

- ***Do* Insertion**
- **Syntax beyond English**

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*Background reading:*

- CL Ch 5, Appendix section on “Using Move”
- CL Ch 5, sec 4 through p 195 (up to French V)

## 0. Course information

- **HW #8 is due at 10:10** (on time until **10:30**)
  - Please put it in the pile on the table that is labeled with your TA's name & recitation number
  - **Make sure your recitation number is visible on your homework paper!**

*Yuhan (10:10) —601*

*Esther (10:10) —602*

*Esther (11:15) —603*

*Yuhan (11:15) —604*

# 1. Review and context for this discussion

- What do we do when we find sentences for which our model is making the **wrong prediction**?
  - Add or change some aspect of our model in order to make the predictions better
- So far, our syntax model (for English) contains:
  - the **X' schema** (how to combine words into phrases)
  - the **modifier structure** (for 'extra' phrases)
  - **complement options** (chosen by specific heads)
  - **movement rules**, including Inversion (T to C if +Q) and *Wh* Movement (*Wh* phrase to specifier of CP)

## 2. Questions with no auxiliary

- *Data:* How do speakers of English form a question when **there is no modal auxiliary** in T?
- Try it: What happens when you make a *yes-no* question from the following sentence?

*Her brother likes cats.*

## 2. Questions with no auxiliary

- *Data:* How do speakers of English form a question when **there is no modal auxiliary** in T?
- Try it: What happens when you make a *yes-no* question from the following sentence?

*Her brother likes cats.*

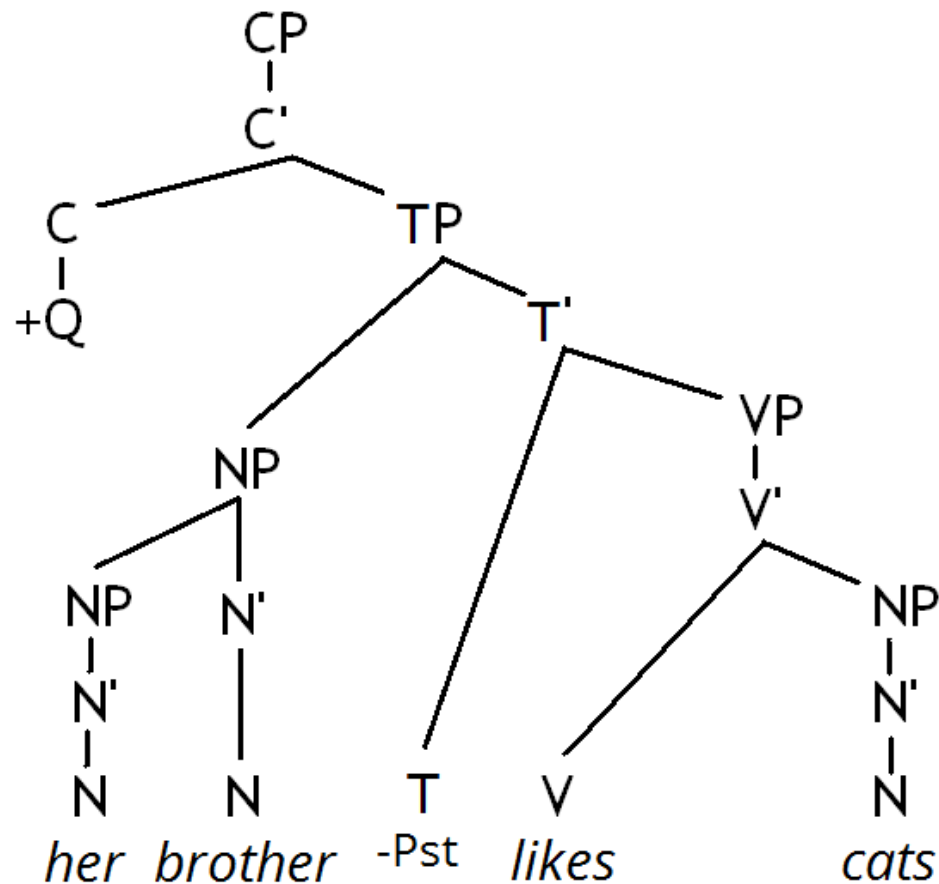
→ *Does her brother like cats?*

## 2. Questions with no auxiliary

- What does our **model** currently **predict** for a sentence like this?
- How we can check on this:
  - Draw a tree for the **deep structure**
  - Consider whether any **movement rules** are predicted to apply
  - What is in the T position?

## 2. Questions with no auxiliary

- The deep structure (before any movement rules)



- Does the **Inversion** rule apply? What needs to be in C?

## 2. Questions with no auxiliary

- Insight:
  - If the Inversion rule tried to apply here, it would move T to C
  - But the only thing in T is the [-Pst] tense feature, so no words would move to form the question
  - The word **does** seems to **appear** so that **there is an auxiliary in T** that can move to C



### 3. Another syntactic rule: *Do* Insertion

- **Do Insertion rule** for English (certain other languages have something similar): (not covered in *CL!*)

#### **Insert *do* into an T position containing no word**

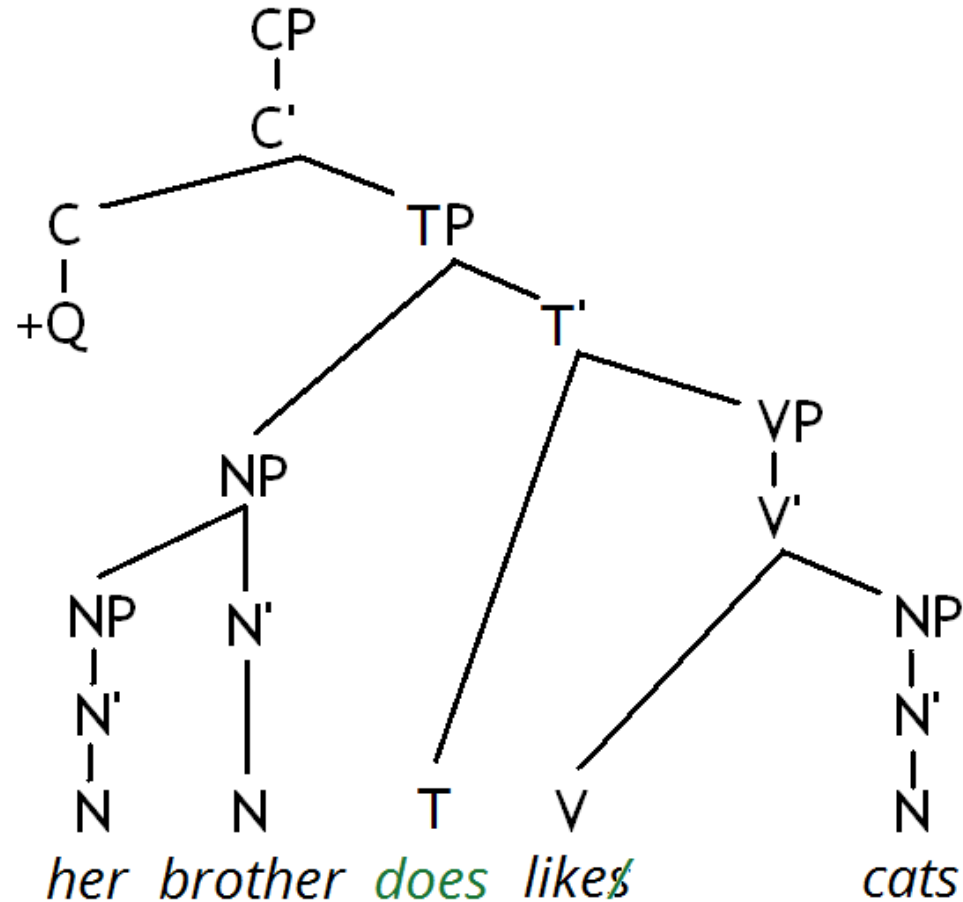
- Mandatory in matrix sentence if +Q  
(except for subject-*wh* questions like ‘Who won?’;  
we won’t consider this exceptional structure further)
- Note that *do* “absorbs” the tense feature (+Pst or -Pst); the verb no longer has tense morphology
  - This is evidence that there really are tense features in the T position!

### 3. Another syntactic rule: *Do* Insertion

- ***Do* Insertion rule** for English (certain other languages have something similar): (not covered in *CL!*)  
**Insert *do* into an T position containing no word**
  - Mandatory in matrix sentence if +Q
- Try it: Apply *Do* insertion to the deep-structure tree you have just drawn

### 3. Another syntactic rule: *Do* Insertion

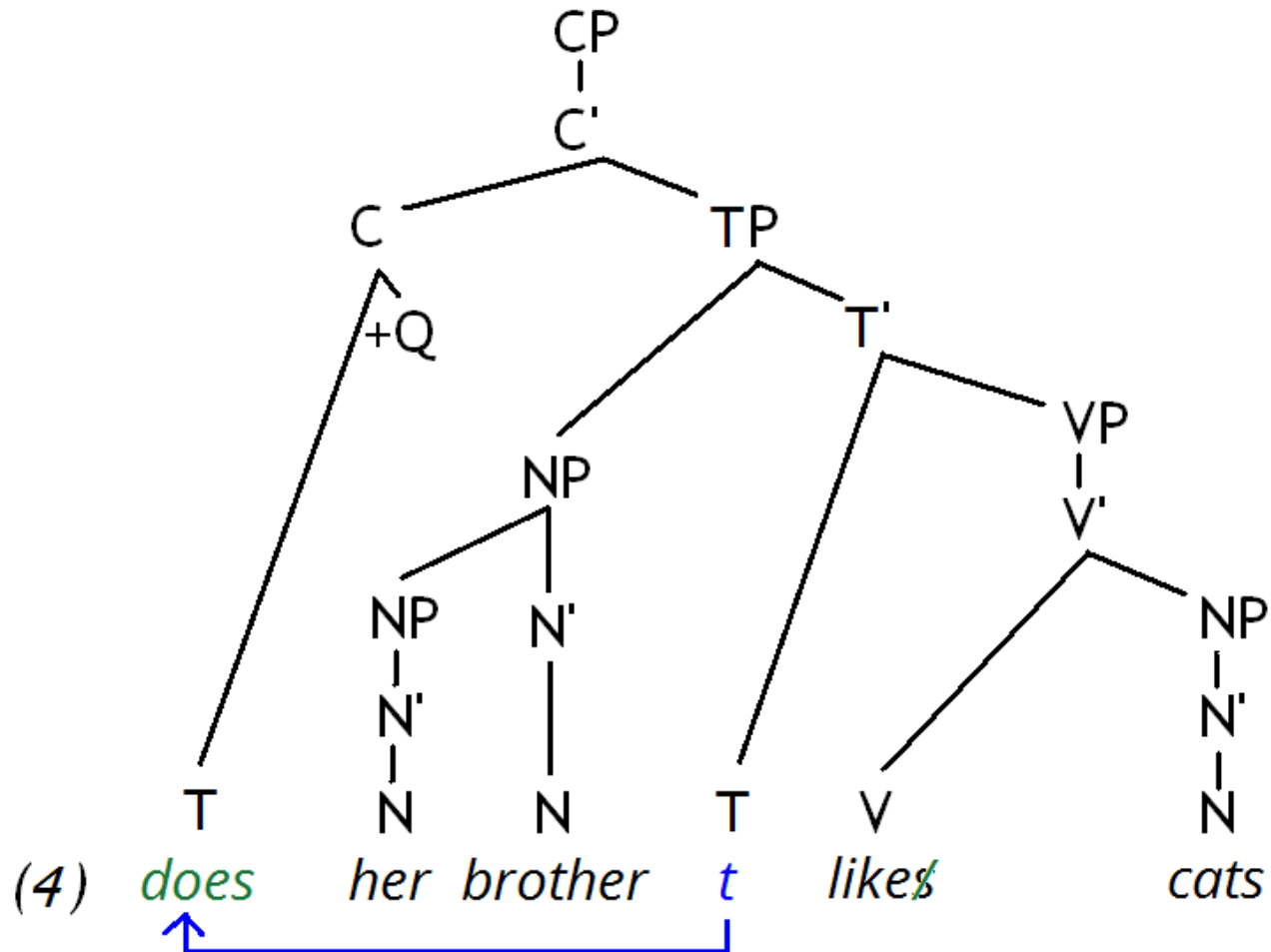
- After *Do* Insertion has applied:



(Note how the tense feature has been “absorbed” by *do*)

### 3. Another syntactic rule: *Do* Insertion

- The surface structure, after *Do* Insertion and Inversion



### 3. Another syntactic rule: *Do* Insertion

To think about:

- Can *Do* Insertion apply if a sentence is not +Q?
  - Can we ever see a *do* auxiliary in a **statement**? How does this affect the meaning of the statement?
  - What happens when we add **negation** to a sentence with and without a modal?  
*With:* I will play piano. / I will not play piano.  
*Without:* I like cats. /

### 3. Another syntactic rule: *Do* Insertion

To think about:

- Can *Do* Insertion apply if a sentence is not +Q?
  - Can we ever see a *do* auxiliary in a **statement**? How does this affect the meaning of the statement?  
**I do like cats. (You seem to think otherwise.)**
  - What happens when we add **negation** to a sentence with and without a modal?  
*With:* I will play piano. / I will not play piano.  
*Without:* I like cats. / **I do not like cats.**

## 4. Syntax beyond English

For English, we have **observed** (and included in our **descriptive grammar** of this language):

- a) Sentences have internal structure: **constituents**
  - Constituency can be tested for; contributes to meaning
- b) Different phrase types (NP, VP, CP,...) have the same general **structure** (head, complement, specifier, modifier)
- c) Some sentences involve the **movement** or **insertion** of material after the deep structure (“original, normal” structure) has been built

## 4. Syntax beyond English

How our **model** of **mental grammar** currently **accounts for** these patterns:

- a) **Phrases** in the tree predict **constituency**
- b) The **X' schema** is a general blueprint for the structure of all phrases
- c) **Transformations**, such as movement rules or the *Do Insertion* rule, apply when conditions are met

- Can our model be applied to other languages?  
How do they resemble or differ from English?

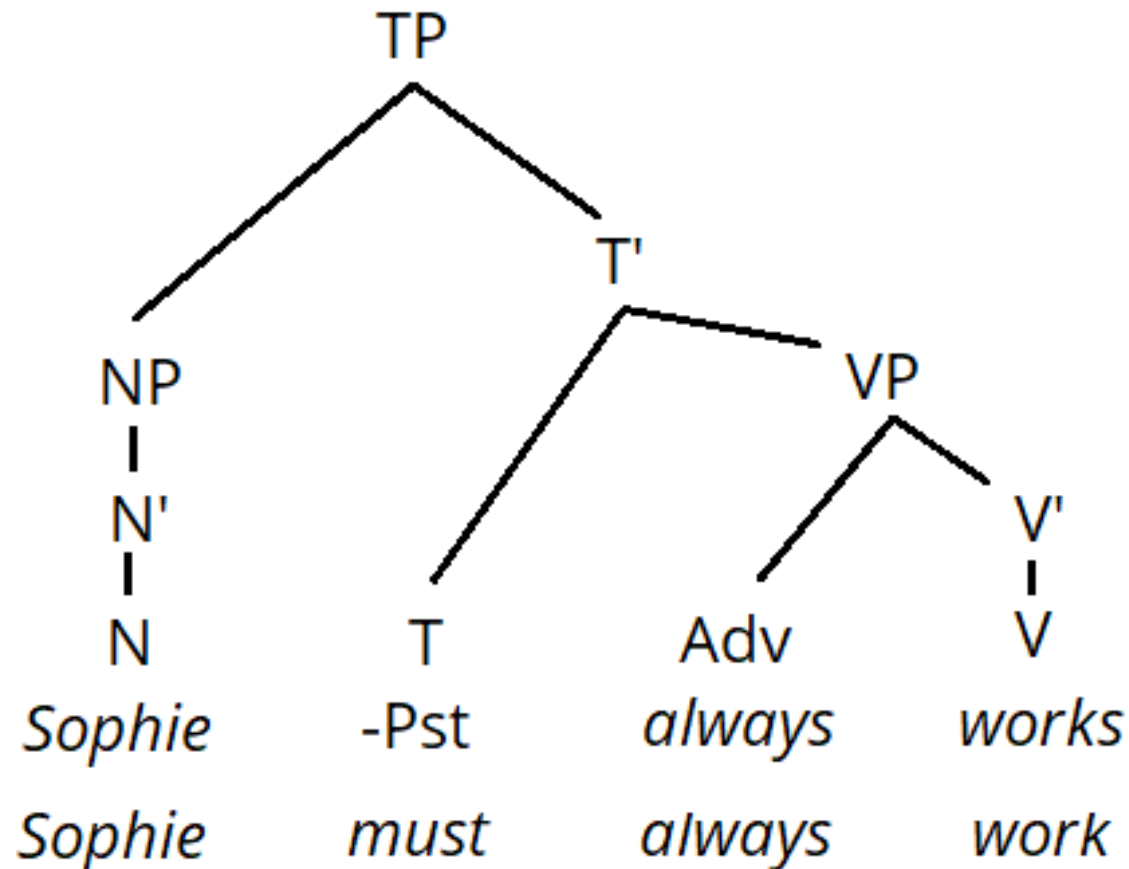


## 5. Verb syntax in French

- In the following English sentences, what is the position of *always* in the tree?
  - (1) *Sophie always works.*
  - (2) *Sophie must always work.*
- Is *always* in the same position in both sentences?  
(What position is it in, in the tree?)

## 5. Verb syntax in French

- Is *always* in the same position in both sentences?



## 5. Verb syntax in French

- What is different about this French sentence?

(3) *Sophie travaille **toujours**.*

Sophie works **always** 'Sophie always works.'

- What hypothesis could we formulate about the position of *toujours* in the tree?

## 5. Verb syntax in French

- Now compare these two examples:

(3) *Sophie travaille **toujours**.*

Sophie works **always** 'Sophie always works.'

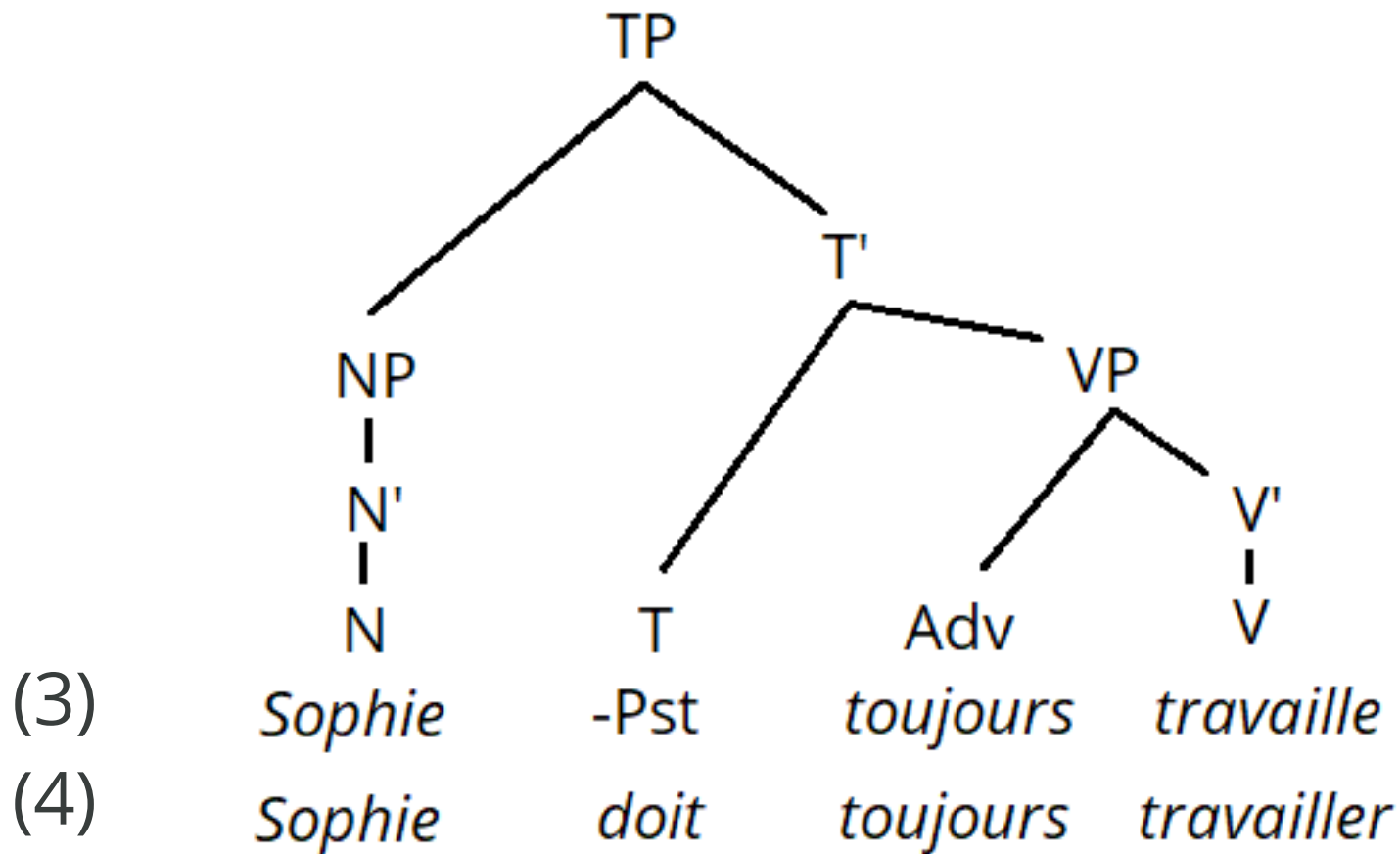
(4) *Sophie doit **toujours** travailler.*

Sophie must **always** work

- Does our first hypothesis about (3) survive?
- What if we assume (4) shows us where *toujours* is?  
**How can we explain (3)?**

## 5. Verb syntax in French

- What if we assume (4) shows us where *toujours* is?  
**How can we explain (3)?**



## 5. Verb syntax in French

- **Verb Raising rule**

Move V to the T position (if T contains no words)

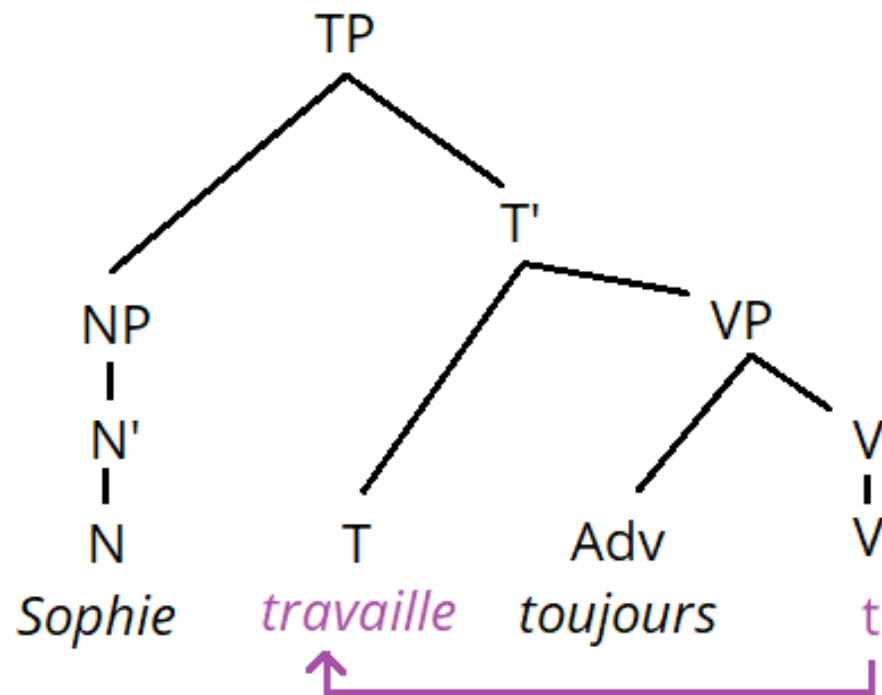
- Does this make the right prediction for (3), (4)?

# 5. Verb syntax in French

- **Verb Raising rule**

Move V to the T position (if T contains no words)

- Does this make the right prediction for (3), (4)?



## 5. Verb syntax in French

- **Verb Raising rule**

Move V to the T position (if T is empty)

- Does this make the right prediction for (3), (4)?

- Like English, French also has the Inversion Rule as one way of forming questions

(5) Doit Sophie **t** toujours travailler?

Must Sophie *t* always work?

- What prediction can we make about French questions with no auxiliary?



## 5. Verb syntax in French

- Yes-no questions in French (using Inversion):

(6) *Tu vois le livre.*

you see the book

(7) *Vois(-)tu **t** le livre?*

see you *t* the book 'Do you see the book?'

- Does this Verb Raising rule occur in English?
  - Yes, under certain conditions! (see *CL*, pp 195-198)

(8) *They are always happy.*

- Where is the adverb?
- What does the *yes/no* question look like?

## 5. Verb syntax in French

- How is verb syntax different in French and English?
  - The **Verb Raising** movement rule can apply to **all verbs** in French, but only to *be* in English

## 6. Phrase structure in Japanese

- Consider the [Japanese data set](#)
- What do Japanese X' phrases look like?
- What aspects of Japanese syntax are similar to English? Different from English?

## 6. Phrase structure in Japanese

- What is the relationship between the **head** and the **complement**?
  - English: Head-initial (or right-branching)
  - Japanese: Head-final (or left-branching)
- On which side of the phrase is the **specifier**?
  - English: Left
  - Japanese: Left
- Linguists have proposed that these options are **parameters** that can be set for each language  
(see also gray box on p 176 in *CL*)

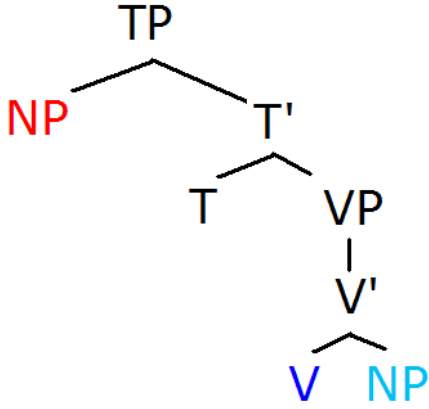
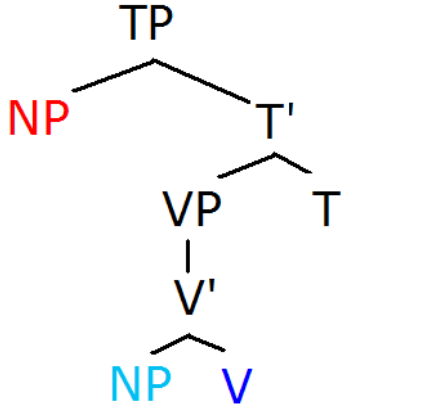
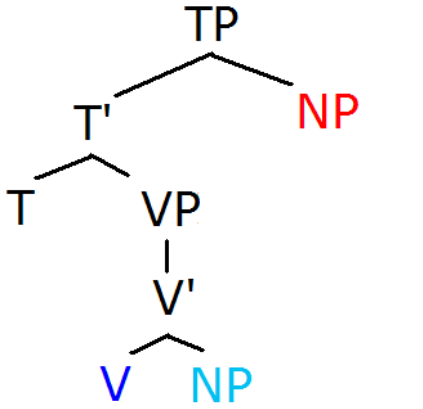
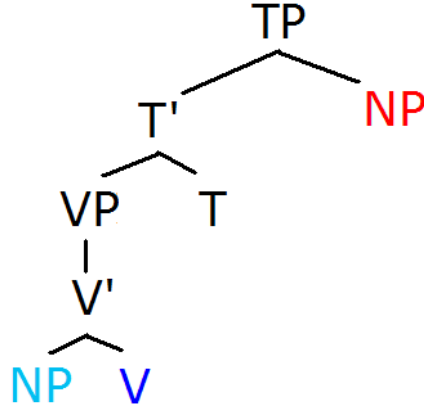
## 7. Phrase structure in Universal Grammar

- If every language can **choose options** for these two parameters...

What patterns of **basic word order** do we predict for the languages of the world?

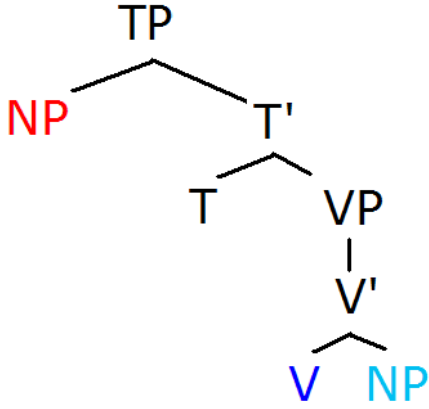
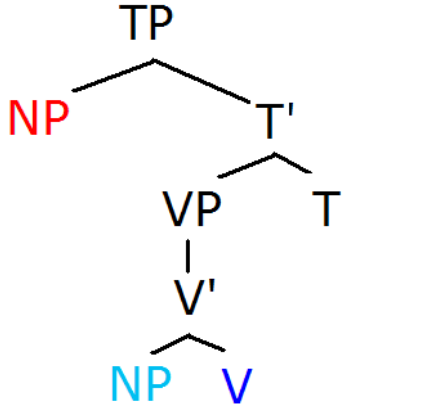
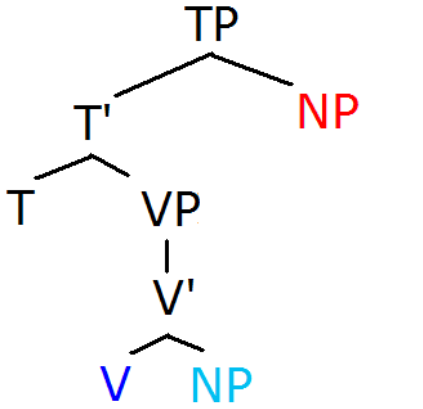
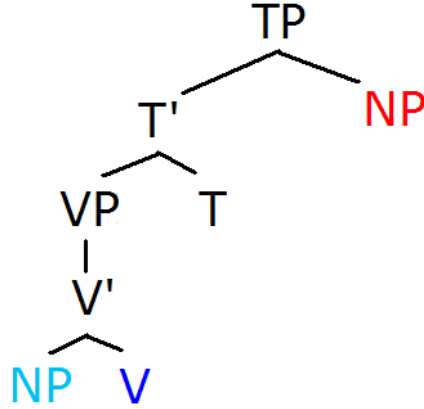
- Head Parameter:      head-initial | head-final
- Spec Parameter:      left side | right side

# 7. Phrase structure in Universal Grammar

Head: Initial Spec: Left	Head: Final Spec: Left	Head: Initial Spec: Right	Head: Final Spec: Right
			
Subj V Obj	Subj Obj V	V Obj Subj	Obj V Subj

- How often do each of these word-order types occur?

# 7. Phrase structure in Universal Grammar

Head: Initial Spec: Left	Head: Final Spec: Left	Head: Initial Spec: Right	Head: Final Spec: Right
			
<b>Subj V Obj</b> (English)	<b>Subj Obj V</b> (Japanese)	<b>V Obj Subj</b> (Malagasy)	<b>Obj V Subj</b> (Hixkaryana)
488/1377 35.4%	565/1377 41.0%	25/1377 1.8%	11/1377 0.8%

- Language typology data is from the World Atlas of Language Structures (WALS) Online [\[map\]](#)

## 7. Phrase structure in Universal Grammar

- Does there seem to be a preference for...
  - head as initial vs. final in X'?
  - specifier on left vs. right side?
- What about the other 21% in the database?

V Subj Obj	95 languages,	6.9%
Obj Subj V	4 languages,	0.3%
<i>No dominant order</i>	189 languages,	13.7%

  - Does our model of syntax provide a way of **generating** these other patterns of basic sentence structure?



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  - Does our model of syntax provide a way of **generating** these other patterns of basic sentence structure? | **Movement rules!**

## 7. Phrase structure in Universal Grammar

- Are **all XP categories** *guaranteed* to have the head on the **same** side of the complement (in one language)?
  - No; some languages show a 'split' system
  - But: there is a tendency to be consistent

- Typology data from WALS [[map](#)]

	V NP (head-initial)	NP V (head-final)
P NP (head-initial)	456	14
NP P (head-final)	42	472

- The majority of languages do show **same-side heads** for VP, PP

## 8. A cross-linguistic model of syntax

- Consider these elements in our model of the mental grammar of English syntax:
  - Word categories
  - The X' schema (plus modifiers)
  - Transformations: movement, insertion rules
- Suppose we now assume that these elements are present in the mental grammar of **all languages**
  - How does our model predict that syntactic structure might **differ** between languages?

## 8. A cross-linguistic model of syntax

- How does our model predict that syntactic structure might differ between languages?

### **Word categories**

- *Which meanings are mapped onto morphemes of which word class may differ*

### **The X' schema**

- *The order of head, complement, specifier may differ*

### **Transformations**

- *Languages may use different rules*
- *Languages may have rules apply to different word classes*

- *Ongoing research: Look for evidence / refine model*