

## Introduction to Minimalist Syntax

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# Last week

- ▶ Tense and agreement in the TP
- ▶ The structure of nominal phrases
- ▶ Subjects and Objects

# Question 1

- (1) Which of the following is the correct order?
- a. T > (NEG) > (ASP) > V > v
  - b. (NEG) > V > T > (ASP) > v
  - c. T > (ASP) > (NEG) > v > V
  - d. T > (NEG) > (ASP) > v > V

## Question 2

- (2) Which features do T and v agree in?
- [Tense]
  - [Infl]
  - [Aspect]
  - [Case]

## Question 3

- (3) In many Ghanaian languages, tense is marked by a preverbal tense marker. In which syntactic head do the tense markers appear in?
- T
  - ASP
  - NEG
  - v

## Question 4

- (4) Which of these is the correct rule in English?
- a. Auxiliaries move to T, but verbs don't.
  - b. Both Auxiliaries and Verbs move to T.
  - c. Both Auxiliaries and Verbs don't move to T.
  - d. Auxiliaries don't move to T, but verbs do.

## Question 5

- (5) Which of these are determiners?
- a. Definite article
  - b. Quantifier
  - c. Adjective
  - d. Pronouns

## Question 6

- (6) In English and most Ghanians languages, there is EPP movement to Spec,TP. Why does the subject move in transitive clauses and not the object?
- Because the subject is closer to T than the object.
  - Because the object can never move.
  - Because the object has the wrong case feature.
  - Because the subject and object are on the same level.



# Today

- ▶ Questions vs Declaratives
- ▶ Another type of movement
- ▶ Cross-clausal dependencies

- ▶ There is another projection above the TP.
- ▶ This projection has more similarities with TP than VP.
- ▶ Unlike the VP, it has nothing to do with theta-role (same with TP).
- ▶ Although similar to TP, it does not have anything to do with tense/aspect of the sentence, but the semantic status of the whole proposition/sentence.
- ▶ Let's look at some evidence for the presence of this additional layer.

## Complementizer *that*

- ▶ Consider the following sentences:

(7) I claimed she was pregnant.

(8) I claimed **that** she was pregnant.

- ▶ Both sentences are grammatical. (8) has an overt complementizer.
- ▶ ***that she was pregnant*** form a constituent.
- ▶ What are the proofs?

## Complementizer *that*

### ► Pseudoclefting:

- (9) What she thought **was that** the poison was neutralised.
- (10) \*What she thought **that was** the poison was neutralised.

### ► Replacement test (with *it*):

- (11) I claimed it.
- (12) \*I claimed that it.

## Complementizer *that*

▶ **Movement test:**

- ▶ *that* plus its TP can be moved to the right, across a prepositional phrase- **extraposition**.

(13) It was claimed by everyone that the poison was neutralised.

(14) \*It was claimed that by everyone the poison was neutralised.

- ▶ Similarly, it is not possible to strand **that**, leaving it behind by moving TP on its own (**passivization**).

(15) Sam claimed that John ate the food.

(16) That John ate the food was claimed by Sam.

(17) \*John ate the food was claimed **that** Sam.

## Complementizer *that*

- ▶ With some verbs, the complementizer is compulsory. Eg. Whisper

(18) \*Jason whispered the phoenix had escaped.

(19) Jason whispered **that** the phoenix had escaped

- ▶ **Your turn:**

How does the complementizer behave in your language?  
Is it optional or obligatory?



## Complementizer *that*

- ▶ Constituency-wise, we know that **that** belongs to the embedded clause, but we don't know about its category.
- ▶ One obvious option would be D, since **that** also serves as demonstratives and complements of verbs are usually DPs.
- ▶ However, it can't be a D because:
  - ▶ Other demonstratives cannot occur in this position (20)
  - ▶ Complementizers in other languages do not look similar to demonstratives.
  - ▶ Other complementizers in English (like *if*, *whether*) do not look like demonstratives at all.

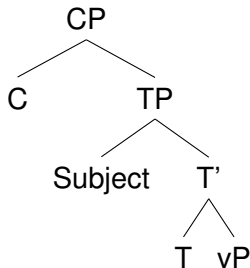
- (20) a. \*I said this he left.  
b. \*Jason knew those Medea had cast the spell.



## Complementizer *that*

- ▶ This strongly suggests that **that** and other elements of this type belong to their own syntactic category, C, giving rise to the structure in (21).

