

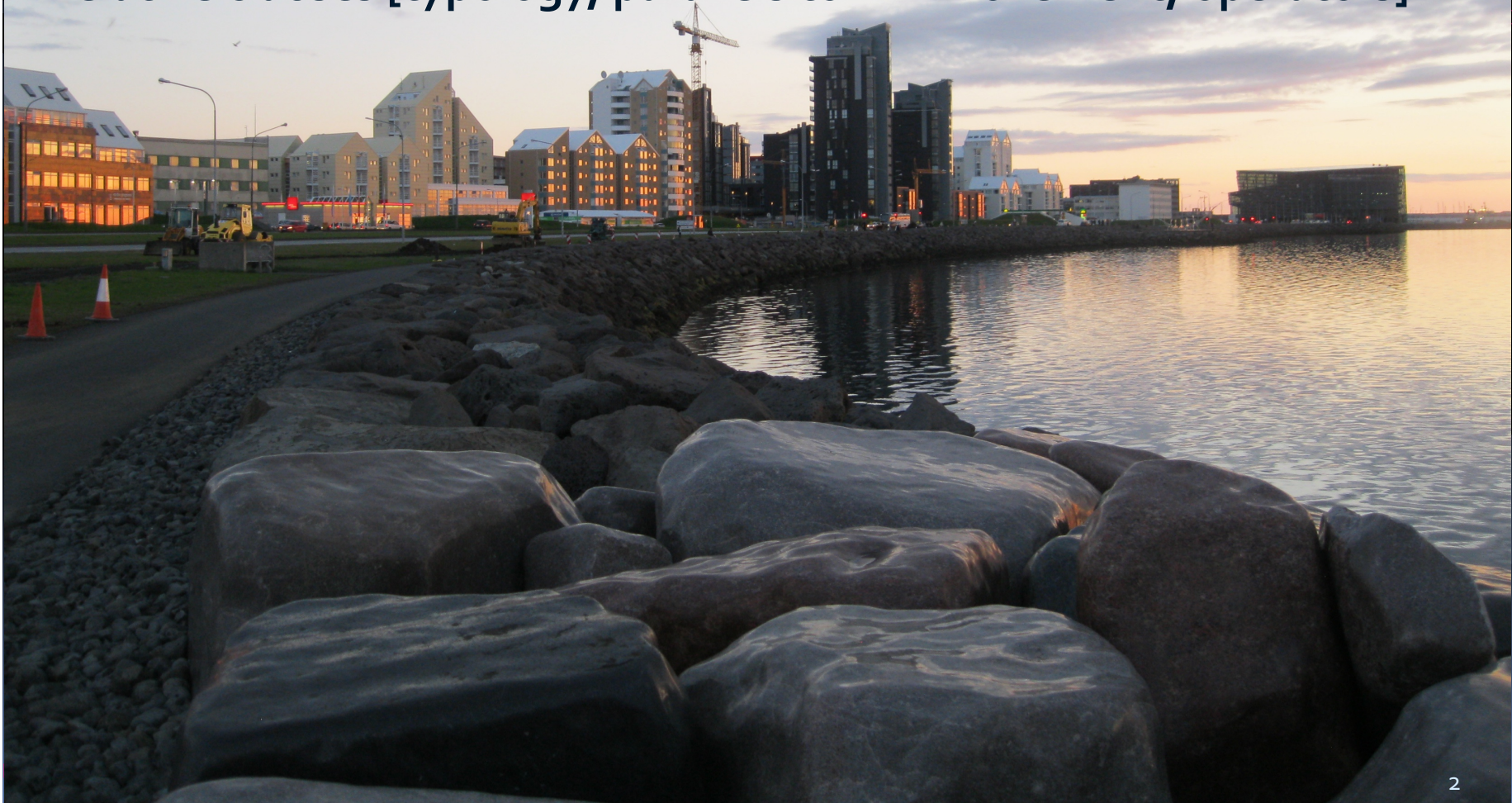


26 -29 January

# A DEEPER LOOK AT WH MOVEMENT

- Brief overview of WH typology
- Heads, features, and WH movement
- West Ulster English and Successive Cyclic Movement
- Island effects
- Relative clauses [typology, parallels to WH movement, operators]

# Our Roadmap



## WH MOVEMENT

## WH TYPOLOGY

*Koromfe* (spoken in Burkina Faso)

(a) Sefu də na a manɛ hɛŋ  
when he see DET money the  
'When did he find the money?'

(b) ase a kɛõ hoŋ panɛ a vaga koŋ  
what DET woman the give:PAST DET dog the  
'What did the woman give to the dog?'

The normal order in  
*Koromfe* is SVO.

*Welsh*

(c) Beth welaist ti yn yr ardd  
what saw:2SG you in the garden  
'What did you see in the garden?'

(d) O ba greadur mae wyau'n dod  
from what creature is eggs-PROG come

'What creature do eggs come from?' [Understanding Syntax, CH 8, EX 6–8]

The normal order in  
*Welsh* is VSO.

