Questions

CAS LX 422 ~ GRS LX 722 Intermediate Syntax

Lecture 12

Declaratives vs. yes-no questions

In yes-no questions, the subject and auxiliary "invert" (Subject-Auxiliary Inversion):

(1) She will perform the autopsy.

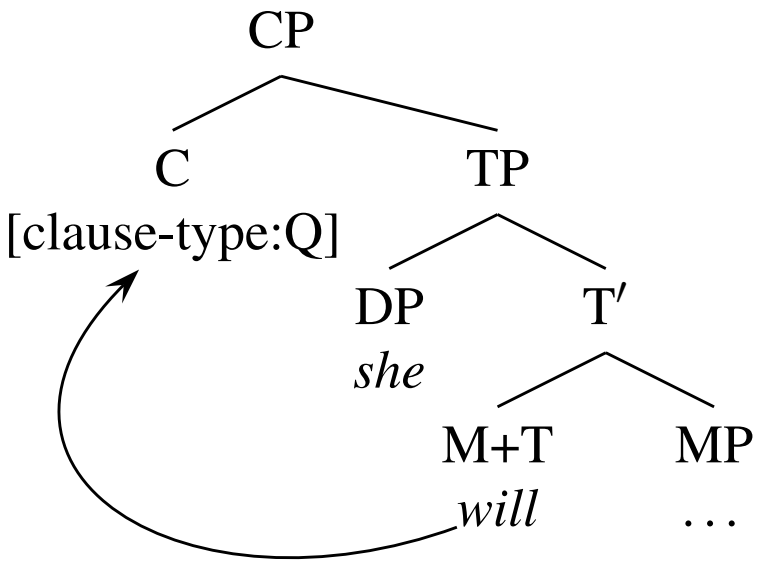
(2) Will she perform the autopsy?

Assuming everything we've got so far:

- T has a [*u*D*] feature to check, so *Scully* is in SpecTP.
- The question is an interrogative. C has [clause-type:Q].
- (Unpronounced) C is to the left of TP in declarative.

So what must be happening in yes-no questions?

T-to-C

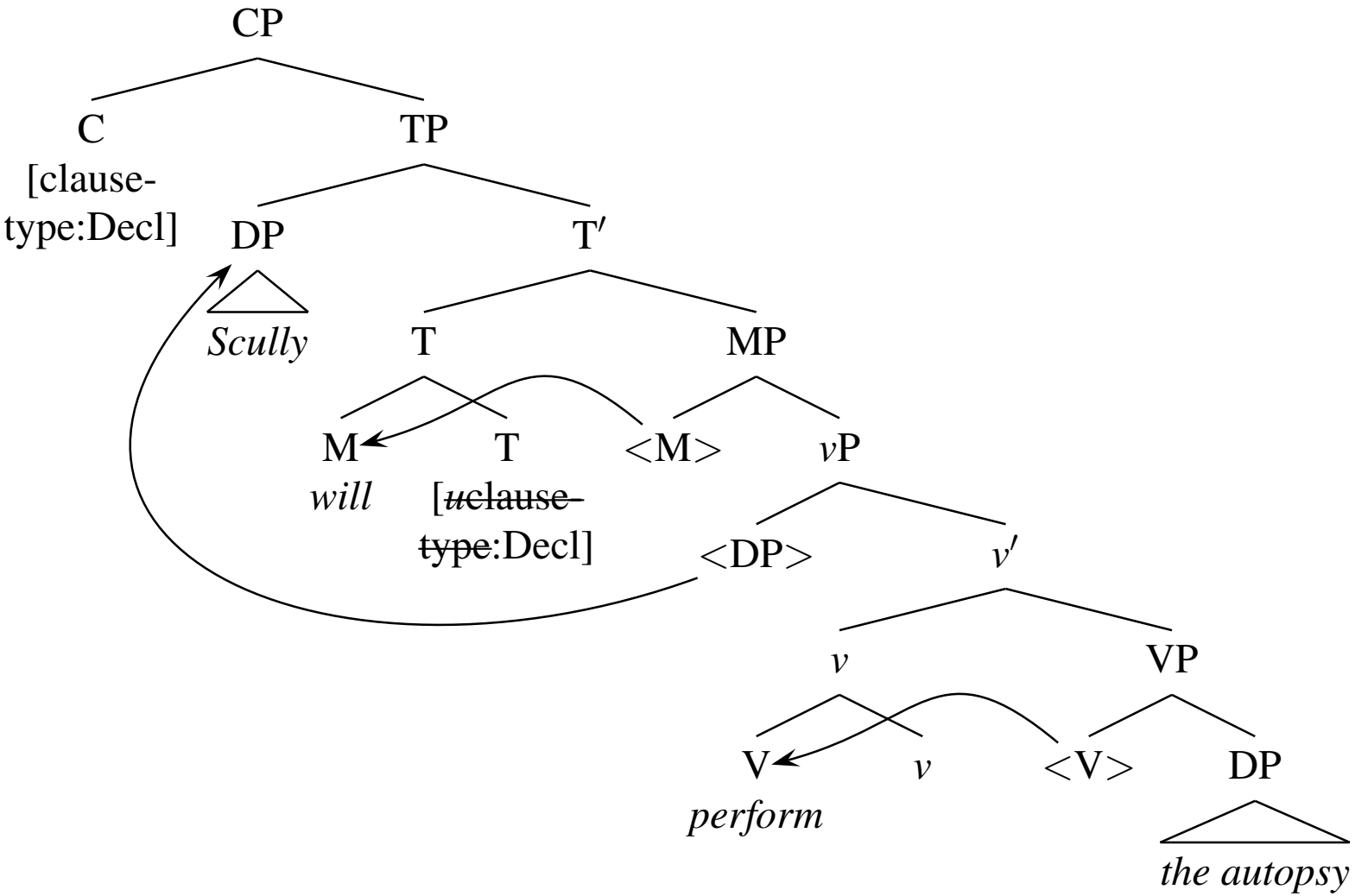


A natural way to look at this: T is moving to C. Just like V moves to *v*, or like Aux (Perf, Prog, or Pass) moves to T, or like N moves to *n*.

