The syntax and semantics of questions
Spring 1999
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Week 1: Questions and typologies

Syntax and semantics—question formation in English

(1) John bought a book.

(2) What did John buy?

(3) * John bought what?

(4) • what appears initially, not in its interpretation position (argument of buy).
   • For which x, John bought x?

[what], did John buy x.

A common hypothesis: Wh-movement is semantically driven. It happens in order to create an operator-variable structure. Semantics of wh-questions require an Op-vbl structure.

But trouble arises immediately: Even in questions with multiple-wh-words, in English we move only one.

(5) What did John give to whom?

How is the second wh-word interpreted? Doesn’t it too need an Op-vbl structure?

(6) a. I wonder who saw what.
   b. I wonder for which x, for which y, someone x saw something y.

(7) Assign an unmoved wh-phrase to an existing +WH COMP and interpret it in the same way moved wh-phrases are interpreted.

(Chomsky’s 1973:283 (249) paraphrased)

That is, even if the wh-word doesn’t move, you link it up with a clause and interpret it as if it had moved.

But if wh-words can be interpreted without moving them, this undercuts the idea that wh-movement is driven for semantic reasons.

Two ways to go:
• wh-words always move, but sometimes “covertly.”
• wh-movement (for all wh-words) is not semantically motivated.

Position One: Wh-words always move (Huang 1982)

• Even when wh-words appear in situ, they “move covertly.”
• Unifies the interpretation of wh-words (also across languages).
• Predicts properties of movement even where movement is covert.

Bulgarian: Move all wh-words (incidentally, keeping them in order)

(8) John e vidjal Mary.
   John has seen Mary
   ‘John has seen Mary’

(9) koj kogo e vidjal?
   who whom has seen
   ‘Who has seen whom?’

(10) (?)* koj e vidjal kogo?
    who has seen whom
    (‘Who has seen whom?’)

(11) * kogo koj e vidjal?
     whom who has seen
     (‘Who has seen whom?’)

Japanese: Move no wh-words.

(12) John-ga hon-o katta.
   John-NOM book-ACC bought
   ‘John bought a book.’

(13) John-ga nani-o katta no?
    John-NOM what-ACC bought Q
    ‘What did John buy?’

(14) dare-ga nani-o katta no?
    who-NOM what-ACC bought Q
    ‘Who bought what?’

A (rough) typology of (overt) wh-movement

<table>
<thead>
<tr>
<th>wh-movement</th>
<th>Move a single wh-word (English, French, …)</th>
</tr>
</thead>
<tbody>
<tr>
<td>wh-in-situ</td>
<td>Move all wh-words (Bulgarian, Polish, …)</td>
</tr>
<tr>
<td></td>
<td>Move no wh-words (Chinese, Japanese, …)</td>
</tr>
</tbody>
</table>

Under “Position One” all of these languages look like Bulgarian at Logical Form. (hence, we can get away with a single mechanism of interpretation).
The view of syntax position one suggests (derivationally at least):

<table>
<thead>
<tr>
<th>(some initial state)</th>
<th>Typology of wh-movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>“base generated” structure</td>
<td></td>
</tr>
<tr>
<td>movement (“overt”)</td>
<td>• English, …</td>
</tr>
<tr>
<td>Spellout (≈“S-structure”)</td>
<td>one wh-word before</td>
</tr>
<tr>
<td>movement (“covert”)</td>
<td>Spellout, the rest after.</td>
</tr>
<tr>
<td>PF (pronounced)</td>
<td>• Bulgarian, …</td>
</tr>
<tr>
<td>LF (interpreted)</td>
<td>all wh-words before</td>
</tr>
<tr>
<td></td>
<td>Spellout.</td>
</tr>
<tr>
<td>• Japanese, …</td>
<td>all wh-words after</td>
</tr>
<tr>
<td></td>
<td>Spellout.</td>
</tr>
</tbody>
</table>

Position Two: Wh-words only move when you see them move.

• Movement of (all) wh-words cannot be driven by semantics
  (assuming that all languages share the same interpretive principles)
• Requires either: two ways to interpret a wh-word (moved, in-situ)
  or: uniform interpretation of wh-words *in situ*
  (‘putting back’ moved wh-words).

# • Predicts properties of moved wh-words may differ from those of wh-in-situ.

Still: What causes the typology (all, one, none) of wh-movement?
Under Position Two this is a question which is basically orthogonal to semantics.

