

# Ling 120B: Syntax I

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# Syntactic Ambiguity

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

It comes in two flavors:

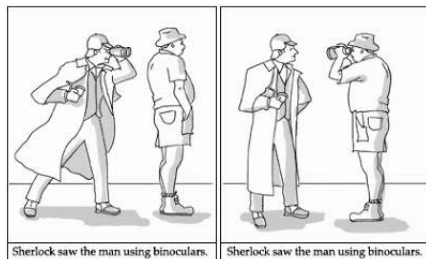
→ **Lexical ambiguity** uses words with more than one meaning.

- (1) Peter went to the bank.
- a.  $\equiv$  Peter went to the financial institution.
  - b.  $\equiv$  Peter went to the side of the river.

There are two lexical entries for 'bank': *bank*<sub>1</sub> and *bank*<sub>2</sub>.

→ **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

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

(3) 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

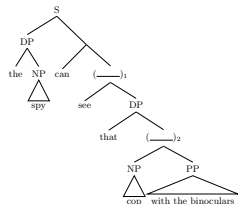
- The ambiguities are structural
- The meanings are as presided by the Principle of Modification

# Adjunction ambiguity: First Case

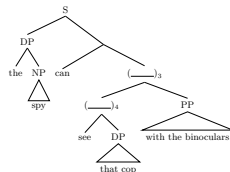
(4) The spy can see that cop with the binoculars.

- a.  $\equiv$  \_\_\_\_\_  
b.  $\equiv$  \_\_\_\_\_

**Tree 1**



**Tree 2**



**NB:** Each tree has  
an unambiguous  
interpretation!

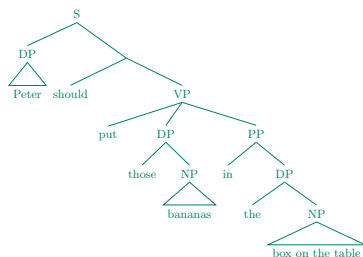
- Pair each tree up with the meaning of each sentence;
- Label the nodes 1,2,3 and 4;
- Explain how at least one of the tests supports the structure in the first tree but not the second and how at least one test supports the structure in the second tree but not in the first.

## Adjunction ambiguity: Second Case

### For you to practice!

Consider the following ambiguous sentence:

(5) 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.

# Ambiguity in coordinated structures I

Consider the following sentences:

(6) [ The mother of Peter and John ] met for the first time.

(7) [ The mother of Peter and John ] is baking a cake.

The phrase [ the mother of Peter and John ] is interpreted in two different ways in (6) and (7).

- Can you explain the difference?
- Is this a case of structural or lexical ambiguity?
- If you think that the ambiguity is structural, can you explain what the different structures are?

## Where we are

- We know that sentences exist! (So far, we have been using the label ‘S’ for sentences)
- Based on constituency tests, we have been able to identify:
  - Verb Phrases (VPs);  
*do so replacement test; topicalization; pseudo-clefting; coordination ...*
  - Determiner Phrases (DPs);  
*replacement using a pronoun; topicalization; clefting; pseudo-clefting; coordination ...*
  - Noun Phrases (NPs);  
*substitution by ‘one(s)’; coordination; ...*
  - Prepositional Phrases (PPs);  
*replacement test (there, then...); topicalization; clefting; coordination...*

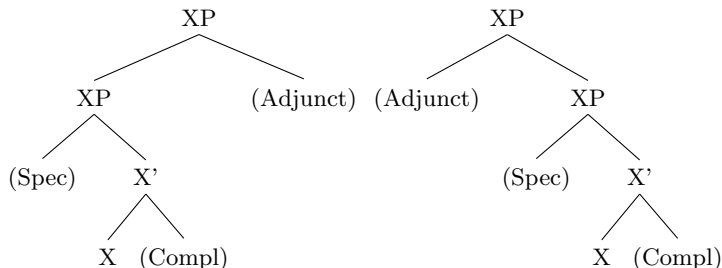
We also came across other parts of speech (adjectives, adverbs), modal verbs (should, will, must, can...)



## X-bar Theory: a first glance I

Behind the range of diverse constructions that English and other languages allow, we find surprising uniformity and regularity.

- Today we introduce the idea that the rule system that underlies our phrases is very simple.
- Every phrase looks the same!
- For English, syntax will be the iteration of:



This is called **X-bar Theory**.

## X-bar Theory: a first glance II

X-Bar theory is a theory that tries to eliminate phrase structure idiosyncrasies: every phrase looks the same.

- Every phrase is the projection of some lexical category: N, V, A, Adv...
- The system of projected constituency is common to all categories.

We need to distinguish between 4 types of elements:

- |                      |                     |
|----------------------|---------------------|
| • <b>heads</b>       | • <b>specifiers</b> |
| • <b>complements</b> | • <b>adjuncts</b>   |

We'll start by justifying the distinction between complements and adjuncts.

