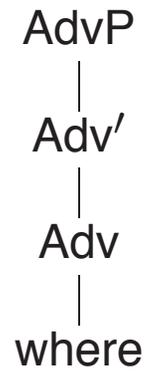
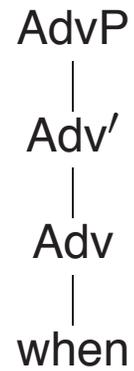
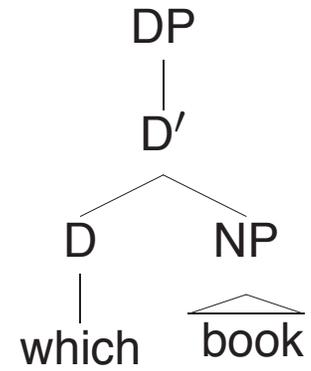
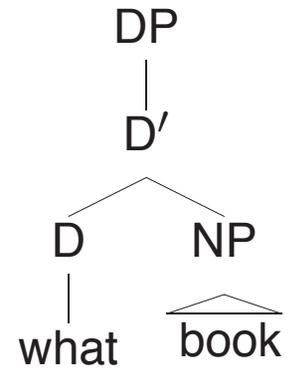


WH-Movement

Ling 322

Read *Syntax*, Ch. 11

WH-expressions



What Kind of Projection are WH-questions?

- Indirect question introduced with *if* complementizer

(1) John wonders [if the committee liked his proposal].

Given that *if* is a complementizer in C^0 , *if the committee liked his proposal* is a CP. So, the verb *wonder* subcategorizes for a CP complement.

- Indirect question introduced with a WH-phrase

(2) John wonders [which proposal the committee liked].

If *wonder* subcategorizes for a CP, an indirect WH-question is a CP.

Where is WH-phrase?

- Doubly-filled comp filter in indirect questions

- (3) a. * John wonders [if/that which proposal the committee liked].
b. * John wonders [which proposal if/that the committee liked].

Does this mean that a WH-phrase and a complementizer compete for the same position?

Where is WH-phrase? (cont.)

- But the following set of data suggests that *that/if* and the WH-phrase do not compete for the same position.

(4) Middle English (Examples from PPCME, Kroch and Taylor 2000)

- a. First the behoueth to knowe **why that** suche a solitary lyf was ordeyned.

‘First, it behooves thee to know why such a solitary life was ordained.’
(cmctmeli-s0.m3, 75)

- b. I wolde fayn knowe **how that** ye understonde thilke words.

‘I would like to know how you understand these words.’
(cmctmeli-s0.m3, 408)

- c. I pray you tell me **what knyght that** ye be.

‘Please tell me what knight you are.’ (cmmalory-s0.m4, 4655)

(5) Belfast English (Henry 1995:107)

- a. I wonder **which dish that** they picked.

- b. They didn’t know **which model that** we had discussed.

