# Ling 165B: Syntax II

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January 24, 2022

## DOS

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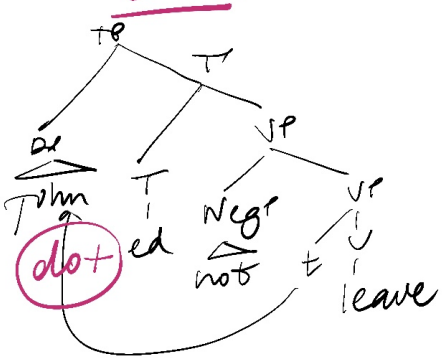


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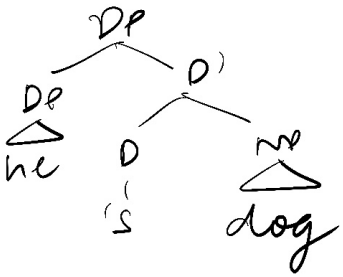


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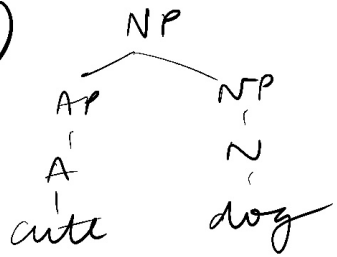


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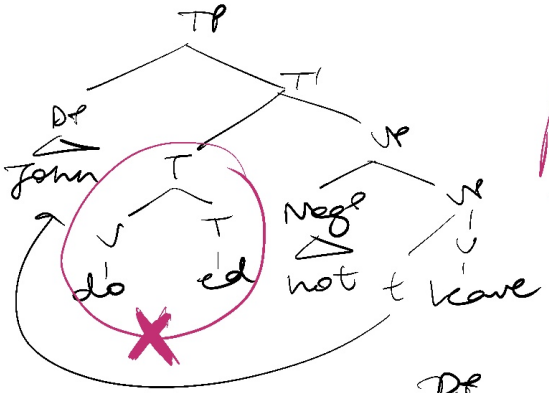


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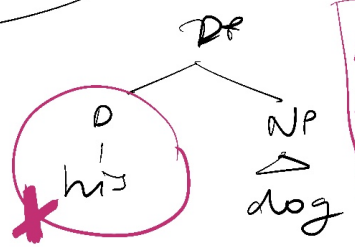



POSSESSIVE STRUCTURES WITH PRONOUNS


ADJUNCTION

# ECM and Object Control

Today we are going to look at the following cases:

(1) a. John believes Bill to have slept.
b. John convinced Bill to sleep.

→ What is the structure of the VP headed by *believe* in (1-a)?

→ What is the structure of the VP headed by *convince* in (1-b)?

→ For each case, is the surface "object" (Bill) selected by the verb that immediately precedes it?

The data below suggest that we are dealing with two new patterns.

| Type 1 | Type 2 |
|---|---|
| John believed Bill to have slept | John convinced Bill to sleep |
| John believes that Bill has slept | *John convinced that Bill should sleep |
| *John believes Bill that Mary slept | John convinced Bill that Mary should sleep |
| *John believed to be sick | *John convinced to sleep |

Type 1 verbs are ok with just a CP complement. Type 2 verbs are not.

(2) a. John believes [$_{CP}$ that Bill has slept ]
b.*John convinced [$_{CP}$ that Bill should sleep ]

Type 2 verbs can take a DP objects and a clause complement. Type 1 verbs cannot.

(3) a.*John believes [$_{DP}$ Bill ] [$_{CP}$ that Mary slept ]
b. John convinced [$_{DP}$ Bill ] [$_{CP}$ that Mary should sleep ]

We can use the diagnostic tests that allow one to distinguish between *raising* and *control* structures.

(i) Expletive *it* in object position.

(4) a. John believes it to be obvious that Bill left
b.*John convinced it to be obvious that Bill left

(ii) Weather *it*.

(5) a. John believes it to be raining
b.*John convinced it to be raining

(iii) Existential *there*.

(6) a. John believes there to be several firemen available
b.*John convinced there to be several firemen available

(iv) Idiom chunk (with idiomatic meaning).

(7) a. John believes the cat to be out of the bag
b.*John convinced the cat to be out of the bag

This data suggest that the DP following *believe* is only the subject of the following infinitival clause, but the DP following *convince* is not. Roughly:

(8) a. John believes [ Bill to have slept ]
b. John convinced [ Bill ]$_k$ [ PRO$_k$ to sleep ]

We can further support this difference with a new test. We can check whether the meaning is preserved in active/passive alternation.

**Active/Passive alternation Test**

Simple sentences: the meaning is preserved:

(9) a. Bill cooked the rice
b. The rice was cooked by Bill

(10) a. Bill visited Mary
b. Mary was visited by Bill

Our two types of verbs behave differently.

(11) a. John believes Bill to have cooked the rice
b. John believes the rice to have been cooked by Bill

(12) a. John believes Bill to have visited Mary
b. John believes Mary to have been visited by Bill

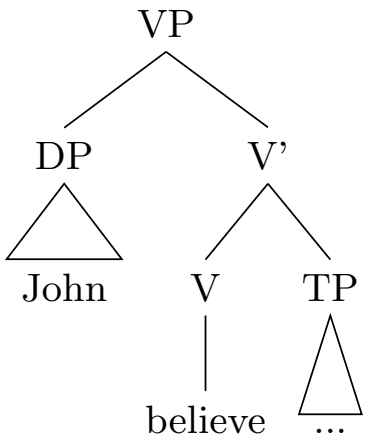
(13) a. John convinced Bill to cook the rice
b.*John convinced the rice to be cooked by Bill

(14) a. John convinced Bill to visit Mary
b#John convinced Mary to be visited by Bill

[$_{DP}$ Bill ] is an argument of *convince*. Therefore it is selected by *convince*. *Convince* involves an object control construction.
[$_{DP}$ Bill ] is not an argument of *believe*. *Believe* involves an ECM construction.

| | | | | |
|---|---|---|---|---|
| **believe** | **V** | $\underline{\text{DP}_{exp}}$ | | $\text{TP[to]}_{theme}$/ $\text{CP[that]}_{theme}$ |
| **convince** | **V** | $\underline{\text{DP}_{agent}}$ | $\text{DP}_{goal}$ | $\text{CP}[e]_{theme}$/ $\text{CP[that]}_{theme}$ |

a.

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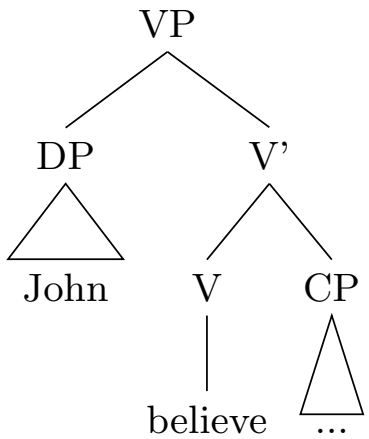
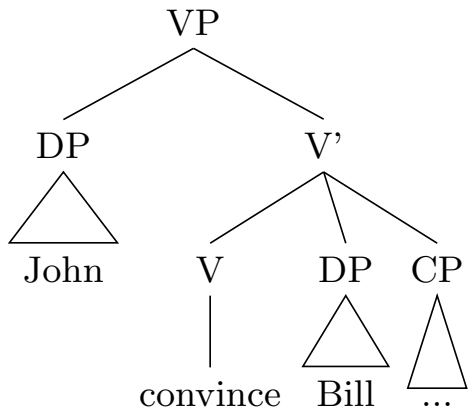
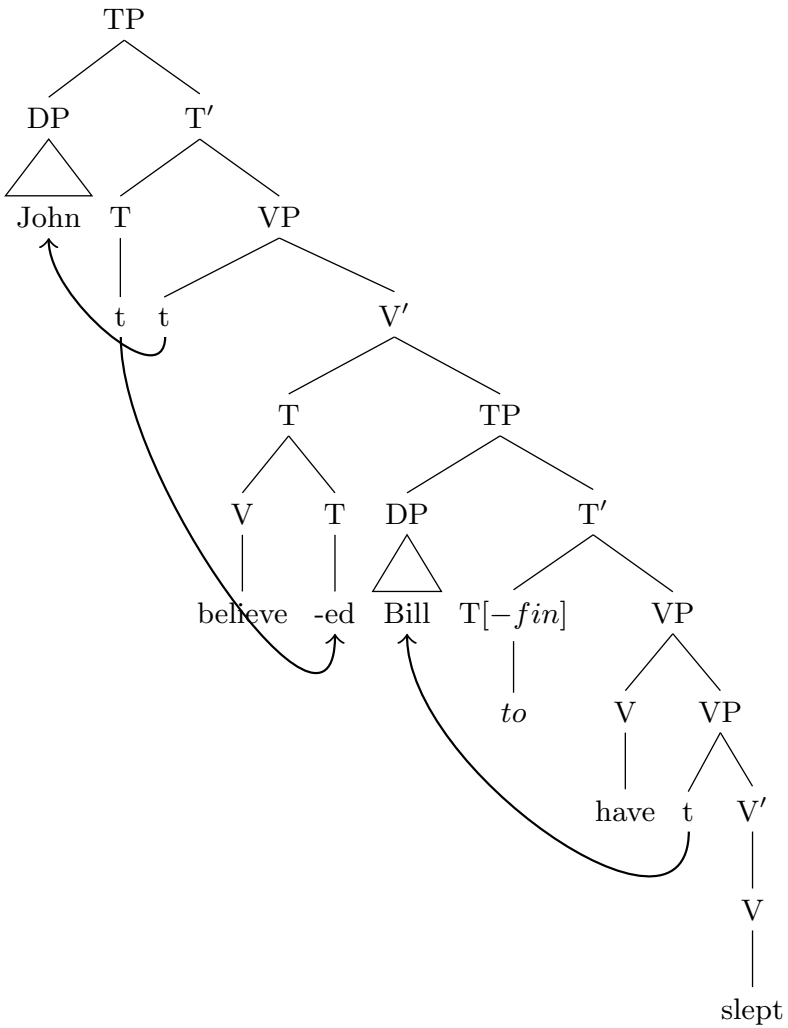



c.

