Ling 120B: Syntax I

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April 4, 2022

Constituency and Constituency Tests I

One of the fundamental discoveries about the syntax of natural languages is that languages are *chunky*: words are organized into chunks or blocks of units that 'rules' can manipulate as blocks.

→ Languages don't just consist of strings of words.
They have syntactic structure.

Constituent:
A group of words that function together as a unit (Carnie: 76)
String that speakers can manipulate as a single chunk (Sportiche et al. (2014)

Constituency and Constituency Tests II

How do we identify the parts of sentences that form units?

We use *constituency tests!*

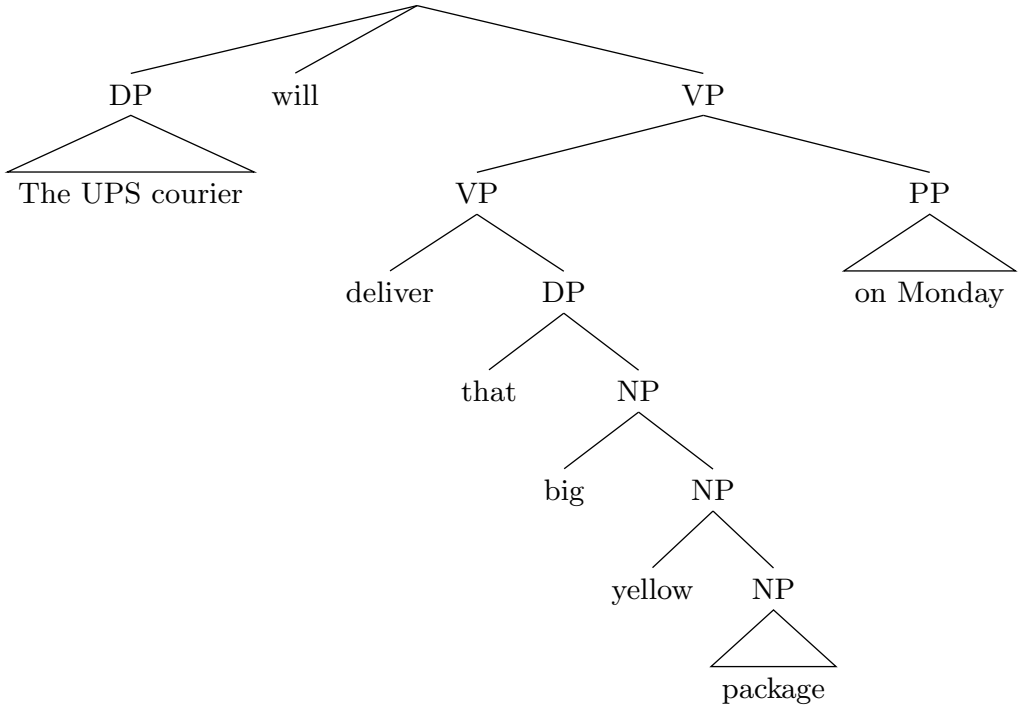
- To correctly use a constituency test, we must follow rules
- Constituency tests manipulate a string, and then we check whether the result is:

(i) grammatical

(ii) consistent in meaning

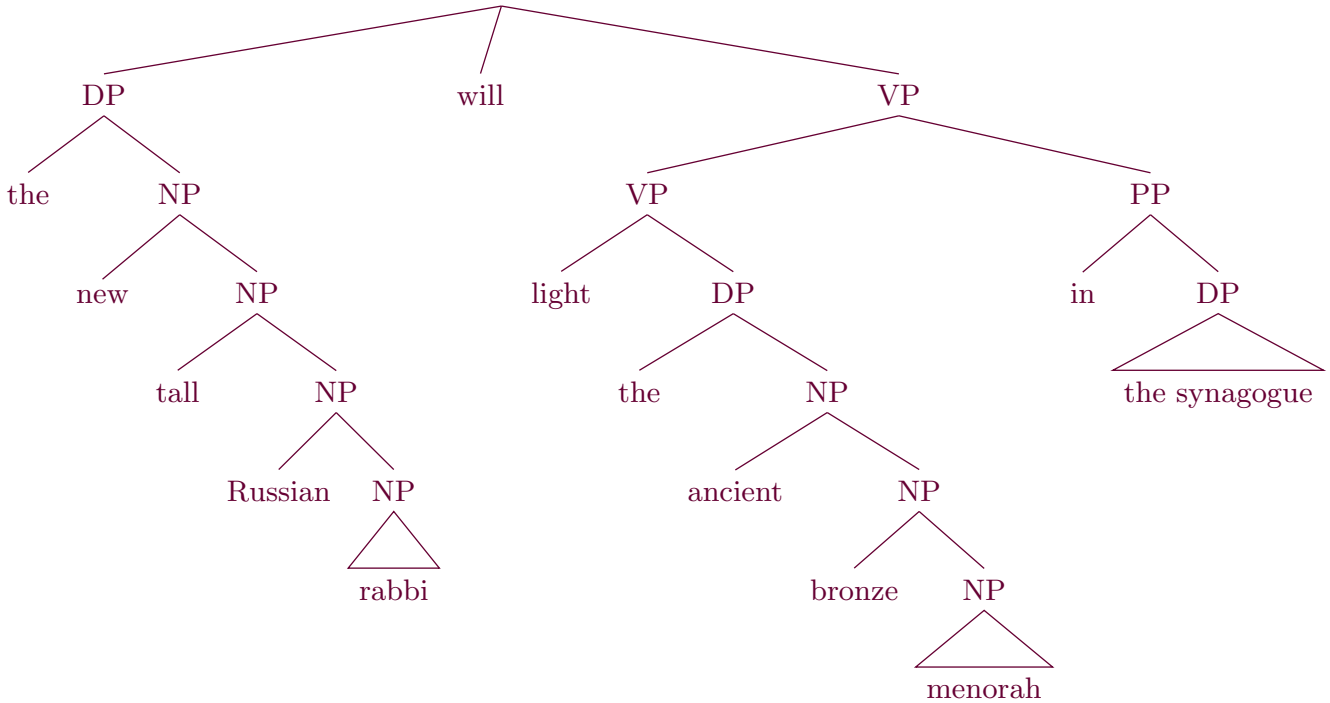
- Passing the test means: the string is a constituent.
- Not passing the test means: nothing.

Last time the constituency tests we ran gave us evidence for the following tree structure for *The UPS courier will deliver that big yellow package on Monday*:



Practice Draw a tree representation for the following sentence. For each constituent you draw, provide one experiment (constituency test) justifying it.

(1) That new tall Russian rabbi will light that ancient bronze menorah in the synagogue.



Coordination

Coordination Test:
Take two acceptable sentence of the form

[A B D] and [A C D]

where A, B, C and D represent (possibly null) substrings.
If the string [A B *and* C D] is acceptable with the same meaning
as [A B D *and* A C D], this is evidence that B and C are both constituents, and constituents of the same type.

Example

(2) a. John will send [$_B$ a card] to his mother.
b. John will send [$_C$a present] to his mother.

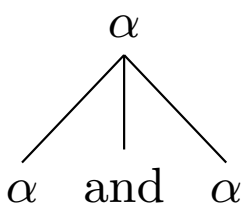
(3) John will send [$_B$ a card] to his mother *and* John will send [$_C$a present] to his mother.

(4) John will send [$_B$ a card] and [$_C$ a present] to his mother

We conclude that *a card* and *a present* are constituents of the same kind.

Coordination rule:

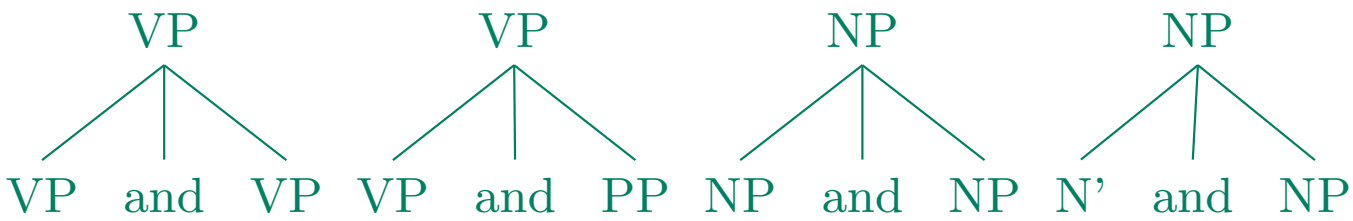
(5) $\underline{\alpha \rightarrow \alpha \textbf{ and } \alpha}$



[α: variable over NP, N, A, V, VP, Det, PP, TP...]