(21)



## Other complementizers: *whether* and *if*

- ▶ Elements of the category C must be functional rather than lexical since they do not assign any thematic role.
- ▶ Meaning-wise, it can be argued that a complementizer determines how the clause it heads should be interpreted, as *interrogative* or as *declarative*.

- (22) a. Jason asked **whether** the potion was ready.  
b. Medea wondered **if** the potion was ready.

- ▶ Interrogative complementizers like **if** and **whether** are in complementary distribution with declarative complementizers like **that** (17).

- (23) a. \*Jason asked **whether that** the potion was ready.  
b. \*Medea wondered **if that** the potion was ready.

## Other complementizers: *whether* and *if*

- ▶ Like *that*, *whether* and *if* also form a constituent with the following clause.

- (24)
- a. What Jason asked was [whether the potion was ready].
  - b. \*What Jason asked whether was the potion was ready.
  - c. ?What Medea wondered was [if the potion was ready].
  - d. \*What Medea wondered if was the potion was ready.

- ▶ This suggests that *whether* and *if* are also complementizers.

# Types of Complementizers

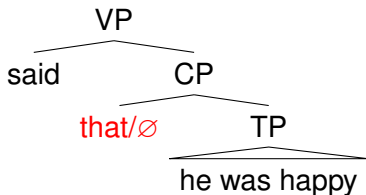
- ▶ Thus we can distinguish complementizers by the clause type of the clause they are embedding.
- ▶ Formally, we attribute to them a clause type feature, either **[Q]** for interrogatives or **[Decl]** for declaratives.

- (25)
- a. ask [V,uC]
  - b. exclaim [V,uC]

# Types of Complementizers

- ▶ In cases of optional *that*, we assume a **zero complementizer**.

(26)



## C in matrix clauses

- ▶ This raises the question whether we should analyze matrix clauses also as containing a CP layer.
- ▶ There are types of matrix clauses for which we have to assume that anyway, for example yes-no questions.

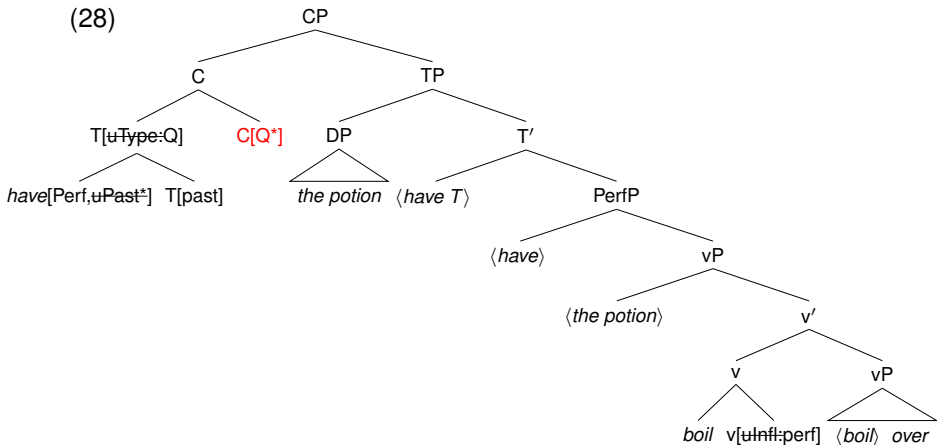
- (27)
- Had the potion boiled over?
  - Did the magic work?

## C in matrix clauses

- ▶ Yes-no questions involve **subject-auxiliary inversion (SAI)** which is usually analyzed as movement of the auxiliary into a position higher than the subject.
- ▶ This position is the C-head.
- ▶ The reason for this movement is again feature strength:
  - ▶ C in yes-no questions carries a strong clause type feature [Q\*].
  - ▶ T always carries an unvalued uninterpretable clause type feature [uType:].
  - ▶ Agreement between C and T causes movement of T to C due to the strength of the [Q\*] feature.