A very common view of the typology:

<table>
<thead>
<tr>
<th>Parm. Q</th>
<th>Parm. W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Every question needs a wh-word in front?</td>
<td>Yes</td>
</tr>
<tr>
<td>Every wh-word needs to be in front?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

An analysis to get us started: Ackema & Neeleman 1998 (NLLT 16:443–490)

Q-MARKING:
In a question, assign a [+Q] feature to the constituent corresponding to the proposition.

An *overt* head can assign a feature to its XP complement. That feature can be *inherited* from an element in its Spec.

Q-SCOPE:
[+Q] elements must c-command the constituent corresponding to the proposition.

STAY:
Do not move (over any distance).

(Q) Every question needs a wh-word in front? Yes, if Q-MARKING outranks STAY.
(W) Every wh-word needs to be in front? Yes, if Q-SCOPE outranks STAY.

So, we have the following 6 permutations of these three constraints (yielding 4 results).

1. Q-MARKING >> STAY >> Q-SCOPE = Move one (English)
2a. Q-MARKING >> Q-SCOPE >> STAY = Move all (Bulgarian)
2b. Q-SCOPE >> Q-MARKING >> STAY = Move all (Bulgarian too)
3. Q-SCOPE >> STAY >> Q-MARKING = Move all (Czech—we’ll see later)
4a. STAY >> Q-MARKING >> Q-SCOPE = Move none (Japanese)
4b. STAY >> Q-SCOPE >> Q-MARKING = Move none (Japanese too)

Japanese: STAY >> Q-MARKING >> Q-SCOPE or STAY >> Q-SCOPE >> Q-MARKING

Clearly, if STAY is highest ranked, nothing will drive movement; everything stays *in situ*.

English: Q-MARKING >> STAY >> Q-SCOPE

What have you seen?

<table>
<thead>
<tr>
<th>Q-MARKING</th>
<th>STAY</th>
<th>Q-SCOPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 a. what, have, [prop you t seen t j] ?</td>
<td>✗ ✓</td>
<td>✡ ✡ ✡</td>
</tr>
<tr>
<td>b. [prop you have seen what] ?</td>
<td>✗!</td>
<td>✓ *</td>
</tr>
<tr>
<td>c. what, [prop you have seen t j] ?</td>
<td>✗!</td>
<td>✡ ✡ ✗</td>
</tr>
<tr>
<td>d. have, [prop you t seen what] ?</td>
<td>✗!</td>
<td>✡ ✡ ✡ *</td>
</tr>
</tbody>
</table>
Who has seen what?

<table>
<thead>
<tr>
<th></th>
<th>Q-Marking</th>
<th>Stay</th>
<th>Q-Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>(16) a.</td>
<td>Q-MARKING</td>
<td>STAY</td>
<td>Q-SCOPE</td>
</tr>
<tr>
<td>b.</td>
<td>+Q</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>c.</td>
<td>+Q</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>d.</td>
<td>+Q</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>e.</td>
<td>+Q</td>
<td>*</td>
<td>**</td>
</tr>
</tbody>
</table>

Bulgarian: Q-MARKING >> Q-SCOPE >> STAY or Q-SCOPE >> Q-MARKING >> STAY

As long as Q-SCOPE >> STAY, all 'wh'-words have to move to "outside the proposition."

Since Q-MARKING >> STAY, the verb must move to a higher F (to be in a position to "mark" the "proposition") and at least one 'wh'-word has to be in a higher SpecFP (to transfer [+Q] to F°).

Inversion, as predicted:

(17) a. Kakvo kupuva John?
    'What does John buy?'

b. * Kakvo John kupuva?
    'What John buys ("What does John buy?)'

Also, STAY has some subtle effects, despite being lowest ranked—Less movement is still preferred to more movement, so long as the needs of Q-SCOPE and Q-MARKING are met.

Ackema & Neeleman propose a particular measure of distance that works like this:

- The length of a chain is the length of the path that connects the head and the tail of the chain.
- A path is a set of (distinct) nodes you'd cross if you drew a line on the tree connecting them (in the shortest way possible).

(Actually, there is a domination requirement that ends up making the path consist of connected sub-paths when the head and the tail don't strictly c-command each other, but that's irrelevant for us).

(18) The path between A and its trace has length 3. (crossing YP twice counts only once).

(19) Total: 10

(20) Total: 11 [12]

(21) Total: 9 [10]
Bottom line:
If you’re going to move multiple *wh*-words, it’s cheaper to adjoin them as you go.

And, there seems to be evidence that the *wh*-words form a constituent in Bulgarian.
(these data are discussed most famously in Rudin, *NLLT* 1988).

One argument: You can’t insert an adverbial between the *wh*-phrases.

