Drawing X-bar Trees
How to draw trees in X-bar notation
Step 1: Identify the parts of speech for all the words in the sentence

Step 2: figure out what words "go together in phrases"

Step 3: apply the rules backwards (bottom up) to build the tree.

- **Determine whether the modifier is a complement, adjunct, specifier** -- REMEMBER, adjuncts are sisters to $X'$, complements to $X$.

- **Start with the modifiers closest to the head**

Step 4: now check your tree against your rules. Start at the top, and check that each set of lines can be generated by the rules.
None of the Rules are optional

minimal X’ structure

XP
  X’
  X

NP
  N’
  N
  people
Warning

Be very careful about Adjuncts!!!!
They must be daughter of X’ and sister of X’

NP
  D
  the
  N’

N’

N
student

PP

from Phoenix
Warning

Be very careful about Adjuncts!!!!
They must be daughter of X' and sister of X'

NP
  D          N'
    the

N'

N
  !

N'

PP
  from Phoenix

student
The man from Brazil found a book of poems in the puddle
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Parameters of Word Order

How X-bar theory accounts for (some of) the word orders of the World’s Languages
The English X-bar rules

- **The Specifier Rule:** \( \text{XP} \rightarrow (\text{YP}) \text{ X'} \)
- **The Adjunct Rule:** \( \text{X'} \rightarrow \text{X'} (\text{ZP}) \) or \( \text{X'} \rightarrow (\text{ZP}) \text{ X'} \)
- **The Complement Rule:** \( \text{X'} \rightarrow \text{X} (\text{WP}) \)

In English, the specifier is on the left, the complement on the right, and the adjuncts can appear on either side.

PROPOSAL: the side that specifiers/adjuncts/complements appear on can vary depending upon the language.
Generalized X-bar Rules
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The Specifier Rule: \[ XP \rightarrow (YP) X' \text{ or } XP \rightarrow X' (YP) \]
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The Specifier Rule: \[ XP \rightarrow (YP) X' \] or \[ XP \rightarrow X' (YP) \]

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Generalized X-bar Rules

The Specifier Rule: \( XP \rightarrow (YP) \ X' \) or \( XP \rightarrow X' (YP) \)

The Adjunct Rule: \( X' \rightarrow X' (ZP) \) or \( X' \rightarrow (ZP) X' \)

The Complement Rule: \( X' \rightarrow X (WP) \) or \( X' \rightarrow (WP) X \)
*[TP[NP Policeman the] [VP Mary kissed]]
*[TP[NP Policeman the] [VP Mary kissed]]
The basic idea:
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- Every speaker has the generalized X-bar theory as part of their minds (part of Universal Grammar (UG))
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- Each language only uses a subset of the options. These options are called parameters.

- When a child learns a language it looks for certain cues in the input data to set its parameters.
Parameters

XP \rightarrow (YP) \quad X' \quad X' \rightarrow X' (ZP) \quad X' \rightarrow X (WP)

XP \rightarrow X' (YP) \quad X' \rightarrow (ZP) \quad X' \quad X' \rightarrow (WP) \quad X
English Parameter settings

- **Specifiers precede heads:**
  
  the basketball
  
  $\text{XP} \rightarrow (\text{YP}) \ X'$

- **Adjuncts can be on either side:**
  
  often kiss intensely.
  
  $\text{X}' \rightarrow \text{X}' (\text{ZP})$ or $\text{X}' \rightarrow (\text{ZP}) \ X'$

- **Complements are on the right (follow the head):**
  
  bucket of chicken
  
  $\text{X}' \rightarrow \text{X} (\text{WP})$
Turkish, an OV language

Hasan kitab-i oku-du
Hasan-subject book-object read-past
“Hasan read the book”

complement parameter set to: $X' \rightarrow (WP)\ X$

we will assume that the side that subjects appear on is the same as the side as specifiers, so the specifier rule of Turkish is set the same as English.
By choosing the precise set of the three parameters we can derive the word order of most of the world’s languages.

But not all! (e.g., VSO languages) more on this in later units.