LIN 311 Syntax Recitation

Feb. 22, 2019

Review

- 1) Every word belongs to a **lexical category**
- 2) Lexical categories forms **phrases**
- 3) How phrases are formed is governed by **phrase structure rules**

Phrase structure format

CP	TP	VP	NP
PP	adjP	advP	XP

Phrase structure rules

General schema:

$X \rightarrow Y\ Z$

"X consists of Y followed by Z

Q: What is the phrase structure rule for PP/ NP/ AdjP/ AdvP/ VP/ TP/ CP in English?

Q: Name some characteristics of phrase structure rules.

Phrase Structure Rules

- are generative.
- give different analyses of syntactically ambiguous sentences.
- have a hierarchical structure.
- allow recursion.

Phrase Structure, Ambiguity, and Recursion

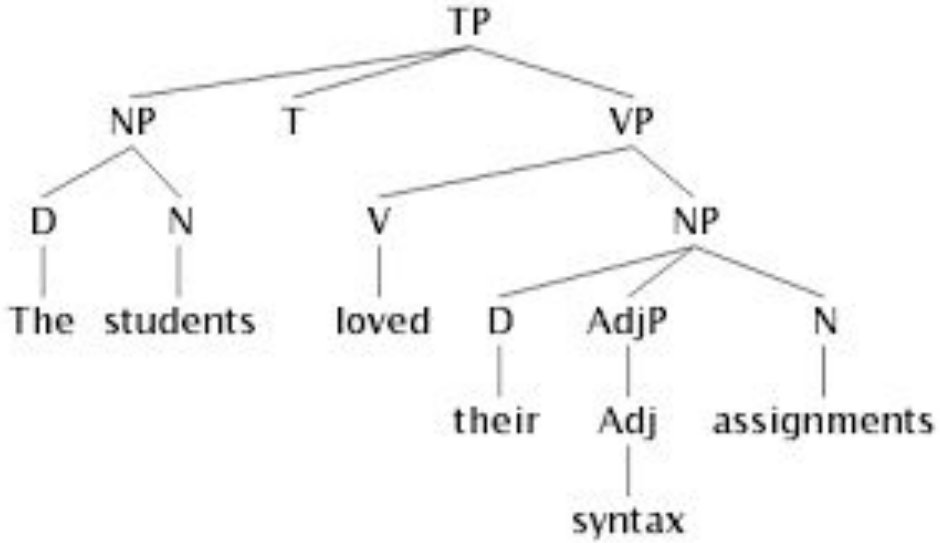
a) The daughter of the officer with the pink hat

Suppose the phrase structure rules are

NP → (Det) (AdjP) N (PP)
AdjP → Adj.
PP → P (NP)

Q: What are the two meanings?

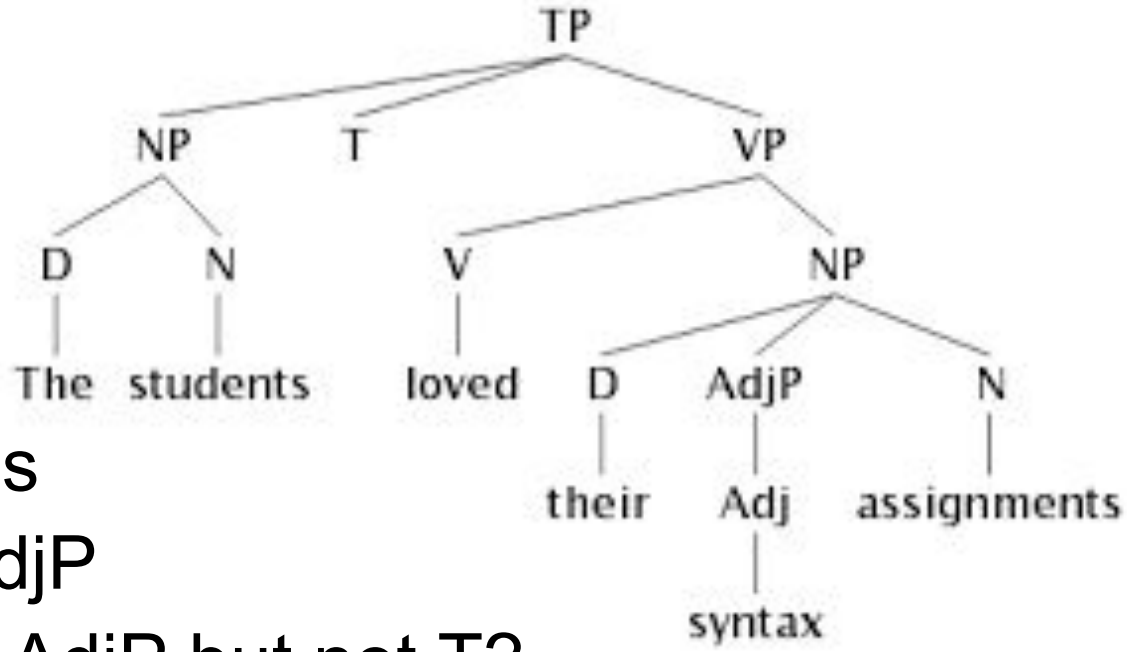
Q: Draw two trees that show the two meanings for this phrase



Tree Structure

- Branches
- Node
  - Phrasal nodes
  - Lexical nodes
  - Words
- **Mother**
- **Daughters**
- **Sisters**
- **Dominates**
- **Precedes**
- **Heads**

Structural relations



1. List all the nodes that VP dominates
2. List all the nodes that dominates AdjP
3. Which node dominates both V and AdjP but not T?
4. What is the mother of V?
5. What are AdjP's sisters?
6. Is V a daughter of T? Does AdjP precede D('their')?

Answers to Grammar Rules!

1. Sentences that the CFG can generate: B, D, G, I, K, M, Q

3. Redundant rule: 21 (VP -> IV PP) given that it is already generated by combination of 17 (VP -> IV) and 2 (VP -> VP PP)

Tree drawing software

- There are several standalone programs, both webapps and desktop apps, that you can use to enter tree structures, and they will render the structures as pictures for you.
- **phpSyntaxTree**: Given the input [S [NP [N Trees]] [VP [V grow] [PP in apps]]], this produces a PDF with the following image.

http://www.ironcreek.net/phpsyntaxtree/?PHPSESSID=edmnu94kgoftd19lee1vub9c31

- More ways of drawing trees

https://www.gouskova.com/2017/01/02/drawing-linguistic-structure-trees/