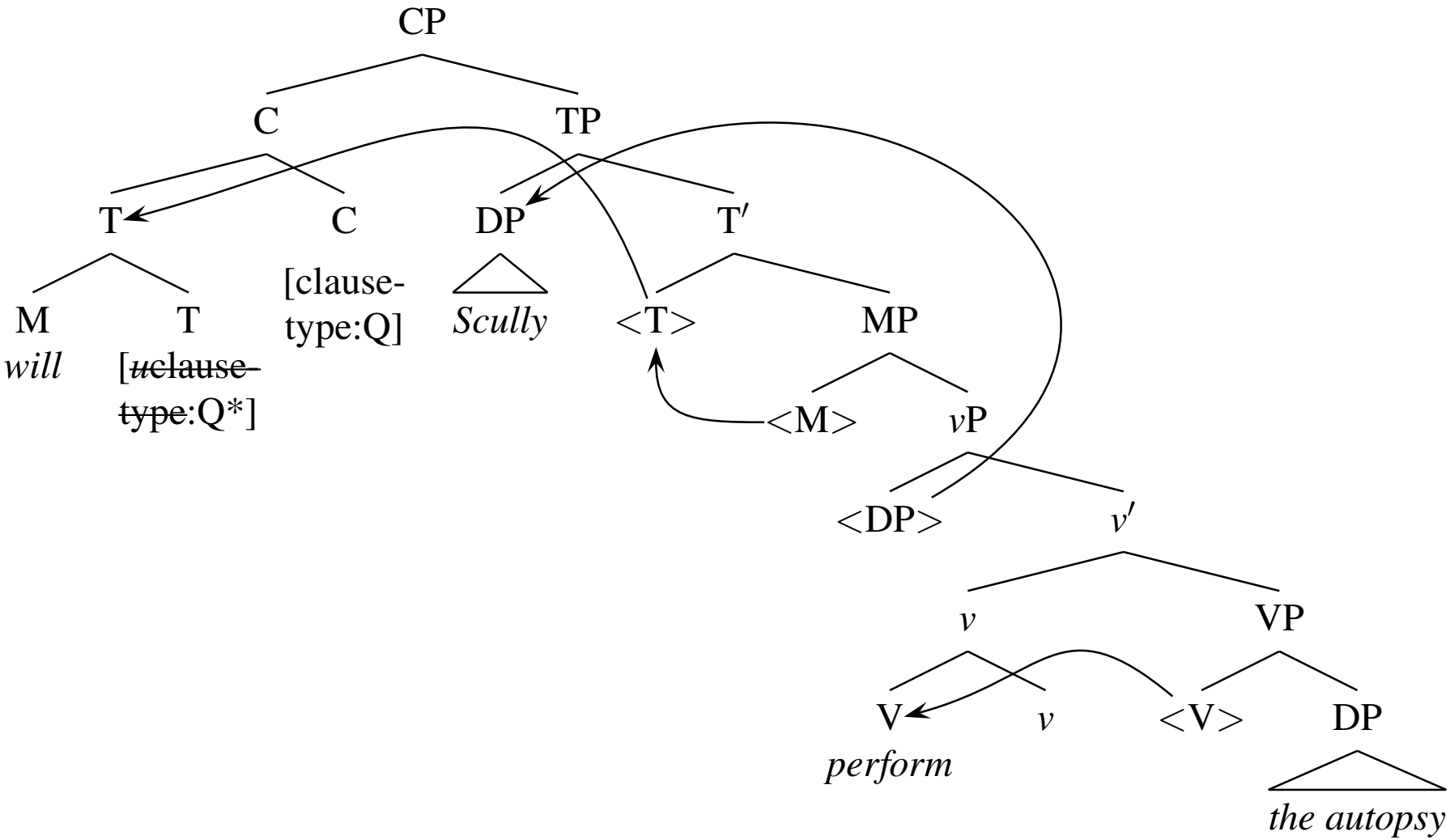
In (main clause!) questions, T moves to C (in English!)

Specifically: Suppose T has an uninterpretable feature that matches a feature of C: [*u*clause-type:]. And suppose that when (a main clause) C values [*u*clause-type:] as Q, it is valued as strong.