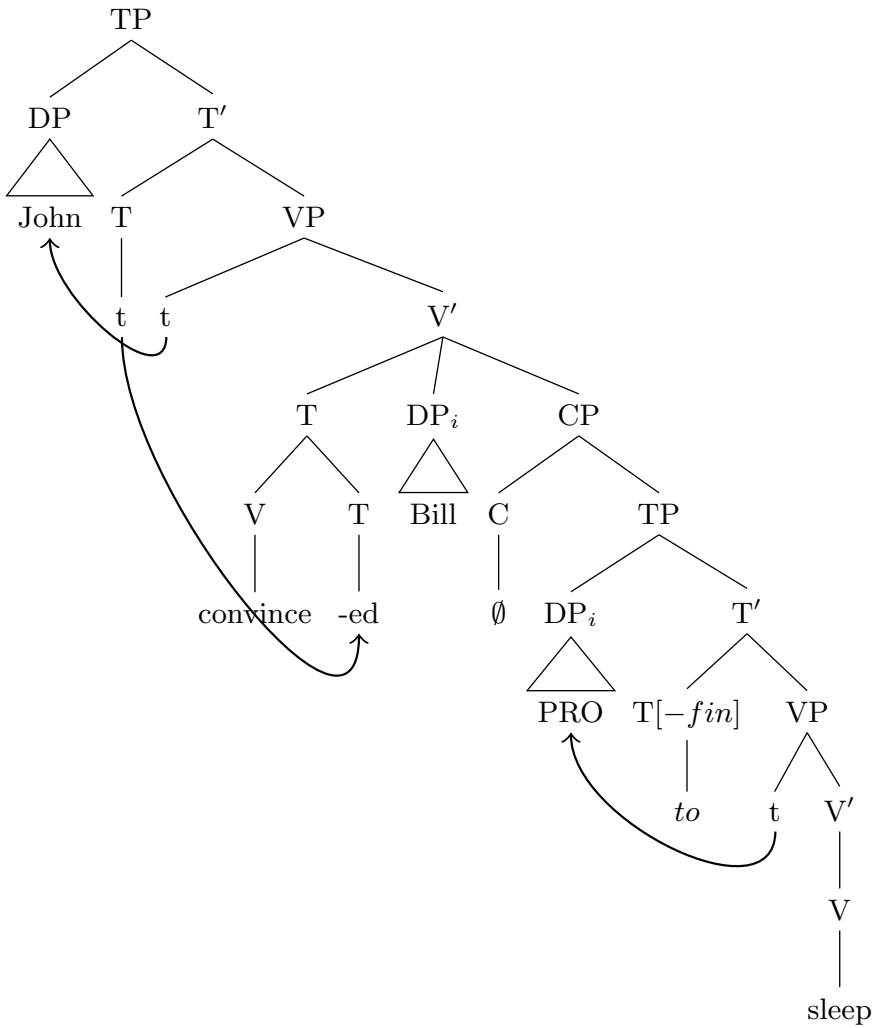



(15) a. John believed [$_{\text{TP}}$Bill to have slept ]
b. John believes [$_{\text{CP}}$ that Bill has slept ]
c. John convinced [$_{\text{DP}}$ Bill ] [$_{\text{CP}}$ to sleep ]
d. John convinced [$_{\text{DP}}$ Bill ] [$_{\text{CP}}$ that Mary should sleep ]

(16) John believed Bill to have slept.




(17) John convinced Bill to sleep.



# Case in ECM constructions I

ECM stands for exceptional case marking verbs. Even if ISAT uses ECM and 'raising to object' se interchangeably, the analysis adopted there is a ECM analysis and not a raising analysis.

→ we said that *Bill* in (18) is not the object of *believe*. Rather, it is selected as the agent of *sleep*. We adopted an analysis where [$_{\text{DP}}$ Bill ] or [$_{\text{DP}}$ him ] stays in the specifier of TP.

(18) John believes [$_{\text{TP}}$ Bill to have slept ]

→ Still, we verb *believe* licenses accusative case on the DP following it:

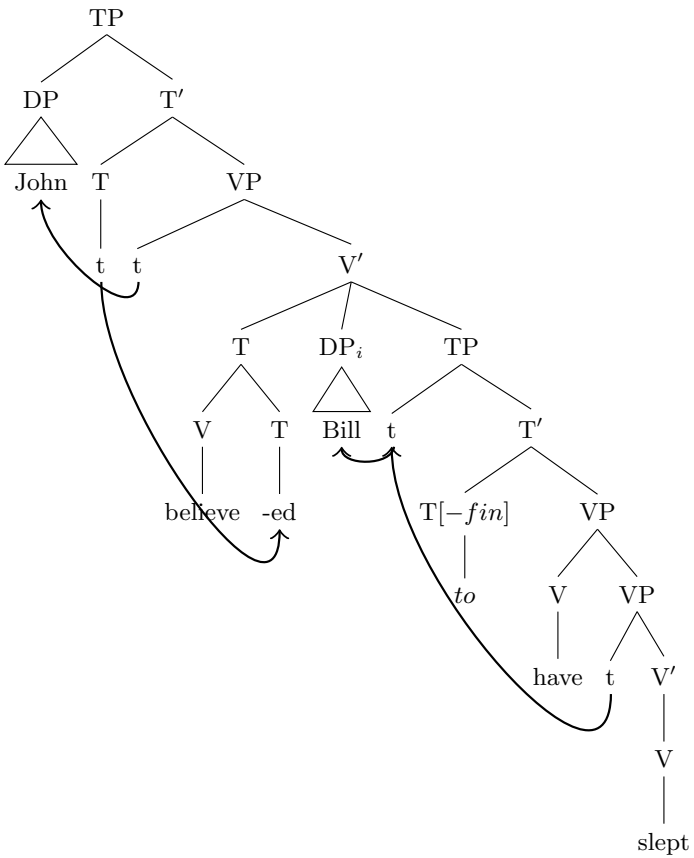
(19) John believes him/*he to have slept

→ Hence the terminology: *believe* exceptionally assigns accusative case to the pronoun even if it does not select it.

→ Under this analysis (the ECM analysis), the subject of the embedded clause does not move into the main clause.

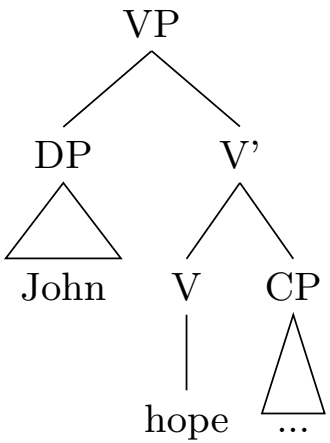
# Case in ECM constructions II

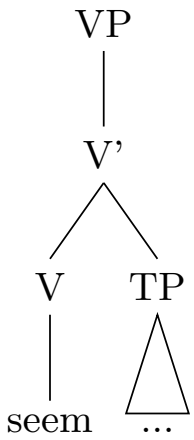
→ According to an alternative analysis, sentences like (18) involve raising the subject of the embedded clause up into an accusative Case position. This position would be outside the embedded clause. This explains the alternative terminology "raising to object". The derivation is shown below:

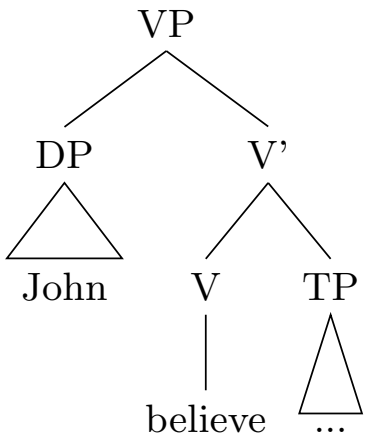


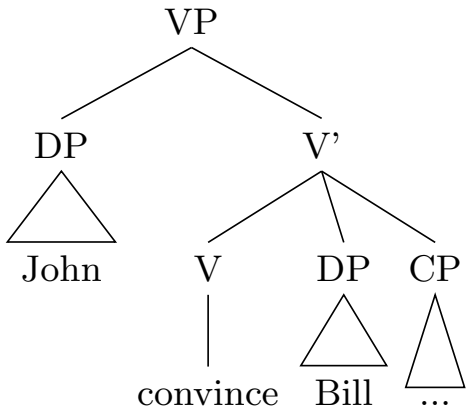
# Summary: Subject/Object Control, Raising to Subject and ECM

| | | | | |
|---|---|---|---|---|
| **hope** | **V** | $\underline{\text{DP}_{exp}}$ | | $\text{CP}_{theme}$ |
| **seem** | **V** | | | $\text{TP[to]/ CP[that]}_{theme}$ |
| **believe** | **V** | $\underline{\text{DP}_{exp}}$ | | $\text{TP[to]/ CP[that]}_{theme}$ |
| **convince** | **V** | $\underline{\text{DP}_{agent}}$ | $\text{DP}_{goal}$ | $\text{CP}[e]/ \text{CP[that]}_{theme}$ |




a. John hopes [$_{\text{CP}}$ to sleep ]
b. John seems [$_{\text{TP}}$ to have left ]
c. John believed [$_{\text{TP}}$Bill to have slept ]
d. John convinced [$_{\text{DP}}$ Bill ] [$_{\text{CP}}$ to sleep ]

**Practice**

For each of the following sentences, identify the type of underlined verb/adjective (subject control (SC), object control (OC), raising to subject (RtS) or ECM). For each of your answers, give one argument justifying your choice and write the lexical entry.

(20) a. John is <u>able</u> to help you.

b. Anna has <u>known</u> Bill to watch romantic comedies.

c. Peter <u>told</u> Bill to call the police.

# Quantifier Scope and ambiguities I

Let's introduce two types of quantifiers.

- *Every* denotes a universal quantifier ($\forall$)
- *Some* denotes a existential quantifier ($\exists$)

In logic, the scope of a quantifier or a quantification is the range in the formula where the quantifier "engages in". It is put right after the quantifier, often in parentheses.

(21) Every student left $\forall x[student(x) \rightarrow left(x)]$

(22) Some student left $\exists x[student(x) \ \& \ left(x)]$

# Quantifier Scope and ambiguities II

A scope ambiguity is an ambiguity that occurs when two quantifiers or similar expressions can take scope over each other in different ways in the meaning of a sentence. Here is an example.

(23) Some boy danced with every girl

(i) There is a unique boy, Peter, who danced with every single girl.

(24) $\exists x[\text{boy}(x) \;\&\; \forall y[\text{girl}(y) \rightarrow \text{dance}(x,y)]]$ $\exists > \forall$

(ii) Every girl is such that some boy (not necessarely the same boy danced with her.

(25) $\forall y[\text{girl}(y) \rightarrow \exists x[\text{boy}(x) \;\&\; \text{dance}(x,y)]]$ $\forall > \exists$

The surface position of the quantifiers in (23) does not predict the reading (ii). This reading is normally derived through Quantifier Raising. That is, we move the universal quantifier so that it can scope over the existential one.

# PRO and Binding

Today, we are going to use the Binding Theory to support the claim that the anaphorical element PRO is needed in:

(i) subject infinitives and

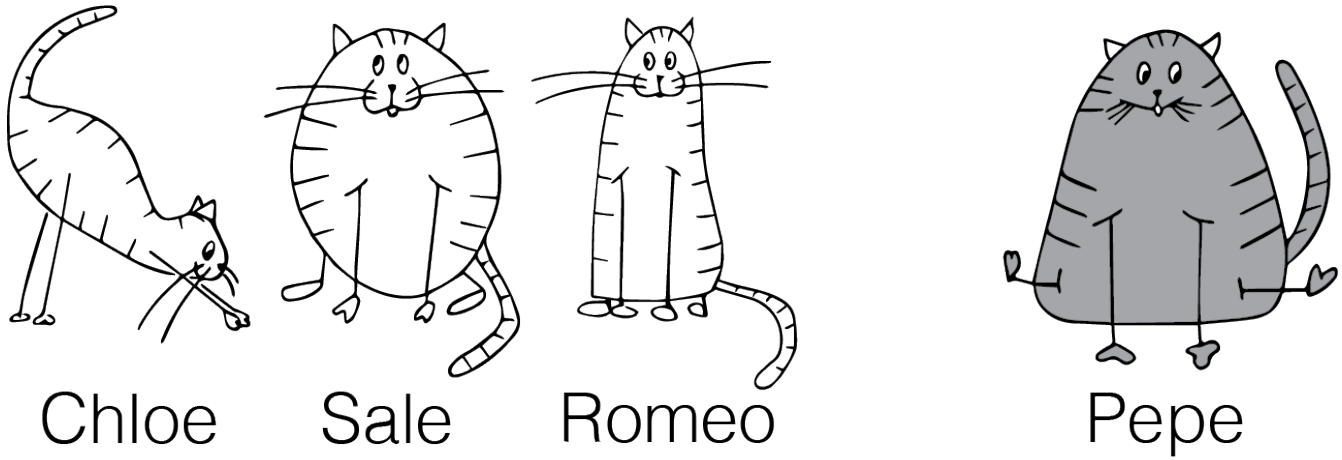
(ii) control structures.