# WH In Situ: The WH Stays

*Chinese: SVO*

- (a) Ni kanijan-le shei?  
you see- ASP who  
“Who did you see?”

*Japanese: SOV*

- (b) Hanako-ga kinoo tomodati-to nani-o tukurimasita ka?  
Hanako-NOM yesterday friend-with what-ACC made QU  
‘What did Hanako make with her friends yesterday?’

[Understanding Syntax, CH 8, EX 12&14]

- **Principle:** Languages have a way of forming WH questions.
- **Parameters:**
  - Leave the WH in its deep structure position
  - Move the WH to a clause-initial position
  - Allow both staying put and moving

# MULTIPLE WH-QUESTIONS

- Languages also vary in how they treat questions that have multiple WH phrases.
- In English, only one WH can move.
  - Who saw what?/\*Who what saw?
  - Reminder: Subject WH phrases still move to Spec, CP even though there's no difference in word order.

# MULTIPLE WH FRONTING

(a) Koj kogo vidjal?  
who whom saw

“Who saw whom?”

Bulgarian

(b) Koj kogo kakvo e pital?  
who whom what is asked  
“Who asked whom what?”

[Understanding Syntax, CH 8, EX 21&23]

▪Bulgarian has relatively free word order (SVO is the general order), but multiple Whs are in a fixed order – subject, indirect object, direct object.

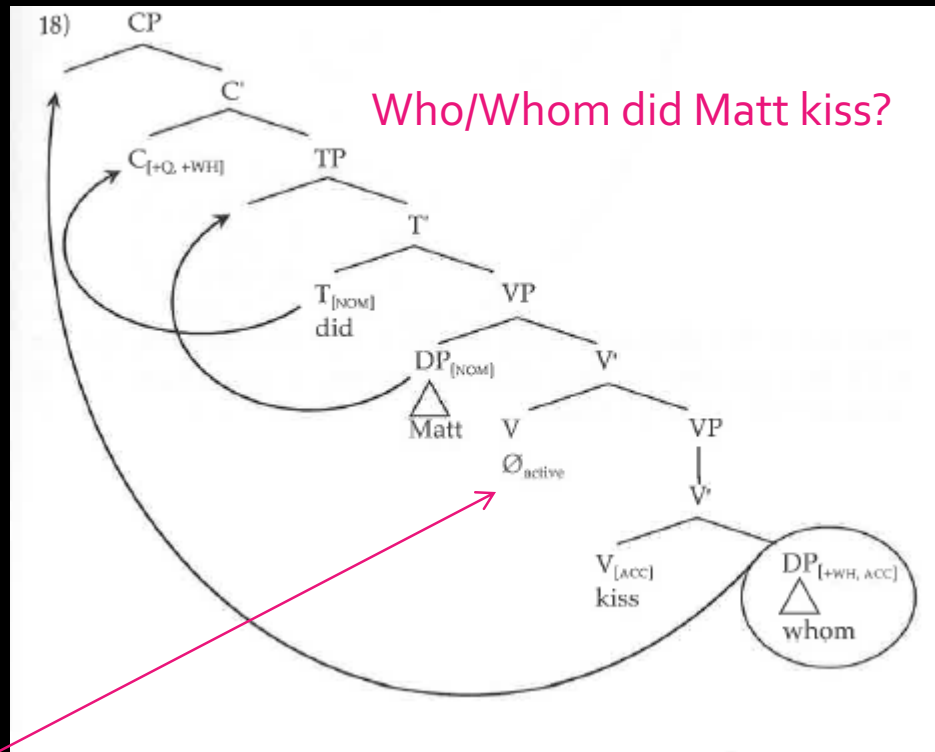
# BACK TO ENGLISH

The C head has two pieces of information.

- [+Q] identifies the clause as a question.
- [+WH] specifies that the clause is a WH question.

*Do* is inserted into T and grabs the tense information. [+Q] motivates T to C movement.

NOTE: Carnie is preparing us for things to come by introducing this null V head. This is not necessary for us at this point.



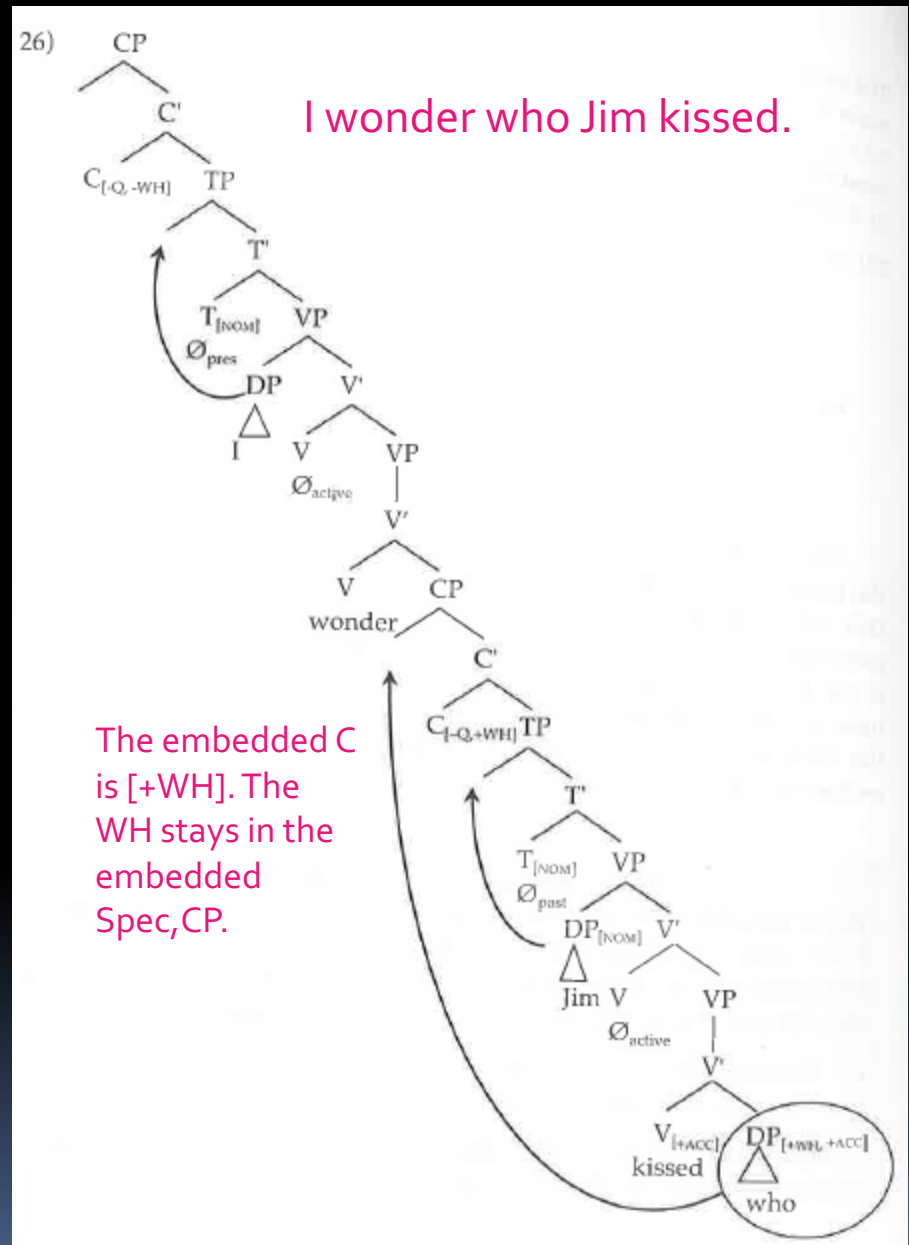
- WH phrase starts off as sister to the verb. *Kiss* c-selects a DP and that DP has a theme/patient theta role.
- The DP is assigned accusative case (even though many speakers say *who*) by the verb.

# Embedded WHs

- Embedded WH phrases also move to Spec,CP.
- But, **no T ⇒ C in embedded clauses.**
  - \*I wonder who has Jim kissed?
  - I wonder who Jim has kissed.

## The Explanation

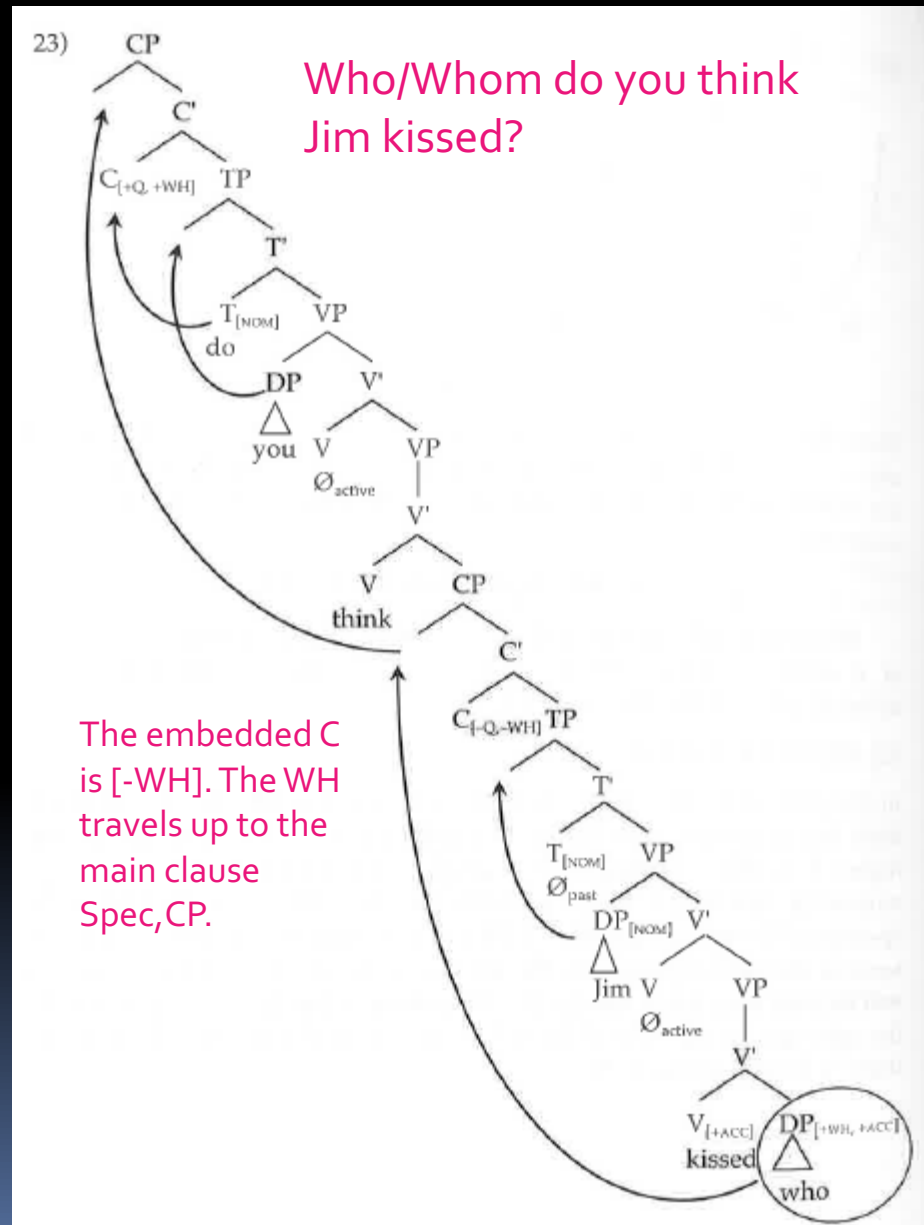
- **Embedded clauses that contain a WH are [+WH] but [-Q].**
- Since [+Q] is what forces the auxiliary to move to C (in main clauses), the auxiliary stays put in embedded questions.





# ESCAPING THE EMBEDDED CLAUSE

- The WH stops off in Spec, CP of the lower clause before moving up to the higher clause.
- *We'll return to this...*



# WH PHRASES CAN'T MOVE TO SPEC, CP WHENEVER THEY WANT: THEY'RE TRAPPED ON ISLANDS



# The Complex DP Constraint

- (a) What<sub>i</sub> did Bill claim that he read t<sub>i</sub> in the syntax book?
- *Claim* is a verb that takes a CP complement and the WH phrase can move outside of that complement.
- (b) \*What<sub>i</sub> did Bill make [<sub>DP</sub> the claim [<sub>CP</sub> that he read t<sub>i</sub> in the syntax book]]?
- *Claim* is a representational noun. It takes a CP complement.
  - The WH is trying to escape a DP – as opposed to a CP – and it can't.
- (c) \*[Which cake]<sub>i</sub> did you see [<sub>DP</sub> the man [<sub>CP</sub> who baked t<sub>i</sub>]]?
- Here, the CP is in adjunct position inside the DP.
  - The WH still can't move outside of the DP. [Carnie, EX 37-39]

# *The Subject Condition*

- We know that CPs can occupy the syntactic subject position. But, WH phrases can't escape them.

(a) [<sub>CP</sub> That the police would arrest several rioters] was a certainty.

(b) \* Who<sub>i</sub> was<sub>j</sub> [<sub>CP</sub> that the police would arrest t<sub>i</sub>] t<sub>j</sub> a certainty? [EX 49]

# The Coordinate Structure Constraint

- (a) Cherlon saw [<sub>DP</sub> [<sub>DP</sub> Hidden Figures] and [<sub>DP</sub> Manchester by the Sea]].
  - (b) \*Which other movie did Cherlon see Hidden Figures and  $t_i$ ?/\*Which other movie did Cherlon see  $t_i$  and Manchester by the Sea?
  - (c) She [<sub>VP</sub> [<sub>VP</sub> ate some popcorn] and [<sub>VP</sub> drank some soda]].
  - (d) \*What did she eat  $t_i$  and drink some soda?/\*What $_i$  did she eat some popcorn and drink  $t_i$ ?
- Pretty self-explanatory. We can't move a WH out of a conjoined phrase.

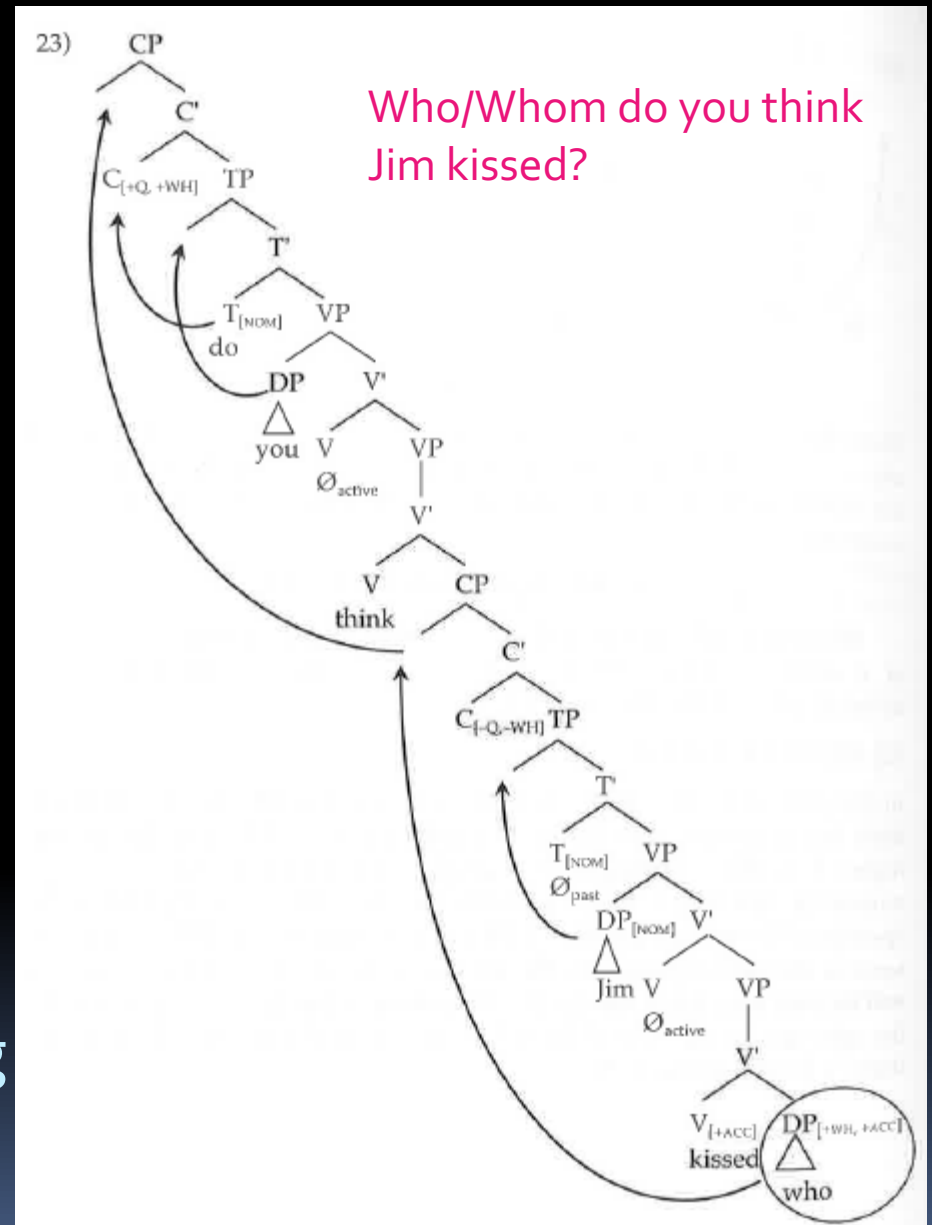
# The WH-Island Constraint

*John bought the sweater with the \$20 bill.*

- (a) I wonder what<sub>i</sub> John bought t<sub>i</sub> with the \$20 bill.
- (b) How<sub>i</sub> do you think John bought the sweater t<sub>i</sub>?
- (c) \*How do you wonder what John bought?
- (d) \*What do you wonder how John bought? [EX 40-43]
  - The deep structure for the embedded clause: *John bought what how?*
  - In the bad sentences, one WH occupies Spec,CP in the embedded clause and the other WH occupies Spec,CP in the main clause. This seems like it should be just fine...
  - BUT, one of the WHs has to hop over the one that has moved to Spec,CP of the lower clause in order to get to the higher clause.
    - Illegal movement!
- “The central intuition underlying an account of these facts is that once you move a WH-phrase into the specifier of a CP, then that CP becomes an island for further extraction.” [p. 376]

- We now have a better understanding of this tree.
- WHs lands in Spec,CP, even if that particular Spec,CP is not the final landing site.

**The Minimal Link Condition:** Move to the closest potential landing site. [EX 56]



# West Ulster English

- (1) a. What all did you get *t* for Christmas?  
b. Who all did you meet *t* when you were in Derry?  
c. Where all did they go *t* for their holidays?

- (3) a. What did you get all for Christmas?  
b. Who did you meet all when you were in Derry?  
c. Where did they go all for their holidays?

- (4) a. I don't remember what all I said.  
b. I don't remember what I said all.

- (8) a. What all did he say (that) he wanted *t*?  
b. What did he say (that) he wanted all?  
c. What did he say all (that) he wanted *t*?

- (11) a. What all did he say that he wanted to buy *t*?  
b. What did he say all that he wanted to buy *t*?  
c. What did he say that he wanted all to buy *t*?  
d. What did he say that he wanted to buy all?

■ The word order patterns from West Ulster English (spoken in Ireland) give us additional evidence for this obligatory movement through Spec, CP.

■ We can “see” the Minimal Link Condition at work.

[data from McCloskey 2000, *Quantifier Float and Movement in an Irish English*]



# More on The Minimal Link Condition (MLC)

- The MLC basically says that when something needs to move, it goes to the closest \*potential\* position which it is c-commanded by.
- This explains our WH Island effects.
  - A WH has to land in the closest Spec,CP – but it can't if another WH has already landed there.
- The MLC also applies to DP movement and head movement.

# Minimal Link Violations

(a) **It seems that Mark<sub>i</sub> is likely t<sub>i</sub> to have left.**

- Good! Mark moves to the next position where nominative case is available.

(b) **\*Mark seems that is likely t<sub>i</sub> to have left.**

- Out! Either Mark skipped over the next available position or Mark moved to that position and then left for no reason.

(c) **\*Mark seems that it is likely t<sub>i</sub> to have left.**

- Out! There's an expletive in the position that Mark is supposed to land in. He goes to the higher clause but this is not allowed because Mark can't skip over that spot.

# INTERIM SUMMARY

- [+Q] on C motivates T to C movement in main clauses.
- [+WH] on an embedded C means the WH stays in the embedded Spec,CP.
- [-WH] on an embedded C means that the WH travels to the matrix Spec,CP.
  
- WH movement is constrained by island effects.
  - The Complex DP Constraint
  - Subject Constraint
  - Coordinate Structure Constraint
  - WH Island Constraint
  
- West Ulster English overtly illustrates the Minimal Link Condition.

**Part 1.** Draw a tree for each of the following sentences. Your trees should show: case assignment, all movement operations (follow the VP-Internal Subject Hypothesis), and WH and Q features. Follow the feature notation that is outlined in the Carnie reading for main and embedded clause WHs, as well as for passives. No  $\triangle$  please. **NOTE:** If a WH phrase needs case, it gets case in the same spot that a non-WH DP would. WH phrases do not get case in Spec, CP.

1. Several expensive paintings were commissioned.
2. Which students now understand how island conditions work?
3. The investigators know who was framed by the real criminal.
4. I do not remember the reason why I wanted to draw syntax trees for the rest of my career.
5. What bottle of wine do you think the server should recommend to the diners?
6. Who do you suspect was encouraged to apply for the internship?

**Part 2.** Following is a sentence from Irish that we've seen. Use this example and the corresponding sentence in English to discuss verb movement, the VP-Internal Subject Hypothesis, case assignment, and the Extended Projection Principle (EPP) in terms of principles and parameters. You do not need to draw trees, but you can if you it's useful for your answer.

7. Phóg Máire an lucharachán.  
kissed Mary the leprechaun  
'Mary kissed the leprechaun.'

## Practice

**Part 3.** Why are the following sentences ungrammatical? Draw the deep structure and explain what goes wrong when we try to get to the surface.

8. \*Who do you and your roommates hate Jim and like?
9. \*Who was that the police would arrest a certainty?
10. \*Which famous actor did John make the assertion that he saw in the coffee shop?
11. \*What kind of boots have the really nice syntax professor should bought on Saturday?
12. \*It was punched him by the frustrated player on the other team.
13. \*How do you think what the students studied?



# WH MOVEMENT AND RELATIVE CLAUSES

Introducing “Operators”

- CPs inside of DPs can either be arguments or adjuncts.
  - The Complex DP Island Constraint applies to both kinds of CPs.

(1) a. The fact that I like begonia-flavored milk shakes is none of your business.

b. She made the outrageous claim that tuna-flavored milkshakes are good for you.

[Carnie, Chapter 12, EX 27]

- The embedded CPs are arguments of the factive (contentful) nouns *fact/claim*.
- In both of these sentences, the embedded clause is a phonetically full clause. There's no silent material.

## What we know

- **Relative clauses** are adjuncts that modify a noun.
- They are like WH questions in that there is an overtly displaced phrase (in some of them).
- The **a** sentences contain run of the mill embedded WH clauses. The **b** sentences contain relative clauses.

(1) a. I asked **where** you found it \_\_\_\_.

b. I won't reveal the place **where** we found it \_\_\_\_.

(2) a. I asked **who** she kissed \_\_\_\_.

b. I know several people **who** she kissed \_\_\_\_.

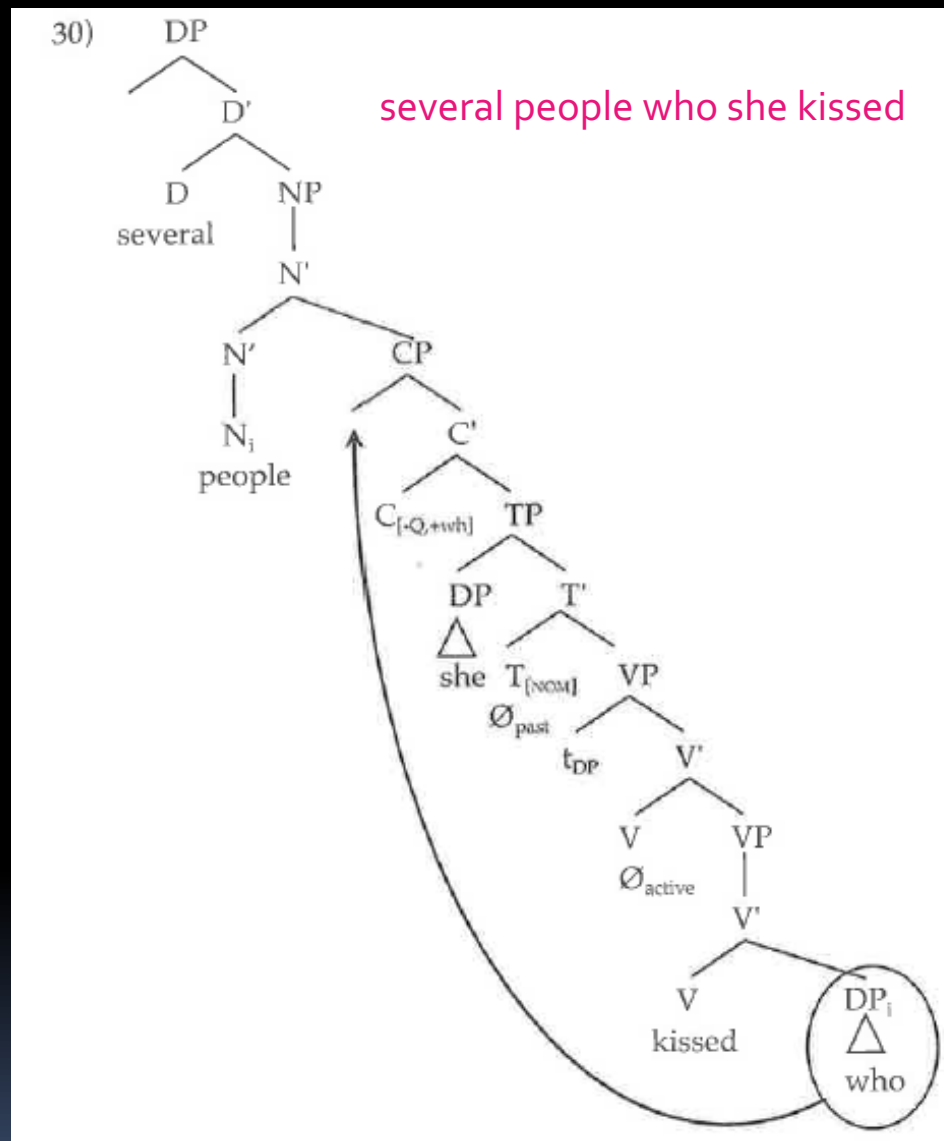
[Carnie, CH 12, EX 28-29]

What we learn: Relative clauses are  
like WH Questions

- This is normal WH movement.
- The only difference is that the head noun *people* is coindexed with the DP *who*.

- This coindexation represents that the noun and *who* have the same identity. The noun is actually interpreted in the object position.

**Note the coindexation problem.**  
*Who* is coindexed with *people*,  
 not *several people*.



## A familiar derivation



Not every relative clause contains a WH word...

Introducing  
“Op”

1. a. I know several people (that) she kissed.
- b. I know I bought the book (that) you recommended.  
        [Carnie, Ch 12, EX 31-32]

We still maintain the parallelism with WH constructions.

- A null WH word (an operator) occupies the spot that a WH would in the deep structure and moves to Spec, CP in the same way that an overt WH would.

2. a. I know [<sub>DP</sub>several people [<sub>CP</sub>(that) she kissed Op].

b. I know I bought [<sub>DP</sub>the book [<sub>CP</sub>(that) you recommended Op].

NOTE: The Carnie reading doesn't coindex Op with the noun, but it probably should be.

- C-selection and s-selection suggest that there is actually something present.
- In both examples, both the verb in the main clause and the verb in the embedded clause require DP objects that have a theme (or something like that) theta role.
  - *People/book* have a relationship with both verbs.
- The operator meets the c-selection and s-selection requirements of the verb in the lower clause.
- The operator is interpreted in its initial position.
- The operator is not interpreted in Spec,CP after it moves in the same way that an overt WH is not interpreted in Spec,CP.

## Why have a null element?

1. Thy freend which that thou has lorn.

'Your friend that you have lost.'

- An older variety of English

2. der Hund der wo gestern d' Katz bissn hod.

the dog who that yesterday the cat bitten has

'the dog that bit the cat yesterday.'

- Bavarian German

[Carnie, Ch 12, EX 35-36]

- Here, we have both the moved WH and the complementizer in the relative clause.

## Some evidence for the operator

# Different Types of Relative Clauses

## Restrictive Relative Clauses

- Limit the meaning of the nouns they modify.
  - The guy who is wearing the red hat just hit me. [Carnie, CH 12 EX ia]
- Must be closer to the noun.
  - The man that is escaping, who I think might be drunk, hit me. [Carnie, CH 12, EX iia]

## Non-restrictive relative clauses

- Provide supplementary information about the nouns they modify.
  - That guy, who I think might be drunk, just hit me. [Carnie, CH 12, EX ib]
- Can be farther away from the noun.
  - \*The man, who I think might be drunk, that is escaping hit me.

[Carnie, EX iib]

- Many languages pattern like English. The overt element (the head noun) is external to the relative clause CP.

## Externally headed Relative clauses

*Tinrin*: spoken in New Caledonia

wa mwîê rra [nrâ sùveharru nrâ toni] nrâ truu numea  
the woman there 3sg like SM Tony 3sg stay Noumea  
'The woman that Tony likes lives in Noumea.'

[Tallerman, CH 8, EX 43]

- The relative clause follows the head noun and there is not a special relative marker. [SM = subject marker]

## Externally headed Relative clauses

*Yimas*: spoken in Papua New Guinea

**ŋaykum** [irut m-naampa-nt-um]

**women** mat REL-weave-PRES-3pl

'the women who are weaving the mats' [Tallerman, CH 8, EX 44]

- Again, the relative clause follows the head noun but there's a relative affix on the verb.

## Externally headed Relative clauses

### *Japanese*

[kimura-san-ga     katte-iru]     inu  
Kimura-Mr.-NOM     keeps-NONPAST     dog

‘the dog that Mr. Kimura keeps’

[Tallerman, CH 8, EX 45]

- Here, we have an externally headed relative clause but the clause precedes the head noun.
- This is common in head-final languages; Japanese is SOV.
- As in Tinrin, there’s no relative marker.

# Relative clauses with resumptive pronouns

Sometimes, there is a **resumptive pronoun** in the place where other languages have a gap.

*Hausa* (spoken in West Africa)

wuqad [da ya kashe ta da ita]

knife REL he killed her with it

‘the knife that he killed her with’ [Tallerman, CH 8, EX 52]

- This is an externally-headed relative clause.
- There is a relative marker at the start of the relative clause and a pronoun in the position of *knife*.



- In some languages, the head noun is inside of the CP. This is the much rarer pattern.

## Internally headed Relative clauses

*Bambara* (also spoken in West Africa)

tye ye [ne ye so min ye] san

man PAST I PAST horse which see buy

‘The man bought the horse which I saw.’ [Tallerman, CH 8, EX 51]

# Some interesting relative clauses in English


- “A problem where the numbers just don’t add up”
  - “A presentation where you really need to show where you’re going”
  - “That little hopping dance she does where she totally looks like Snoopy from the Christmas Special”
- 
- There’s no gap!

Data from Dan Brodtkin’s (class of 2018) presentation at the Undergraduate Linguistics Colloquium at Harvard (spring 2016)

# And sometimes English uses a resumptive pronoun

- “A problem<sub>i</sub> where you can’t just solve it<sub>i</sub> with force”
- “Those giant new phones<sub>i</sub> where you can’t even get your hand to fit around them<sub>i</sub>.”
- “Subjects<sub>i</sub> where you don’t even know anything about them<sub>i</sub>.”
- “Those cool chairs<sub>i</sub> where they<sub>i</sub> just sorta mould to fit you when you sit in them<sub>i</sub>.”

Data from Dan Brodtkin’s (class of 2018) presentation at the Undergraduate Linguistics Colloquium at Harvard (spring 2016)



## Other movement to Spec,CP: Focus/Topicalization and Exclamatives

- Relative clauses, Cheron's students already understand. Infinitives, they will soon learn about.
- What a strong swimmer Kim is.
- How tired I feel these days.

[Tallerman, CH 8, EX 53-54]

[See Tallerman, Chapter 8.2 for some cross-linguistic data]

## Summary

- Features encode information and can establish relationships between items in the structure
- Languages can be either Wh movement, Wh in situ, or both.
  - Wh Movement languages place restrictions, Island Constraints, on the movement of Wh phrases
- West Ulster English overtly illustrates the Minimal Link Condition
- Relative clauses are analyzed as patterning like WH questions, even if there is no Wh word.

# Practice

1. She snarled at the students who had not read the book.
2. The storm we had last night was amazing.
3. Which house that the realtor sold yesterday did the young couple actually want?
4. The application forms that arrived yesterday look quite hard.
5. Kim finished an article Lee had started.
6. The wine that got rave reviews was quickly purchased.
7. Jesse did not know the place where Hank had buried the money.
8. Which meal that Cherlon cooked was the most fantastic thing on earth?