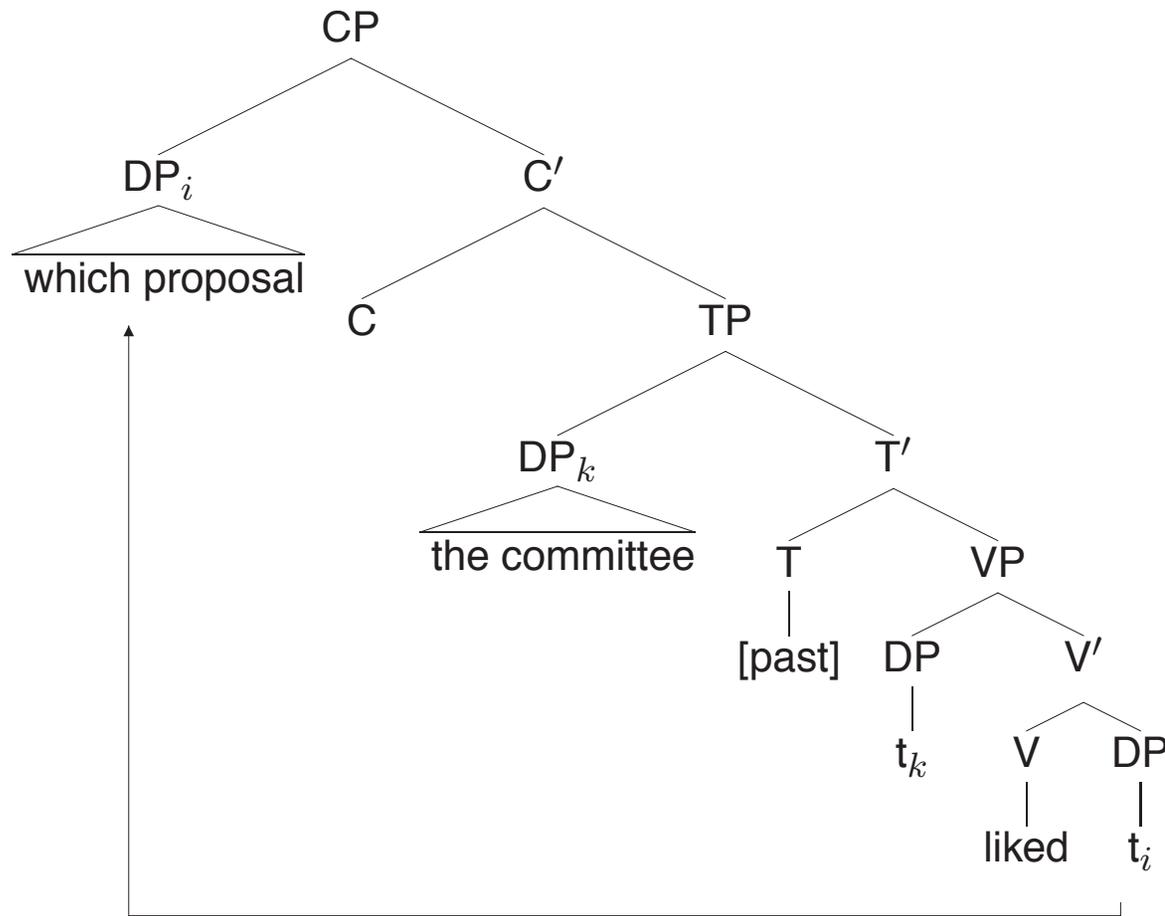
Where is WH-phrase? (cont.)

- (6) Naturally occurring speech of modern standard English
- a. Immediately, I saw **which one that** you wanted me to read.
(Beatrice Santorini, in conversation, Sept. 1998)
 - b. Most of my colleagues were amazed **how quickly that** I recovered.
(Advertisement for Temple University Hospital, WRTI, 24 Nov. 1999)
 - c. That tells you **how many days that** the car will be in the shop.
(Kroch 1989a:95,fn.4,(i))
- (7) a. Bavarian
- I woass ned **wer dass** des toa hod.
I know not who that that done has
'I don't know who did that.' (Bayer 1983-4:212)
- b. Dutch
- ... **welk boek of** hij wil lezen
... which book if he wants read
'... which book he wants to read' (den Besten 1989:23)

We can make sense of all these data if the complementizer is in C^0 , as we have assumed all along, and the WH-phrase is in [Spec, CP].

How does WH-phrase end up in [Spec,CP]?

