

LIN232 Summer 2021 - Week 5

Relative Clauses, WH-movement

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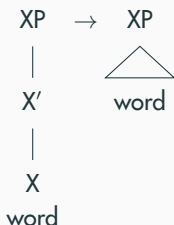
May 31 – June 4

University of Toronto

Welcome Linguists!

Some Housekeeping

- ▷ You can now use triangles for phrases that are nothing but a head, e.g.



- ▷ You can also use triangles for DPs that are just a determiner and an NP, e.g.



- ▷ We will now just be drawing S-structure trees (unless specifically asked otherwise), but all movement, traces, features, case etc. must be marked

Relative Clauses

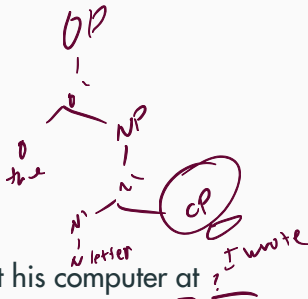
Relative Clauses

Consider the following DPs in English:

(1) a. The letter I wrote ?

b. Several linguists I respect ?

c. The store my roommate bought his computer at ?



Relative Clauses

Now consider them in a sentences:

- (2) a. The letter I wrote θ wasn't received θ until August
- b. Several linguists I respect θ won a grant competition together. θ
- c. The store my roommate bought his computer at θ is now out of business θ

Where do the head nouns *letter*, *linguists*, *computer* get their theta-roles?

Relative Clauses

Relative clauses have gaps in the CP's that follow them:

- (3) a. [_{DP} The letter [_{CP} I wrote _____]]
b. [_{DP} Several linguists [_{CP} I respect _____]]
c. [_{DP} The store [_{CP} my roommate bought his computer [_{PP} at _____]]]

These verbs need to take an argument, but there's a gap. What goes there?

Relative Clauses

Relative clauses have *gaps* in the CP's that follow them:

- (4) a. [_{DP} The letter [_{CP} I wrote _____]]
b. [_{DP} Several linguists [_{CP} I respect _____]]
c. [_{DP} The store [_{CP} my roommate bought his computer [_{PP} at _____]]]

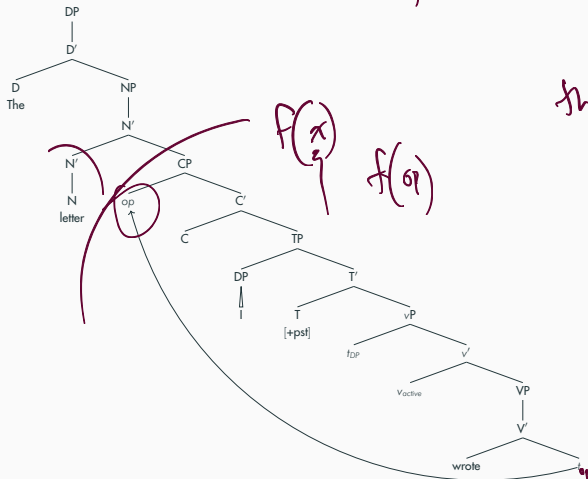
These verbs need to take an argument, but there's a gap. What goes there?
How can we resolve what looks like an argument getting a theta role in two places?

Silent Operators

We can posit a silent category called an operator, which sits in the gap:

(5) The letter I wrote

op



- ▷ The operator serves to abstract over the argument in the gap in the relative clause
- ▷ Think of it like a variable in a function $f(x)$: the head noun then tells us what x is
- ▷ Then the whole relative clause is *about* x
- ▷ But it has to get up high enough to be close to the noun, so it moves to spec,CP

WH elements

It's okay to be sceptical about an un-pronounced element in syntax, but we also have an overt version:

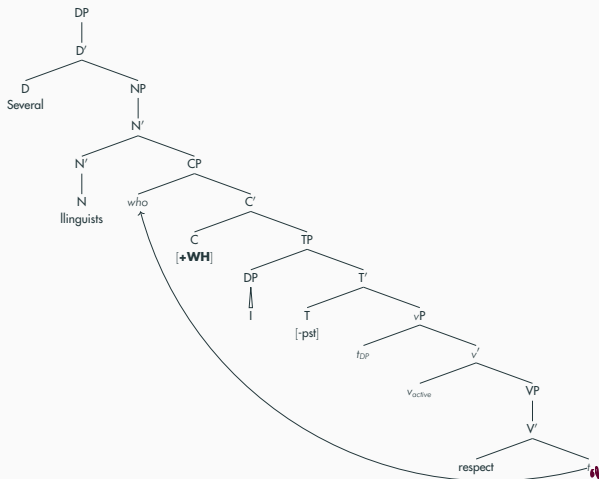
- (6) a. The letter *which* I wrote
b. Several linguists *who(m)* I respect
c. The store *where* my roommate bought his computer
-
- The diagram shows three sentences with handwritten red annotations. In sentence (a), a bracket groups 'The letter' and 'which', with an arrow pointing from 'which' to a gap. In sentence (b), a bracket groups 'Several linguists' and 'who(m)', with an arrow pointing from 'who(m)' to a gap. In sentence (c), a bracket groups 'The store' and 'where', with an arrow pointing from 'where' to a gap. Additionally, a long arrow originates from the 'which' in (a) and points to the gap in (b), and another long arrow originates from the 'who(m)' in (b) and points to the gap in (c), illustrating cross-sentence movement or relationships.

But what triggers the movement of the operator?

WH feature

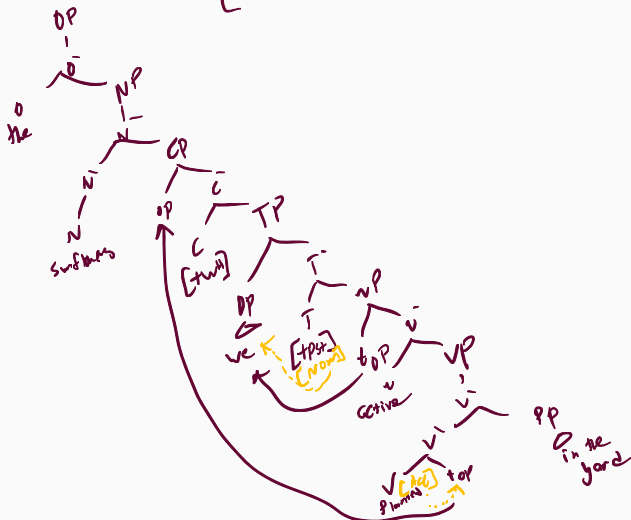
The WH-elements are a clue. We can say there is a +WH feature on the C – this will come in handy shortly in other ways:

(7) *Several linguists who I respect*



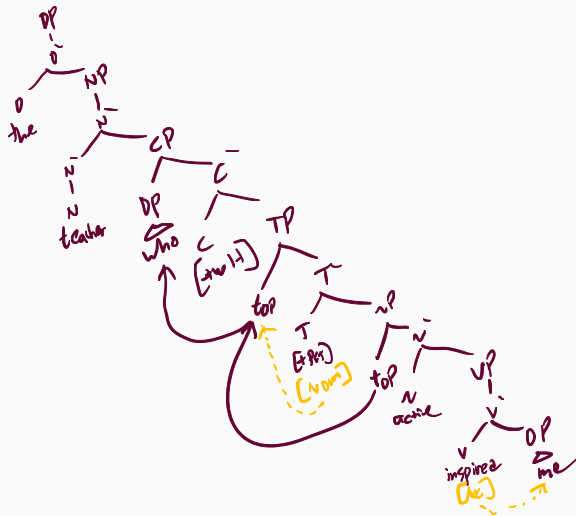
Practice tree: English

(8) The sunflowers we planted in the yard



Practice tree: English

(9) The teacher who inspired me



Operator vs. WH-movement

Compare the following sentences in English:

(10) a. The filing cabinet I hoard old papers in

b. The filing cabinet where I hoard old papers (*in)

Operator vs. WH-movement

Compare the following sentences in English:

- (11) a. The filing cabinet I hoard old papers in
b. The filing cabinet where I hoard old papers (*in) wh
-

So, there is a difference between *op* movement and *WH*-movement
– the latter can take phrases with it.

