CAS LX 522  
Syntax I

Week 4b. Tree geometry and c-command

Trees
- The “joints” of the tree are nodes. The nodes here are labeled (with node labels).
- Nodes are connected by branches.
- The node at the top of the tree (with no branches above it) is called the root node. A is the root node.

Trees
- Nodes with no branches beneath them are called terminal nodes.
  - B, D, E are terminal nodes.
- Nodes with branches beneath them are called nonterminal nodes.
  - A, C are nonterminal nodes.

Tree relations
- A node X dominates nodes below it on the tree; these are the nodes which would be pulled along if you grabbed the node X and pulled it off of the page.
  - C dominates D and E.

Tree relations
- A set of terminal nodes is a constituent if they are all dominated by the same node and no other terminal nodes are dominated by that node.
  - “D E” is a constituent.
  - “B D” is not.

Tree relations
- A node X immediately dominates a node Y if X dominates Y and is connected by only one branch.
  - A immediately dominates B and C.
  - A is also sometimes called the mother of B and C.
Tree relations

- A node which shares the same mother as a node X is sometimes called the sister of X.
- B is the sister of C.
- C is the sister of B.
- D is the sister of E.

Tree relations

- A node X c-commands its sisters and the nodes dominated by its sisters.
- B c-commands C, D, and E.
- D c-commands E.
- C c-commands B.

X-bar configurations

- The complement is the sister of the head.
- The specifier is the sister of X that is a daughter of XP.

Precedence

- The tree also encodes the linear order of the terminal nodes.
- The is pronounced before students.
- Saw is pronounced before the and students.

Precedence

- That is, V is pronounced before NP, meaning V is pronounced before all of the terminal nodes dominated by NP.

Precedence

- Even if the tree is drawn sloppily, nothing changes—(everything dominated by) V is pronounced before (everything dominated by) NP. This is still “saw the students”.

\[
\text{NP} \quad \text{D} \quad \text{the} \quad \text{students} \\
\text{VP} \quad \text{Saw} \quad \text{the} \quad \text{students} \\
\text{VP} \quad \text{saw} \quad \text{NP} \\
\text{NP} \quad \text{the} \quad \text{students} \\
\text{VP} \quad \text{saw} \quad \text{NP} \\
\text{NP} \quad \text{the} \quad \text{students}
\]
No line crossing

- One of the implications of this is that you cannot draw a well-formed tree with lines that cross.
  - The can’t be pronounced before V because The is part of DP and V has to be pronounced before all of DP.

Tree relations
- John walked to the store.
  - What does DP dominate? PP? IP?
  - What does the c-command? walk?
  - What are the daughters of IP? PP?

Negative Polarity Items
- Certain words in English seem to only be available in “negative” contexts.
  - Pat didn’t invite anyone to the party.
  - Pat does not know anything about syntax.
  - Pat hasn’t ever been to London.
  - Pat hasn’t seen Forrest Gump yet.
  - *Pat invited anyone to the party.
  - *Pat knows anything about syntax.
  - *Pat has ever been to London.
  - *Pat has seen Forrest Gump yet.

Negative Polarity Items
- These are called negative polarity items.
  - They include ever, yet, anyone, anything, any N, as well as some idiomatic ones like lift a finger and a red cent.
    - Pat didn’t lift a finger to help.
    - Pat didn’t have a red cent.
    - *Pat lifted a finger to help.
    - *Pat had a red cent.

Any
- Just to introduce a complication right away, there is a positive-polarity version of any that has a different meaning, known as the “free choice any” meaning. This meaning is distinguishable (intuitively) from the NPI any meaning, and we are concentrating only on the NPI any meaning—for now, we will just consider any to be ambiguous, like bank.
  - John read anything the professor gave him.
  - Anyone who can understand syntax is a genius.
  - Pick any card.

Licensing
- NPI’s are only allowed to appear if there’s a negative in the sentence.
- We say that negation gives them “license to appear”: NPI’s are licensed by negation in a sentence.
  - Just like you need a driver’s license to drive a car (legally), you need negation to use a NPI (grammatically).
Negative Polarity Items

- But it’s not quite as simple as that. Consider:
  - I didn’t see anyone.
  - *I saw anyone.
  - *Anyone didn’t see me.
  - *Anyone saw me.
  - It seems that simply having negation in the sentence isn’t by itself enough to license the use of an NPI.

Negative Polarity Items

- As a first pass, we might say that negation has to precede the NPI.
  - I didn’t see anyone.
  - *Anyone didn’t see me.

- But that’s not quite it either.
  - *[That John didn’t stay] surprised anyone.
  - [That John didn’t stay] didn’t surprise anyone.

Negative Polarity Items

- *[That John didn’t stay] surprised anyone.
- [That John didn’t stay] didn’t surprise anyone.

Structural ambiguity

- John said that Bill slipped in the kitchen.
- This sentence has two possible meanings; either John said it in the kitchen, or Bill slipped in the kitchen (according to John).
  - John said that Bill will leave yesterday.
  - John said that Bill will leave tomorrow.

Negative Polarity Items

- John said that Bill didn’t slip in any room in the house.
- Suddenly, it has only one meaning. Why?
  - John said: In no room did Bill slip.
  - *John said in any room: Bill didn’t slip.
Negative Polarity Items
- How about:
  - John didn’t say that Bill slipped in any room in the house.
  - What do we predict?

Negative Polarity Items
- John didn’t say that Mary slipped in any room in the house.
  - …He said that when he was out in the yard…
  - …He said that she slipped on the sidewalk…

  Both meanings are good, because both possible structural positions for the NPI are c-commanded (thus licensed) by the negation.

Anaphors
- Recall from the first week the anaphors: *himself, herself, themselves, myself, yourself.*
- Anaphors get their reference from somewhere else, necessarily. Their antecedent.
  - I saw myself in the mirror.
  - John cut himself shaving.
  - *Himself left.

Anaphors
- John’s pictures of himself disturb me.
- *John’s pictures of me disturb himself.
- *John’s mother drew pictures of himself.
- John’s mother drew pictures of herself.
- The man near Mary adores himself.
Anaphors

- Anaphors also need to find their antecedent “nearby.”
  - John saw himself in the mirror.
  - *John said that Mary saw himself in the mirror.

- Binding Theory. Principle A. An anaphor must be bound within its binding domain.

Principle A

- Principle A. An anaphor must be bound in its binding domain.

- Binding domain: The extent of “nearby”.
- Bound: getting its reference from a c-commanding antecedent.
- Mary said that [IP John, hurt himself].

Principle A

- The definition of binding domain is very complicated (this occupied many syntacticians in the early ’80s).
- A clause (IP) delimits a binding domain.
- But other things do too…
  - Mary likes [DP John’s picture of himself].
  - *Mary, likes [DP John’s picture of herself].
  - Mary wants [DP a picture of herself].

Binding domain

- Let’s say this:
- The binding domain for an anaphor is the smallest of:
  - A CP that dominates it.
  - A DP with a specifier that dominates it.
- Note! This is not perfect, but it is a pretty close approximation.