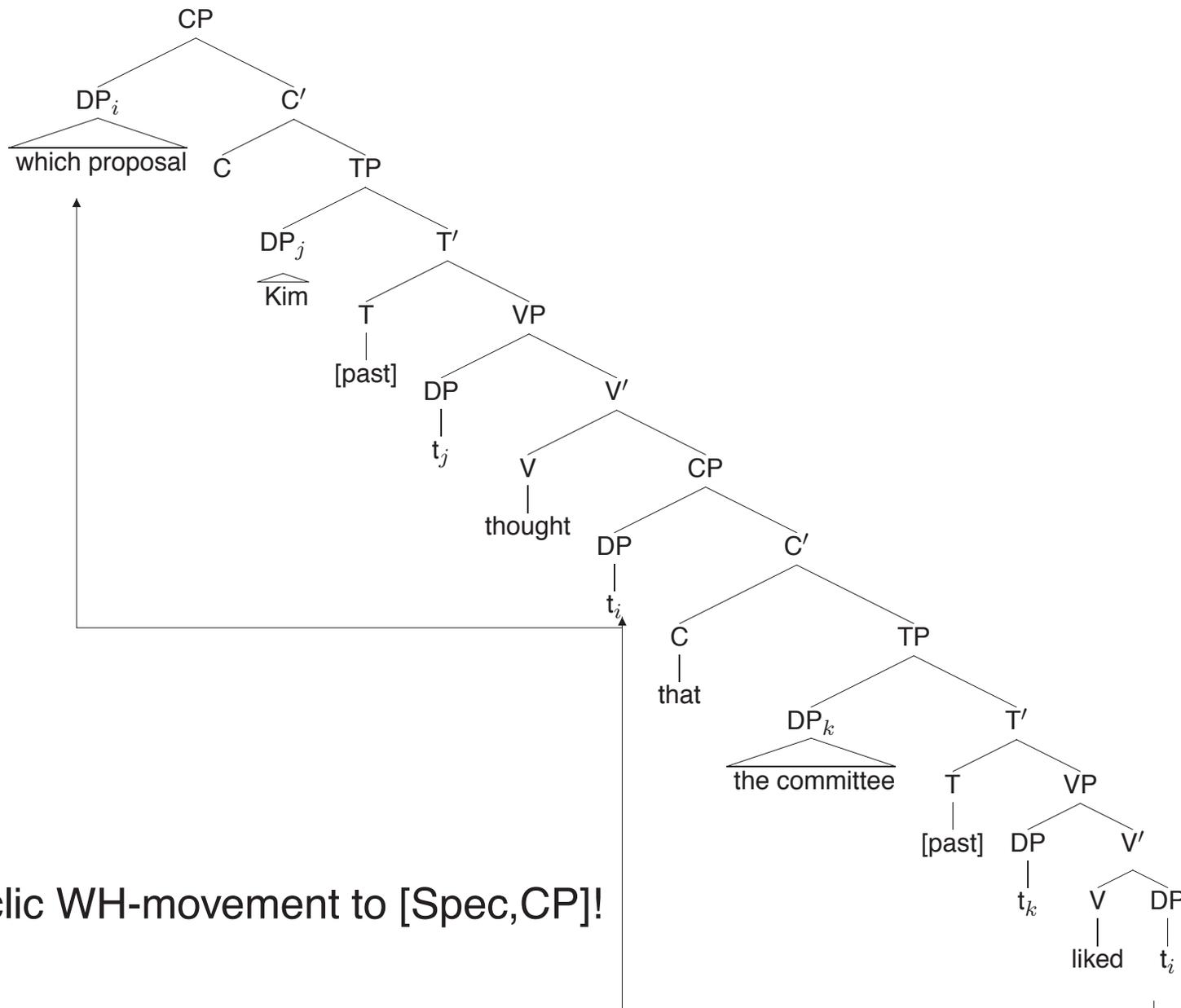
(8) Susan wondered [which proposal the committee liked].



⇒ WH-movement to [Spec,CP]!

How does WH-phrase end up in [Spec,CP]? (cont.)

(9) Susan wondered [which proposal Kim thought that the committee liked].



⇒ Cyclic WH-movement to [Spec,CP]!

How does WH-movement Fit with the Theory?

- Theta-role assignment

- (10) a. The committee liked Susan's proposal
b. Susan wondered [which proposal_i the committee liked t_i].

By positing a trace of *which proposal* in the complement position of 'liked', we can maintain the locality in theta-role assignment.

- Case theory

- (11) a. John wonders [who/whom_i Sue believes [the president will invite t_i to the reception]].
b. John wonders [who/*whom_i Sue believes [t_i will invite the president]].

By positing a trace for the WH-phrase, we can say that case is checked in the trace position, again maintaining the locality of case checking.

How does WH-movement Fit with the Theory? (cont.)

- Agreement

- (12) a. The chair thinks [the professors are/*is lousy at teaching].
b. Mary wonders [which professors_i the chair thinks [t_i are/*is lousy at teaching]].

- Binding

- (13) a. John believes [that Max_i talks to himself_i].
b. I wonder [who_i John_j believes [t_i talks to himself_i]].

- Ambiguity in WH-questions with an adjunct WH-phrase

- (14) a. I wonder [when_i John said t_i [that he would go to New York]].
b. I wonder [when_i John said [that he would go to New York t_i]].

By positing a trace in different positions, ambiguity in interpretation can straightforwardly be represented as structural ambiguity.

What Triggers WH-Movement?

- It cannot be to check Case features.

