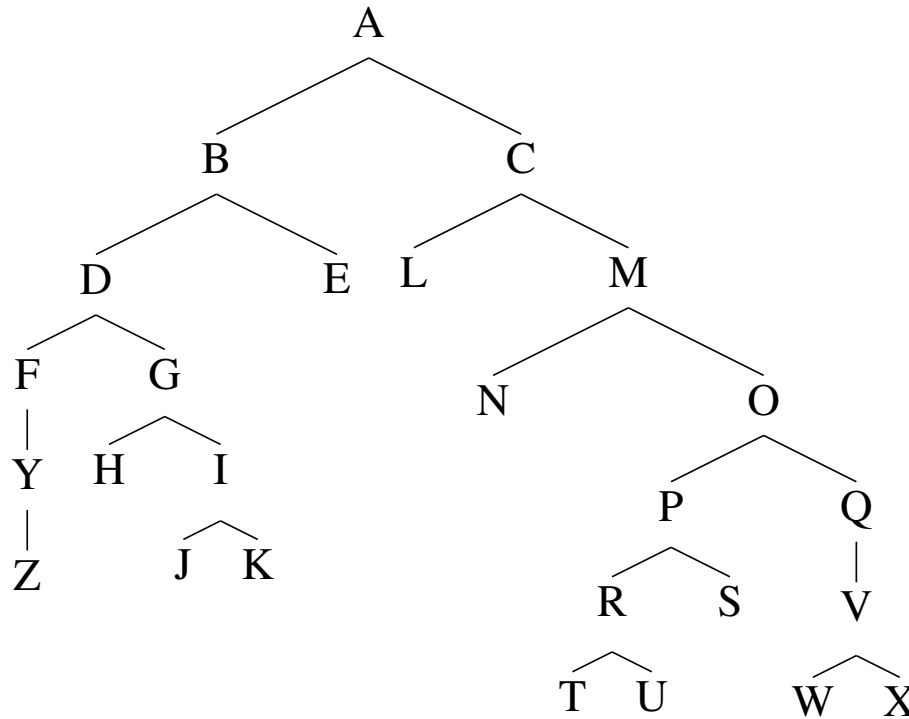


C-command practice!



Why did I not indicate XP or X' or X⁰ status?

Binding Theory

- Binding theory studies the distribution of NPs with respect to their referential properties.
- The way, for example, Case theory studies the distribution of NPs with respect to the Case they appear in.
- We have already seen part of Binding Theory, namely what we referred to as “Binding Condition C”:

- Binding Condition C:
R-expressions must be free

What are R-expressions?

What does “free” mean?

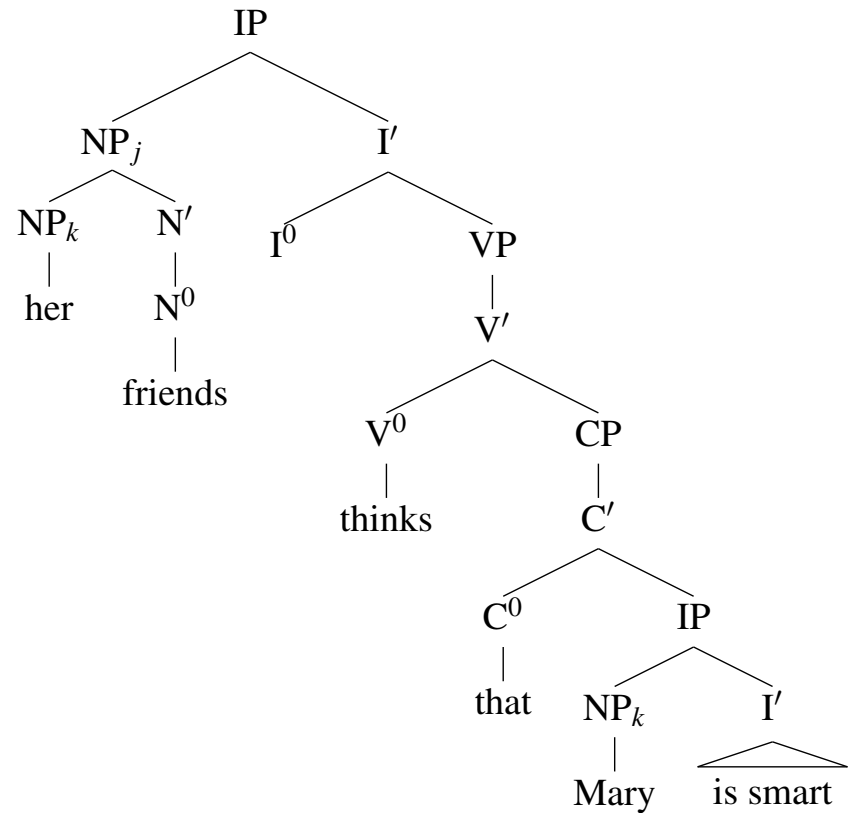
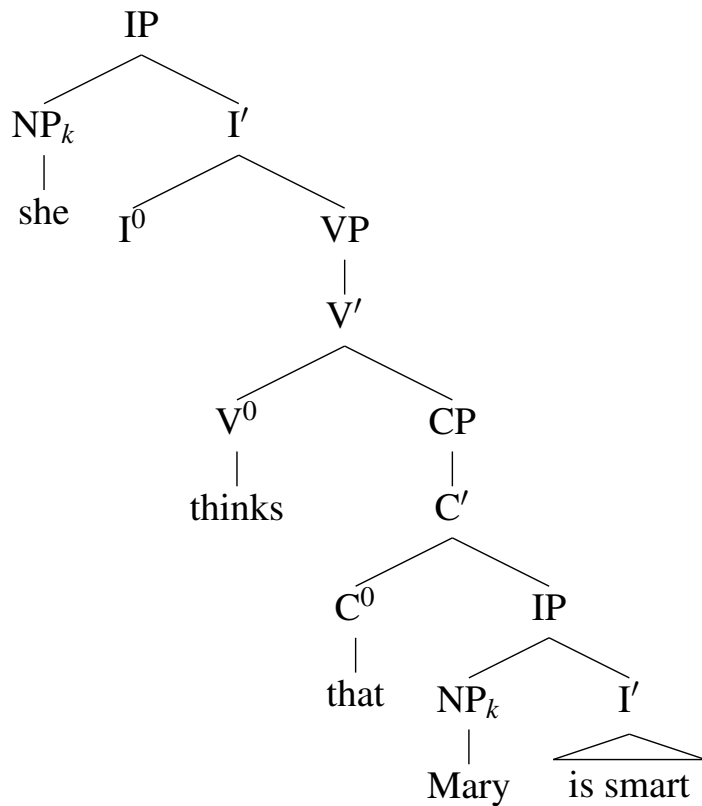
1. Mary_k thinks that $\text{she}_{k/m}$ is smart
2. $\text{She}_{m/*k}$ thinks that Mary_k is smart
3. $[\text{Her}_{m/k} \text{ friends}]_j$ think that Mary_k is smart
4. That $\text{she}_{m/k}$ failed the exam really bothers Mary_k