## Puzzle I

What's the difference between the following two sentences? They look very similar, but they are structurally different, as the replacement tests show:

- (8) Fred met that **student** with a red sweater.  
→ Fred met that **one** with a red sweater.
- (9) Fred met that **student** of computer science.  
→ \*Fred met that **one** of computer science.

How do we explain this asymmetry?

## Puzzle II

Something similar happens in the case of Verb Phrases. Consider the asymmetry between *intransitive verbs* like ‘leave’ and *transitive verbs* like ‘return’ w.r.t. *do so* replacement:

- (10) Fred **left** on Monday.  
→ Fred **did so** on Monday.
- (11) Fred **returned** the assignments on Monday.  
→ \*Fred **did so** the assignments on Monday.

How do we explain this asymmetry?

## Puzzle III

We need to distinguish between:

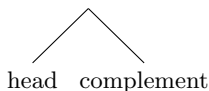
- (i) complements and (ii) adjuncts

They are structurally different. The X-bar theory gives us a way to express this difference.

Take a ‘head’ of some category (N, V, Adj, Adv, D...).

→ in our examples [<sub>N</sub> student ] and [<sub>V</sub> return ] or [<sub>V</sub> leave ].

Then the complement is merged as the sister of the head that selects them.



Whereas adjuncts require more structure.

**We'll come back to this puzzle!**

# Head

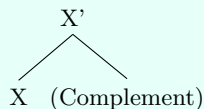
- Every phrase contains exactly one head of some category (N, V, Adj, Adv, D...)
- Every head is contained within a phrase of the same category.
- The head is present in all cases. Whether a complement or a specifier is needed is a case-by-case thing.
- The head of a constituent projects its label (lexical category) to that constituent.
- The head of a constituent tells us the distribution of that constituent.
- The head selects its sister constituent.

# Complements I

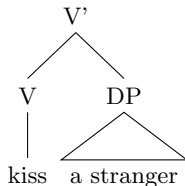
- Complements are selected by the head as their sisters.
- They are merged into the structure as a result of the complement rule.

Complement Rule (for English and head-initial languages)

$X' \rightarrow X \text{ (Complement)}$



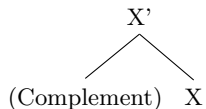
## Example



## Complements II

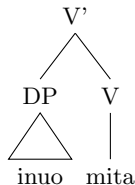
Complement Rule (for head-final languages)

$X' \rightarrow (\text{Complement}) X$



### Example

- (12) taro-wa inu-o mita  
taro-TOP dog-acc saw  
'taro saw the/a dog' (**Japanese**)



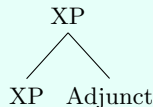


# Adjuncts

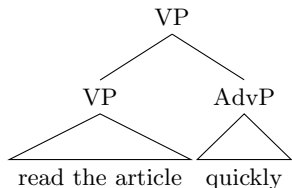
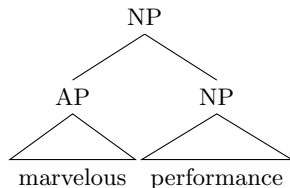
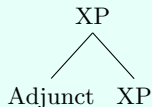
- Adjuncts are modifiers which modify the phrase.
- They are sisters to phrases (XPs, not X' or X!).
- They tend to be optional.
- In English they can both precede and follow their sister.

## Adjunct Rule.

$XP \rightarrow \text{Adjunct } XP$



$XP \rightarrow XP \text{ Adjunct}$

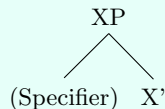


# Specifiers

→ Specifiers are merged into the structure as the sister of X'.

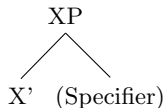
Specifier Rule (for English)

$XP \rightarrow (\text{Specifier}) X'$

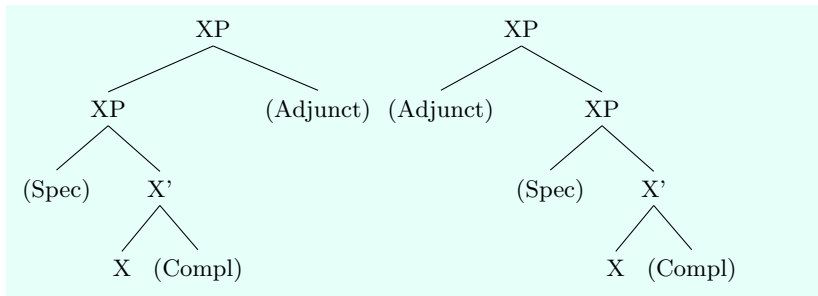


Specifier Rule (for languages such as Malagasy)