Let's investigate more WH-movement

WH-questions

We've seen yes/no questions already, but we've avoided questions so far that involve WH-elements:

- (12) a. *Where* did you hide the propaganda booklets?
b. *Who* destroyed my vintage accordion collection?
c. *Where* can I find people who think Kiwis are cooler than Giraffes?

WH-movement

Many other languages ask WH-questions by leaving the elements in place. Some of these languages add extra markers / particles to signal these questions:

- (13) *Wo yinggai ba zhe ben guanyu Qiyi niao de zazhi song gei*
I should BA this CL about Kiwi LINK magazine send give
shei?
who?

‘Who should I give this magazine about kiwis to?’ (Mandarin)

- (14) *Ci **yamar** amtan xarsan be?*
You what.type animal see QP

‘What type of animal did you see?’ (Mongolian)

English WH-movement

Of course, English moves the WH-element to the front of the sentence, and leaves a *gap* where it originated:

- (15) a. *Where* did you hide the propaganda booklets
[_{PP}____]?
- b. *Who* [_{DP}____] destroyed my vintage accordian
collection?
- c. *What* do kiwis eat [_{DP}____]?

*Phrasal
movement*
"A-bar movement"

What else happens in WH-questions in English?

- (16) a. Where have you been hiding our illegal literature?
b. Who did the famous linguist compliment?

English WH-movement

What else happens in WH-questions in English?

- (17) a. Where have you been hiding our illegal literature?
b. Who did the famous linguist compliment?

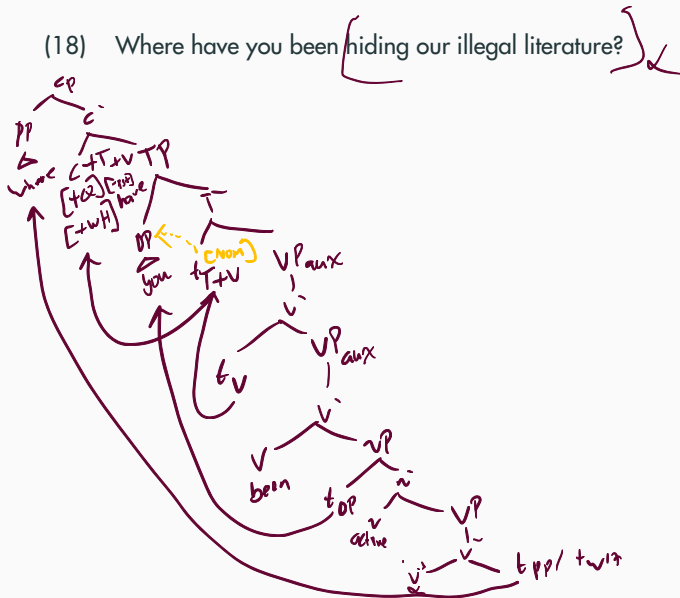
T-to-C movement (and therefore, also Do-insertion) still applies in WH-questions.

This tells us we also need a [+Q] feature.

C
[+Q]
[+wh]

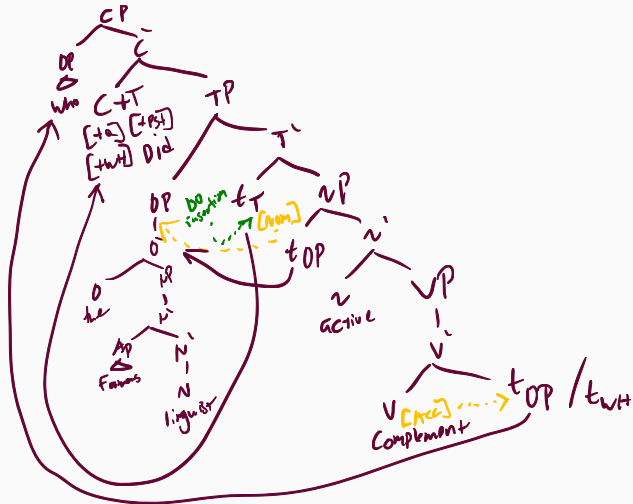
English WH tree Practice

(18) Where have you been hiding our illegal literature?