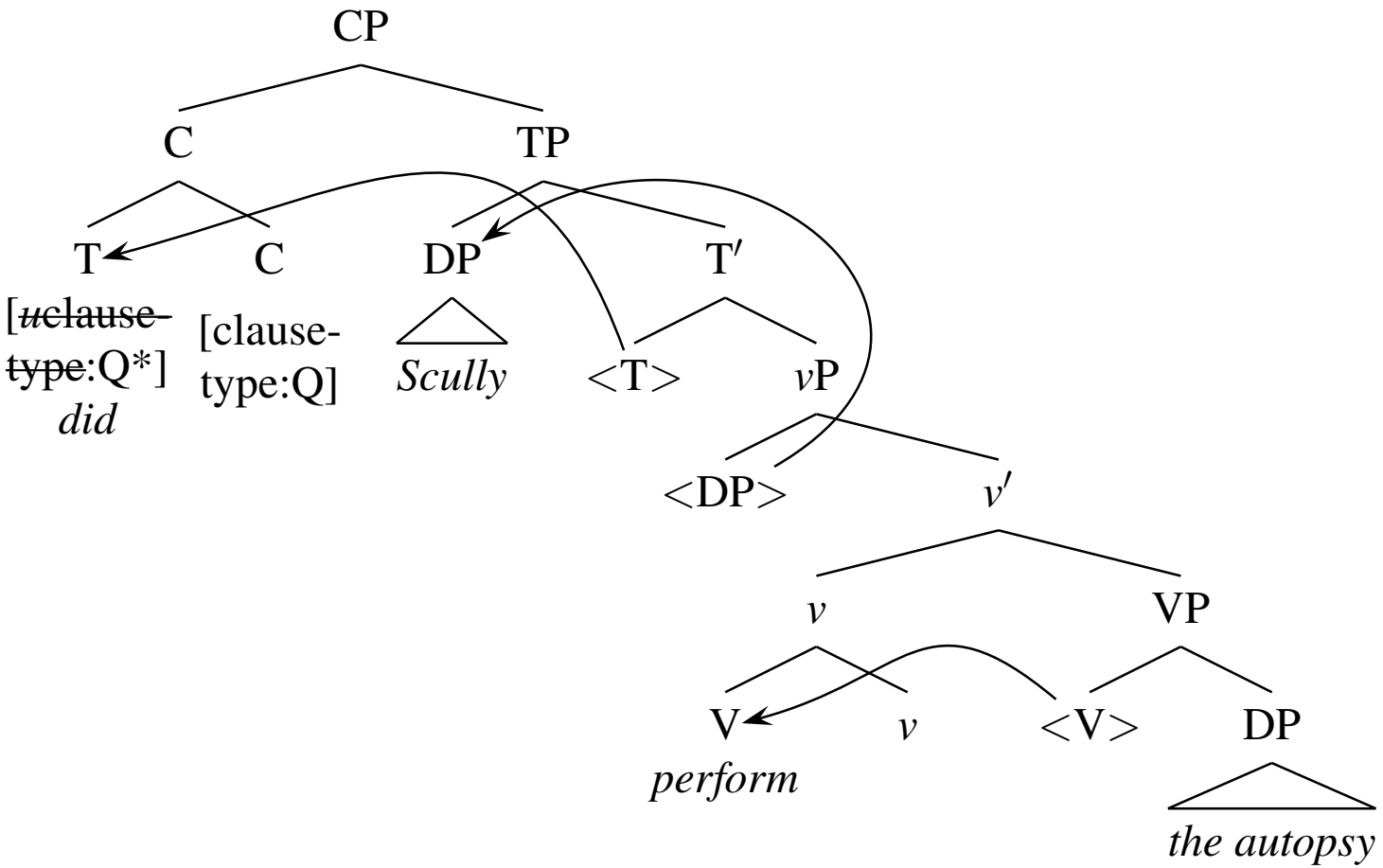
A simple declarative clause



A yes-no question version



A yes-no question version with *do*-support



Embedding questions

You can embed declaratives, and you can embed questions (within declaratives and within questions).

(3)	They heard [(that) Jack fell].	[decl. . . [decl. . .]]
(4)	They asked [if Jack fell].	[decl. . . [Q. . .]]
(5)	Did they hear [(that) Jack fell]?	[Q. . . [decl. . .]]
(6)	Did they ask [if Jack fell]?	[Q. . . [Q. . .]]

Agree, special cases (English, parameterized)

When a main clause C values [*u*clause-type:] as Q, it is valued as strong.

When T values [*u*Infl:] alongside [Aux], it is valued as strong.

Wh-questions

Wh-questions are "information seeking" questions, involving a *wh*-word.

- *who*, *what*, *when*, *where*, *why*, *which*, *how*

(7) What will they bake?

Here, *what* is basically the object of *bake*, but it is kind of far away from *bake*. Also, T seems to have moved to C, just as it does in yes-no questions.

[wh]

Wh-words are a little bit like pronouns, standing in for whatever category of thing we'd like information about. But the interrogative expressions are different from non-interrogative expressions.

(8) * That will they bake.

Specifically, *what*, *where*, *when* are *wh*-words, whereas *that*, *there*, *then* are not. We will say that the property of "being a *wh*-word" is recorded in the lexical entry by the feature [wh].

Categories of *wh*-words

A *Wh*-word has the same category as its non-*wh* counterpart—therefore, *wh*-words come in several different categories.

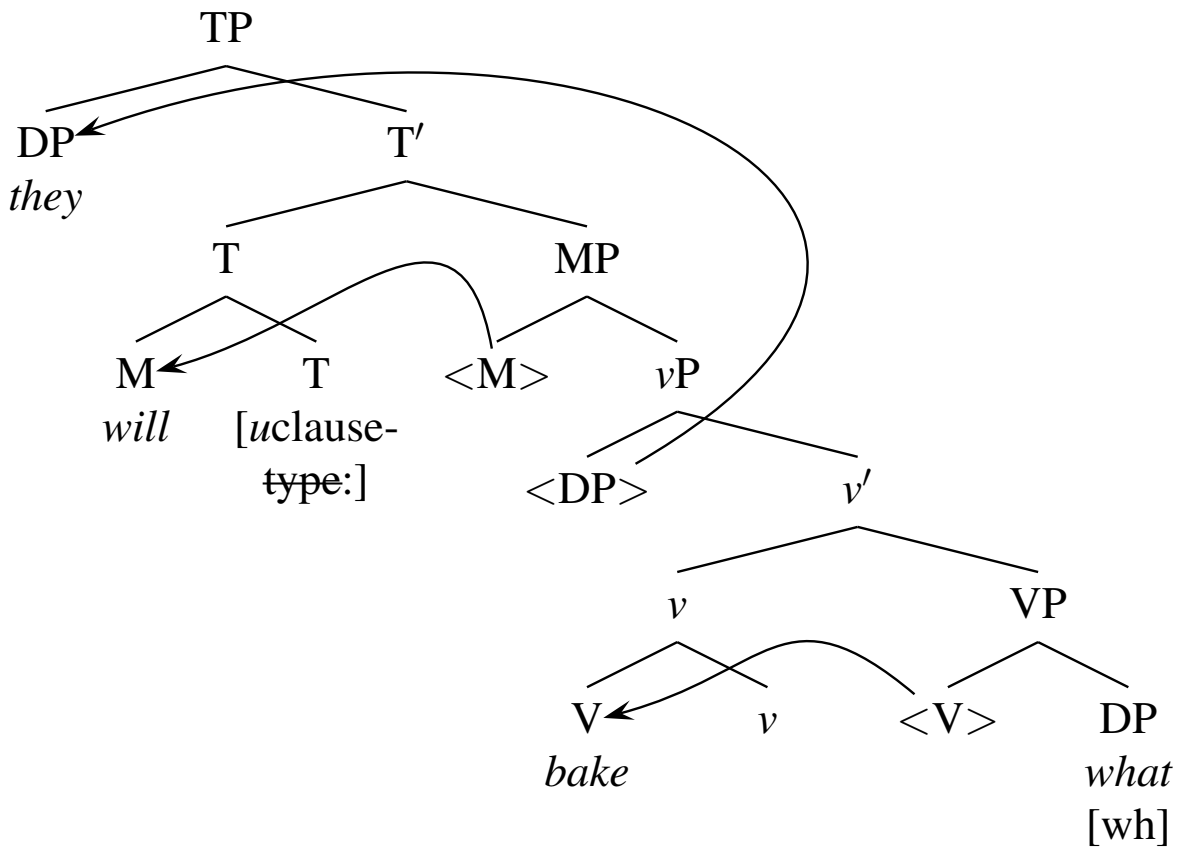
what	[wh, D]
who	[wh, D, human]
when	[wh, Adv, temporal]
where	[wh, Adv, locational]
how	[wh, Adv, manner]
why	[wh, Adv, reason]
which	[wh, D]

How are *wh*-questions formed?