Practice: testing predictions

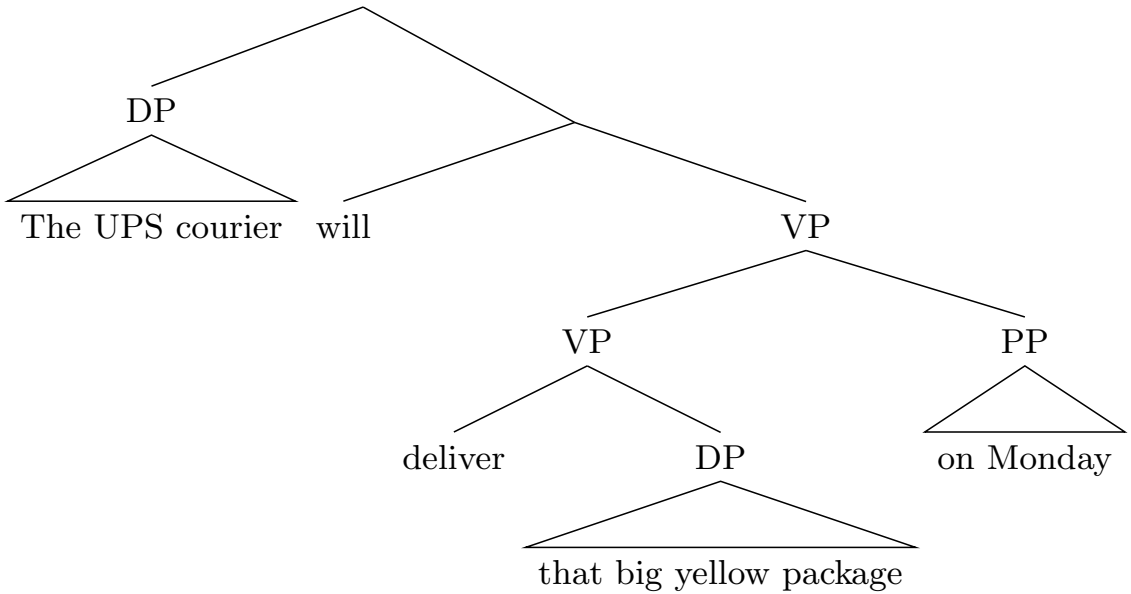
Which of the following structures are ruled out by (5)?



With this test, we can show that the auxiliary (or the modal) form a constituent with the VP to the exclusion of the subject:

(6) The UPS courier [will deliver that big yellow package on Monday] and [should do it by 8pm].

Let's update our tree!



→ Topicalization

Topicalization allows one to move a DP, PP or VP constituent to the front of a sentence. The moved constituent is called the (contrastive) topic.

Thus, topicalization can only affect constituents (but not all of them!).

(7) a. I really like **this book**.
b. **This book**, I really like.

(8) a. John gave tuna **to his cat**.
b. **To his cat**, John gave tuna.

Consider those failed attempts at topicalization. What can we conclude from them?

(9) John gave tuna to the cat of his neighbor.
a.*His neighbor, John gave tuna to the cat of <*his neighbor* >.

→ Clefting

Clefting is another construction where a constituent gets shuffled around. In this case, the affected constituent is called the focus.

Schematically, a cleft looks like this:
A B C ⇒ It's B that A C.

(10) John gave tuna to his cat
  a. It's **tuna** that John gave <*tuna*> to his cat.
  b. It's **to his cat** that John gave tuna <*to his cat*>.
  c. It's **his cat** that John gave tuna to < *his cat*>.
  d. It's **John** that <*John*> gave tuna to his cat.

If the result is acceptable, we have evidence that the string of words in focus form a constituent.

While VPs can be topicalized, they cannot be clefted.

(11)*It's give tuna to his cat that John did <*give tuna to his cat*>.