English WH tree Practice

(19) Who did the famous linguist compliment?



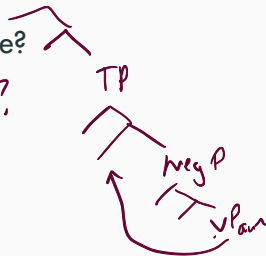
WH-movement and T-to-C movement

There is one exception to the T-to-C movement in English
WH-questions: subject WH

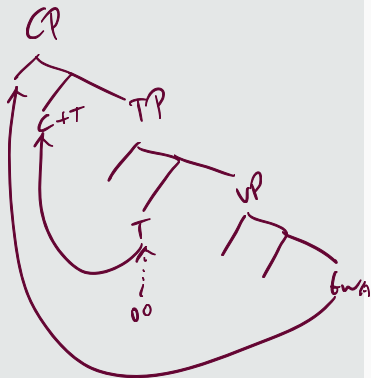
(20) a. Who complimented my shiny jacket?

b. Who has cruelly stolen my kiwi literature?

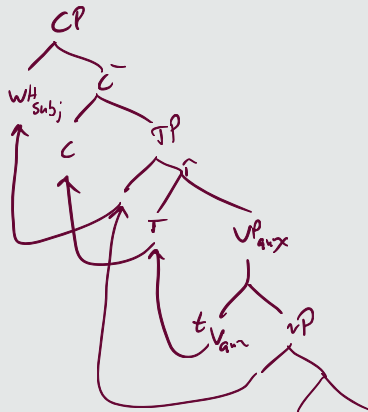
Who has not stolen my literature?



Non-subject WH



Subject WH



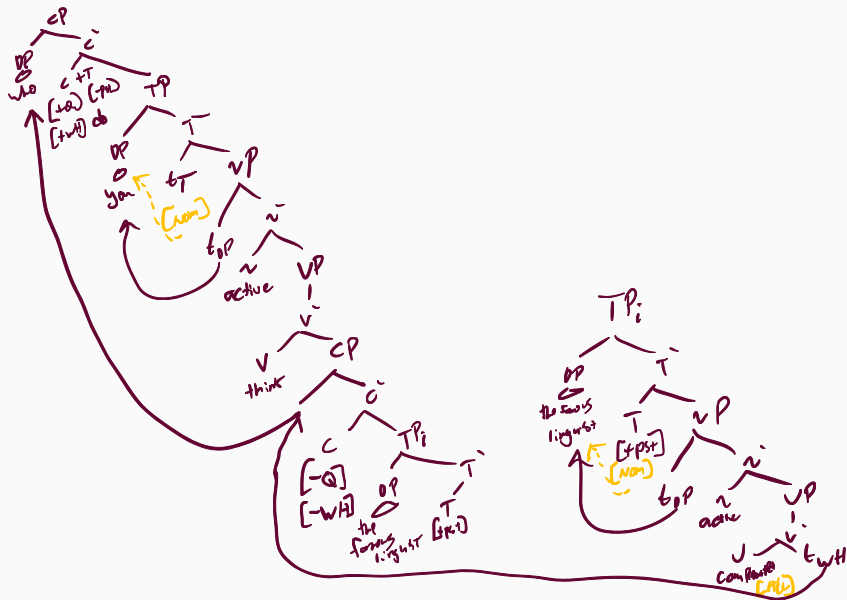
Long Distance WH-movement

WH-movement can also proceed out of some embedded clauses in English:

- (21) a. Who do you think the famous linguist complimented?
- b. Where did you say I could buy good milk tea?
-
- Handwritten annotations in red ink: In (21)a, a bracket labeled 'CP' spans 'Who' and 'think'. In (21)b, a bracket labeled 'CP' spans 'Where' and 'say'. In (21)a, a bracket labeled 'WH' spans 'Who' and 'complimented?'. In (21)b, a bracket labeled 'WH' spans 'Where' and 'tea?'. In (21)b, 'I could buy' is annotated as 'Subject'.