# C in matrix clauses

(28)

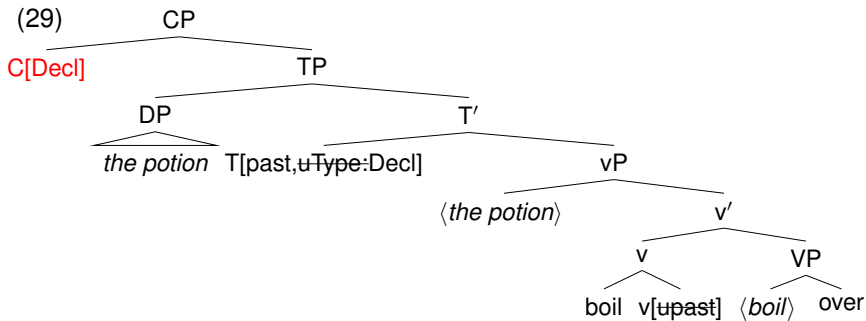




## C in matrix clauses

- ▶ This also makes the right predictions for *do*-support.
- ▶ If no aux moves to T, it is still T that moves to C.
- ▶ We argued that *do*-support is just the spell-out of features associated with T, and if T is spelled out in C, then *do* is also inserted in C.
- ▶ We assume that a CP is not only present in matrix yes-no questions but in all matrix clauses.
- ▶ The difference is that the [Decl] clause type feature on C in declarative clauses is weak and therefore does not trigger movement of T to C.

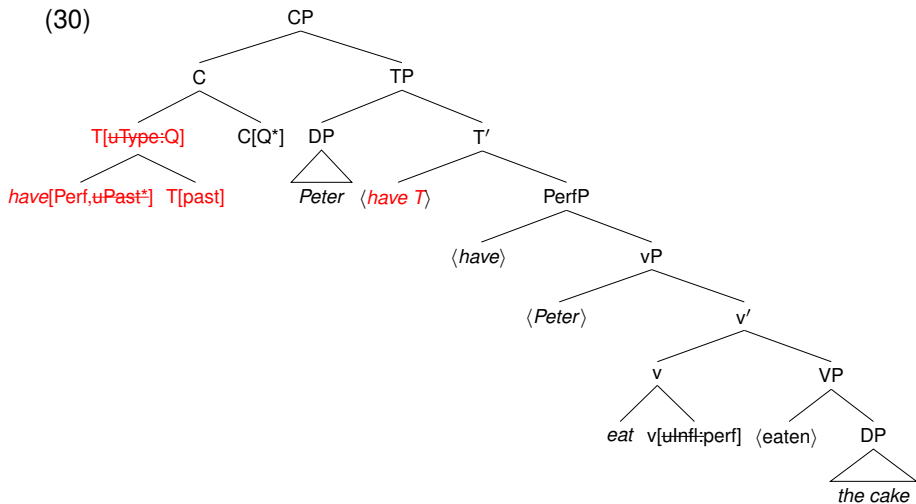
# C in matrix clauses



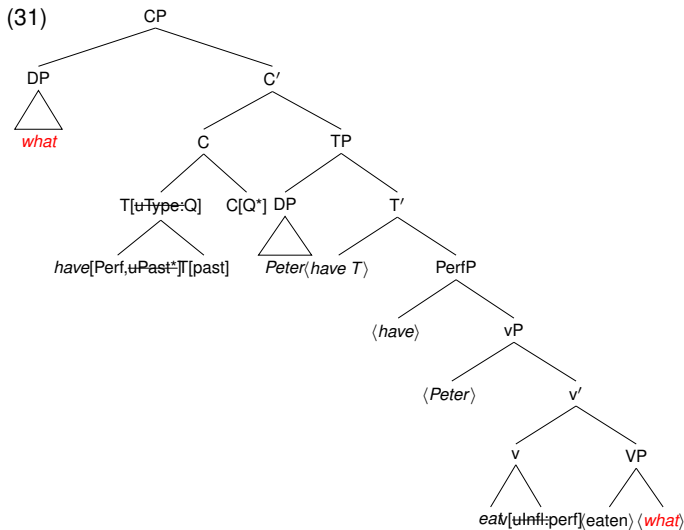
# wh-movement

- ▶ For yes-no questions, we assumed:
  - ▶ a strong [Q\*] in C.
  - ▶ [Q\*] attracts T.
- ▶ In (object) wh-questions, the auxiliary also precedes the subject.
- ▶ In addition, there is a wh-element preceding the auxiliary.
- ▶ We assume that the wh-element is in spec-CP.

## wh-movement



# wh-movement



# wh-movement

- ▶ Note that this also works in embedded wh-questions.
- ▶ Similar to the absence to T-to-C in embedded yes-no questions, there is also no T-to-C in embedded wh-questions.

- (32)
- I asked **what** Peter had eaten.
  - \*I asked **what** had Peter eaten.
  - \*I asked had Peter eaten the cake.