Practice

(12) a. The grizzled hiker saw the yeti at the gas station.
b. The grizzled hiker saw the yeti at the gas station.
c. The grizzled hiker saw the yeti at the gas station.
d. The grizzled hiker saw the yeti at the gas station.
e. The grizzled hiker saw the yeti at the gas station.

→ Pseudoclefts

Pseudoclefting is very similar to clefting in what it does to the information structure of the sentence.

A B C ⇒ What A C is B.

(13) What John gave <*tuna*> to his cat is **tuna**.

Pseudoclefts using a wh- word other than 'what' are judged marginal by most speakers. Because of this, 'John' is a difficult target.

(14) ?Who <*John*> gave tuna to his cat is John.

In most cases, PPs simply cannot be pseudoclefted.

In addition, something we probably want to call a VP pseudocleft is possible. (A B C ⇒ What A do C is B.)

(15) What John did <*give tuna to his cat*> is give tuna to his cat.

Practice

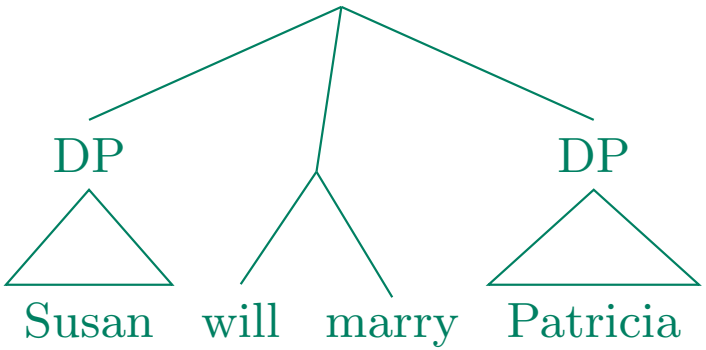
(16) a. Few new customers quickly adapt to these scandalous prices.
b. Few new customers quickly adapt to these scandalous prices.
c. Few new customers quickly adapt to these scandalous prices.
d. Few new customers quickly adapt to these scandalous prices.
e. Few new customers quickly adapt to these scandalous prices.

Practice: constituent analysis

Claim: The structure below is not a good structure for (17).

Your job is to provide a positive result from a constituency test that supports the claim above.

(17) Susan will marry Patricia.



Can you think of a constituency test result that supports the structure above instead?

Practice Draw a tree for (18).

- For each constituent you draw, provide one experiment justifying your conclusion. Don't draw any constituents you cannot justify.
- Assign a number to each node (with the exception of terminal nodes) and associate each node with the test that gives evidence for it.
    - please make sure to only write down R, the result of the test here.

(18) That handsome American writer will read these novels in the library.

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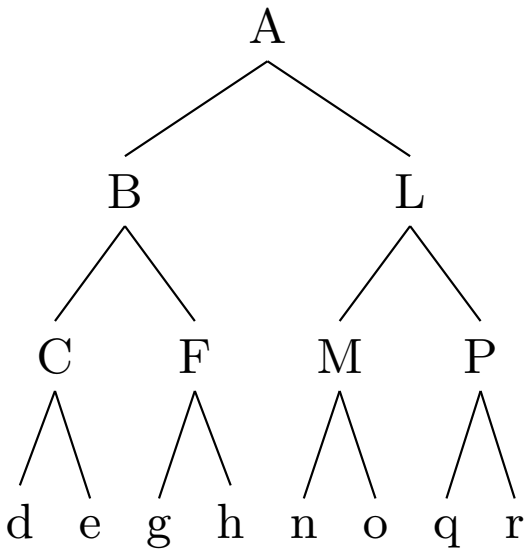
Structural relations

Branch
A line connecting two parts of a tree.

Node
Each point that is labeled with a word or a category is called a *node*. It is the end of a branch.

Label
The name given to a node.