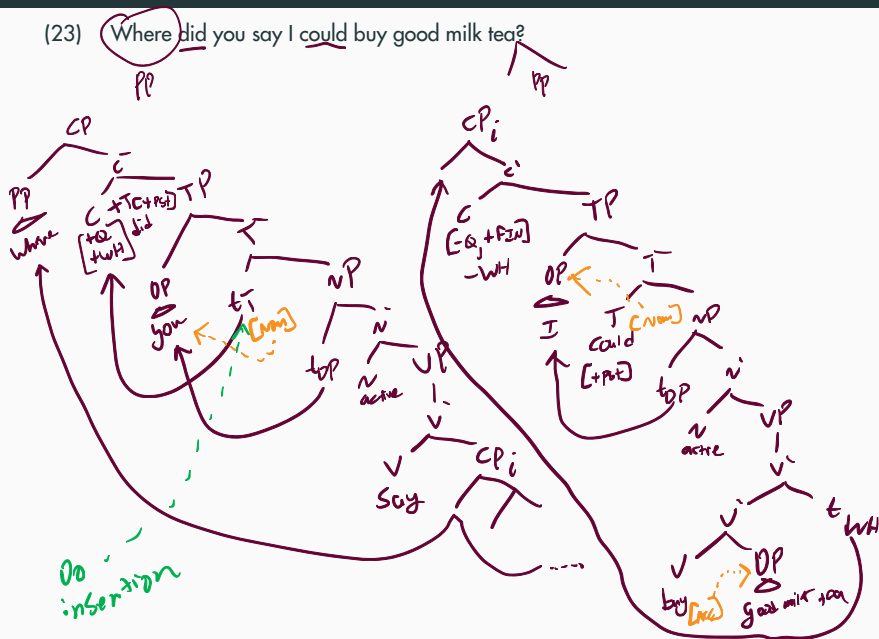
English WH tree Practice

(22) Who do you think the famous linguist complimented?



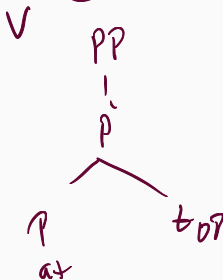
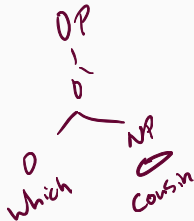
English WH tree Practice

(23) Where did you say I could buy good milk tea?



English WH tree Practice

(24) [Which cousin] does she seem most annoyed at?

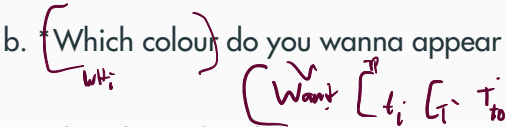


English WH tree Practice

(25) Which colour do you want to appear on the border?

An aside: 'wanna' contraction

English speakers can almost always contract *want to* → *wanna*, except when there is an embedded WH-subject that moves:

- (26) a. Which colour do you wanna paint the walls?
b. *Which colour do you wanna appear on the border
- 

This is good evidence that there is a trace in specTP of the embedded clause!

Restriction on WH-movement

WH-movement is not completely free in English! Consider the following (terrible) sentences:

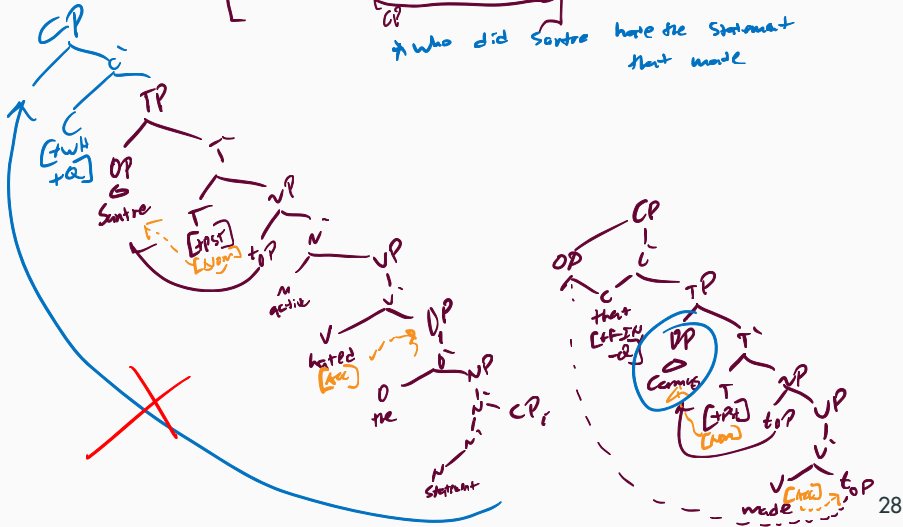
- (27) a. *Who did Sartre hate the statement that made?
b. *What did you wonder who wrote?
c. *Who did Camus actually respect de Beauvoir and?
d. *What did whether Sartre drank at *Les Deux Magots* is not disputed?