- ▶ This can easily be captured by assuming that the [type] feature is always weak on embedded C.
- ▶ The main question that remains is how to model wh-movement.

## wh-features

- ▶ Similar to all other movement, wh-movement is modeled via agreement of features.
- ▶ The responsible feature here is a **wh-feature**, shared by all wh-expressions.
- ▶ This is not the category feature though, as wh-elements can be of different categories.

- (33) a. I met her [<sub>PP</sub> in the park].  
b. **Where** did you meet her?

- ▶ Another important distinction here is between wh-elements that cannot combine with DPs and those that can.

- (34) a. \***Who** guy] did you meet?  
b. [**Which** car] did you buy?  
c. [**What** kind of actor] is he?

## wh-features

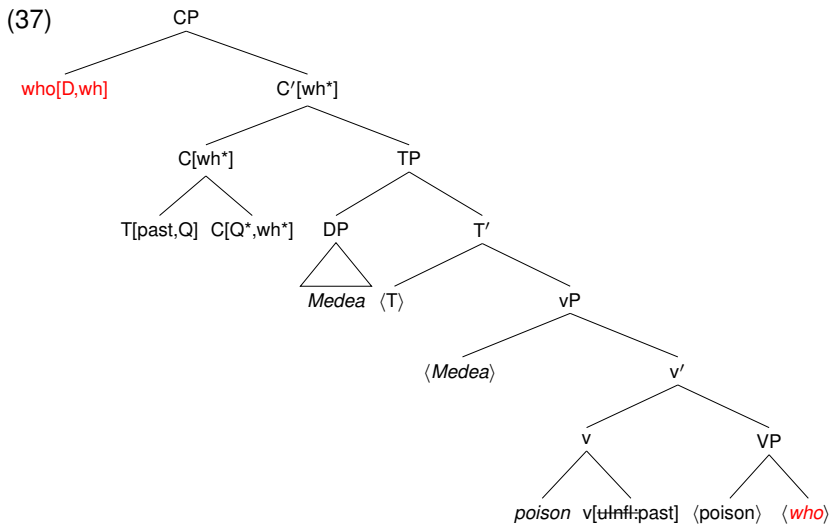
- ▶ If wh-questions involve movement, then the wh-feature needs to be strong.
- ▶ The first question is whether the strong feature is on C or the wh-element itself.
- ▶ Evidence supports the first hypothesis
  - ▶ in-situ wh-questions (echo questions)
  - ▶ multiple wh-questions
  - ▶ languages without ex-situ questions (Chinese (36))

- (35) a. You ate **what**?  
 b. **Who** did you meet **where**?

- (36) a. *Hufei mai-le yi-ben-shu*  
 H. buy-ASP one-CL-book  
 'Hufei bought a book.'  
 b. *Hufei mai-le **shenme**?*  
 H. buy-ASP what  
 'What did Hufei buy?'  
 c. \***Shenme** Hufei mai-le?



# wh-features

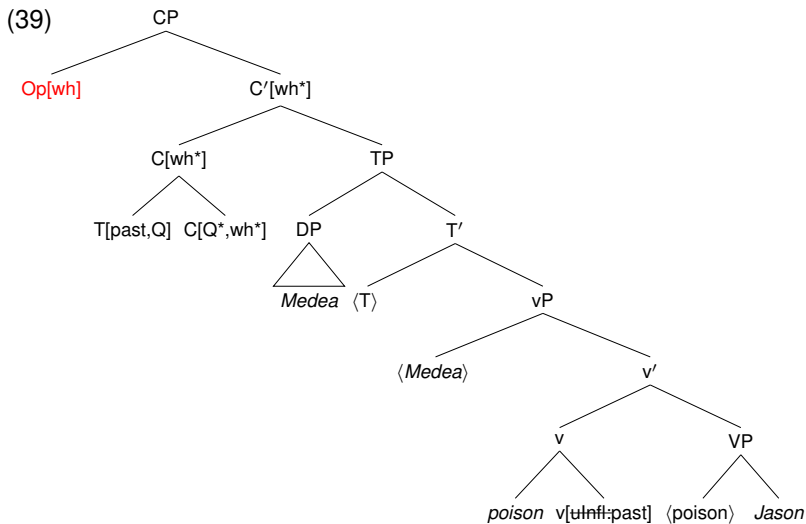


## wh-features

- ▶ There is a slight complication with this analysis.
- ▶ We now have two C[Q\*], one with [wh\*] for wh-questions and one without for yes-no questions.
- ▶ Adger solves this by assuming that even in yes-no questions, spec-CP is filled, so that we only have C[Q\*,wh\*].
- ▶ This element in spec-CP **in yes-no questions is an empty operator** that is responsible for the question-interpretation.