# Binding Theory I

**Binding theory** is a theory of what controls possible coreference between different types of DPs in particular syntactic configurations.

→ Reference: The relation between a DP and the thing in the world that the meaning of that DP picks out.

→ Two DPs corefer if they refer to the same entity.




[$_{DP}$ Pepe ] and [$_{DP}$ the gray cat ] refer to the same individual in this context.

[$_{DP}$ Chloe ] and [$_{DP}$ the skinniest cat ] refer to the same cat in this context.

# Binding Theory II

(26) a. Sue thinks that she is the prettiest girl on earth.
b. Sue loves her.
c. Sue loves herself.
d. She doesn't like Sue.
e. The TA who graded her does not like Sue.

Here, I used colors, in linguistics we use indices!

Indexation: Notational tool for keeping track of what DPs refer to.

Indices: $_i$, $_j$, $_k$ ...

(i) Two DPs with the same index (co-indexed) refer to the same thing (co-refer);

(ii) Two DPs with different indices refer to different things.

Based on their syntactic behavior, we need to distinguish 3 kinds of DPs:

(A) Anaphors: itself, herself, yourselves

(B) Pronouns: you, me, us, him

(C) R-expressions: John, the professor...

# Principle A: Anaphors I

(27)*Herself is coming (cf. *She/Susan is coming*).

(28) a.*Fred$_i$ said that [ the child of [ the neighbor ]$_k$ ]$_j$ enjoys himself$_i$
b.*Fred$_i$ said that [ the child of [ the neighbor ]$_k$ ]$_j$ enjoys himself$_k$
c. Fred$_i$ said that [ the child of [ the neighbor ]$_k$ ]$_j$ enjoys himself$_j$

**Principle A (final version from Chapter 7):**

An anaphor must be **bound** in its binding domain.

→ *Binds*: A binds B if and only if A c-commands B and A and B are coindexed.

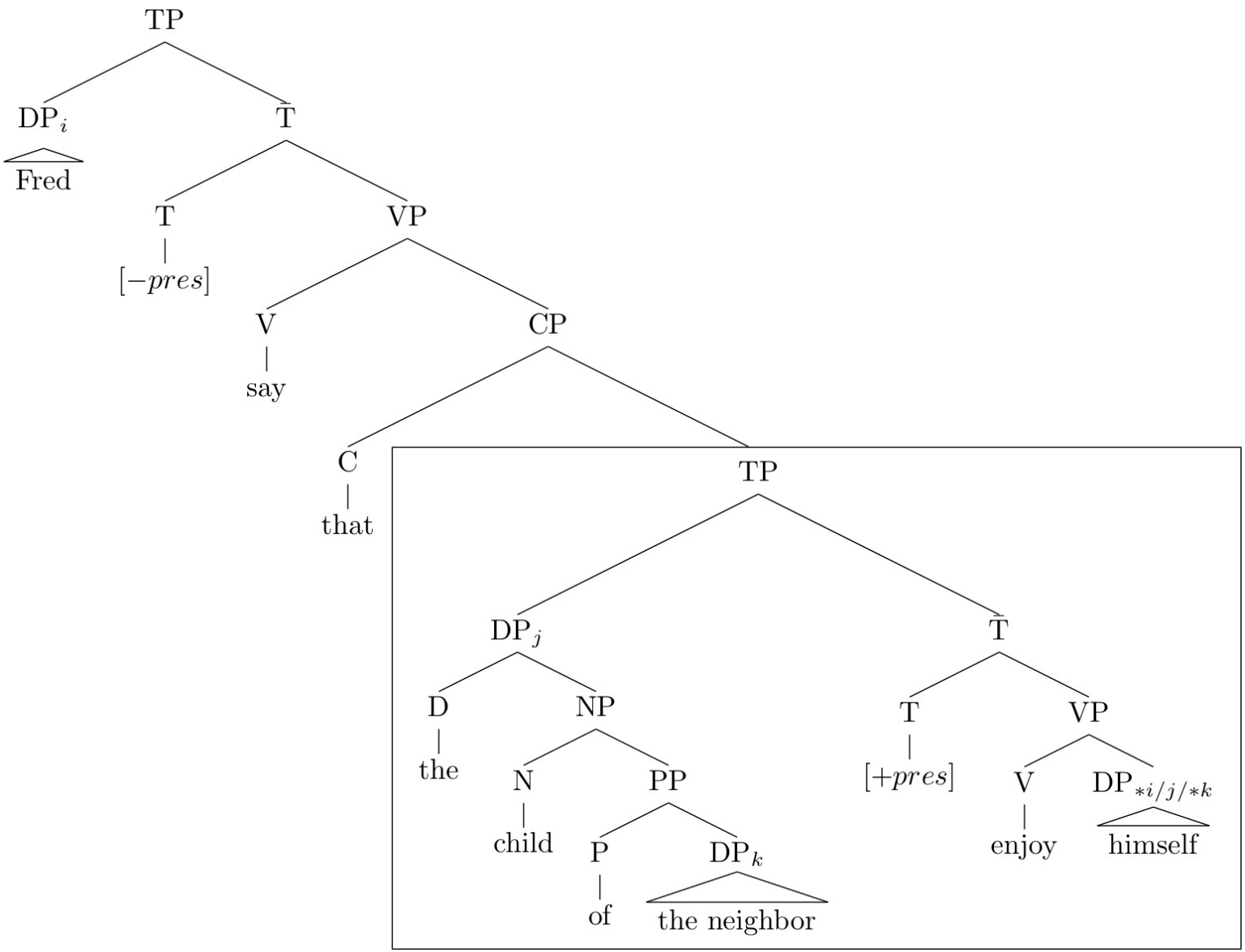
*C-Command*: The relationship between a node, its sister, and the stuff dominated by its sister.

→ *Binding domain*: The smallest XP that has a subject **and that has a DP c-commanding the anaphor**

*NB: According to this definition the anaphor cannot be the subject of the XP*

# Principle A: Anaphors II

(29) Fred$_i$ said that [ the child of [ the neighbor ]$_k$ ]$_j$ enjoys himself$_{*i/j/*k}$



# Principle B: Pronouns I

(30) She is coming

(31) a. Sue$_i$ found that [ the sister of [ the mother ]$_k$ ]$_j$ liked her$_i$
b. Sue$_i$ found that [ the sister of [ the mother ]$_k$ ]$_j$ liked her$_k$
c.*Sue$_i$ found that [ the sister of [ the mother ]$_k$ ]$_j$ liked her$_j$

**Principle B :**

A pronoun must be **free** in its binding domain.

→ *Binds*: A binds B if and only if A c-commands B and A and B are coindexed.

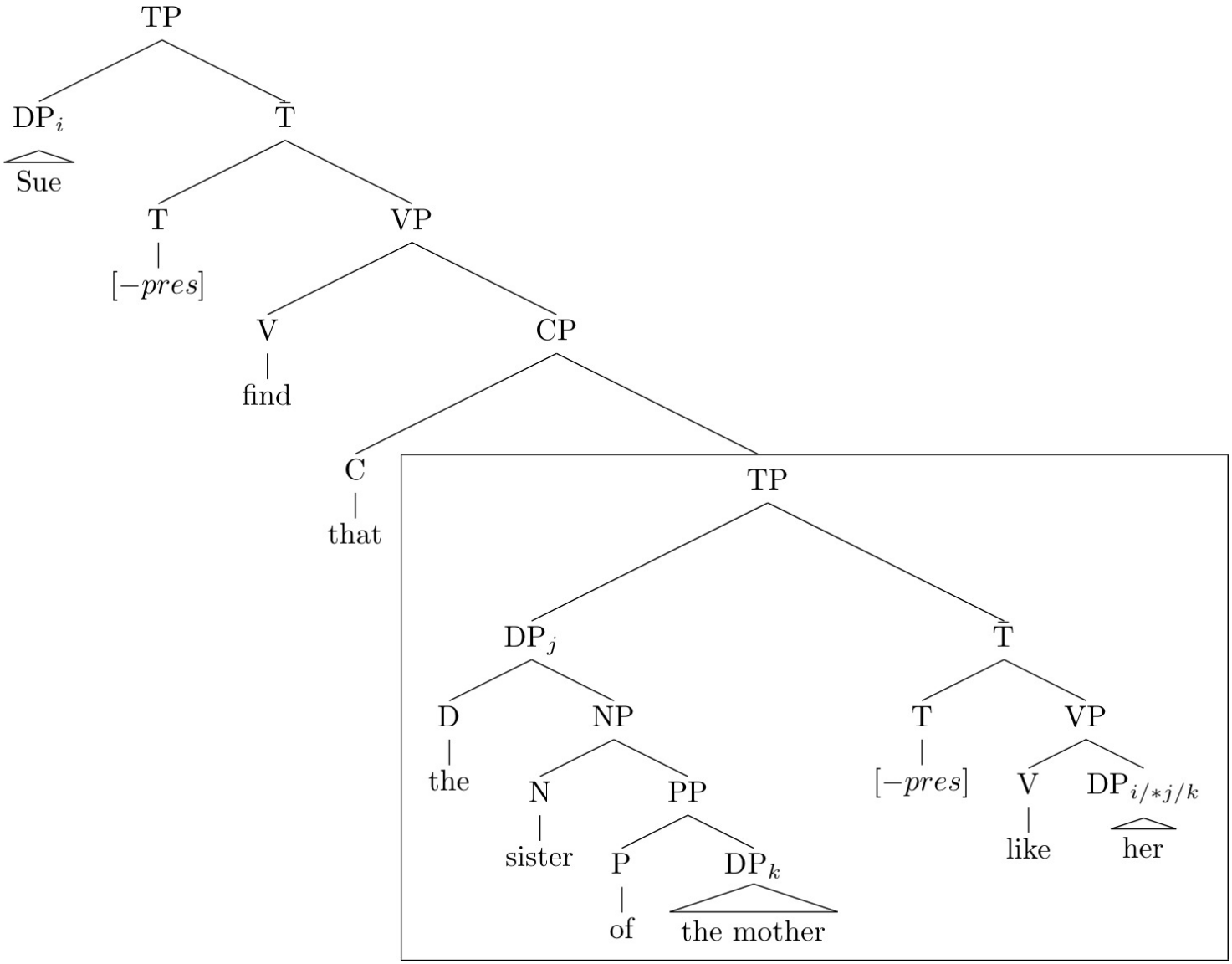
*C-Command*: The relationship between a node, its sister, and the stuff dominated by its sister.

→ *Binding domain* (BD): The smallest XP containing the pronoun that has a subject.