An island is a location in syntax that something can't move out of. Here we're concerned with places that WH items can't move from. Let's examine the un-WH'd versions of one these sentences

WH islands

(28) Sartre hated the statement that Camus made

→ who did Sartre have the statement that made



Types of WH islands

- ▷ Complex DP islands
- ▷ Filled Spec,CP Islands
- ▷ Subject Islands
- ▷ Coordinate Structure Islands

Echo Questions

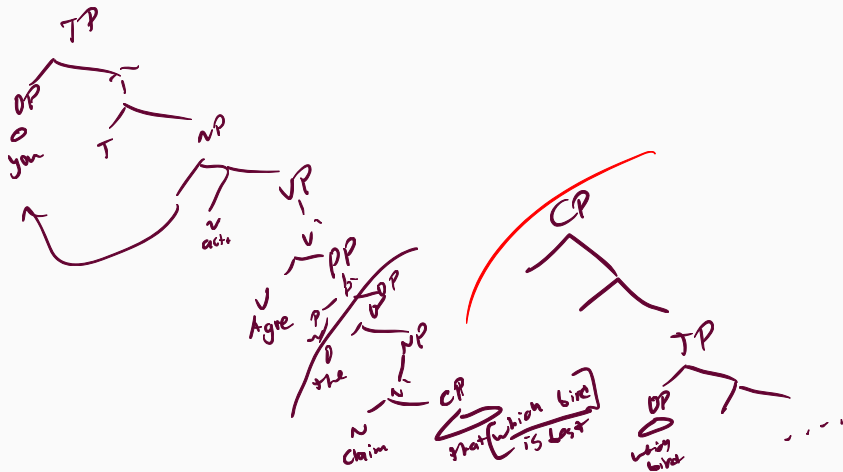
Echo questions can still be constructed from these island sentences:

- (29) a. ~~Why~~ Sartre hated the statement that WHO made?
b. Camus did actually respect de Beauvoir and WHO?

Let's draw all of the Q's above using echo questions to figure out their structure

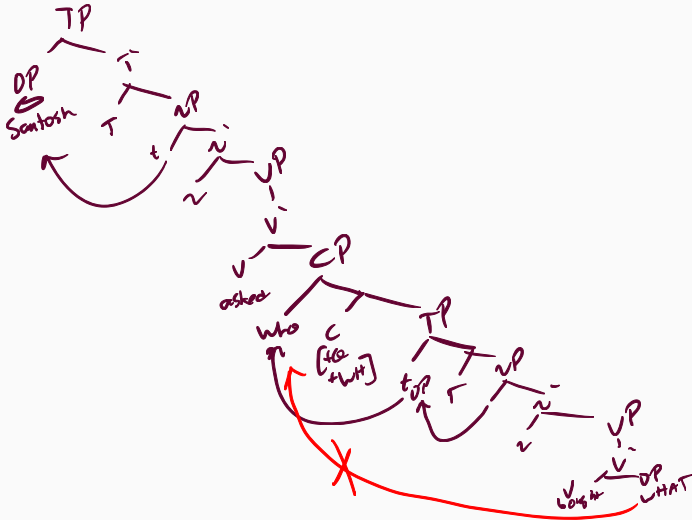
Complex DP Island

(30) You agree with the claim that WHICH BIRD is best?