2. She_{m/*k} thinks that Mary_k is smart

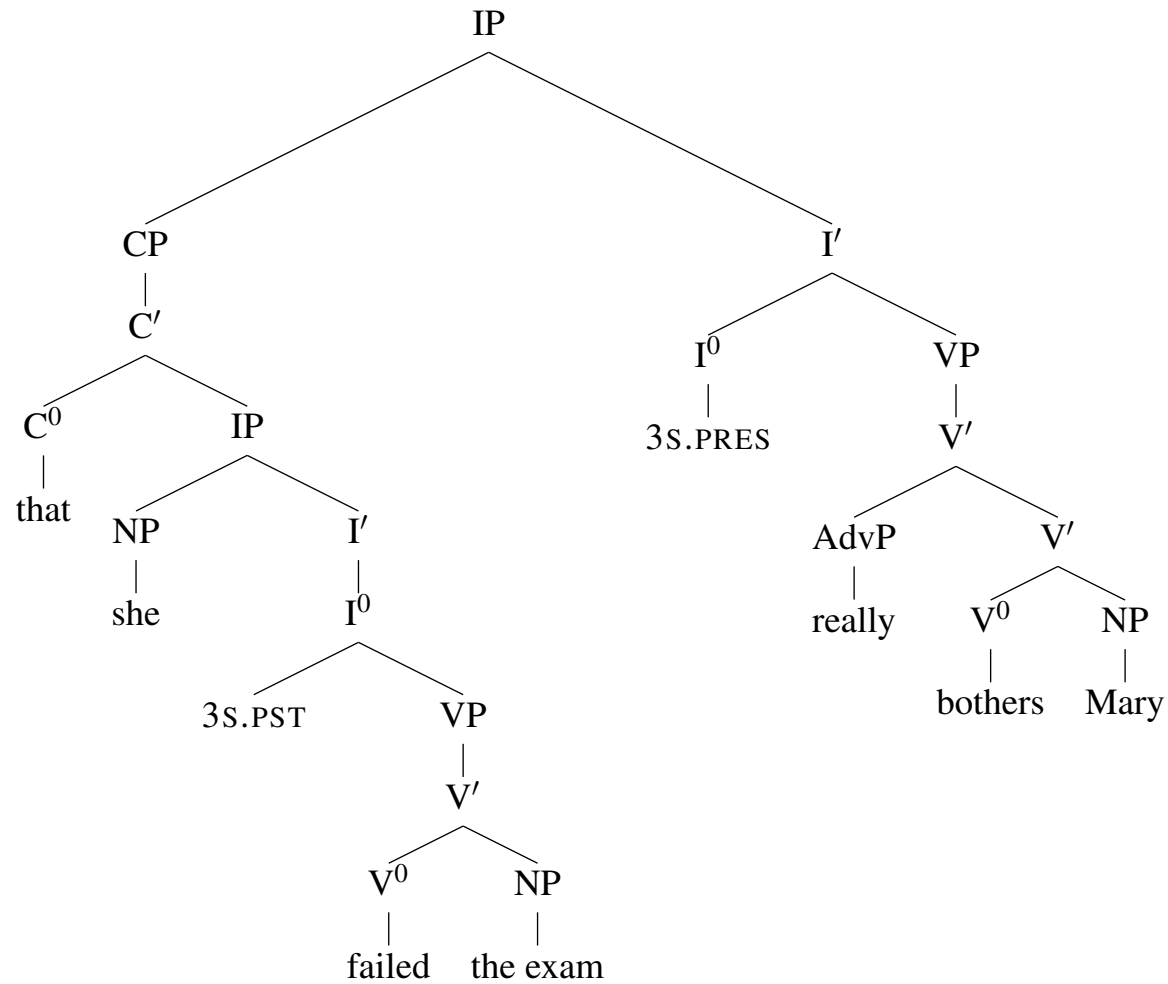
3. [Her_{m/k} friends]_j think that Mary_k is smart

2. *

3.