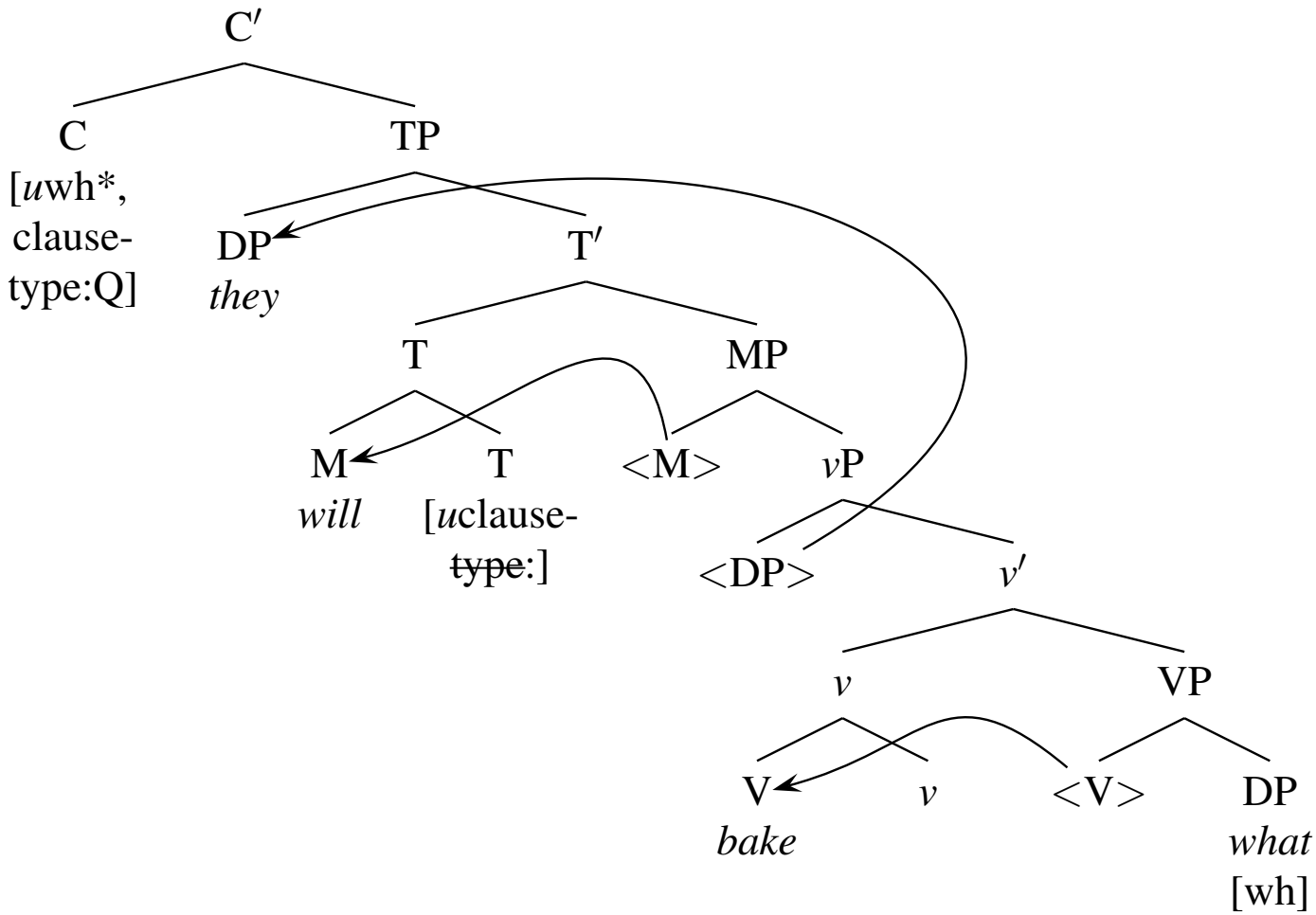
If we suppose that the inversion of auxiliaries over the subject in *wh*-questions is the same phenomenon as in yes-no questions, then T moves to C because the [*u*clause-type:] feature of T is valued (by C as Q) as strong.

What is different in *wh*-questions is that the *wh*-word then also moves, to the specifier of CP. We can make this happen by saying that C has a [*u*wh*] feature, much in the same way that we have said that T has a [*u*D*] feature.