Filled Spec,CP Island

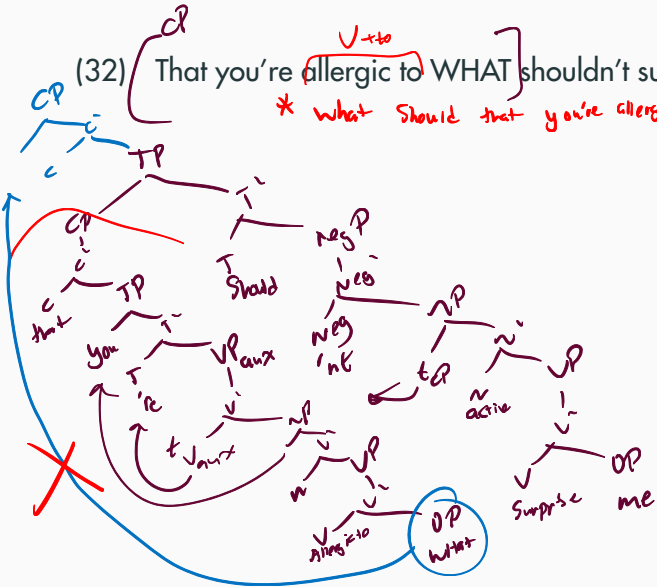
(31) Santosh asked who bought WHAT?



Subject Island

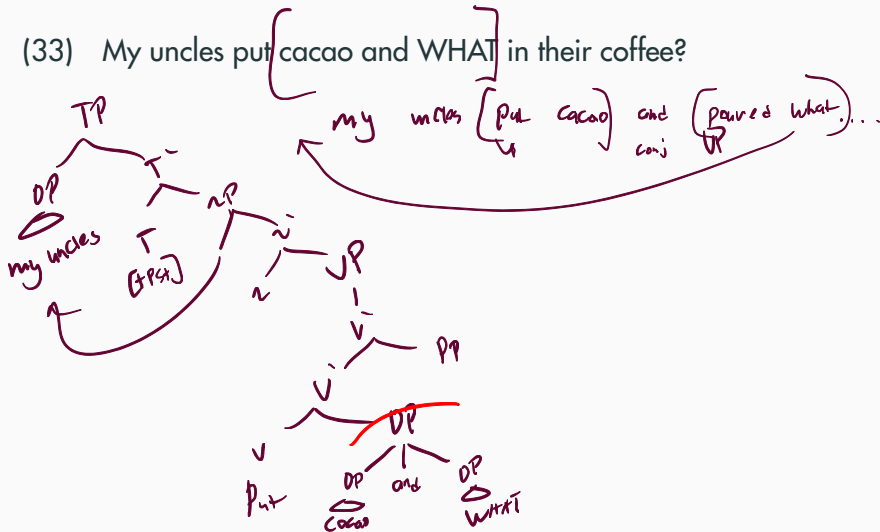
(32) That you're allergic to WHAT shouldn't surprise me?

* What should that you're allergic to not surprise me



Coordinate Structure Island

(33) My uncles put cacao and WHAT in their coffee?



WH island Constraints

▷ Complex DP islands =

* $wh_i [\dots [_{DP} \overset{C?}{[\dots t_i]}] \dots]$

▷ Filled Spec,CP Islands =

* $wh_i [\dots [_{CP} wh_k \dots [\dots t_i] \dots] \dots]$

▷ Subject Islands =

* $wh_i \dots [_{TP} [_{CP} \dots t_i \dots] T \dots]$

▷ Coordinate Structure Islands =

* $wh_i \dots [_{XP} [_{XP} \dots t_i \dots] conj [_{XP} \dots]]$

More Restrictions on Movement

Let's examine one of the islands in more detail: Filled Spec,CP islands:

- (34) a. *What did Santosh ask who bought _____?
b. *What did you wonder who wrote _____?

These are bad because the second WH-item can't stop off in the lower spec,CP

**But why would it need to stop there
anyway?**

The Minimal Link Condition

(From Luigi Rizzi's *Relativized Minimality* (1990))

- (35) *Minimal Link Condition:*
Move to the closest potential landing site.