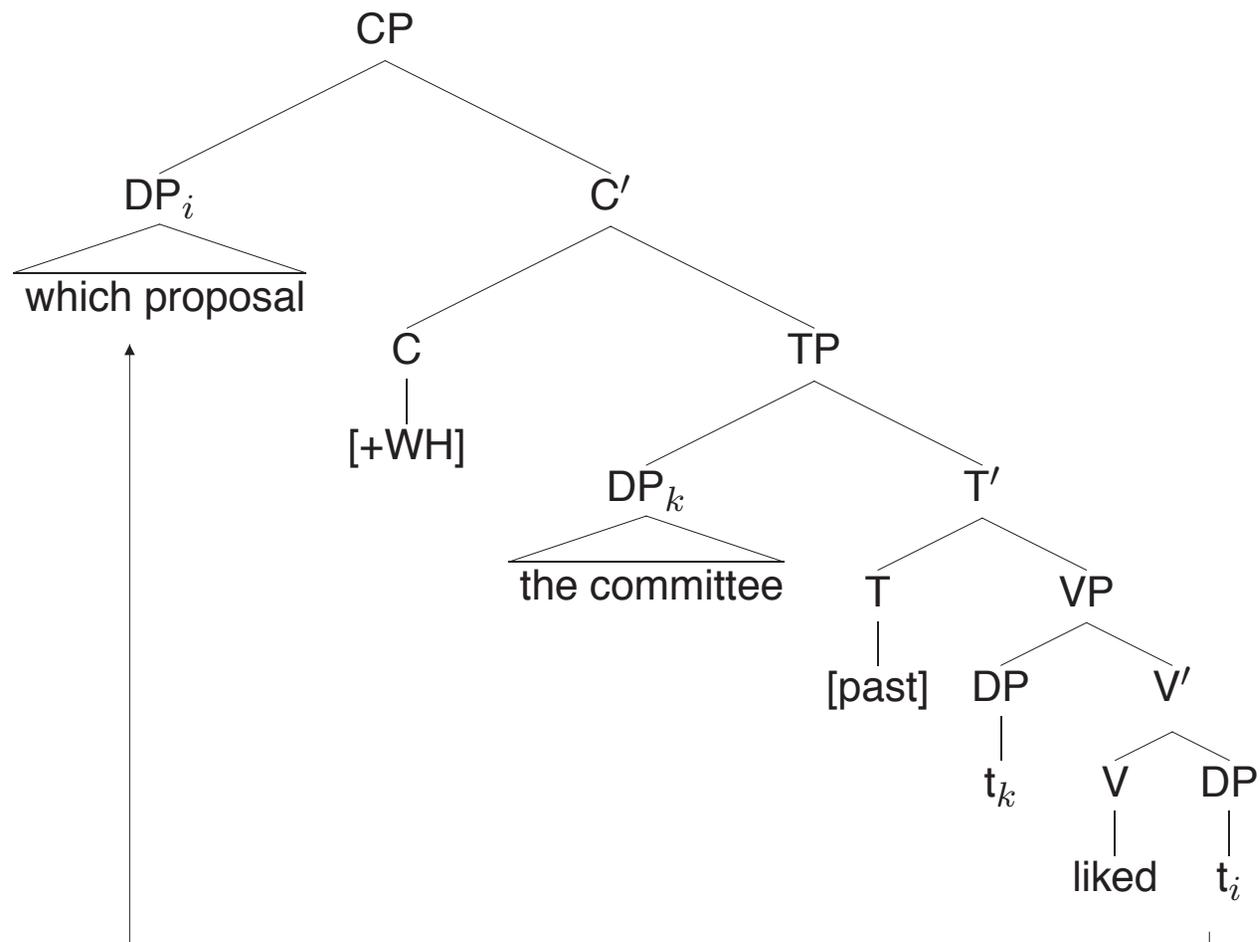
WH-phrases already originate in Case positions.

The moved WH-phrases can be AdjP, PPs or AdvP as well as DPs.

- (15)
- a. I wonder [*AdjP* how happy] they should be.
 - b. I wonder [*AdvP* how quickly] John will finish the race.
 - c. I wonder [*PP* in which city] the meeting will take place.

What Triggers WH-Movement? (cont.)

- We will say that C^0 of WH-questions have [+WH] feature, and that WH-phrases must move to check this feature in Spec-Head configuration.