- (38)
- Did Medea poison Jason?
  - Op<sub>[wh]</sub> Did Medea poison Jason?
  - Is it true that Medea poisoned Jason?

# wh-features



## wh-features

- ▶ What other wh-phrases exist apart from *who* and *what*?
- ▶ How are they constructed in your languages?

## Embedded wh

- ▶ Embedded wh-questions work in much the same way.
- ▶ Matrix predicates that can embed yes-no questions can also embed wh-questions.
- ▶ The difference to matrix questions is the missing T-to-C movement in both cases.
- ▶ We assume this is due to **Q being weak in embedded contexts**.

- (40) a. I wondered **if** Medea **had** fled.  
b. \*I wondered **if had** Medea fled.

- (41) a. I wondered **who** Medea **had** poisoned.  
b. \*I wondered **who had** Medea poisoned.

## wh-in-situ

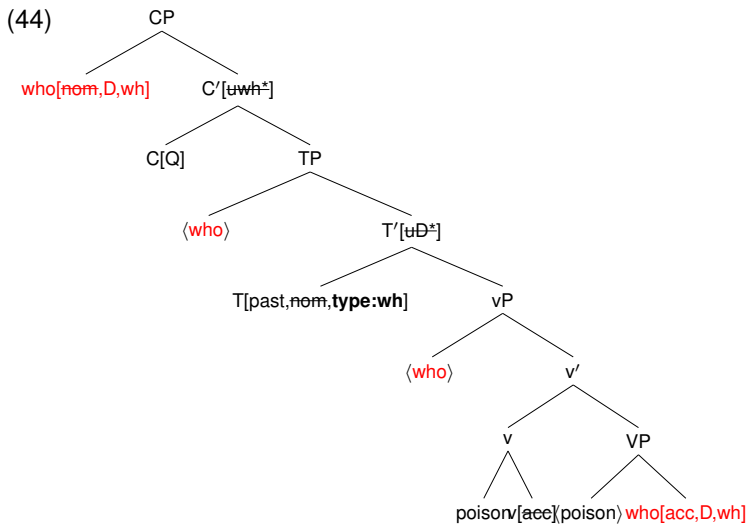
- ▶ English has two cases where wh-elements can stay in their place, echo questions, (42), and multiple wh-questions (43).
- ▶ Echo questions are not really questions, so there is no C with [wh\*].
- ▶ In multiple questions, one element moves to spec-CP, the other stays low.

(42) Medea poisoned **who**?

(43) **Who** poisoned **who**?

- ▶ The derivation of multiple wh-questions is straightforward:
  - ▶ One element wh-moves, valuing all the relevant features.
  - ▶ The other element stays low, as the wh-element itself doesn't have any features that force it to move.

# multiple wh



# long-distance wh

- ▶ Wh-movement, similar to other types of A-bar movement like topicalization or relativization (movement of relative pronoun/operator), can happen across clauses:

- (45) a. **Who** did Jason think (that) Medea had poisoned?  
b. **What** did you say (that) the poet had written?



# long-distance wh

- ▶ There are two possible derivations for these cases
  - 1 The wh-element moves in one long step into its final position (46).
  - 2 The wh-element moves in two smaller steps (47), called **successive-cyclic movement**.

(46) wh ... think [<sub>CP</sub> that ... ⟨wh⟩ ]

(47) wh ... think [⟨wh⟩ <sub>CP</sub> that ... ⟨wh⟩ ]

## long-distance wh

- ▶ The problem with the intermediate movement step is that it is actually not a grammatical structure having the wh-element there overtly.

(48) \*Jason thinks **who** Medea has poisoned.

- ▶ However, this is actually the correct analysis.

## long-distance wh

- ▶ One piece of evidence for this assumption comes from languages like Irish:
- ▶ In Irish, the complementizer of the embedded clause changes when a wh-element is extracted.
- ▶ The easiest way to analyse this is to assume wh interacts with the embedded C on its way up.

- (49) a. *Bha mi ag ràdh gun do bhuail i e.*  
 Was I ASP saying **that** PRT struck she him  
 'I was saying that she hit him.'
- b. *Cò bha thu ag ràdh a bhuail i.*  
 who were you ASP saying **that** struck she  
 'Who were you saying that she hit?'