$XP \rightarrow X' (\text{Specifier})$

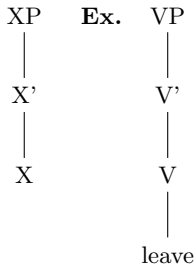


This means that the English syntax is the iteration of:

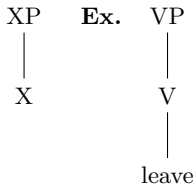


## How to write a X-bar compliant tree:

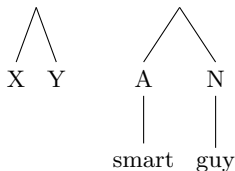
- For every head you want to have three layers:



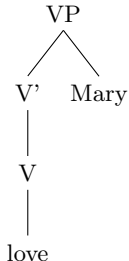
- If there is no specifier, you can omit the X-bar level:



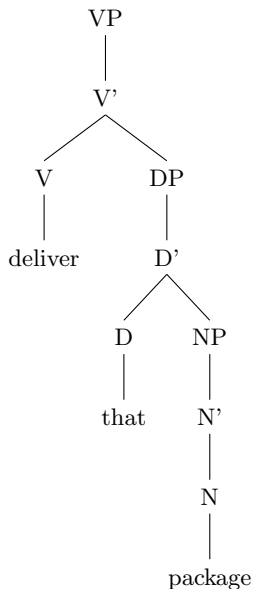
- Both the specifier and the complement are phrases. Don't draw trees like this:



- Complements are sisters of the head that selects them. Don't attach complements to higher projections of the head!



So [<sub>VP</sub> deliver that package] now looks like this:



## Practice

Draw X-bar compliant trees for the following VPs:

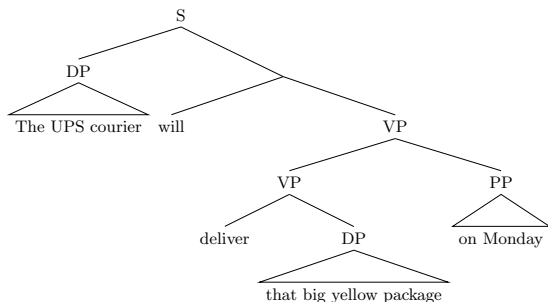
- (13) a. Melissa will [<sub>VP</sub> date that guy ]  
b. Fred should [<sub>VP</sub> run ]

# Sentences



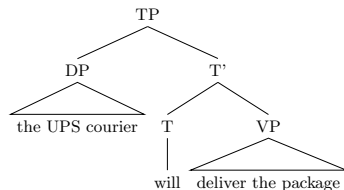
## Tense Phrases (TPs) I

We've been using S for sentences. That does not seem to follow the X-bar schema.



We are going to adopt a new system where Tense is the head of sentences.

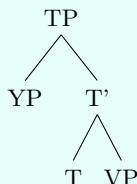
## Tense Phrases (TPs) II



The X' schema then will apply to TPs as well:

### TP:

- The head: T
- Complement: VP
- Specifier: The subject (DP or CP)



# Tense Phrases (TPs) III

## Realization of T

- T can be **free**

- the non-finite T head 'to'

(14) They prefer for Mary *to* leave.

- modals

(15) Mary should leave.

- T can be **bound**

- [+pres]

(16) Mary runs every morning.

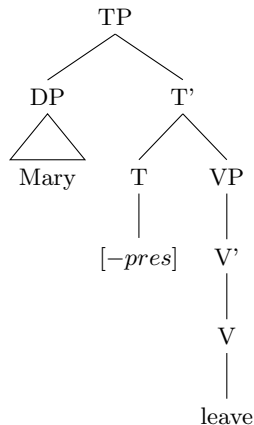
- [-pres] or *-ed*

(17) Mary left.

## Tense Phrases (TPs) IV

### Bound morphemes in tree structures

- the bound morpheme is in T;  
+pres or [-pres] (*-ed*, *-s* are also fine!)
- the VP is headed by the bare verbal form.



# Tense Phrases (TPs) V

Here are the lexical entries:

<b>to</b>	T	free	selects DP/CP	c-selects VP	
<b>will</b>	T	free	selects DP/CP	c-selects VP	meaning: future
<b>[+pres]</b>	T	bound	selects DP/CP	c-selects VP	meaning: present
<b>[-pres]</b>	T	bound	selects DP/CP	c-selects VP	meaning: past

Lexical entries specify the basic properties of the syntactic atoms (heads), including the category and all the selectional properties. Only unpredictable properties that the speaker has to acquire should be included!

Selection = the type of phrase that the head requires in its specifier (or subject) position.

C-selection = complement selection. It tells us what kind of sister a particular head is selecting for.

## Practice

Draw a X-bar compliant tree for the following sentence (feel free to use a triangle for the AP):

(18) The waiter loves that fancy chair.