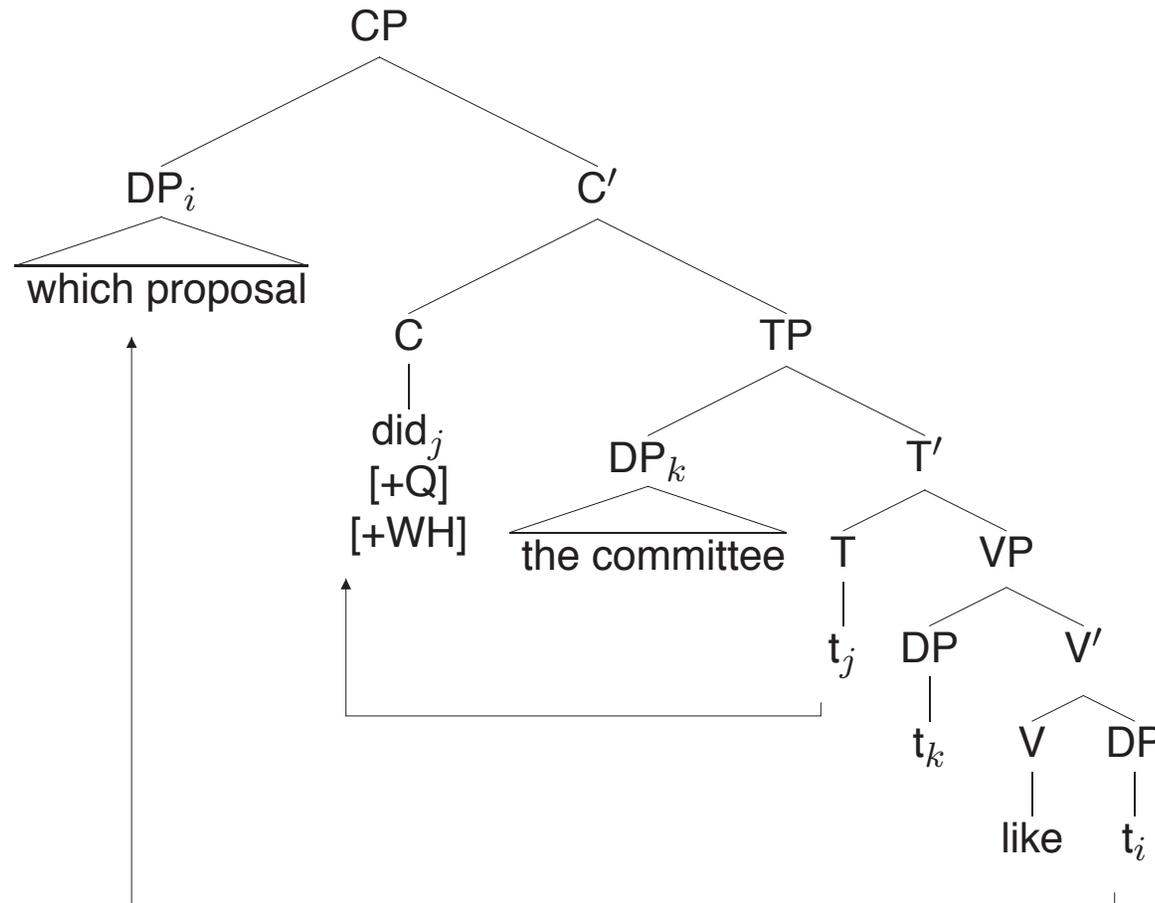
Direct WH-questions

- Unlike indirect WH-questions, direct WH-questions have subject-aux inversion, in addition to WH-movement.

- (16)
- a. Which proposal did the committee like?
 - b. How experienced should they be?
 - c. How quickly will John finish the race?
 - d. In which city will the meeting take place?

⇒ We need to put together T-to-C movement and WH-movement.

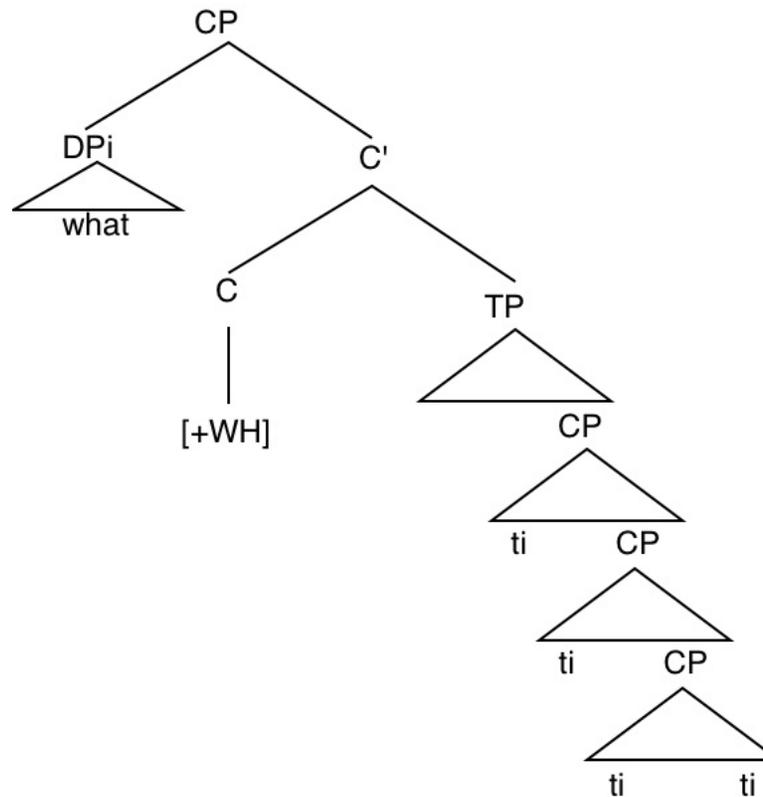
Direct WH-questions (cont.)