*NB: According to this definition the pronoun can be the subject of the XP*

# Principle B: Pronouns II

(32) Sue$_i$ found that [ the sister of [ the mother ]$_k$ ]$_j$ liked her$_{i/*j/k}$



# The BD of anaphors and pronouns

*Why are the definitions of BDs slightly different?*

**Binding domain of anaphors:**

The smallest XP that has a subject **and that has a DP c-commanding the anaphor**
*NB: According to this definition the anaphor cannot be the subject of the XP*

**Binding domain of pronouns:**

The smallest XP containing the pronoun that has a subject.
*NB: According to this definition the pronoun can be the subject of the XP*

If the definition of BD is the same, we should expect anaphors and pronouns to be in *complementary distribution*.

→ In most cases, this prediction is borne out, as we saw.

→ But in same cases it is not!

(33) a. They$_i$ like [ [ **their**$_i$ ] books ]
b. They$_i$ like [ [ **each other**$_i$ ]'s books ]

→ In order to account for the facts in (33), we need to allow the anaphor to have a larger BD.

# Principle C: R-expressions

R(eferential)-expressions = non-pronominal expressions

→ Proper names: John, Sue, Peter...

→ Descriptions: the president of the US, the Italian textbook, my sister...

(34) a.*He$_i$ saw Jonh$_i$
b.*He$_i$ said that Mary saw John$_i$
c. The builder of his$_i$ house visited Peter$_i$

**Principle C :**

R-expressions cannot be bound.

## Practice

Consider the following sentences:

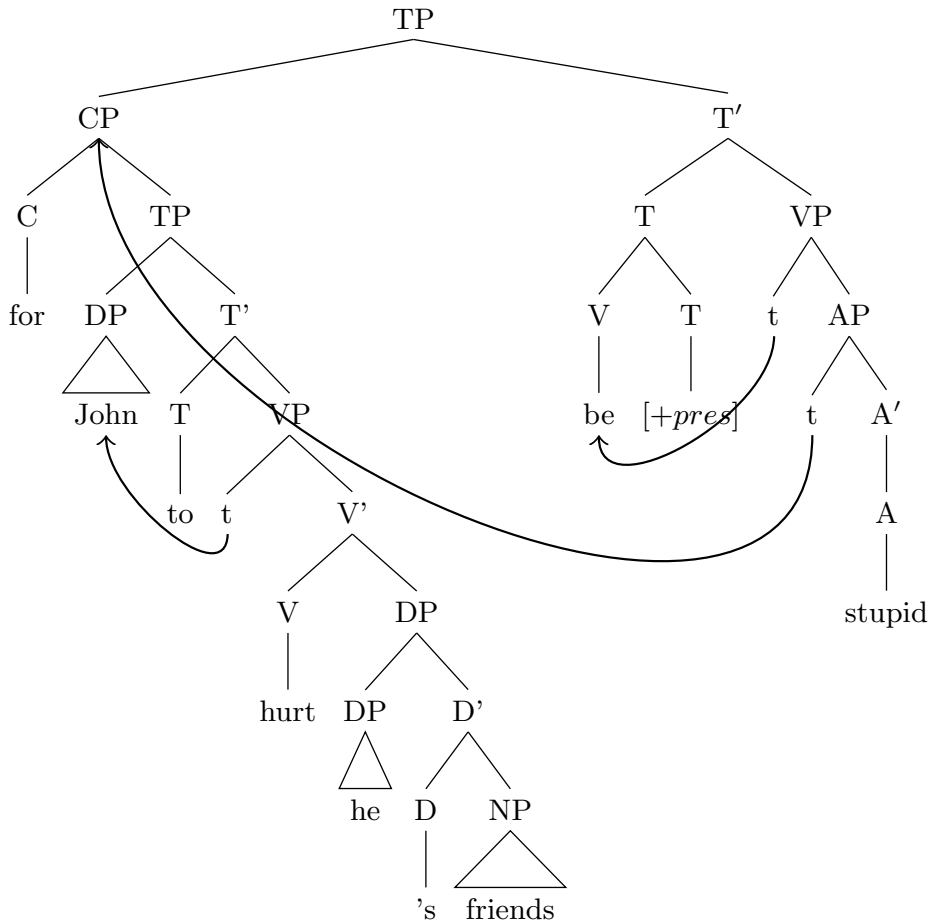
(35) John$_i$'s young brother thinks he$_i$ should leave

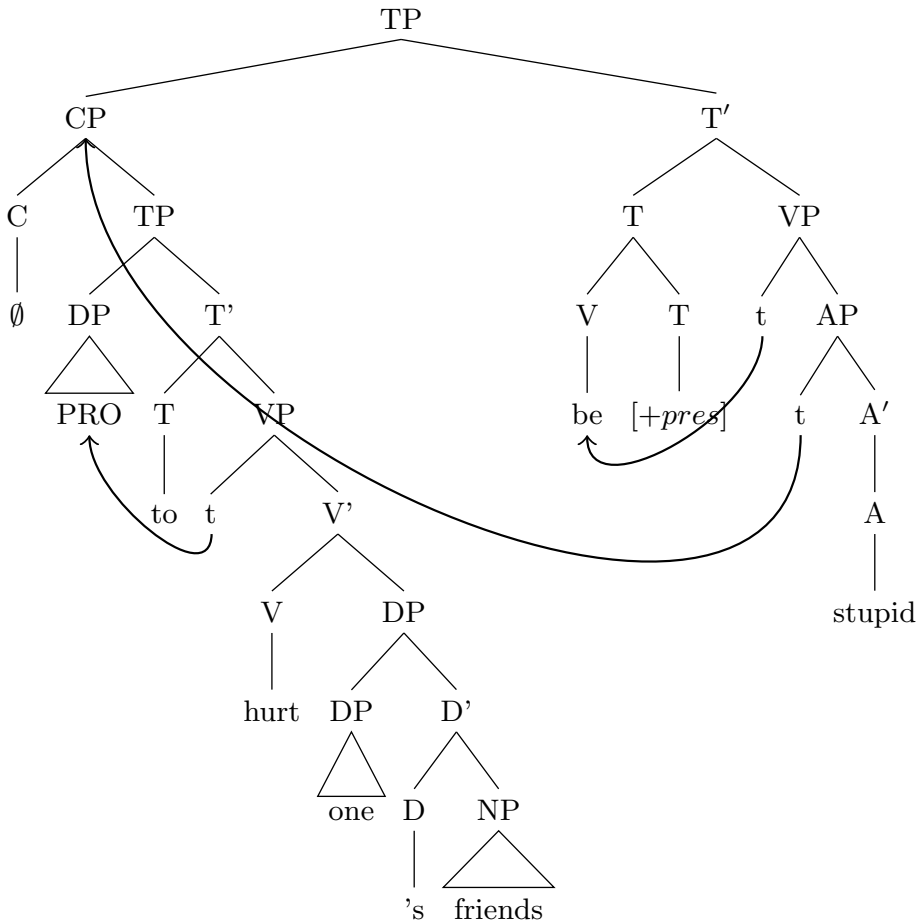
(36)*They$_i$ saw Mary look at each other$_i$

Can BT explain their grammaticality status? Explain.

# Subject Infinitives and Binding I

(37) a. [For John to hurt his friends] is stupid
b. [To hurt one's friends] is stupid §ISAT 9.2.1



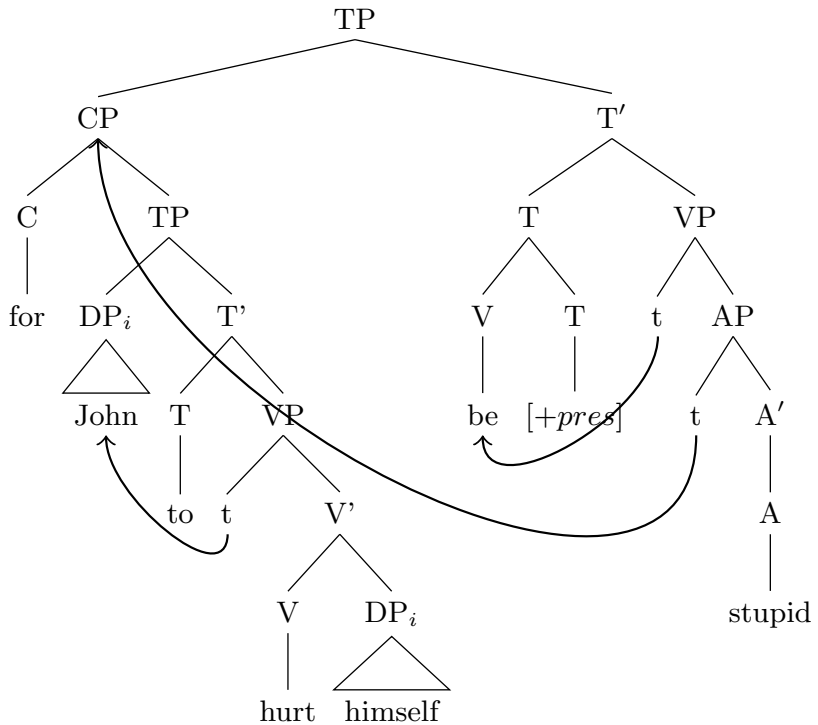



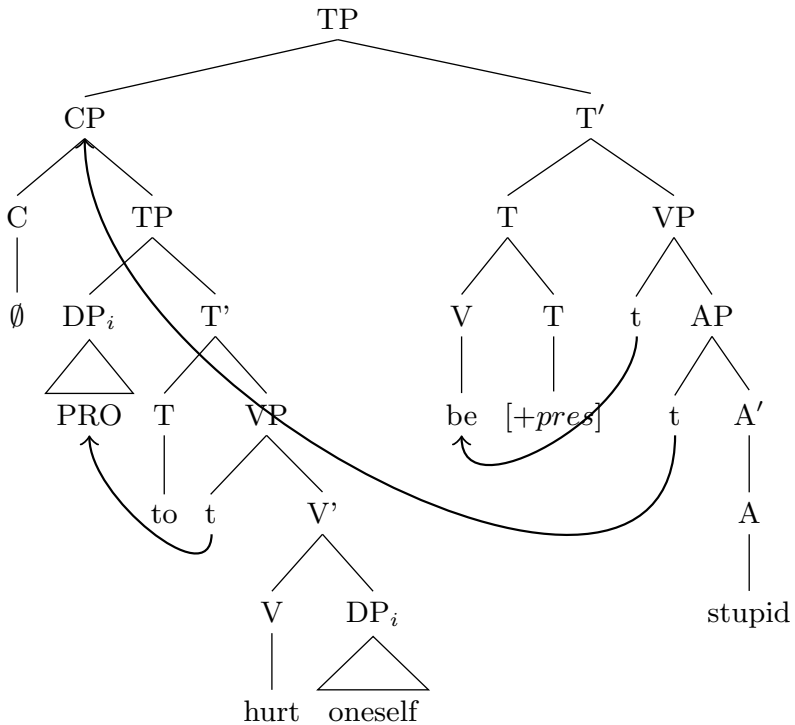
# Subject Infinitives and Binding II

Now, let's turn to examples with anaphors.

→ PRO is needed in order to satisfy principle A!