# Islands

- ▶ Not all kinds of embedded clauses allow movement out of them.
- ▶ Structures that do not allow movement out of them are called **islands**.

# Islands

## ► Wh-islands

- A wh-island blocks the movement of a wh-phrase if the [Spec, CP] that is filled with another wh-phrase is not the one from which we extract, but is higher in the tree.

- (50)
- I asked [ who Asom gave **what** ].
  - \***What** did you ask [ who Asom gave ⟨**what**⟩ ]?

# Islands

## ► Sentential Subject Constraint

- A clause that is a subject is called a sentential subject. Note that a sentential subject is not just the subject of a sentence, it is a subject that is a clause.
- SSC therefore means that "No element can move out of a CP that is in the subject position."

- (51)
- [ That John loves **Esther** ] is obvious.
  - It is obvious [ that John loves **Esther** ].
  - \***Who** is it obvious [ that John loves ⟨**who**⟩ ]?
  - \***Who** is [ that John loves ⟨**who**⟩ ] obvious?

# Islands

## ► Adjunct islands

- The Adjunct Condition prohibits extraction from an adjunct clause (i.e. a CP that is an adjunct)

- (52)
- Adam had run away [ before the dog bit **Samuel** ].
  - \***Who** had John run away [ before the executioner murdered **⟨who⟩** ]?

# Islands

## ► Complex Noun Phrase Constraint (CNPC)

- **Noun-Complement type:** Nouns like claim, rumor, story, suggestions, etc. take CP complements (Note the correlation with verbs: to claim that John left, to suggest that John left and the claim that John left and the suggestion that John left.)

- (53)
- I believed [<sub>DP</sub> the claim [<sub>CP</sub> that Philip would invade **the city of Athens** ]].
  - \***Which city** do you believe [<sub>DP</sub> the claim [<sub>CP</sub> that Philip would invade **⟨which city⟩** ]]?



# Islands

► **CNPC**: Relative clause type

- (54) a. Adam saw [<sub>DP</sub> the man [<sub>CP</sub> who bought **the car** ]].  
b. \***What** did Adam see [<sub>DP</sub> the man [<sub>CP</sub> who bought  
    ⟨**what**⟩ ]]?

# Islands

## ► Coordinate Structure Constraint

- No conjunct or element contained within a conjunct can be moved out.

(55) a. John ate [<sub>DP</sub> chicken and rice].

b. \***What** did John eat [<sub>DP</sub> chicken and ⟨**what**⟩ ].

(56) a. John [<sub>VP</sub> [<sub>VP</sub> ate fufu ] and [<sub>VP</sub> drank tea ]].

b. \***What** did John [<sub>VP</sub> [<sub>VP</sub> ate ⟨**what**⟩ ] and [<sub>VP</sub> drank tea ]].

c. \***What** did John [<sub>VP</sub> [<sub>VP</sub> ate fufu ] and [<sub>VP</sub> drank ⟨**what**⟩ ]].

# Islands

## ► Coordinate Structure Constraint

- There is an exception to the CSC, however. An element can be moved out of one of the conjuncts if a "parallel" element is also moved from the other. This is called **across-the board extraction/movement** or **ATB extraction/movement**.

- (57)
- John [<sub>VP</sub> [<sub>VP</sub> washed cloths ] and [<sub>VP</sub> ironed them ]].
  - What** did John [<sub>VP</sub> [<sub>VP</sub> wash ⟨**what**⟩ ] and [<sub>VP</sub> iron ⟨**what**⟩ ]].

# Summary

- ▶ There is an additional layer above the TP, the CP.
- ▶ In finite embedded clauses, the C head hosts the complementizer.
- ▶ In questions, the C head hosts the auxiliary (spec-CP is the target of wh-movement).
- ▶ Wh-movement targets spec-CP and is triggered by [wh\*] on C[Q]/C[Q\*].
- ▶ There is a lot of cross-linguistic variation when it comes to wh-questions.

# Summary

- ▶ Wh-movement can happen long-distance, but that movement happens in several steps, i.e. successive-cyclically.
- ▶ Wh-movement can be blocked by islands (e.g. wh-islands, sentential subject islands, adjunct islands, complex noun phrase constraint and coordinate structure constraint).

# References

- Adger, D. 2003. *Core syntax*. Oxford: Oxford University Press.
- Torrence, H. 2022. *Islands*. A class thought at the African Linguistic School (ALS6), Benin.