QUESTION: Under the account that C^0 contains a [+Q] and [+WH] features that drive T-to-C movement and WH-movement respectively, how can we make sense of the fact that subject-aux inversion is not allowed in indirect WH-questions?

Long Distance Movement

- (17) a. What_i was he writing t_i?
 b. What_i did he say [that he was writing t_i]?
 c. What_i does she believe [that he said [that he was writing t_i]]?
 d. What_i are they claiming [that she believes [that he said [that he was writing t_i]]]?



The original position and the moved position of a WH-phrase can be far away from each other. WH-phrase move to its final destination cyclically, from [Spec,CP] to [Spec,CP]. But WH-movement is not totally unrestricted.

Islands

- *Wh*-complement

- (18) a. John knows [which car_{*i*} he should fix t_{*i*} with a wrench].
b. * How_{*i*} does John know [which car_{*j*} he should fix t_{*j*} t_{*i*}]?

- Noun complement clause

- (19) a. John made [_{*DP*} the claim [that the police caught the murderer of Smith]].
b. * Who_{*i*} did John make [_{*DP*} the claim [that the police caught t_{*i*}]]?

- Relative clause

- (20) a. John saw [_{*DP*} a man [who was wearing a red hat]].
b. * What_{*i*} did John see [_{*DP*} a man [who was wearing t_{*i*}]]?

Islands (cont.)

- Sentential subject

- (21) a. [_{CP} That Katie married Tom] is unbelievable.
b. * Who_i is [_{CP} that Katie married t_i] unbelievable?

- Coordinate structure

- (22) a. You liked [_{DP} [_{DP} Mary] and [_{DP} John]].
b. * Who_i did you like [_{DP} Mary and t_i]?

- (23) a. You [_{VP} [_{VP} ate some popcorn] and [_{VP} drank some soda]].
b. * What_i did you [_{VP} eat t_i and drink some soda]?

Relative Clause Formation

Relative clauses introduced with a WH-relative pronoun and WH-questions are very similar.

- (24) a. I wonder [who lives next door].
b. The people [who live next door]
- (25) a. I wonder [whom John met last night].
b. The woman [whom John met last night]
- (26) a. I wonder [where John lives].
b. The place [where John lives]
- (27) a. I wonder [why John left so early].
b. The reason [why John left so early]
- (28) a. I wonder [when John fixed the car].
b. The time [when John fixed the car]

Relative Clause Formation (cont.)

- This similarity suggests that in relative clauses, the WH-relative pronoun undergoes movement to [Spec,CP] as well.

- Prediction:

In relative clauses, WH-relative pronouns should be able to undergo long distance movement, but should not be able to move out of islands.

If this prediction is borne out, we can conclude that WH-relative pronouns move, just like WH-phrases in WH-questions.

Long Distance Movement in Relative Clauses

- (29)
- a. The letter [which he was writing]
 - b. The letter [which he said [that he was writing]]
 - c. The letter [which she believes [that he said [that he was writing]]]
 - d. The letter [which they are claiming [that she believes [that he said [that he was writing]]]]
 - e. The letter [which you think [that they are claiming [that she believes [that he said [that he was writing]]]]]

Relative Clauses and Islands

- WH-relative pronoun movement out of *WH*-complement

- (30) a. John knows which car he should fix with a wrench.
b. * How does John know which car he should fix?
c. __ The wrench with which _____

- WH-relative pronoun movement out of noun complement clause

- (31) a. John made the claim that the police caught the murderer of Smith.
b. * Who did John make the claim that the police caught?
c. __ The person who _____

- WH-relative pronoun movement out of relative clause

- (32) a. John saw a man who was wearing a red hat.
b. * What did John see a man who was wearing?
c. __ The hat which _____

Relative Clauses and Islands (cont.)