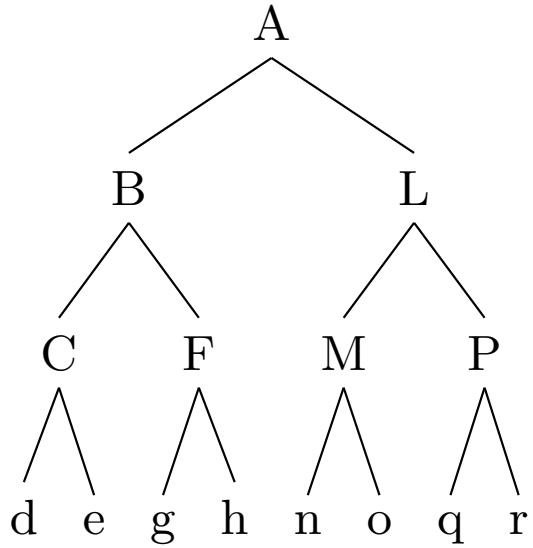
Dominance
A node α dominates a node β iff there exists a chain of two or more nodes $\alpha, \gamma_i, ..., \gamma_j, \beta$ such that each node is the mother of the next one. **(Roughly, α is an ancestor of β.)**

Root
The node that dominates all other nodes in a tree, and is itself dominated by none, is called the root *node*.

Leaf (or terminal node)
The nodes along the bottom of the tree are called *leaves*. They dominate nothing.

Non-terminal node
A node that dominates something. (A node that is a mother).

Immediate dominance
A node α immediately dominates a node β iff (i) α dominates β, and (ii) there is no node $\gamma \neq \alpha$ such that γ dominates β. **(In other words, α is β's mother.)**



Mother
A is the mother of B if A immediately dominates B.

Daughter
B is the daughter of A if B is immediately dominated by A.

Sisters
Two nodes that share the same mother.

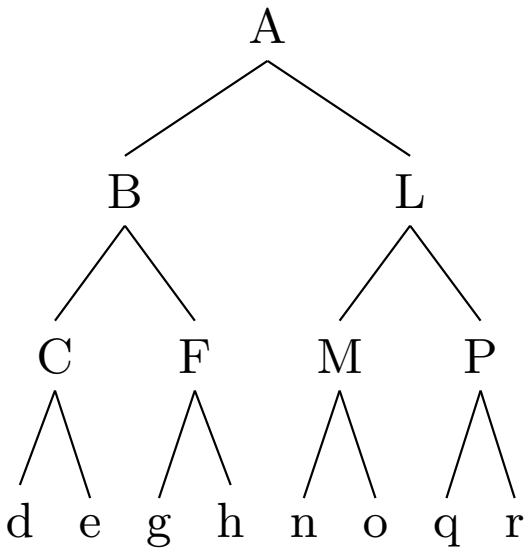
Sister Precedence
Node A sister-precedes node B if and only if both are immediately dominated by the same node, and A appears to the left of B.

Precedence

Node A precedes node B if and only if

(i) neither A dominates B nor B dominates A and

(ii) A (or some node dominating A) sister precedes B (or some node dominating B)



C(onstituent)-Command:

Node A c-commands node B if

(i) every node dominating A also dominates B;

(ii) and A does not itself dominate B

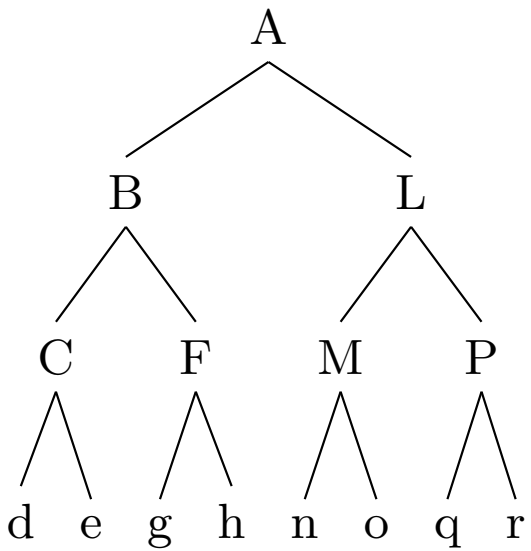
Asymmetric C-Command:

A asymmetrically c-commands B if A c-commands B but B does NOT c-command A.

Exhaustive dominance

A node α exhaustively dominates a set of terminal nodes N iff (i) α dominates every node in N (so that there is no member of the set N that is not dominated by α), and (ii) α does not dominate any terminal node not in N.

