

## Syntax.

### Ambiguities from syntactic attachment.

- Syntax is the component of the grammar that contains the rules governing how to build sentences. E.g., it contains rules similar to (1) and (2), abbreviated in (1') and (2') respectively.
  - (1) If  $\phi$  is a proper noun and  $\psi$  is an intransitive verb, then the sequence  $\phi\psi$  (disregarding inflection) is a sentence.
  - (1')  $S \rightarrow N_{pr} V_{intr}$
  - (2) If  $\omega$  is a proper noun,  $\phi$  is an auxiliary verb and  $\psi$  is an intransitive verb, then the sequence  $\omega\phi\psi$  (disregarding inflection) is a sentence.
  - (2')  $S \rightarrow N_{pr} AUX V_{intr}$
  
- (3)
  - a. Bill walks.
  - b. Bill will walk.
  - c. \* Bill walk will.
  
- Descriptive vs. prescriptive grammar.
 

Note that we are using the notion of grammar (in particular, syntax) in a descriptive and not in a prescriptive way. The job of a linguist is to construct a grammar that generates all and only the utterances that a given group of speakers consider well formed in their dialect. This grammar may coincide or not with prescriptive grammaticality. Also, grammaticality has to be distinguished from mere semantic anomaly (the form of the sentence is fine, though the meaning is strange) and processing difficulty.
- (4)
  - a. The cat the nice is saw.
  - b. Who do you wonder whether Mary arrived?
  - c. Who do you think that saw Joanne?
  - d. Who do you think that Joanne saw?
  - e. Do you wanna come for lunch?
  - f. Pat didn't see nobody.
  - g. The child played with Sam and I yesterday.
  - h. Colorless green ideas sleep furiously.
  - i. The building is nice.
  - j. The building the guy built is nice.
  - k. The building the guy the woman hired built is nice.
  - l. The building the guy the woman John met hired built is nice.

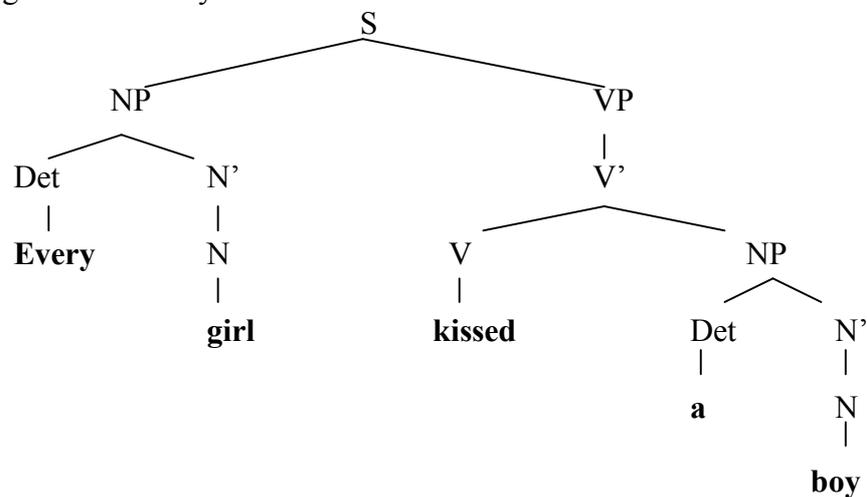
- The following is the set of syntactic rules we start with. In the exercises, some modifications may be made in order to tailor the syntax to the task at hand.

Diacritics: "a | b" means you can chose among a and b

- (5)
- |                                 |   |  |
|---------------------------------|---|--|
| S                               | → | NP VP  |
| NP                              | → | N <sub>pr</sub>  |
| NP                              | → | Det <sup>0</sup> N'  |
| N'                              | → | Adj <sup>0</sup> N'  |
| N'                              | → | N' PP  |
| N'                              | → | N' Conj'   |
| Conj'                           | → | Conj <sup>0</sup> N'   |
| N'                              | → | N <sup>0</sup>   |
| VP                              | → | Adv <sup>0</sup> VP  |
| VP                              | → | VP PP  |
| VP                              | → | V'   |
| V'                              | → | V <sup>0</sup> <sub>trans</sub> NP   |
| V'                              | → | V <sup>0</sup> <sub>intr</sub>   |
| PP                              | → | P <sup>0</sup> NP  |
| N <sub>pr</sub>                 | → | <b>John   Bill   Konstanz   Europe ...</b>   |
| N <sup>0</sup>                  | → | <b>cat   dog   boy   girl   table   binoculars   man   woman   students   professors   country   ...</b> |
| Det <sup>0</sup>                | → | <b>a   the   some   my   every   ...</b>   |
| Adj <sup>0</sup>                | → | <b>tall   small   nice   green   curious   favourite   ...</b>   |
| P <sup>0</sup>                  | → | <b>on   from   with   in   ...</b>   |
| V <sup>0</sup> <sub>trans</sub> | → | <b>see   like   help   kiss   call   come   ...</b>  |
| V <sup>0</sup> <sub>intr</sub>  | → | <b>run   sleep</b>   |
| Adv <sup>0</sup>                | → | <b>quickly   soon</b>  |
| Conj <sup>0</sup>               | → | <b>and   or   but</b>  |

- Running an example sentence:

- (6) Every girl kissed a boy.



■ Trees and syntactico-semantic units:

- Every lexical item or word is a syntactico-semantic unit (minimal units).
- Every complete sentence is a syntactico-semantic unit (maximal unit).
- The tree structure of a sentence specifies all its intermediate syntactico-semantic units.

(7)

Every mother node  $\alpha$  in a tree is a syntactico-semantic unit. In other words, for any node  $\alpha$ , all the lexical material under its daughter branches forms a syntactico-semantic unit that excludes material under other non-daughter branches.

The tree structure in (6) makes the following claims wrt the sentence **Every girl kissed a boy**:

- **Every girl kissed a boy** is a unit (in particular, a S).
- **Every girl** is a unit (a NP).
- **A boy** is a unit (a NP).
- **Kiss(ed) a boy** is a unit (a VP).
- **Every girl kiss(ed)** is NOT a unit in this sentence.
- **Girl kiss(ed) a** is NOT a unit in this sentence.
- Etc.

■ QUESTION 1: Draw the syntactic tree for the following sentence according to our grammar. Discuss what strings form a syntactico-semantic unit and what strings do not.

(8) A tall man from Konstanz helped a small boy.

■ QUESTION 2: For each of the following sentences, our grammar allows us to generate more than one tree. Each of those trees makes different claims about what the syntactico-semantic units of the sentence may be, and, in fact, each tree corresponds to a different meaning of the sentence. For each sentence, draw all the possible trees and explain in your own words the meaning that each tree attributes to the sentence.

(9) The boy saw the girl with the binoculars.

(10) John called a woman from my favorite country in Europe.

(11) Some curious students or professors from Konstanz came.