- Relative-WH pronoun movement out of sentential subject

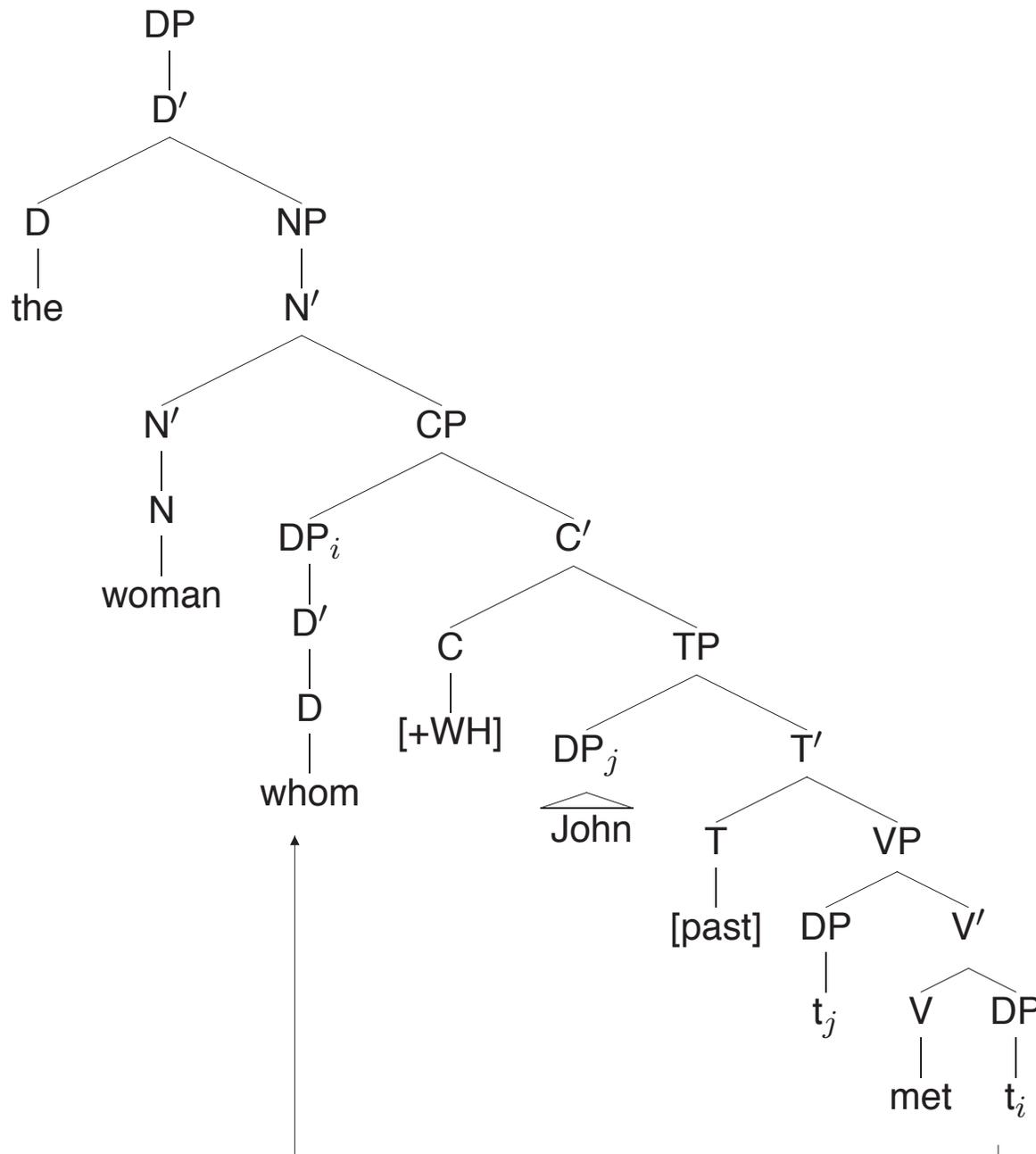
- (33) a. That Katie married Tom is unbelievable.
b. * Who is that Katie married unbelievable?
c. __ The celebrity who _____

- WH-relative pronoun movement out of coordinate structure

- (34) a. You liked Mary and John.
b. * Who_i did you like Mary and t_i?
c. __ The person who _____

- (35) a. You ate some popcorn and drank some soda.
b. * What_i did you eat t_i and drink some soda?
c. __ The snack which _____

WH-relative Pronouns Undergo WH-movement!