- Exhaustive dominance is useful to talk about the leaves of a tree (which are the lexical items).
- Leaves form a *constituent* precisely when there is a node in the tree to exhaustively dominate those leaves.

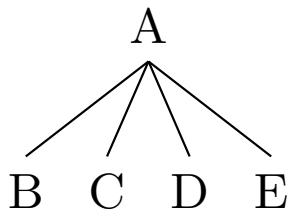


NOTA BENE: immediate domination is not a necessary condition for exhaustive dominance.

In tree (19), A exhaustively dominates B, C, D and E because:

- B, C, D and E are terminal nodes
- A dominates all of them
- there is no other terminal node dominated by A (i.e B, C, D and E are the only terminal nodes dominated by A.

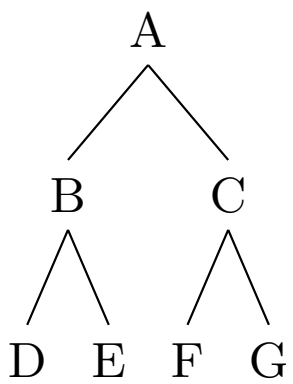
(19)



In structure (20), A exhaustively dominates D, E, F, G because:

- D, E, F and G are terminal nodes
- A dominates all of them (it does not matter that it does not immediately dominate them)
- there is no other terminal node dominated by A (i.e D, E, F and G are the only terminal nodes dominated by A.

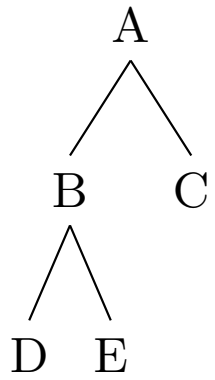
(20)



In structure (21), A exhaustively dominates D, E and C but it does not exhaustively dominate D and E, because:

- it is true that D and E are terminal nodes
- it is also true that A dominates all of them (it does not matter that it does not immediately dominate them)
- but there is another terminal node (namely C) which is dominated by A.

(21)



Practice Draw a tree with the following properties:

- non-binary branching nodes are forbidden;
- A is a root node;
- b, c, d, e, f and g are all terminal rodes;
- A, H, M, P and S are not-terminal nodes;
- H sister-precedes M;
- H does not dominate P;
- P asymmetrically c-commands H and M;
- S dominates M;
- S sister-precedes P;
- A does not immediately dominate H;
- H exhaustively dominates { g, c }
- c precedes e;
- b precedes f;
- b sister-precedes d;
- c does not sister-precede g;
- f does not sister-precede e.

Syntactic Ambiguity

A sentence can have more than one meaning. It's called 'ambiguity'

It comes in two flavors:

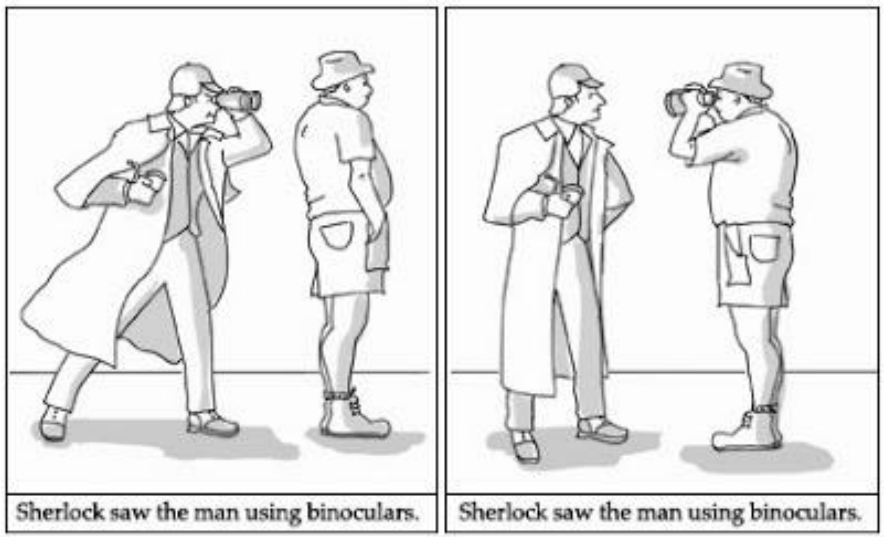
→ **Lexical ambiguity** uses words with more than one meaning.

