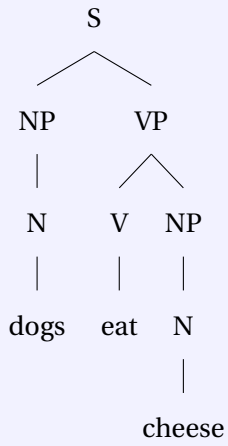


(5) The (many lives of the) VP rule

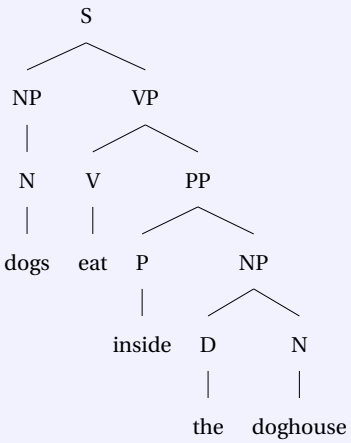
a. Dogs eat.



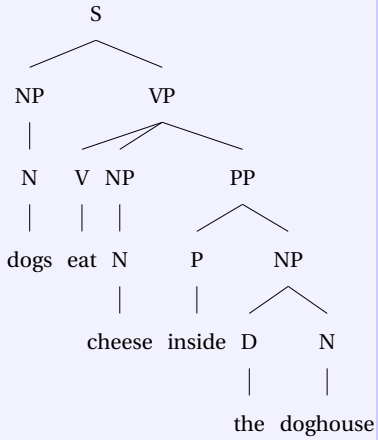
b. Dogs eat cheese.



c. Dogs eat inside the doghouse.



d. Dogs eat cheese inside the doghouse.



Practice

- For each sentence in (6): (i) Label the words in the sentence; (ii) Form NPs; (iii) Form PPs (if there are any); (iv) Form VPs; (v) Attach PPs (if there are any) to larger structures; and finally (vi) Combine the NP and the VP into a sentence.

(6) a. The dog brought Kenta a newspaper
b. No parrot comes from a large cold island
c. The smart woman from Tehran ate every piece of cheese in the box

Rules:

a. S → NP VP
b. NP → (D) (A*) N (PP*)
c. PP → P (NP)
d. VP → V (NP) (NP) (PP*)

Answer:

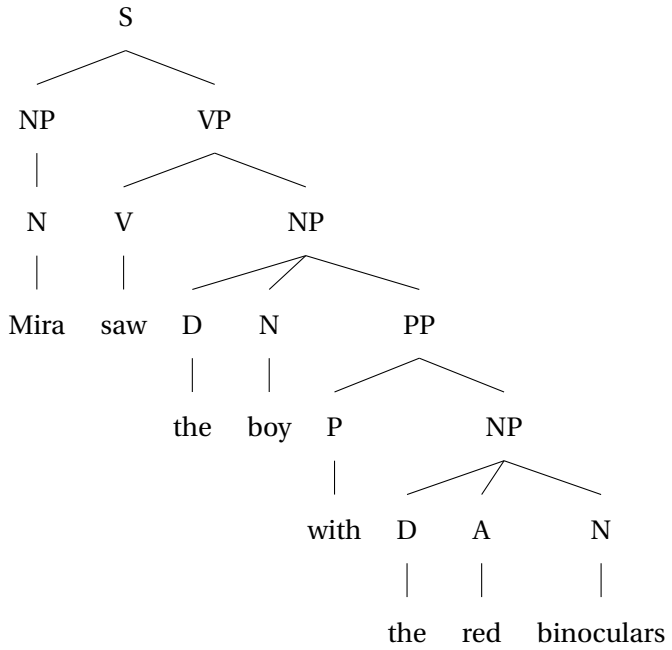
Ambiguities: Rules, structures and meanings

Sometimes, our phrase structure rules allow for more than one tree for a given sentence.

