A DEEPER LOOK AT WH MOVEMENT

25 -28 January
Our Roadmap

• 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]
Welsh: spoken by almost 600,000 people in Ireland and the UK

**Statements**

Mae wyau’n dod o ieir. is eggs–PROG come from hens ‘Eggs come from hens.’

Gwelais i ddraig yn yr ardd. saw:1sg I dragon in the garden ‘I saw a dragon in the garden.’

**Questions**

O ba greadur mae wyau’n dod. from what creature is eggs–PROG come ‘What creature do eggs come from?’

Beth welaiest ti yn yr ardd. what saw:2sg you in the garden ‘What did you see in the garden?’

WH MOVEMENT

[Understanding Syntax, CH 8, EX 7–8]
Mandarin
(a) Ni kanjian-le Zhangsan.
   you see-ASP Zhangsan
   ‘You saw Zhangsan.’

(b) Ni kanjian-le shei?
   you see-ASP who
   ‘Who did you see?’

Japanese
(c) Hanako-ga kinoo tomodati-to susi-o tukurimasita.
   Hanako-Nom yesterday friend-with sushi-Acc made
   ‘Hanako made sushi with her friends yesterday.’

(d) Hanako-ga kinoo dare-to susi-o tukurimasita ka.
   Hanako-Nom yesterday who-with sushi-Acc made QU
   ‘Who did Hanako made sushi with yesterday.’

(e) 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?’
Tu vois Pierre ce soir.  
‘You’re seeing Pierre tonight.’

Qui tu vois ce soir?  
‘Who are you seeing tonight?’

Tu vois qui ce soir?  
‘Who are you seeing tonight?’

[Understanding Syntax, CH 8, EX 15&16]
**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
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?
- 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?”

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

[Bulgarian has relatively free word order in statements (SVO is the general order), but multiple Whs are in a fixed order – subject, indirect object, direct object.]
The C head has two pieces of information.
• [+Q] identifies the clause as a question.

• [+WH] specifies that the clause is a WH question (as opposed to a yes-no question).

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

• The object DP is assigned accusative case by the verb, even though many speakers say who.
Embedded WHs

• Also move to Spec, CP.
• But, no T ⇒ C in embedded clauses.
  • *I wonder who(m) has Jim kissed?
  • I wonder who(m) Jim has kissed.

• 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.
• The WH stops off in Spec, CP of the lower clause before moving up to the higher clause.

• *We’ll return to this*...

Who/Whom do you think Jim kissed?

The embedded C is [-WH]. The WH travels up to the main clause Spec, CP.
WH PHRASES CAN’T MOVE TO SPEC, CP WHENEVER THEY WANT: THEY’RE TRAPPED ON ISLANDS
The Complex DP Constraint

(a) What did Bill claim that he read \( t_i \) 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 did Bill make \([_{DP} \text{the claim } [_{CP} \text{that he read } t_i \text{ in the syntax book}]]\)?
   - *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] did you see \([_{DP} \text{the man } [_{CP} \text{who baked } t_i]]\)?
   - 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) \([_{CP} \text{That the police would arrest several rioters}] \) was a certainty.
(b) * Who \(_i\) was \(_j\) \([_{CP} \text{that the police would arrest } t_i]\) \(_j\) a certainty?  \([\text{EX 49}]\)
The Coordinate Structure Constraint

(a) Cherlon saw \([_{DP} [_{DP} Bohemian Rhapsody]] \) and \([_{DP} Green Book]]\).

(b) *Which other movie did Cherlon see Bohemian Rhapsody and ___?

(c) *Which other movie did Cherlon see ___ and Green Book?

(d) She \([_{VP} [_{VP} ate some popcorn]] \) and \([_{VP} drank some soda]]\).

(e) *What did she eat ___ and drink some soda?

(f) *What did she eat some popcorn and drink ___?

- 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$_i$ John bought $t_i$ with the $20 bill.
(b) How$_i$ do you think John bought the sweater $t_i$?
(c) *How do you wonder what John bought?
(d) *What do you wonder how John bought? [EX 40-43]

- Deep structure for the embedded clause = *John bought what how?
- In c/d, 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 WH that has moved to the lower Spec,CP.
  - 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]

Who/Whom do you think Jim kissed?
West Ulster English

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*]
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 WH Island effects.
- A WH has to land in the closest Spec,CP – but it can’t if another WH has already landed there.
Minimal Link Violations

The MLC also applies to DP movement:

(a) It seems that Mark$_i$ is likely t$_i$ to have left.
   - Good! Mark moves to the next position where nominative case is available.

(b) *Mark seems that is likely t$_i$ 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$_i$ 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.
[+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, \textit{and} WH and Q features. \textbf{Remember}: 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. What films were not nominated by the Academy?
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 did you say that you think the server just recommended?
6. Who do you suspect applied for the internship?

Part 2. Why are the following sentences ungrammatical? Write/draw the deep structure and explain what goes wrong when we try to get to the surface.

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

Introducing “Operators”
CPs that modify factive/contentful nouns (e.g. fact/claim) are complements of the noun.

a. The fact that I like begonia-flavored milkshakes is none of your business.

b. She made the outrageous claim that tuna-flavored milkshakes are good for you.  [Carnie, Chapter 12, EX 27]

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...

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 \([_{DP} \text{several people} \ [_{CP} \text{(that) she kissed} \text{Op}].\]

   b. I know I bought \([_{DP} \text{the book} \ [_{CP} \text{(that) you recommended} \text{Op}].\]

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

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−naamp̪a−nt−um]
women mat REL−weave−PRES−3pl
‘the women who are weaving the mats’  [Tallerman, CH 8, EX 44]

- The relative clause follows the head noun and 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’

- 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.

[Tallerman, CH 8, EX 45]
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]

- 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)

tyé 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]
Japanese is argued to have both externally and internally headed relative clauses

EXTERNAL

   prof. Sato-NOM student-NOM [article],i wrote article,-ACC is.reading
   ‘Prof. Sato is reading the article that the student wrote.’

INTERNAL

b. Sono omawari-wa [gakuseitati-ga CIA-no supai-o kumihu-seita]-no-o utikorosita.
   that cop-TOP students-Nom CIA-GEN spy-ACC hold down-one-ACC shoot/killed
   ‘The cop shot and killed the students who held down the CIA spy.’ OR
   ‘The cop shot and killed the CIA spy who the students held down.’

Some interesting constructions 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.
- The *where-clause* specifies the content of the head noun, just like other examples of gapless complements to nouns in English.

Data from Dan Brodkin’s (class of 2018) presentation at the Undergraduate Linguistics Colloquium at Harvard (spring 2016)
And sometimes English uses a resumptive pronoun

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

Data from Dan Brodkin’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, Cherlon’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]
- Features encode information and can establish relationships between items in the structure.

- Languages can be either Wh movement, Wh in situ, or both.

Summary

- Island Constraints describe restrictions 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.
1. The professor snarled at the students who had not read the syntax chapters.

2. The storm we had last night was amazing.

3. Which restaurant that recently opened does every food critic hope to eat at?

4. Some researchers who received grant funding hired graduate assistants.

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?