The Minimal Link Condition

- (36) a. *What_i did Santosh ask [_{CP} who [_{C'} bought *t_i*]]?
b. *What_i did you wonder [_{CP} who [_{C'} wrote *t_i*]]?
-

The Minimal Link Condition

The MLC can also help explain some restrictions on DP movement

(37) a. Camus_i seems [t_i to enjoy espresso]

b. Sartre_i is likely [t_i to be nauseous]

(38) a. _____ seems [that _____ is likely [Camus to enjoy espresso]].

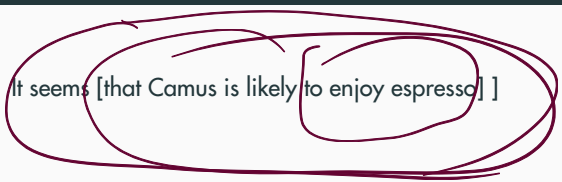
b. It seems [that Camus is likely to enjoy espresso]].

c. *Camus seems [that t_i is likely [t_i to enjoy espresso]]

d. *Camus seems [that it is likely [t_i to enjoy espresso]]

When there are multiple case positions available, movement must target the closest one (first).

(39) It seems [that Camus is likely to enjoy espresso]]



Movement proceeds cyclically.

Movement proceeds cyclically.
Cyclically through what?

Domains, Phases, Binding

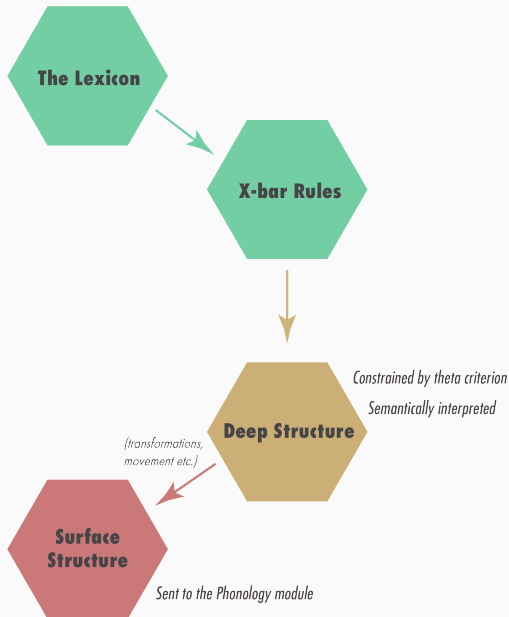
Phases, Domains

Big things in the syntax – like CP's – form domains where things have to stop, defining the upper edges of “chunks” of syntax.

We can think of these in terms of *phases*

(we will take this term very loosely here – it will not be formalised until much later)

Reminder: our theory of Grammar



Phase theory

The theory of *phases* in syntax essentially says that chunks of the derivation are *shipped off* to phonology (after being interpreted)

Terms like *myself, yourself, herself, eachother, nous-mêmes, tú mismo, ziji, ööröö, kendim, jagi* etc. are called Anaphors:

(41) *Anaphor*:

A nominal that obligatorily gets its meaning from another nominal in the sentence

Restrictions on Anaphora

An anaphor must be bound within its own binding domain

↓

in English = CP

What's binding?

When I presented this to you before, I told you we needed C-command for binding / co-indexation

- (42) *Binding:*
A binds B iff A C-commands B *and* A & B are co-indexed

Binding Principle A

We can now formulate Binding Principle A:

(43) *Binding Principle A:*

An anaphor must be bound within its binding domain

In English, as we have seen, the binding domain is the CP. In other languages it may be larger (e.g. the sentence)

Some more terms

- (44) a. *Antecedent*: a nominal that gives its meaning to another nominal
- b. *Referring* *R-expression*: a nominal that gets its meaning by referring to entities in the world (e.g. names)
- c. *Pronoun*: a nominal that *may* (but does not need to) get its meaning from another word

he, they, she, we, I, it
- - - - -

The binding principles

(45) a. *Binding Principle A:*

An anaphor must be bound within its binding domain

C-commanded
co-indexed w/
its antecedent

b. *Binding Principle B:*

A pronoun must be free (not bound) in its binding domain

c. *Binding Principle C:*

An R-expression must always be free.