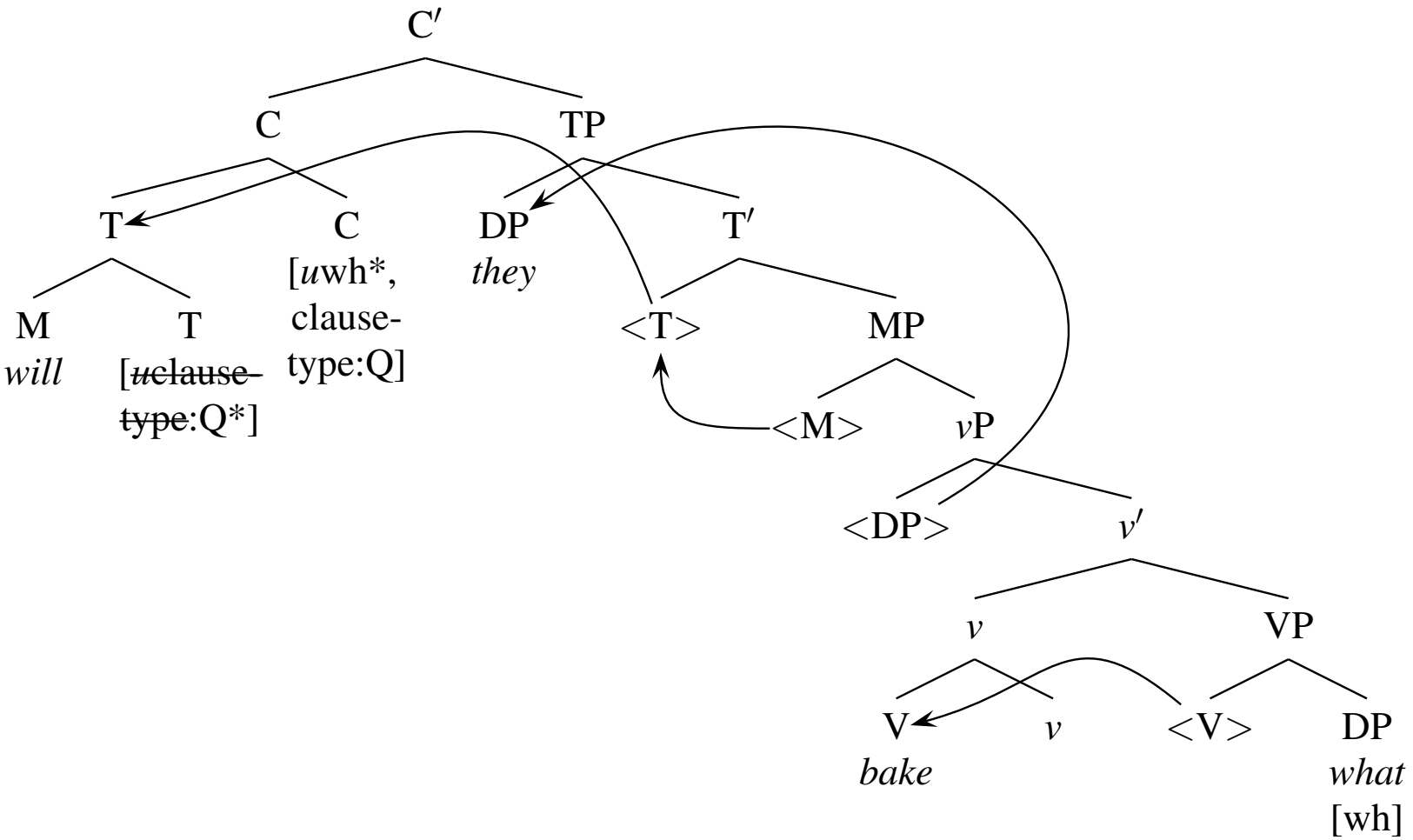
Preantepenultimate version



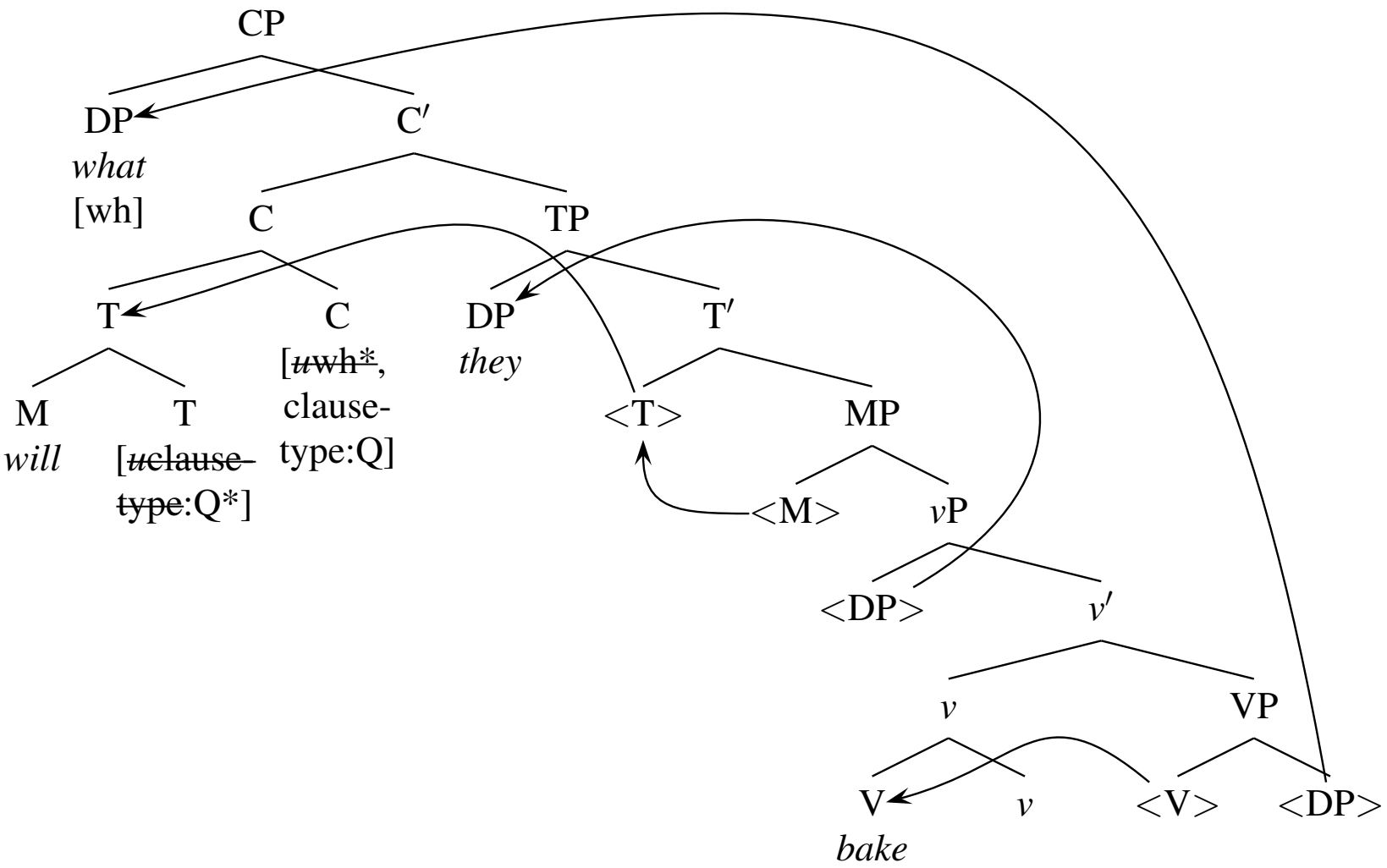
Antepenultimate version



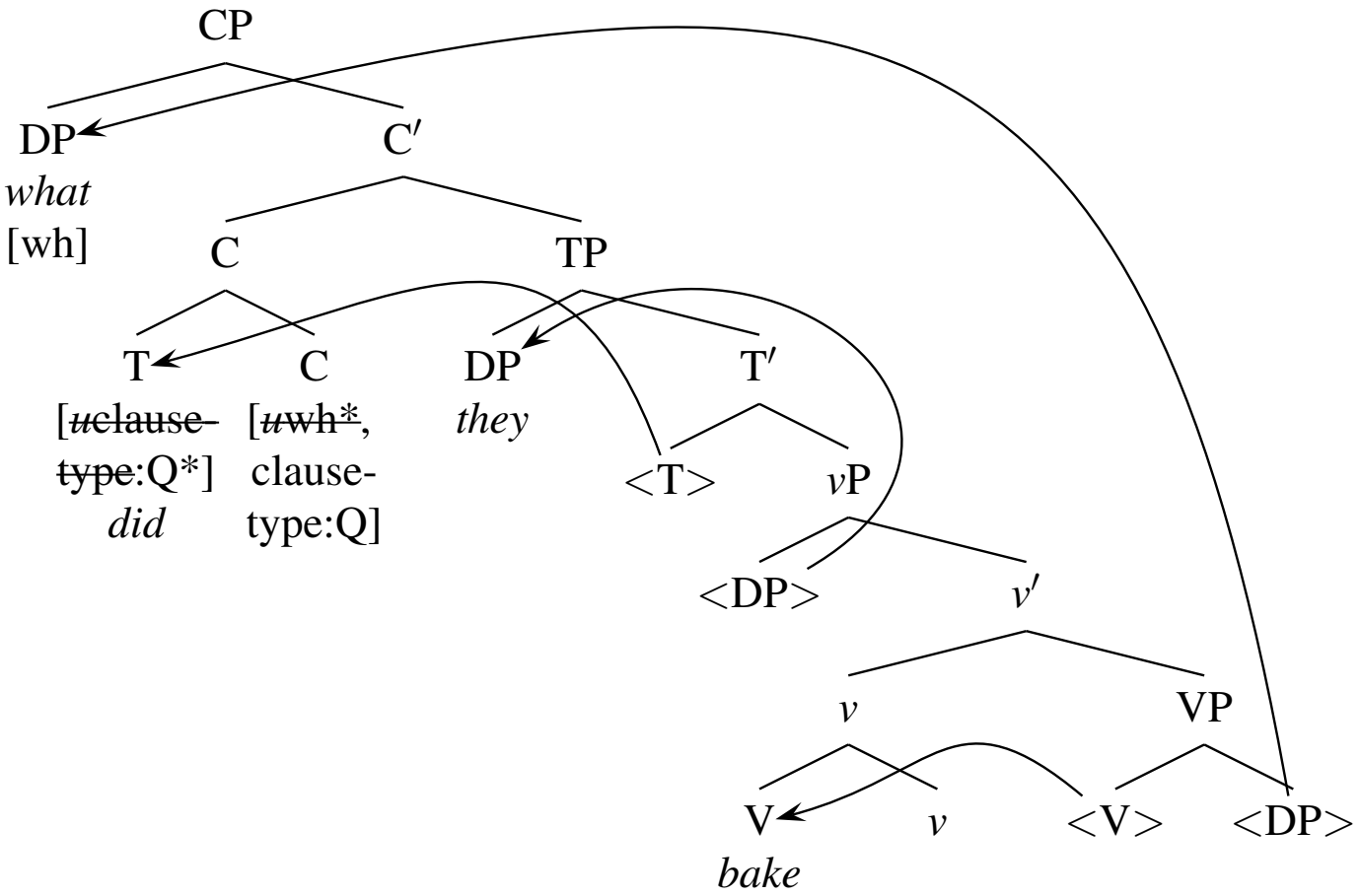
Penultimate version



Final version



Do-version


CP
DP
what
[wh]
C′
C
TP
T
[~~*u*~~clause-~~type~~:Q*]
did
C
[~~*u*~~wh*, clause-type:Q]
DP
they
T′
<T>
*v*P
<DP>
v′
v
VP
V
bake
v
<V>
<DP>

Two kinds of questions?

Looking at *wh*-questions as compared to yes-no questions, it looks like there are two kinds of interrogative C:

- "yes-no" C: [C, clause-type:Q]
- *wh*-questions C: [C, clause-type:Q, *u*wh*]

This is in fact often supposed in the syntax literature—and many languages seem to have a special particle reserved for yes-no questions (e.g., English *if*, Mandarin *ma*).

Problem? Will they bake what?

Nothing in our system so far prevents us from using a yes-no C with a *wh*-word, predicting that *Will they bake what?* should be good. Question-embedding verbs take either yes-no questions or *wh*-questions, without fail.

(9) I wonder if Pat left.

(10) I wonder what Pat bought.

(11) I know if Pat left.

(12) I know what Pat bought.

So, they must just be selecting for [clause-type:Q], something yes-no questions and *wh*-questions have in common. The thing that enforces having a *wh*-word in a *wh*-question is the [*u*wh*] feature of C.

Maybe there are no yes-no-questions

Perhaps: Even yes-no questions have a *wh*-word. Like the *whether* you get in an embedded yes-no question, but just silent in main clauses and in *if*-questions.