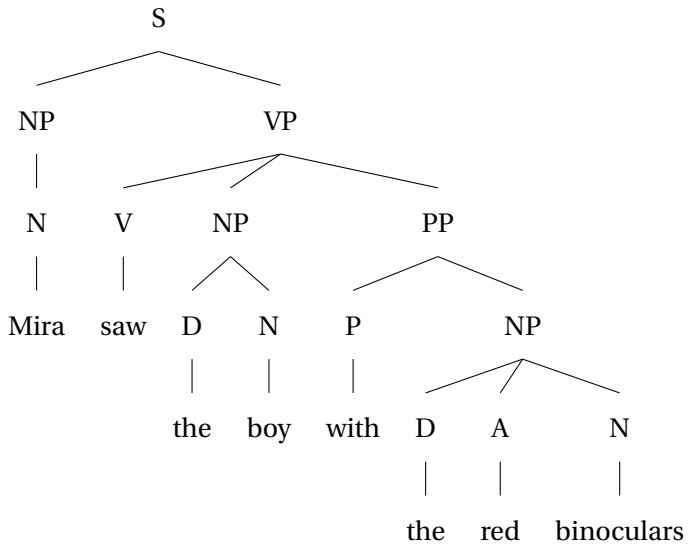
- One case is given by the fact that our rules allow PPs to attach to different phrases—either a VP or an NP. In many cases, both options yield valid, different meanings!

(7) Mira saw the boy with the red binoculars.

a. *Mira saw the boy who had the red binoculars*



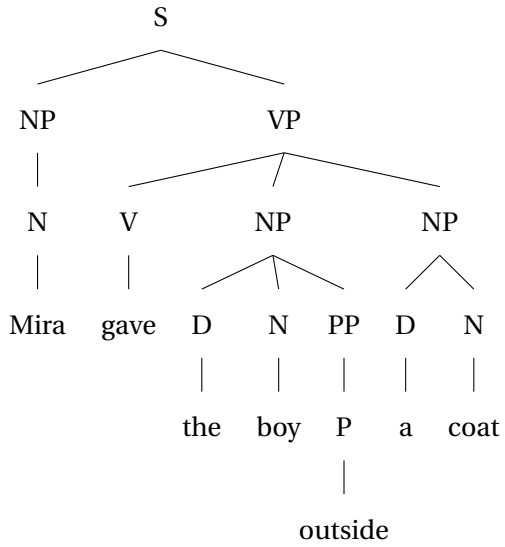
b. *Mira saw the boy by using the red binoculars*



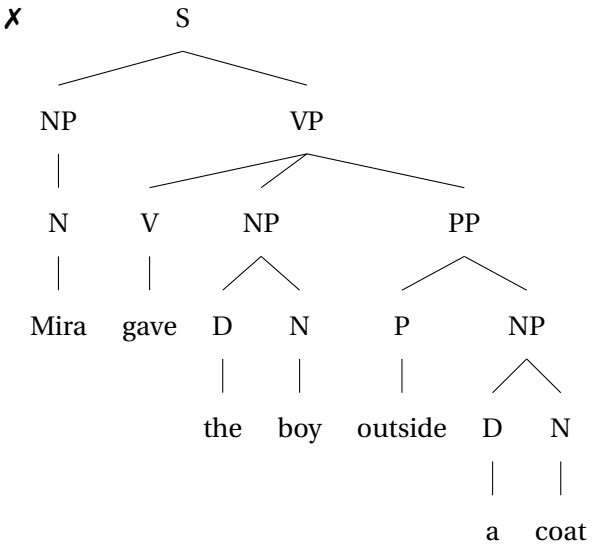
- There are other cases where the rules allow for more than one tree for a given sentence, but one tree does not match a sensible meaning.

(8) Mira gave the boy outside a coat.

a. ✓



b. ✗



This can also be seen by checking where it is possible to put *pauses* in the pronunciation of the sentence. This suggests that our analysis in terms of phrases at least partially matches facts about meaning and pronunciation of sentences.

(9) a. 👎Mira | gave | the boy | outside a coat.
b. Mira | gave | the boy outside | a coat.

Structural ambiguity

- Give two trees for the following sentence, and paraphrase what meanings they convey.

(10) Some brown dogs inside invited the black dog outside

Answer: