Constituency Parsing


- Study of word order and how words form sentences

- Why do we care about syntax?

  - Multiple interpretations of words (noun or verb? *Fed raises*... example)

  - Recognize verb-argument structures (who is doing what to whom?)

  - Higher level of abstraction beyond words: some languages are SVO, some are VSO, some are SOV, parsing can canonicalize

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Constituency Parsing

- Tree-structured syntactic analyses of sentences

- *Constituents*: (S)entence, (N)oun (P)hrases, (V)erb (P)hrases, (P)repositional (P)hrases, and more

- Bottom layer is POS tags

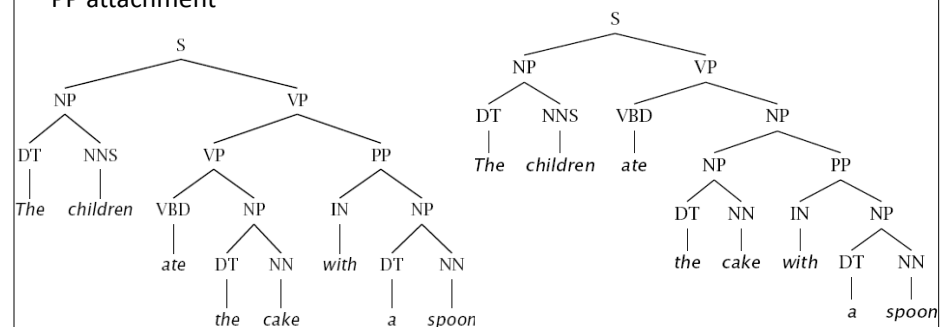- Examples will be in English. Constituency makes sense for a lot of languages but not all

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ternary rule

sentential complement

whole embedded sentence

unary rule

adverbial phrase
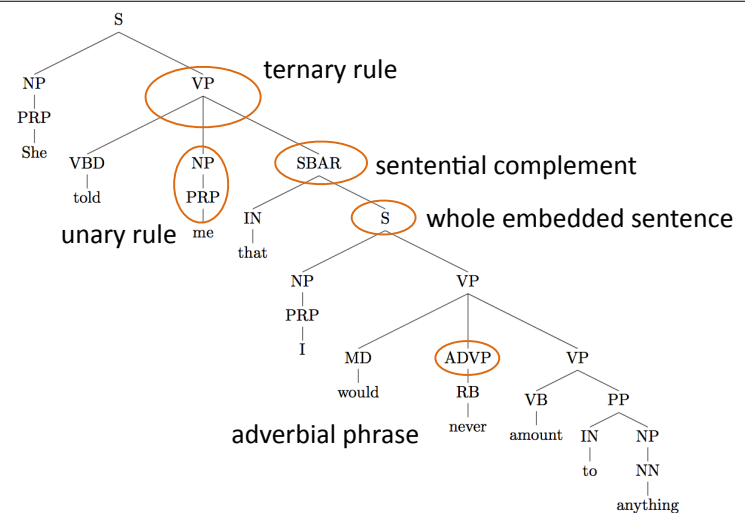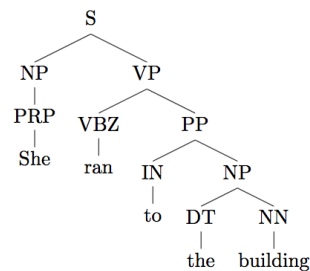
a refund   that   the court   estimated   *-1

Challenges

PP attachment

same parse as "the cake with some icing"

Challenges

Modifier scope:

plastic cup holder   plastic cup holder
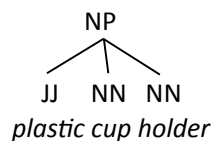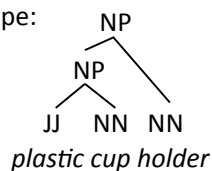
Complement structure:

The students complained to the professor that they didn't understand

Coordination scope:

The man picked up his hammer and saw
compare: *The man picked up his hammer and swung*

[Eisenstein book]

Constituency

▸ How do we know what the constituents are?

▸ Constituency tests:
  ▸ Substitution by *proform* (e.g., pronoun)
  ▸ Clefting (*It was with a spoon that...*)
  ▸ Answer ellipsis (What did they eat? *the cake*)
                    (How? *with a spoon*)

▸ Sometimes constituency is not clear, e.g., coordination: *she went to and bought food at the store*