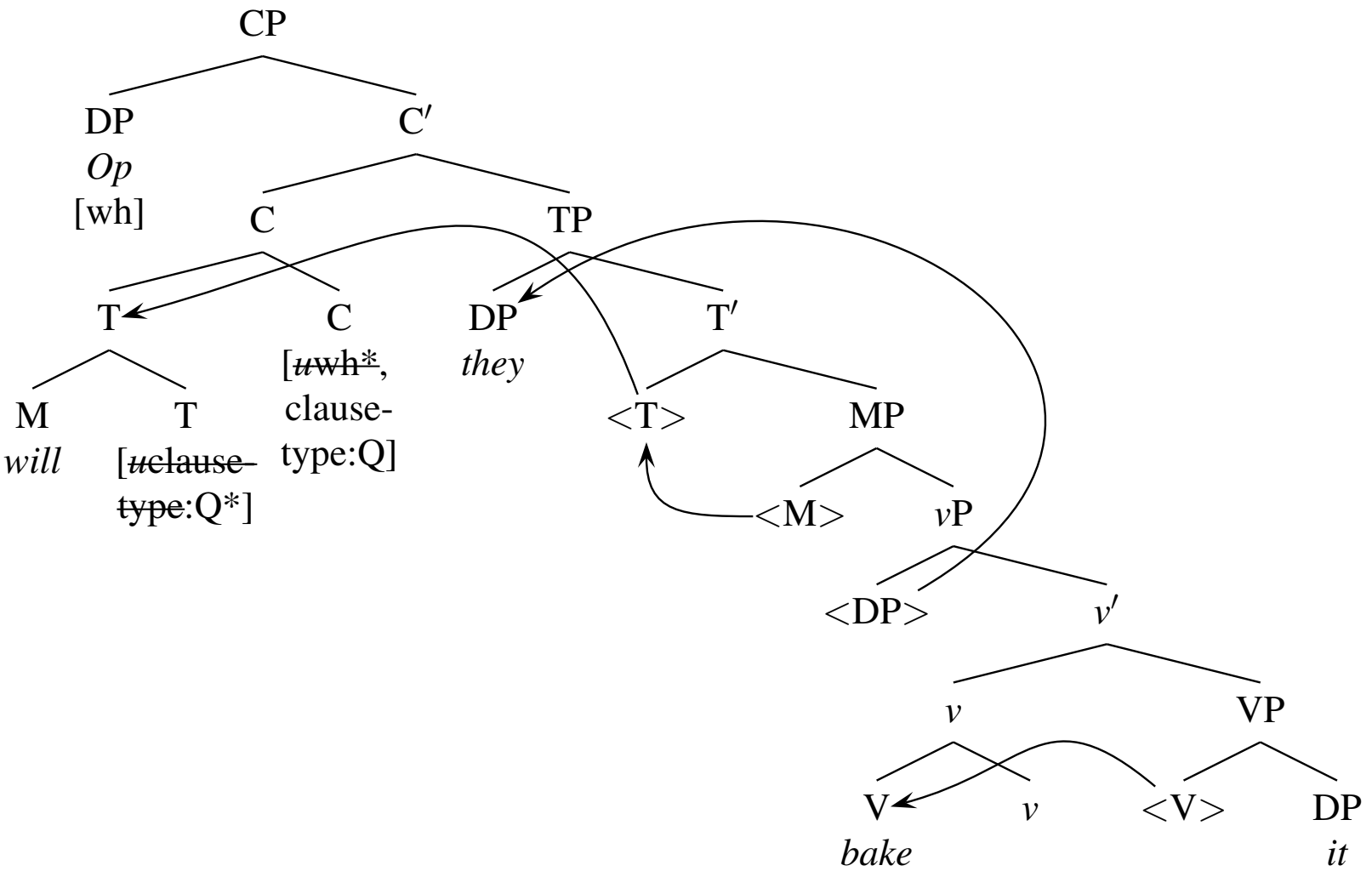
The "silent *whether*" is generally referred to as *Op* (for "operator").

(13) I wonder *Op* if Pat left.

(14) *Op* will Pat leave?

Then all interrogative Cs (in English at least) have not only a [clause-type:Q] feature but also a [*u*wh*] feature. Meaning: if there is a *wh*-word, one will move to SpecCP. And if there isn't, there needs to be an *Op* available to put in SpecCP directly.

Will they bake it?



Subject *wh*-questions

With that, we have largely handled most *wh*-questions. But one class of *wh*-questions still causes trouble, namely subject *wh*-questions.

(15) Who will bake it?

(16) Who baked it?

Here it isn't clear if anything moves at all, because if it does, it's back in the same order at the end. The subject is still to the left of the auxiliary, and if there's no auxiliary, then we don't even insert *do*. The predictions from what we set up so far would be that T moves over the subject to C (causing *do*-support) and the subject moves back over *do* to SpecCP, so the second one should come out as *Who did bake it?*—but it doesn't.

Subject *wh*-questions: two options

There are basically two possibilities:

- T does not move to C (which is why we don't get *do*-insertion—the head of the sister of T is still the one that had the [*u*Infl:] feature that T valued).
- T does move to C, but we mischaracterized the conditions under which *do* is inserted.

Making the first option work is hairy. Adger's textbook goes that way, allowing subject *wh*-words to "short-circuit" the mechanism that moves T to C, but in a way that seems to add quite a bit more highly specialized machinery ([wh] can value [*u*clause-type:], but only when it is very close, but it won't trigger movement itself).

Subject *wh*-questions: recasting *do*-support

If we go with option two, we need to re-cast the triggers for *do*-support. What we want is something that will insert *do* if *not* or a subject is between T and the [*u*Infl:] getting valued by T, but not if an adverb is there.

(17) I do not like green eggs and ham.

(18) I never/always liked green eggs and ham.

(19) Do you like green eggs and ham?

The solution we had before (pronunciation of tense rule) tied the pronunciation to whether the head of T's sister gets inflected by T. This makes adverbs invisible, but NegP (or moving T away) will move T away from its original sister.

Adjacency and *do*-support

The intuition is that what we want, in order to capture the subject *wh*-word case, is if T and the head it inflects are *adjacent*, then we do not need *do*. Even if T has moved to C, so long as nothing is pronounced in between them. We only need *do* if T and what it inflects can't be pronounced "together."

Then the problem is going to be how to make adverbs invisible. There are various ways to do this, and we could simply stipulate it ("adverbs don't interrupt adjacency"). But I'll demonstrate one possible interpretation (leaning on work by Danny Fox and David Pesetsky).

Adjacency and *do*-support

(20) I will often eat pizza.

(21) I often will eat pizza.

The structure for the first sentence is easy to visualize. *Often* is adjoined to *v*P, then M is Merged, then T, M moves to T, the subject moves to SpecTP. T precedes the *v*P, we get *I will often*. . . .