(38) a. [For John to hurt himself] is stupid
b. [To hurt oneself] is stupid



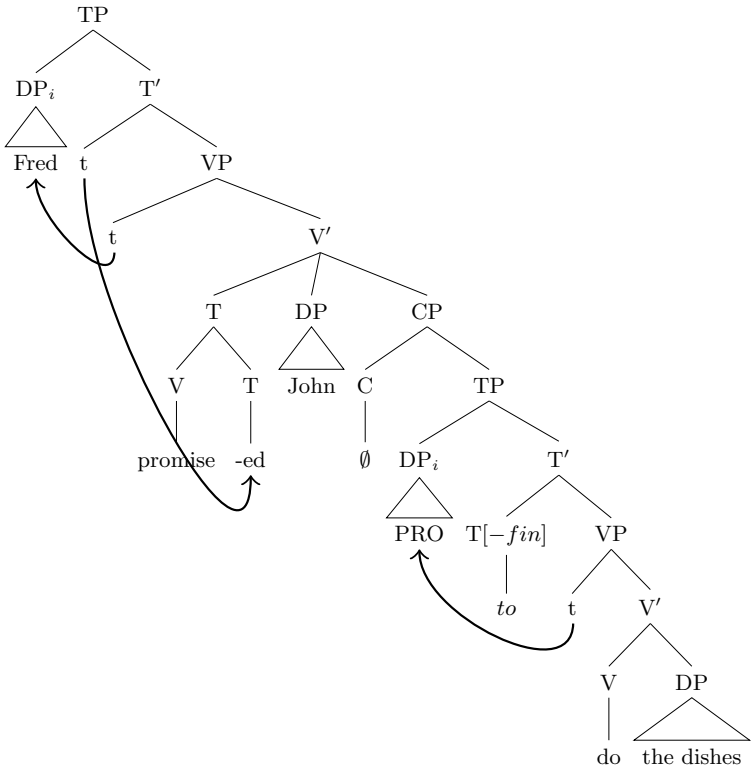
# Subject Infinitives and Binding III

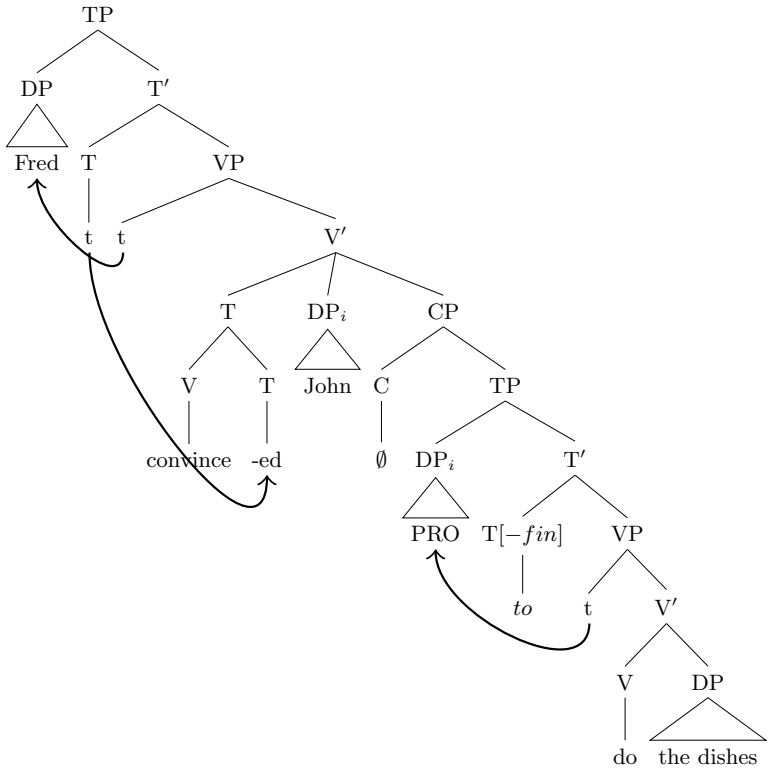
**Practice** Explain why coreference between *him* and PRO is impossible in (39).

(39) To hurt him is stupid.

# Control Structure and Binding I

(40) a. Fred promised (John) to do the dishes.(1)
b. Fred convinced John to do the dishes.



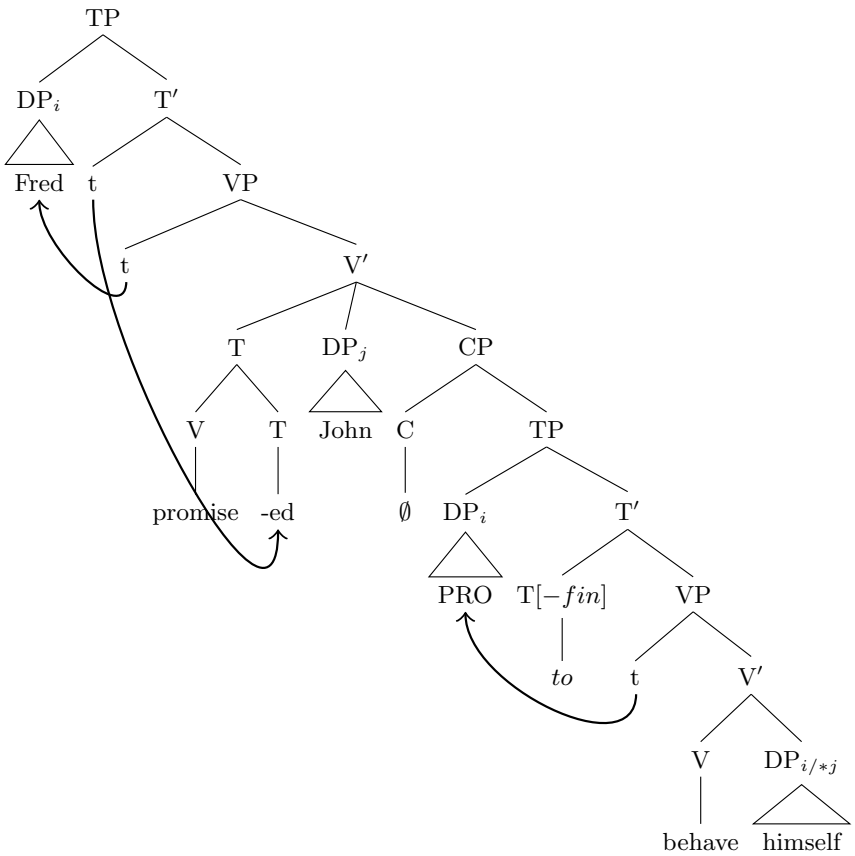



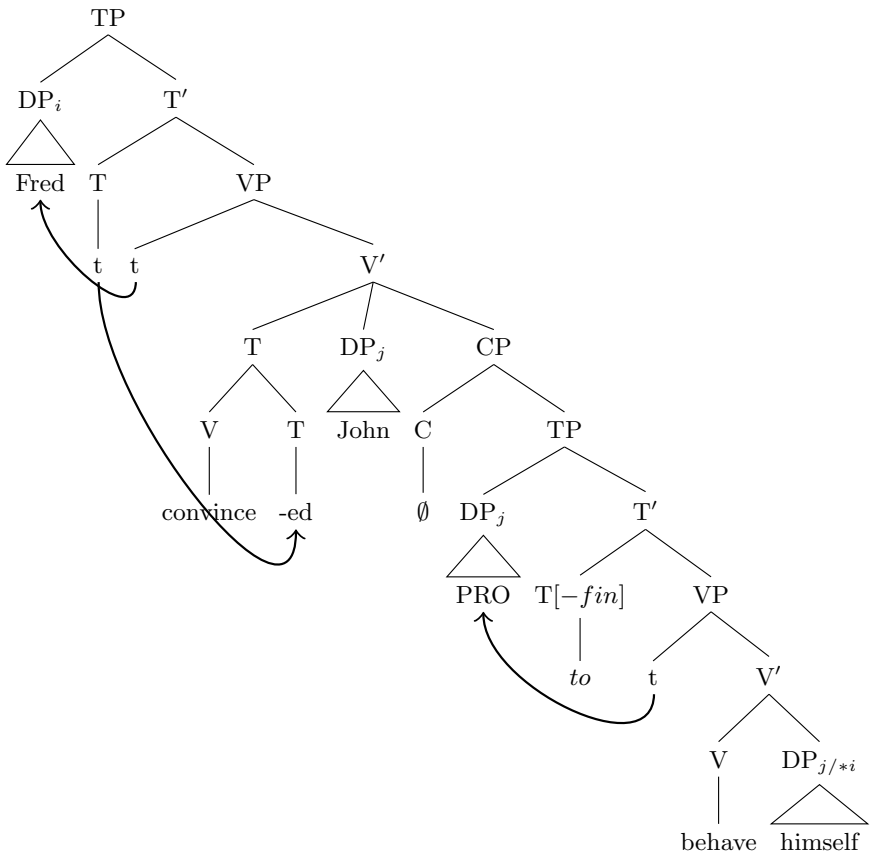

(1) the argument stands even if you don't like having an over goal with subject control

# Control Structure and Binding II

Again, the presence of PRO is needed to account for data involving anaphors!

(41) a. Fred$_i$ promised (John$_j$) to behave himself$_{i/*j}$
b. Fred$_i$ persuaded John$_j$ to behave himself$_{j/*i}$



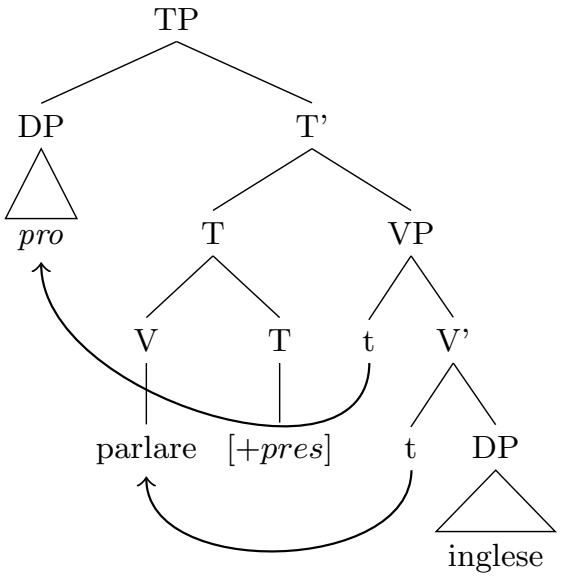



# "Big" PRO *vs.* "small" pro

PRO is always written with capital letters and read as "big PRO".

→ It is distinguished from *pro* written in normal font, which is referred to as "small pro". Small *pro* is the silent counterpart of regular pronouns, found for example as the null subject of tensed sentences in languages like Italian, Spanish, or Mandarin, but not English, where an overt subject pronoun is required.

(42) parliamo inglese
speak.1PL English
"We speak English"



# Wh-movement

# Phrasal Movement

**Phrasal Movement**: move a phrase to a empty specifier position.

It's a feature driven movement.

→ Subject raising: finite T has a EPP feature which is satisfied when the syntax provides a subject for T.

**will** T[+tense] epp: $DP_{nom}$/CP c-selects VP

→ Wh-movement is another type of phrasal movement.

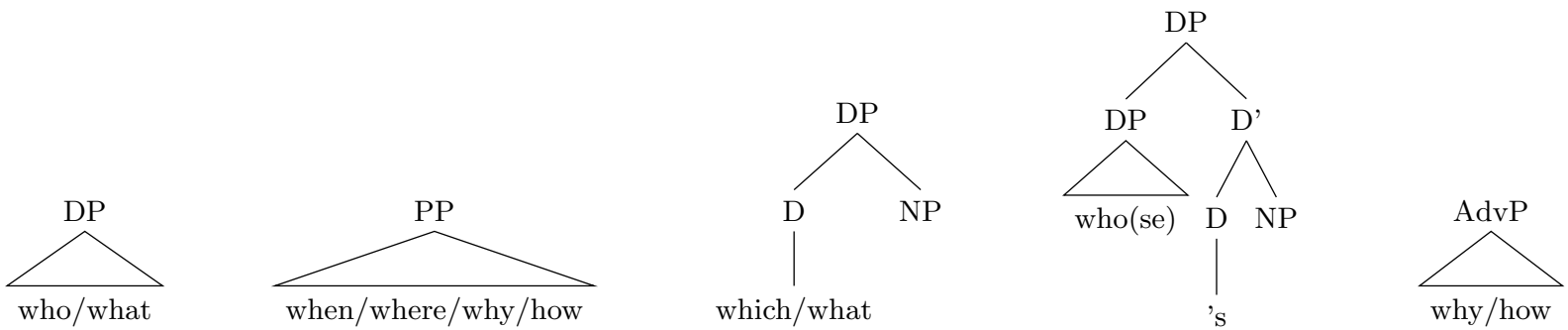
C also has a sort of EPP feature. It requires a [+wh] phrase in its specifier. We will call this feature [+wh].

# Wh-movement I

(43) a. John ate a cookie
b. what did John eat ?

→ What kind of phrases does wh-movement move in English? Phrases that contain *wh*-words. They can be arguments or adjuncts.

*who, what, which, whose, where, when. why, how...*




→ How do we know that there is movement?

- Empirical facts: relation between base position and wh-word

# Wh-movement II

- Wh-words sometimes stays in their base position

(44) a. Peter bought the car in Chicago.
b. Where did Peter buy the car _?
c. What did Peter buy _ in Chicago?
d. Where did Peter buy what _?

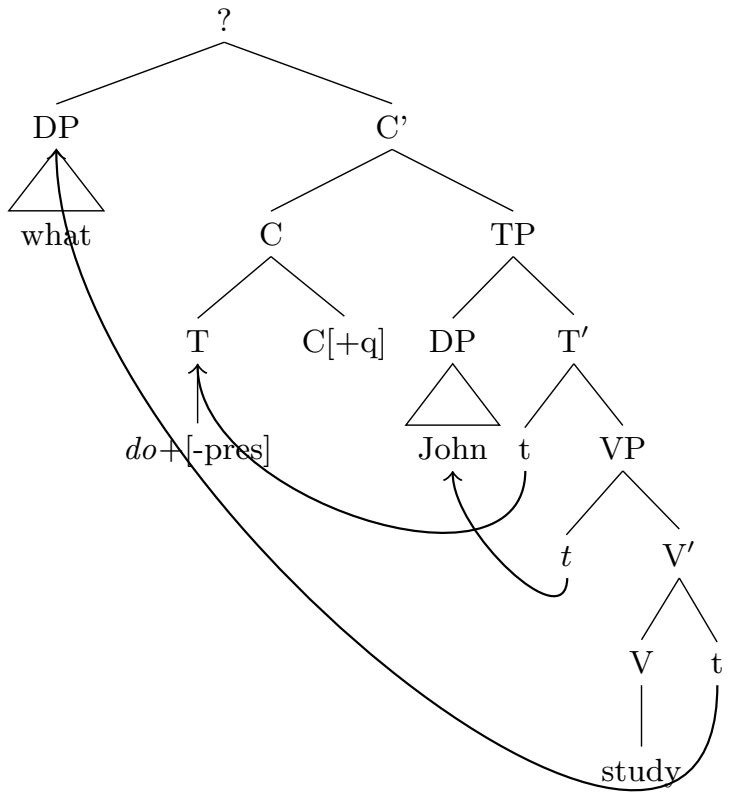
- Wh-movement is not a universal property: in many languages wh-words do not have to move to the beginning of the sentence and appear in their base position.

(45) Pita-ga nani-o tabeta-ka.
Peter-NOM what-ACC ate-C[+q]
'What did Peter eat?' Japanese

# Wh-movement III

→ Where do wh-phrases move to in wh-questions?

- We know that they raise past C since they are found to the left of a T that has raised to C:



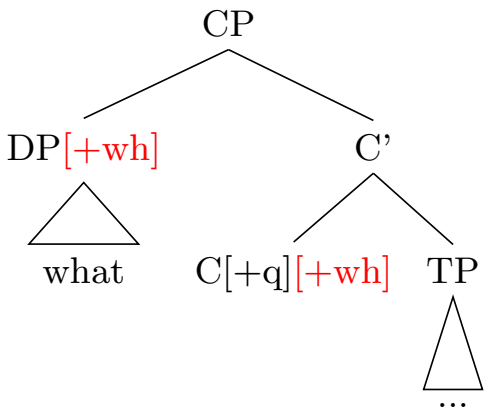
# Wh-movement IV

- A natural conclusion is to assume that they raise to the specifier of CP. Why can't they be CP adjuncts?

  (i) It seems that only one wh-phrase can move to that position (at least in English):

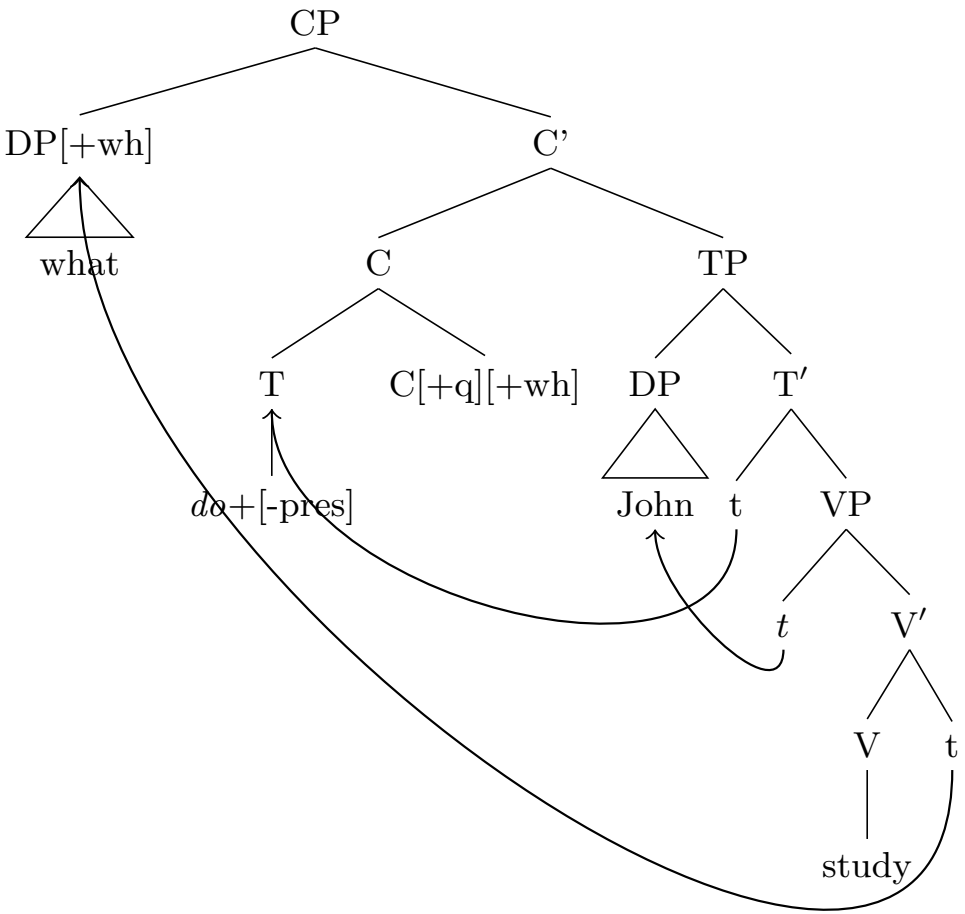
  (46) a. Who bought what?
  b.*Who what bought?

  (ii) Analogy with other feature driven movements: agreement (or feature checking) between the head and its subject (or specifier). **The feature that triggers wh-movement is [+wh].** [**NB**: This is different from what ISAT does: it only uses [+q] ]



# Wh-movement V

This would be the final tree for *What did John study?*:



# Wh-movement VI

Two features, four possibilities:

| | |
|---|---|
| [-Q -wh ] | ex. John thinks that the moon is made of cheese |
| [+Q -wh ] | ex. Did+∅ John read the report? |
| [+Q +wh ] | ex. What Did+∅ John read? |
| [-Q +wh ] | ex. I wonder what ∅ John read. |

# Wh-movement VII

**Crosslinguistic Evidence**

In some languages, there are special forms of complementizers that represents these features. Irish is such a language, in Irish you get

→ the *go* complementizer in declarative sentences;
→ the *an* complementizer in yes/no questions;
→ the $a^L$ complementizer in wh-questions

(47) Measann sibh **go** bhfuil an oechair insa doras
think you.PL that is the key in.the door
"You think that the key is in the door' (McCloskey 1979)

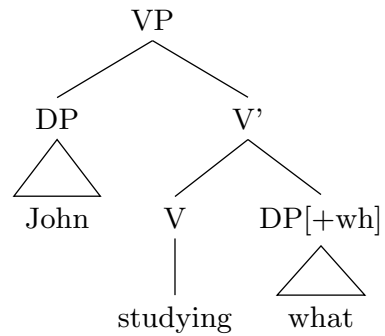
(48) **An** bhfaca tú an madra?
Q See.PAST you the dog
"Did you see the dog?" (Carnie 2006)

(49) Cad **a**$^L$ tá sa seomra?
What C-*wh* is in the room
"What is the room?" (Carnie 2006)

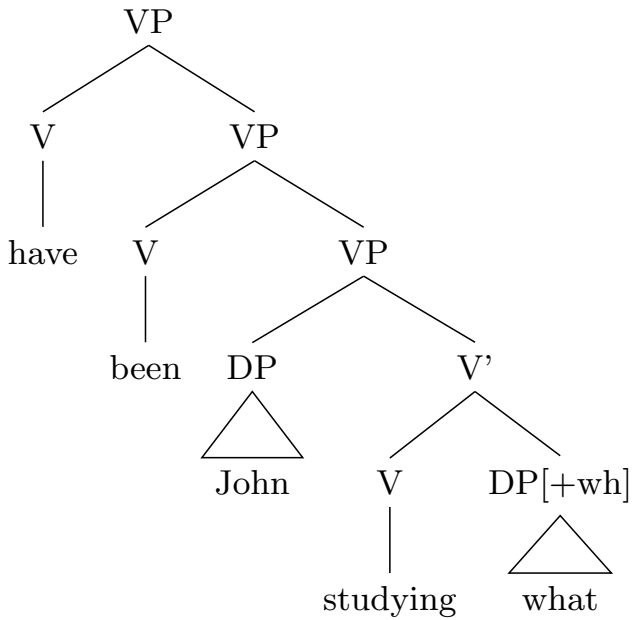
# Wh-movement VIII

Here is a bottom-up step-by-step derivation of the sentence *What has John been studying?*

**Step 1** The VP headed by the lexical verb:

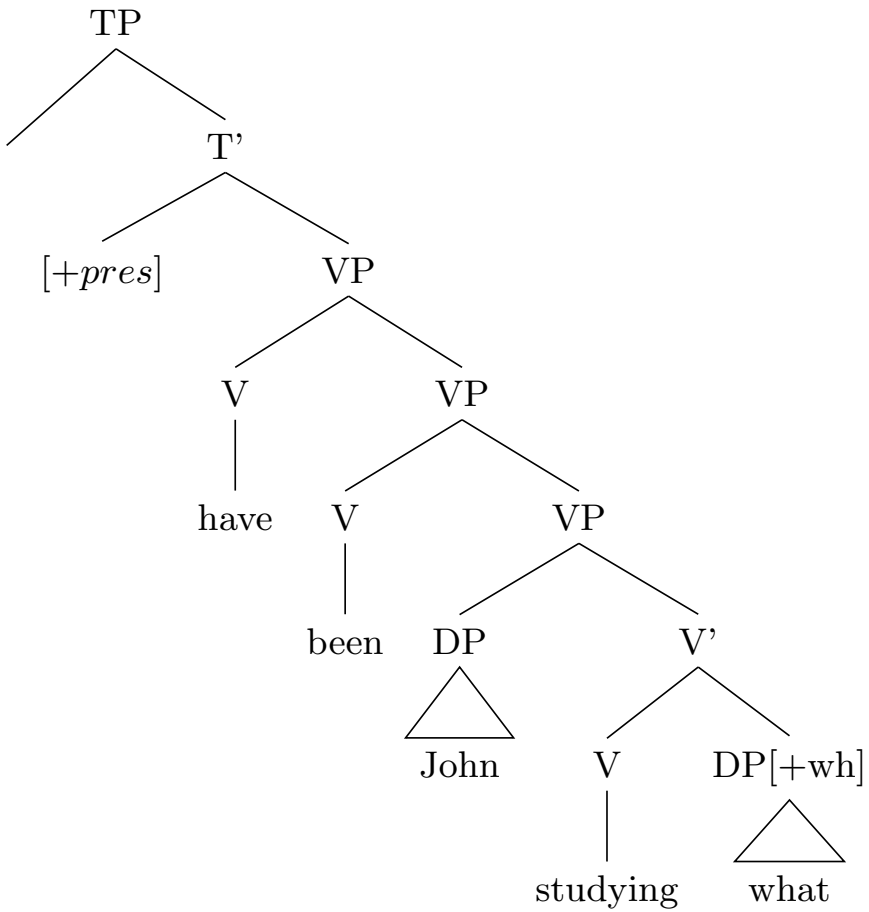



**Step 2** Higher VPs headed by auxiliary verbs (No external arguments!)

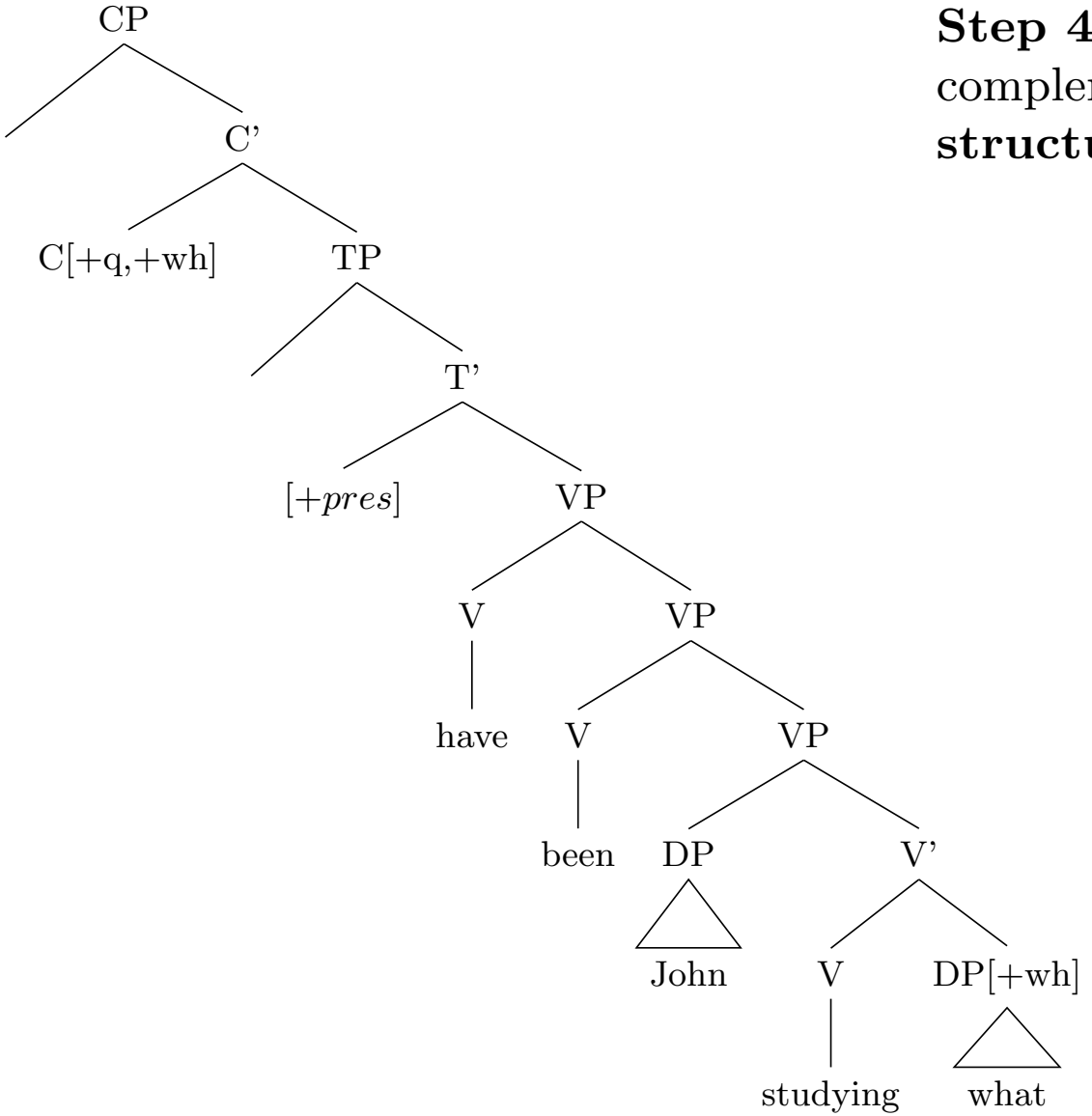


# Wh-movement IX

**Step 3** The TP:

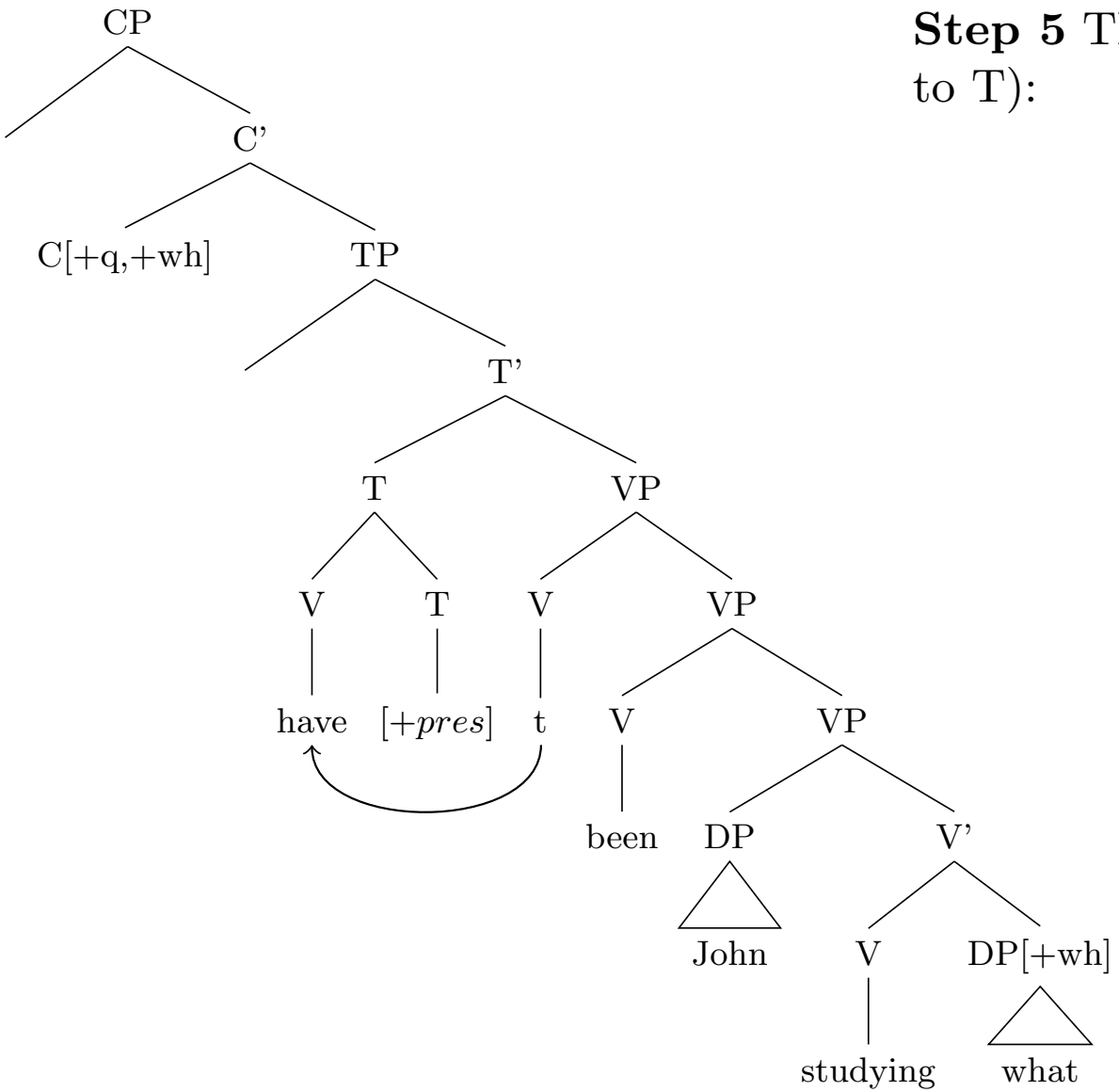


# Wh-movement X



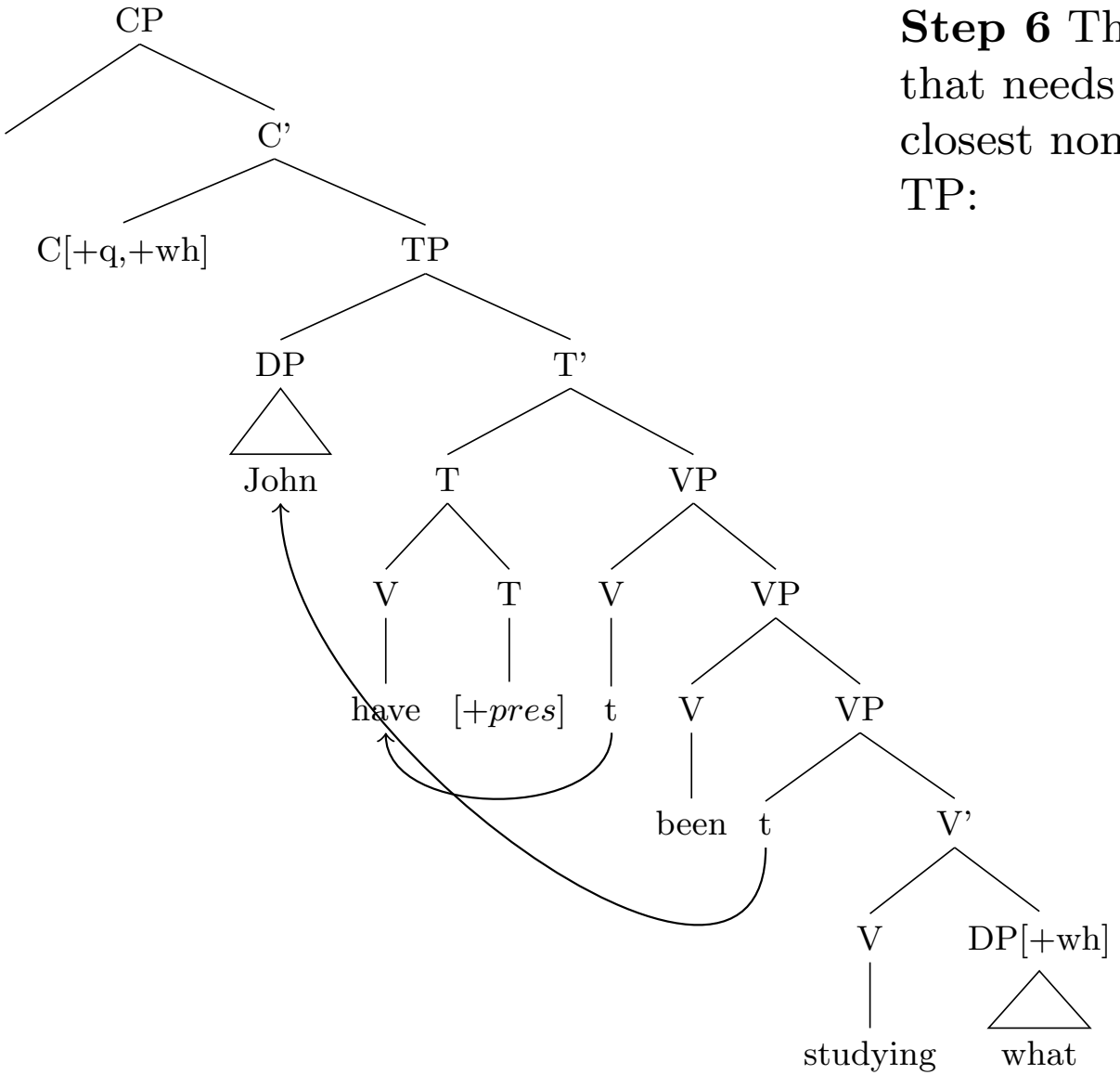

**Step 4** Now we can merge the [+q,+wh] complementizer and get our **deep structure tree**:

# Wh-movement XI



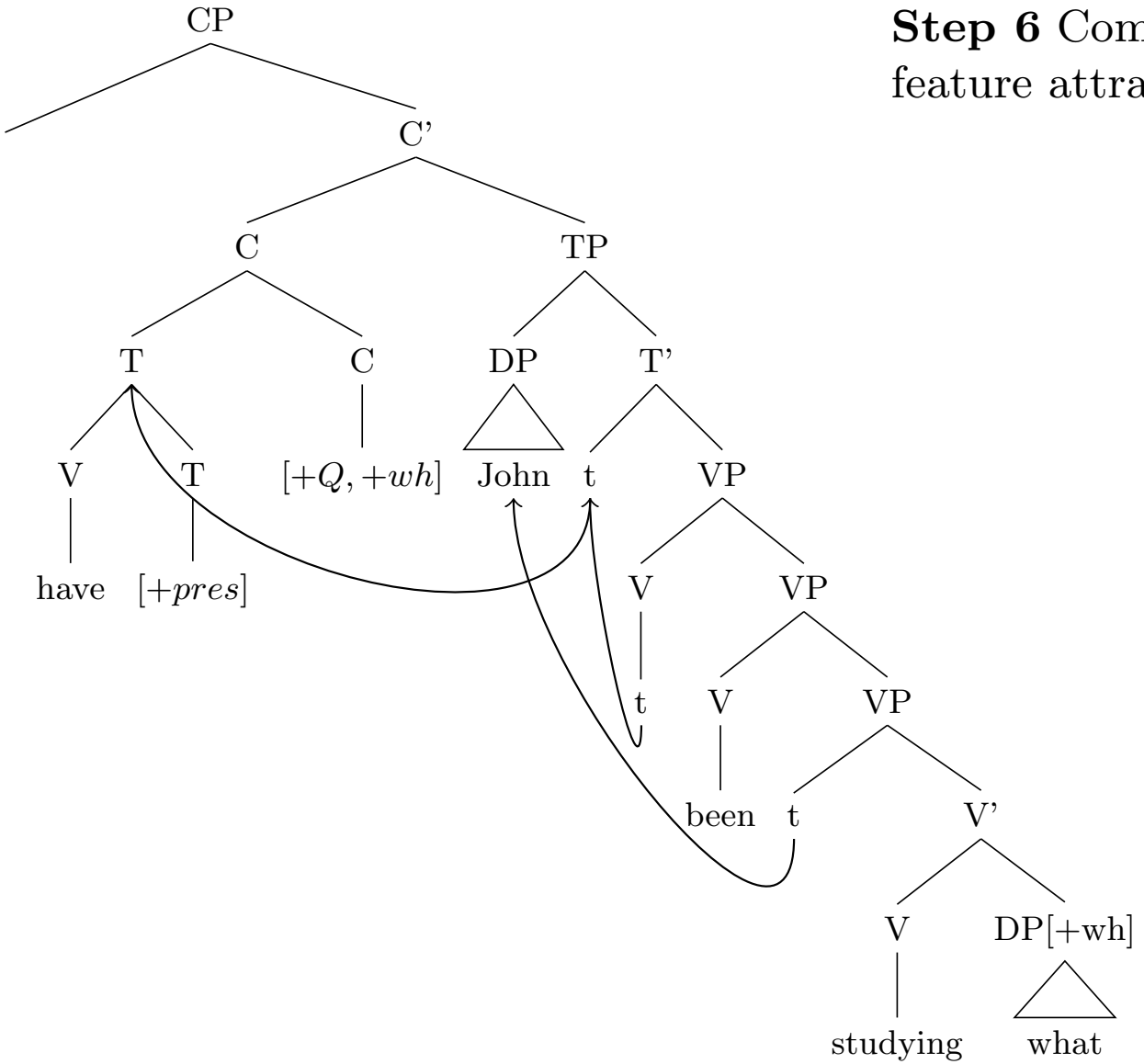

**Step 5** The auxiliary can move to T (V to T):

# Wh-movement XII



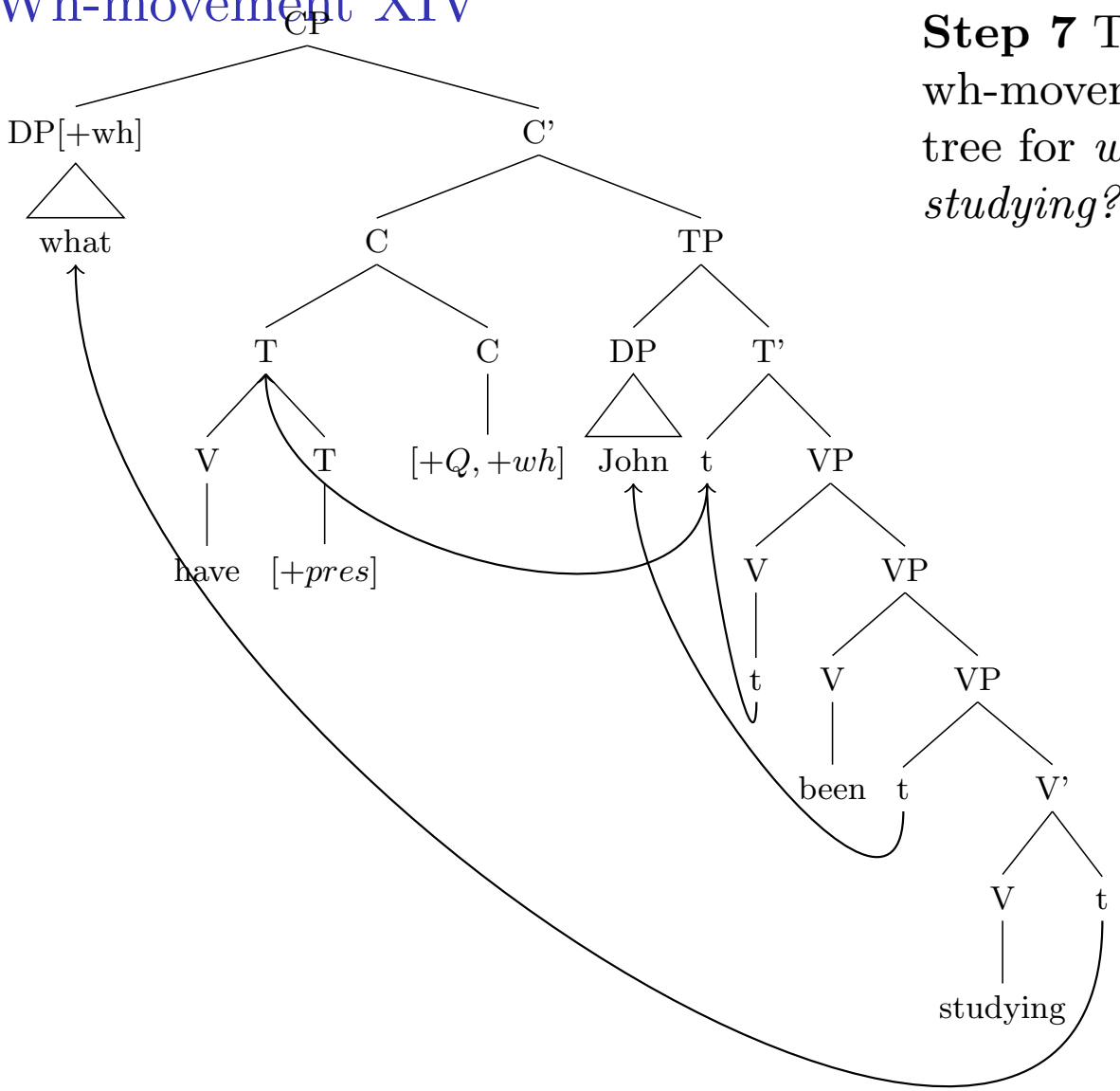

**Step 6** The finite T has an EPP feature that needs to be satisfied. We move the closest nominative DP to Spec, TP:

# Wh-movement XIII




**Step 6** Complementizers with the [+q] feature attract what is in T:

# Wh-movement XIV




**Step 7** The feature [+wh] triggers wh-movement. This gives us the surface tree for *what has John been studying?*

## Practice: Tree drawing

(50) Which book have you been talking about?

(51) How did John try to address this issue?

(52) Which book did you expect Matt to give to Mary?

(53) Who did Martha force to read Ronny's book?