4. That she_{m/k} failed the exam really bothers Mary_k



Beyond R-expressions

There are NPs that are not referential by themselves but which rely on something else to get their reference.

Can you think of what some such NPs can be?

Can you think of what this “something else” might be?

For example, another NP in the sentence or contextual factors.

There are two such classes of NPs to consider:

-Pronouns: *he, she, us, our...* (their Case is irrelevant)

-Reflexives (or anaphors): *myself, themselves,...*

The reciprocal *each other* also belongs in this class

Binding Condition B (of Chomsky 1981) is about pronouns.

Let's see if we can figure it out.

5.* Ian_k saw him_k in the mirror

6. Ian_k's sister saw him_k in the mirror

If we said “pronouns must be free”, we could capture (5,6).

Why?

But could it capture (7)?

7. Ian_k thinks that Peter_m saw him_k in the mirror

Why or why not?

So pronouns behave differently from R-expressions, which must be free in the entire sentence. Pronouns must free, but only in a certain domain. (That is, it's alright if they are bound but they should not be bound from too close by.)

- Can you think of what this domain is?
Look at (5-7) and think.
- **Binding Condition B:**
A pronoun must be free in the smallest IP that contains it.

(this is a much simplified version of Chomsky's Binding Condition B)

What about (8)? Does it comply with BC B?

8. He left

Common misperception: BC B does not say that a pronoun must be bound outside its Binding Domain. It says nothing, in fact, about where a pronoun must be bound. It says where it should be free.

Binding Condition A is about anaphors.

- 9a. He left
- b. *Himself left

Anaphors and reciprocals need to have an intrasentential NP that they can be co-indexed with/connect to/take their reference from etc.

We will call this NP the “antecedent” of the anaphor.

But further restrictions apply:

- 10a. *John saw herself in the mirror
- b. *Sue saw each other in the mirror
- c. John saw himself in the mirror
- d. Sue saw herself in the mirror

What generalization can we draw so far about anaphors?

And what does this sentence tell you about the structural relationships between the antecedent and the anaphor?

11. * $[\text{Ian}_k\text{'s sister}]_m$ likes himself $_k$

H1: An anaphor must be bound!

How does (12) fare in the face of our H1:

12. *Sue thinks that Fred saw herself in the mirror

An anaphor must be bound but it must be bound from within a certain distance.

That is, an anaphor must be bound within a certain domain.

Can you tell what this domain is?

- **Binding Condition A:**
An anaphor is bound within the smallest IP that contains it
- **Binding Condition B:**
A pronoun is free within the smallest IP that contains it

(These are oversimplifications of the conditions in Chomsky 1981. There are more data that show that a further enrichment of the definition of 'domain' is required but what we have here will do for our purposes.)

**Binding Conditions A and B predict that anaphors and pronouns appear in complementary distribution.
Can you see why?**

What indices are permitted on the pronouns or anaphors in the sentences below, and why?

13. Peter likes him/himself

14. Megan thinks that Misha saw her/herself

15. Richard's friend praised him/himself

Why am I not asking you about indices on the names?

The Binding Conditions

- Binding Condition A:
An anaphor is bound within the smallest IP that contains it
- Binding Condition B:
A pronoun is free within the smallest IP that contains it
- Binding Condition C:
An R-expression is free

Syntactic Movement

(or “internal merge”)

1. Megan asked who Noor is talking to.
2. I want to know who Peter said that Tabitha believes that Susan heard that David thinks that Jonathan will say that Megan will tell Jenny that Noor saw in Stata.

It is extremely clear that *who* is the theme of *talk to* in (1) and the theme of *see* in (2). That is, *who* is understood as the complement of the preposition in (1) or of the verb in (2):

- 1'. Megan asked who Noor is talking to__.
- 2'. I want to know who Peter said that Tabitha believes that Susan heard that David thinks that Jonathan will say that Megan will tell Jenny that Noor saw __ in Stata.

1". Megan asked who_k Noor is talking to t_k .

2". I want to know who_k Peter said that Tabitha believes that Susan heard that David thinks that Jonathan will say that Megan will tell Jenny that Noor saw t_k in Stata.

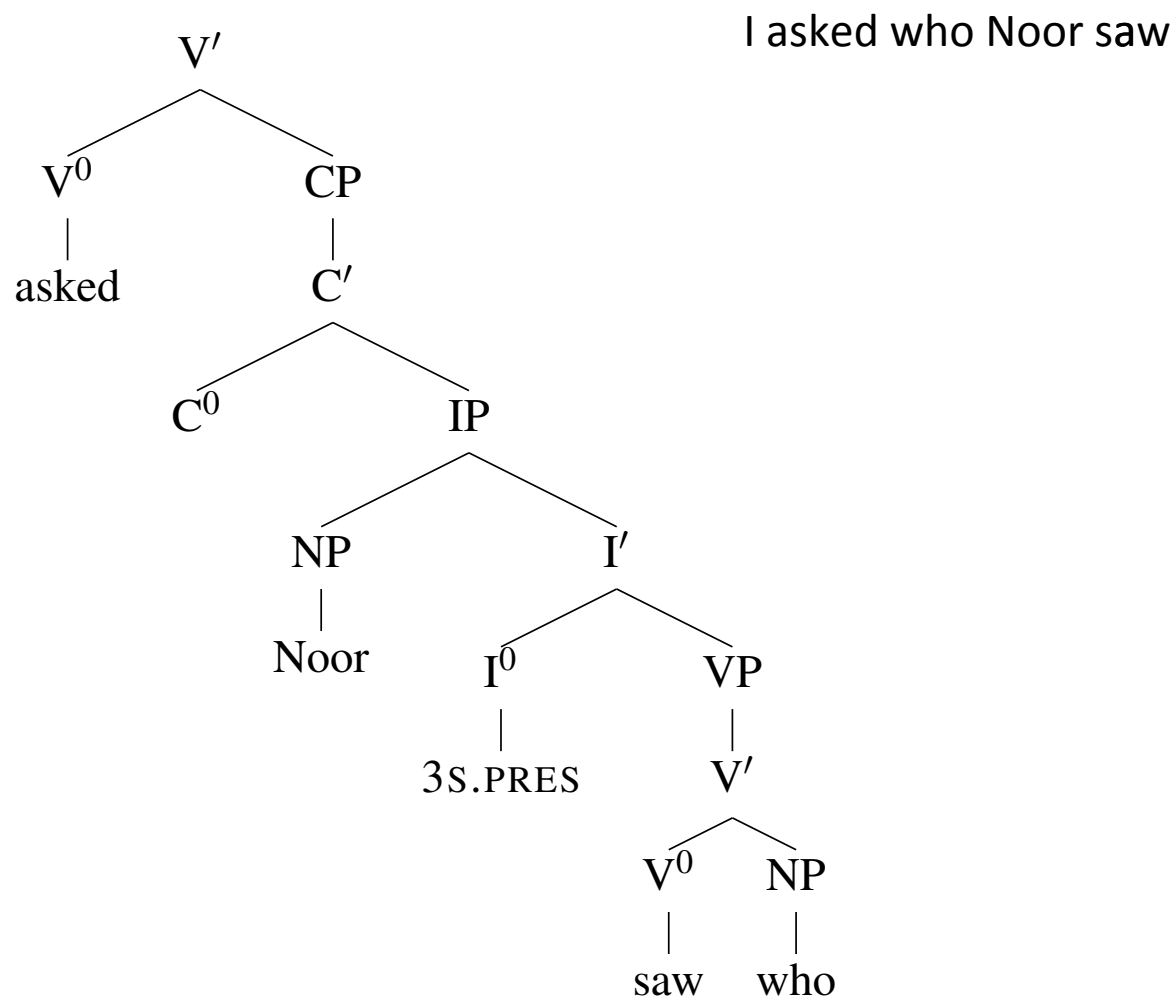
t = trace of movement

Who starts out its life where it receives its theta-role and then moves to the left periphery of the embedded sentence as part of what is required to form (embedded) questions.

(This position in the left periphery is the specifier of the CP)

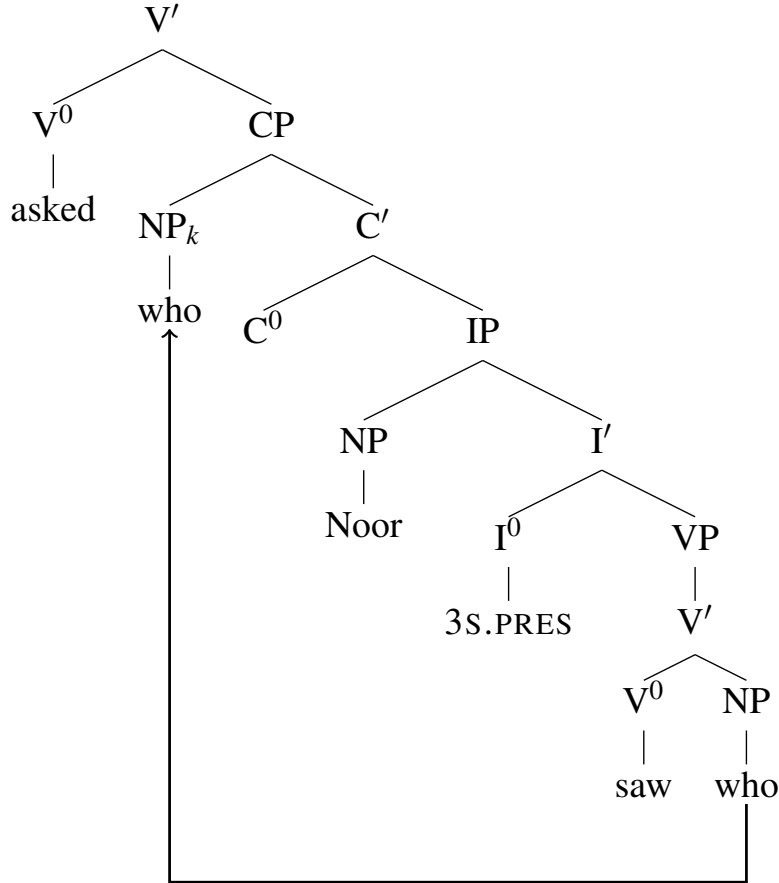
- But this means that we are dealing with 2 syntactic representations:
 - one before movement, where *who* is in the complement of *see*
 - one after movement, where *who* is in the left periphery of the embedded sentence.

Before movement: **D-structure** (where everything appears where you would expect it to, given the X-bar schema and theta-role considerations.)



After movement: S-structure

The position *who* moves to is the specifier of the CP



Three points:

- What is the structural relationship between the position of the trace and the target position of movement?

Movement is always to a c-commanding position!

- Does *who* move as an NP, or as an N⁰?

Wh-movement is movement of the entire XP.

We know this because when the NP is more than one word, the whole NP moves, not just the N⁰:

3. I wonder [which of the students] you saw

- It is important to realize that connecting *who* with the position where it would have received its theta-role helps us keep the theory constrained.

Why?

The reason is this: you know very well that *who* is interpreted as receiving the theme theta-role from the verb. If we permitted theme theta-roles to be assigned in positions other than the complement of the verb, all hell would break loose in the theory because we would have to worry about how to exclude many different possibilities.

Embedded versus matrix questions

- So far we have only looked at embedded questions:

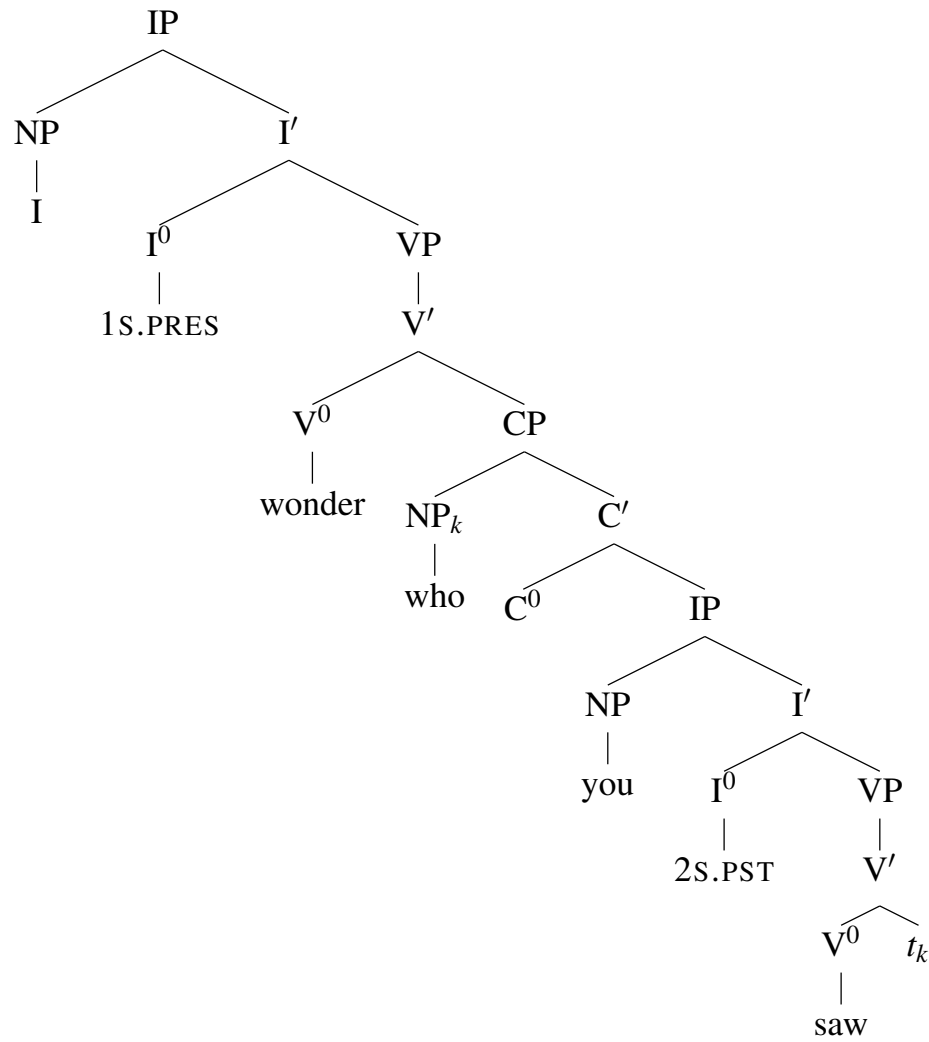
4. I wonder who you saw

But there are also matrix questions, of course.

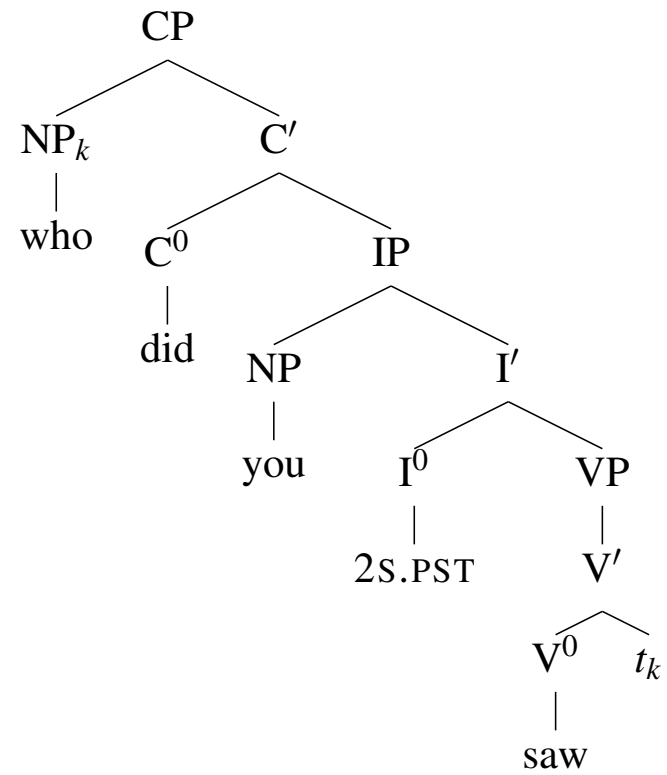
Can you spot one similarity and one difference between English embedded and matrix questions (some languages are like English in the difference, but not all):

5. Who did you see?

**Embedded questions:
Wh-movement**



**Matrix question:
wh-movement + Verb in C⁰**



- The verb in C^0 is either
-the type of verb that can appear in I^0 :

6. Who has he seen?

7. Who is he seeing?

8. Who will/must/may/can he see?

or

-the dummy *do* of *do*-insertion (remember this?)

9. What did he eat?

10. Who did she marry?

Ignore this topic for now. The only thing to keep in mind is that in English matrix questions you need a verb in C^0 (except when...?), but in embedded questions you cannot have a verb in C^0 :

11a. I wonder what he ate

b. *I wonder what did he eat

Now consider the following sentences. What do they mean?

12. Why did Bill say that John was fired?

13. How did he hear that she had fixed the car?

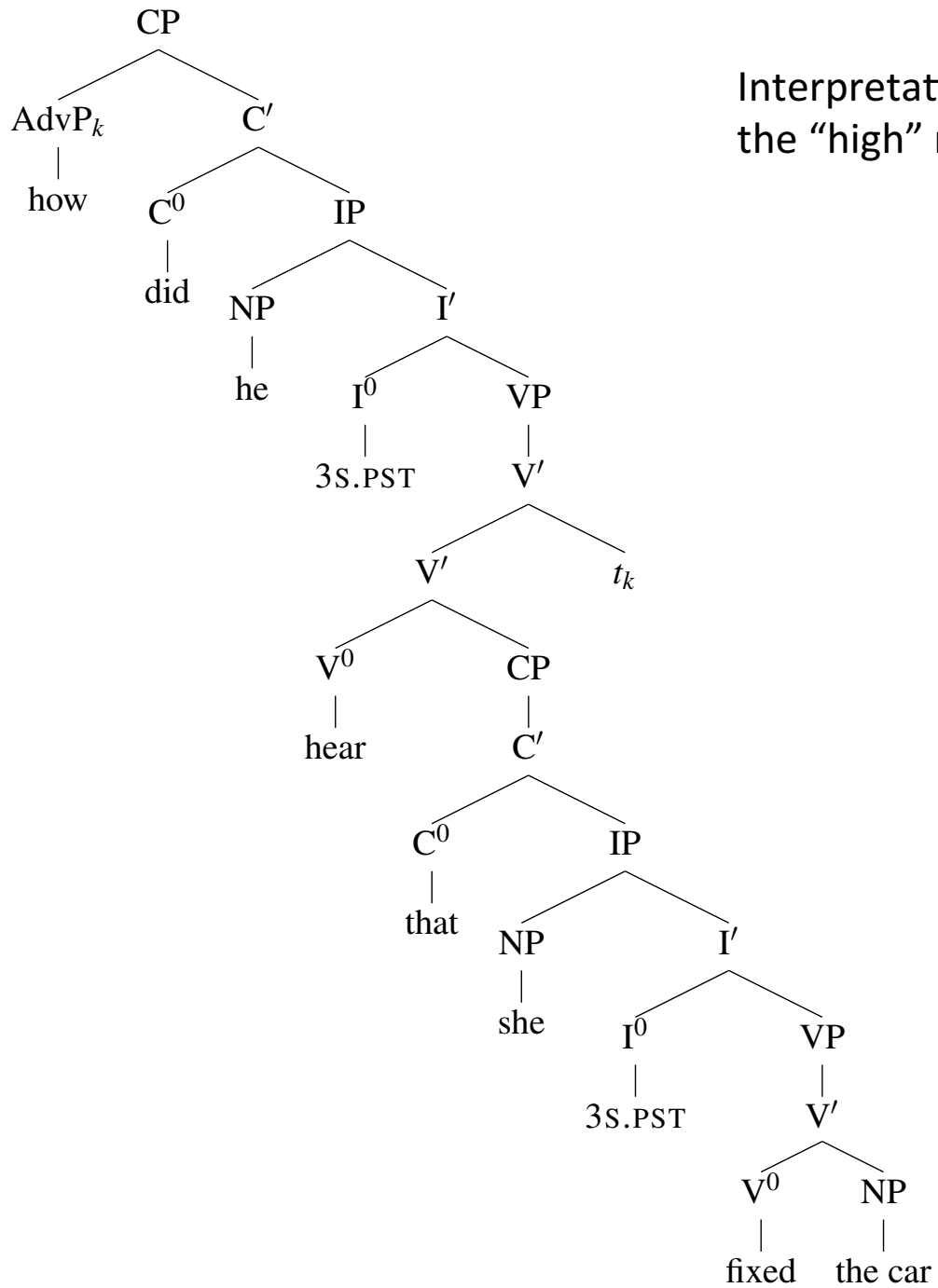
14. When did the police chief say that the robber had been caught?

15. Where did he tell you that he will get married?

Sentences (12-15) are ambiguous but (1) was not, nor is (16):

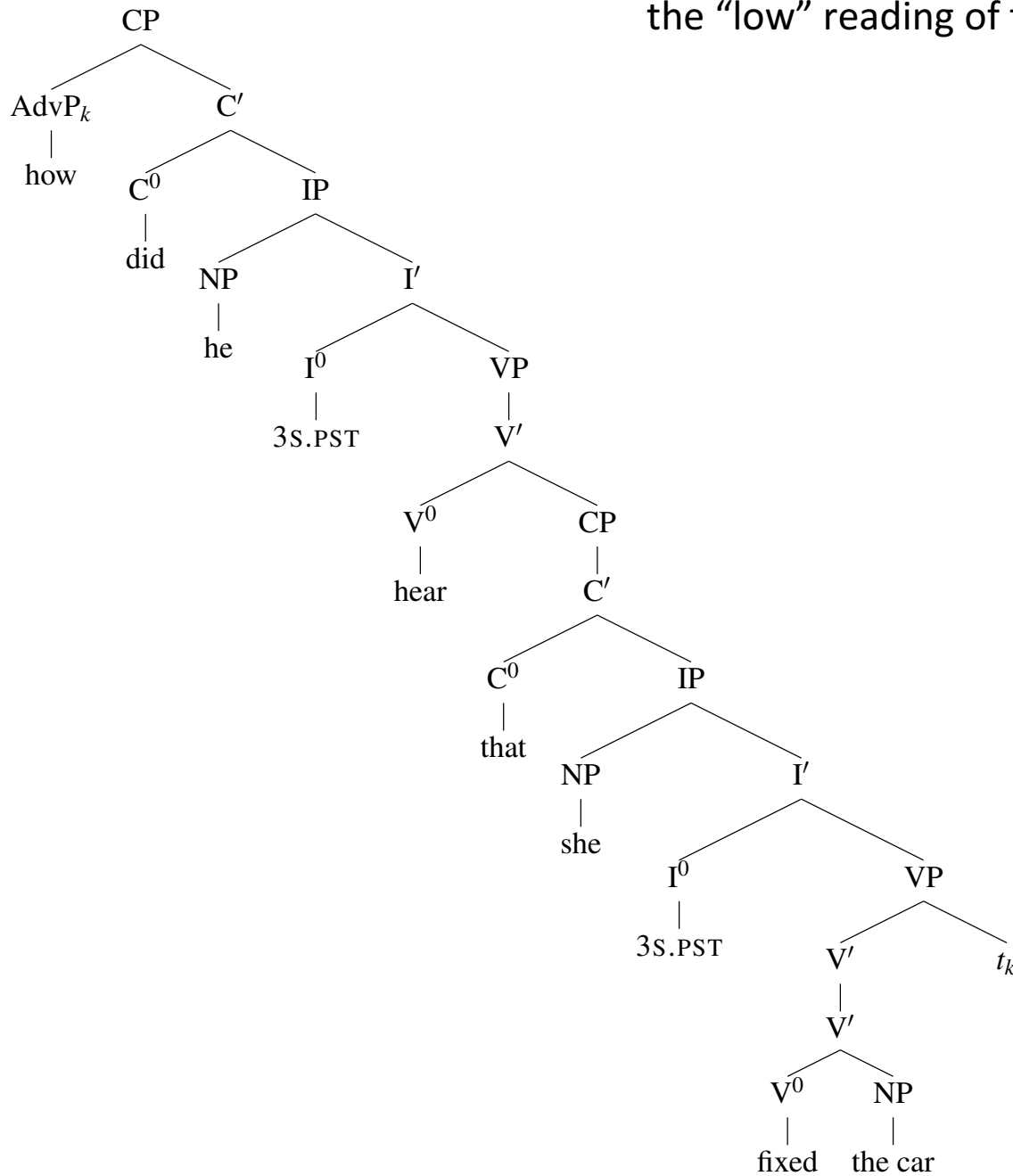
16. Who did Zach say that Fan saw in the courtyard?

Why is there this difference?



Interpretation of the adjunct in the matrix clause;
the “high” reading of the adjunct

Interpretation of the adjunct in the embedded clause;
the “low” reading of the adjunct



Wh-movement.

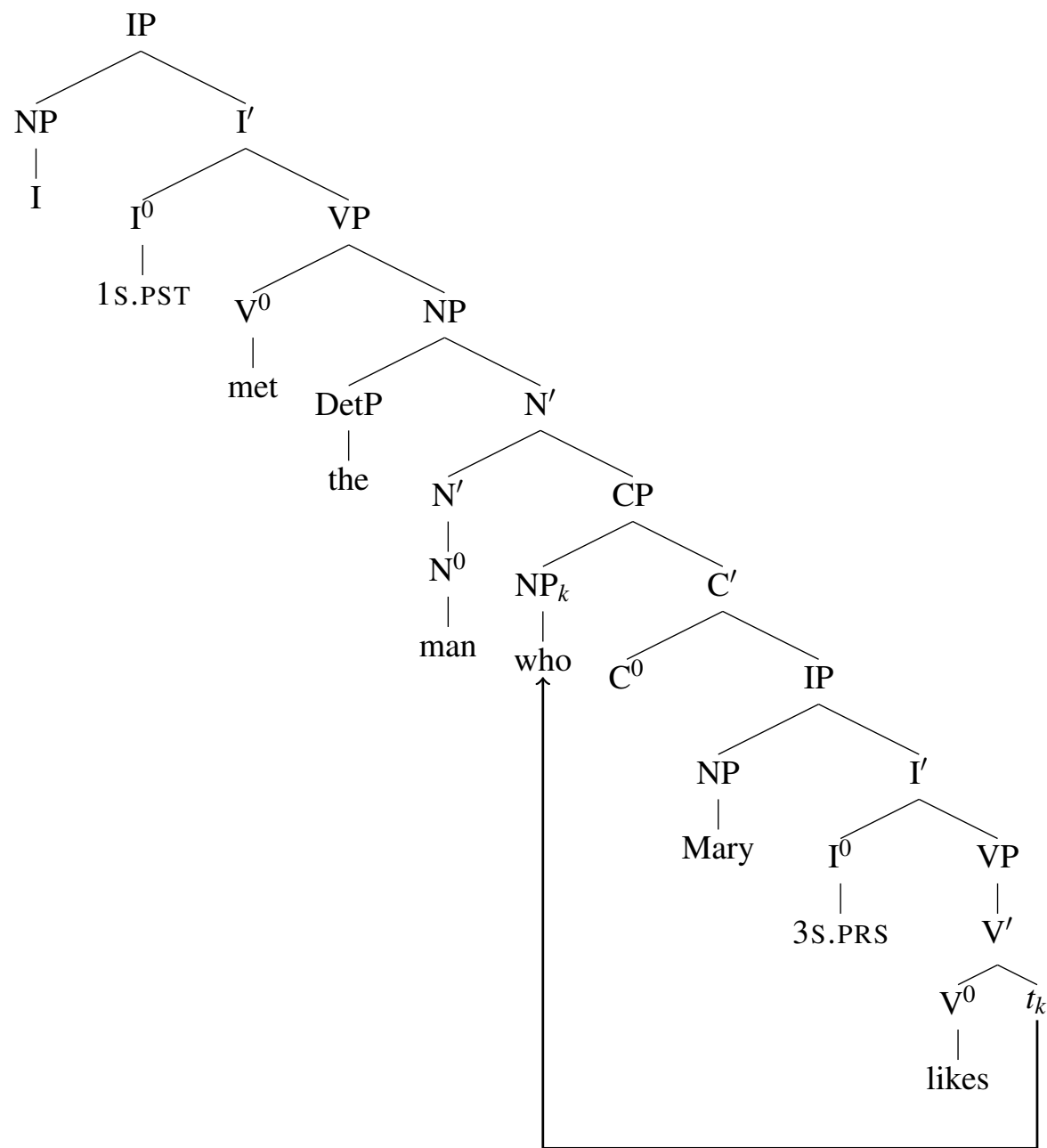
- Wh movement does not just happen in questions.
- It happens in relative clauses as well (among other places).

17. I met the man who Mary likes

18. I visited the park where Washington gathered the revolutionary army

19. I met the man who Peter said that Zach believes that Fred heard that Mary likes

17.



Form a question on the basis of the underlined constituent:

20. Bill believes that John thinks that Mary heard that Susan read that Peter claims that Fred wants to meet Kathy in Copley square because he likes open spaces.

21. Bill believes that John thinks that Mary heard that Susan read that Peter claims that Fred wants to meet Kathy in Copley square because he likes open spaces.

22. Bill believes that John thinks that Mary heard that Susan read that Peter claims that Fred wants to meet Kathy in Copley square because he likes open spaces.

- 23 a. Bill met the man who likes Mary
b. *Who_k did Bill meet the man who likes t_k
- 24 a. John left the party because he didn't like the host
b. *Who_k did John leave the party because he didn't like t_k
- 25 a. That Linda failed the exam proves that she didn't study hard enough
b. *What_k that Linda failed t_k proves that she didn't study hard enough
- 26 a. She will pass the exams if she studies in the morning
b. *When_k will she pass the exams if [she studies t_k]

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