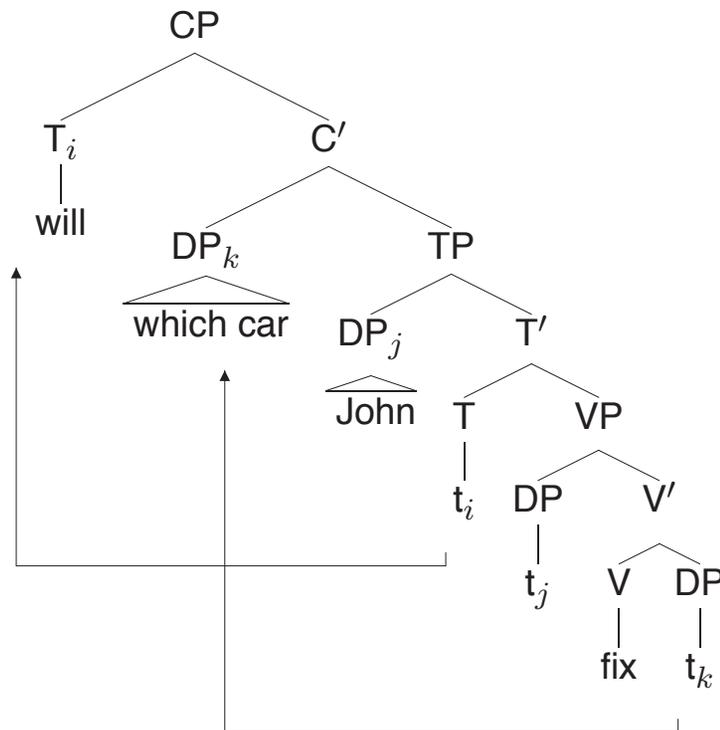
Constraints on WH-movement

- Structure preserving

Head categories can only move to a head position, and a maximal projection can only move to a maximal projection position.

In other words, movements must be consistent with the principles of X'-theory.

(36) * Will which car John fix?



Constraints on WH-movement (cont.)

- *that*-trace filter

A *wh*-phrase cannot be extracted from a subject position that is followed by an overt complementizer.

- (37) a. * [CP Who_{*i*} do you think [CP t_{*i*} that [TP t_{*i*} will win the game]]]?
b. [CP Who_{*i*} do you think [CP t_{*i*} [TP t_{*i*} will win the game]]]?

Constraints on WH-movement (cont.)

- Successive cyclicity

- (38) a. * [TP John_{*i*} is likely that [TP it will appear [TP t_{*i*} to be ill]]]].
- b. * [CP How_{*i*} does John know [CP which car_{*j*} he should fix t_{*j*} t_{*i*}]]?

Minimal Link Condition (MLC)

Intuitive definition of MLC: Move to the closest potential landing site.

Violation of MLC results in ungrammaticality.

- MLC in DP movement: Move to the closest c-commanding [Spec,TP] position.

(39) * [_{TP} John_i is likely that [_{TP} it will appear [_{TP} t_i to be ill]]].

- MLC in WH-movement: Move to the closest c-commanding [Spec,CP] position.

(40) * [_{CP} How_i does John know [_{CP} which car_j he should fix t_j t_i]]?

- MLC in head-to-head movement: Move to the closest c-commanding head position.

(41) * [_{CP} Have [_{TP} John should t_i eaten the pie]]?

Echo Questions

- (42) a. Sue loves **who**?
b. John read **what**?

- Echo questions have different meaning from regular WH-questions. While WH-questions are requests for new information, echo questions request that the word which the WH-word stands for in the sentence be repeated, and often express surprise or amazement.
- Requires a particular intonational contour, with a stress on the in-situ WH-word.
- No WH-movement and no subj-aux inversion.
The syntax of echo questions is similar to declaratives.
C does not have [+WH] or [+Q].
- Since there is no movement involved, echo questions are not subject to MLC or island constraints.

- (43) a. John knows **who** loves **whom**?
b. John made the claim that the police caught **whom**?
c. That Katie married **whom** is unbelievable?

Echo Questions (cont.)