The second sentence is more mysterious. Where is *often*? We have the subject in the specifier of TP, and *will* is in the position of T. Do we allow *often* to adjoin to T′ (rather than *v*P), exceptionally?

The idea will be that the structure doesn't provide any instructions about which of T and the adverb are pronounced first. Same structure, but the pronunciation allows for either option.

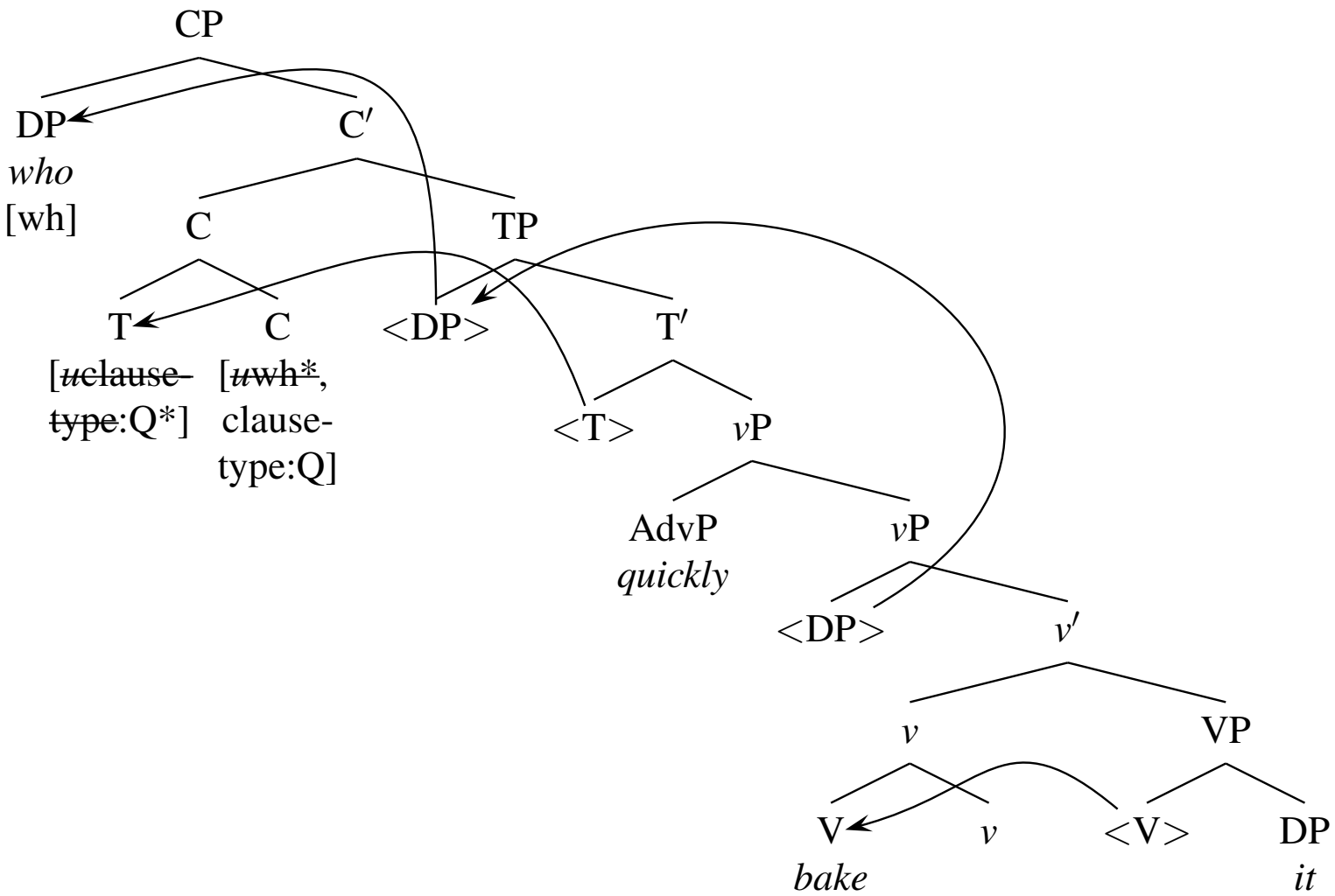
Adjacency and *do*-support

(22) I will often eat pizza. I<will, I<often, will<eat, often<eat

(23) I often will eat pizza. I<will, I<often, will<eat, often<eat

- The end of the subject comes before the beginning of T.
- The end of T comes before the beginning of *v*P.
- The beginning of *v*P is defined at the point of the last Merge—if we adjoin *often* to the *v*P, it is still *eat* (and not *often*) that is the beginning of *v*P.
- Nothing says whether T comes before *often* or after it.
- If T comes after *often*, then T and *v*P are adjacent.
- You only insert *do* if T and what it inflects cannot be adjacent.

Who quickly baked it?



Summary

- *Wh*-words have a [wh] feature.
- Interrogative C has features [clause-type:Q] and [*u*wh*]. (A *wh*-word must move to SpecCP)
- A yes-no question has *Op* in SpecCP.
- When C values the [*u*clause-type:] feature of T as Q, it is valued as strong. (T moves to C)
- When T values the [*u*Infl:] feature on a head X, the inflection is pronounced on X if T and X are adjacent; otherwise the inflection is pronounced on *do* in the position of T, and X is pronounced uninflected.
- Adjuncts are invisible when computing adjacency.

This is how we analyze English, some of these might be parameterized, working differently in other languages.

Technical notes

- Sometimes larger things act like they have a [wh] feature: *Whose book is on the table?* or *To whom did Pat give the book?*. No analysis yet of when that is possible. (“pied piping”)
- *Wh*-questions can be asked with more than one *wh*-phrase (*Who bought lunch for whom?*), and languages differ not only in how the first *wh*-phrase behaves but in how the rest do as well. The typology needs to include the possibilities of moving all the *wh*-phrases to the front, keeping order or not keeping order.
- For languages that move multiple *wh*-phrases to the front, we need to consider where they go.
- In a language where any *wh*-phrases can remain in situ, we have not yet *really* prevented yes-no questions from including *wh*-phrases. Even if having *Op* corresponds to being a yes-no question. This may need to be left to the semantics.