(22) Peter went to the bank.
  a. ≡ Peter went to the financial institution.
  b. ≡ Peter went to the side of the river.

There are two lexical entries for 'bank': $bank_1$ and $bank_2$.

→ **Structural ambiguity** ambiguous due to the structure or constituency of the sentence.

The relationship between structure and meaning is systematic!



→ The grammar allows certain kinds of structural ambiguity

(23) The man killed the king with the knife.

(24) Fred said that Mary had arrived yesterday

→ The Principle of Modification determines the meanings of the different structures

Principle of modification

An adjunct contributes its meaning to the category it combines with syntactically. (simplified from Carnie:96)

→ We can use constituency tests to manipulate the structure and show that

- The ambiguities are structural
- The meanings are as presided by the Principle of Modification

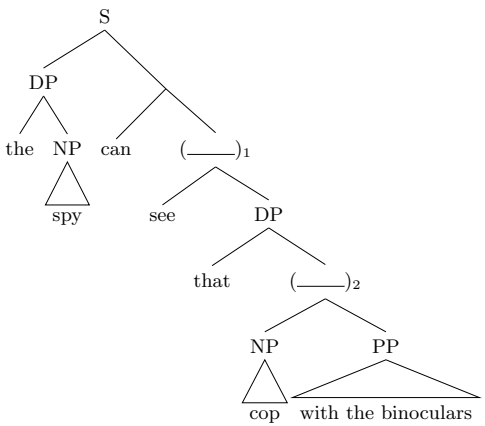
Adjunction ambiguity: First Case

(25) The spy can see that cop with the binoculars.

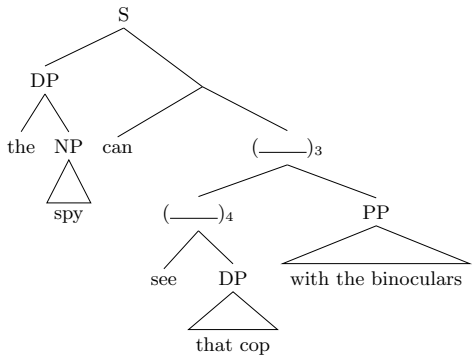
a. ≡ _____

b. ≡ _____

Tree 1



Tree 2



NB: Each tree has an unambiguous interpretation!

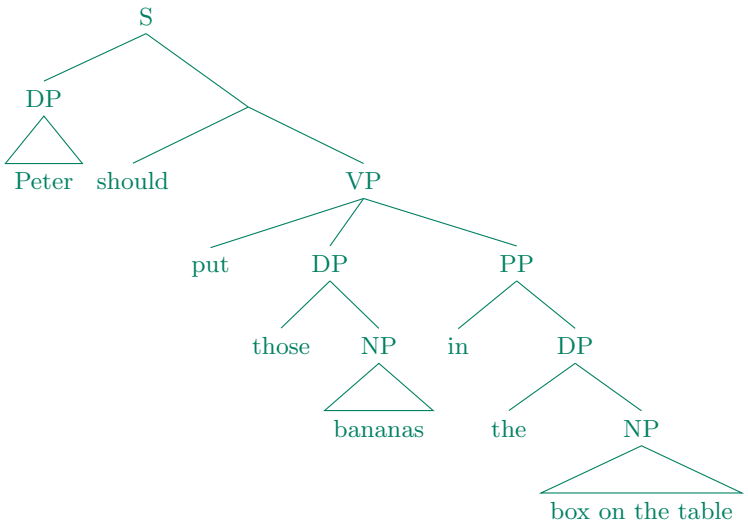
- Pair each tree up with the meaning of each sentence;
- Label the nodes 1,2,3 and 4;
- Explain how at least one of the tests supports the structure in the first tree but not the second and how at least one test supports the structure in the second tree but not in the first.

Adjunction ambiguity: Second Case

For you to practice!

Consider the following ambiguous sentence:

(26) Peter should put those bananas in the box on the table.



- Draw the other tree structure.
- Pair each tree up with the meaning of each sentence;
- Explain how at least one of the tests supports the structure of one tree but not the other.