(22) a. Zavisi ot tova, *koj kogo prův e udaril* depends on this who whom first has hit
‘It depends on who hit whom first.’

b. * Zavisi ot tova, *koj prův kogo e udaril* depends on this *who first whom* has hit
(‘It depends on who hit whom first.’)

Another argument: Affixes affix to the whole constituent (or to each member).

(23) a. Kojto kakvoto iska … who-TO what-TO wants
‘Whoever wants whatever…’

b. Koj kakvoto iska … who what-TO wants
‘Whoever wants whatever…’

c. * Kojto kakvo iska … who-TO what wants
(‘Whoever wants whatever…’)

Note: Unlike in Bulgarian, the *wh*-words do not make up an inseparable constituent.

Second position clitics follow the first *wh*-word in a series:

(25) a. Kdo ho kde viděl je nejasné who him where saw is unclear
‘It is unclear who saw him where.’

b. * Kdo kde ho viděl je nejasné who first whom saw is unclear
(‘It is unclear who saw him where.’)

Parentheticals can appear between *wh*-words:

(26) a. Kdo, podle tebe, co komu dal ? who according to you what to whom gave
‘Who, according to you, gave what to whom?’

b. Kdo co, podle tebe, komu dal ? who what according to you to whom gave
‘Who, according to you, gave what to whom?’

As can adverbials:

(27) a. Kdo rychle co komu dal ? who quickly what to whom gave
‘Who quickly gave what to whom?’

b. Kdo co rychle komu dal ? who what quickly to whom gave
‘Who quickly gave what to whom?’

Where we are—

We have an analysis of the *wh*-movement typology in terms of three constraints.

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-MARKING</td>
<td>A question needs a fronted <em>wh</em>-word.</td>
<td>Q-MARKING a.k.a.</td>
</tr>
<tr>
<td>Q-SCOPE</td>
<td>A <em>wh</em>-word needs to be fronted.</td>
<td>Q-SCOPE a.k.a.</td>
</tr>
<tr>
<td>STAY</td>
<td>Front nothing.</td>
<td>STAY a.k.a.</td>
</tr>
</tbody>
</table>

The six relative rankings yield only four distinguishable languages, all attested.
Some other attested *wh*-behaviors:

- **Irish, Italian—Do not allow multiple *wh*-questions at all. (!)**
  
  Q-MARKING >> PARSE
  
  ‘It’s better to say nothing than to fail to mark the proposition with each and every *wh*-phrase’ (based on a revision of Q-MARKING)

- **French, Malay, Arabic—Both *in situ* and *wh*-movement options?**
  One option: STAY << Q-MARKING (equal ranking)
  Another option: *Wh*-movement & *in situ* options have different inputs—not compared (so, not really optional).
  E.g., one is a cleft/focus construction, one isn’t.

### Zooming in on the constraints—

**Q-MARKING:**

In a question, assign a [+Q] feature to the constituent corresponding to the proposition.

**Q-SCOPE:**

[+Q] elements must c-command the constituent corresponding to the proposition.

They seem to work, but why? There seems to be an intuition that semantics is involved. (What is the role of the “proposition”? Ackema & Neeleman say nothing further about it)

### Big question:

What is the connection between the output structure and its interpretation? i.e., (How) is semantics read off the representation?

**ACKEMA & NEELEMAN on Chinese & Japanese:**

- *Wh*-words are interpreted by a c-commanding operator outside the proposition.
- So, for interpretation, there must always be at least one *wh*-word that moves.
- That means in Chinese & Japanese, there is another level (“LF”) at which the *wh*-word moves.

But what motivates these beliefs?

What makes us think “at least one *wh*-word must move” for the semantics to work out?

What makes us think “all *wh*-words must move” for the semantics to work out?

(Remember these questions, but for now we’ll stick to syntax—)

**The case for and against “covert movement” of *wh*-in-situ (Simpson 1995, ch. 1)**

The basic question:

Should we believe that the relation between a *wh*-word in situ and its “scope position” is one created by movement?

**For?**

A. *What did John buy?* kind of looks like ‘For which *x*, John bought *x’…

B. “Strong crossover”

(28) a. *Who, did he, say t, had bought the Porsche?*

   a’. Who, said he, had bought the Porsche?

b. *When did he, say Mary helped who i ?*

C. “D-Linking” (we’ll discuss Pesetsky 1987 in more detail later)

   - Proposal: Some *wh*-phrases do not need to move (“discourse linked” ones).
   - That’s why *Which book did which student read?* forces a certain kind of reading on *which student* (at least): Must have a set of students in mind.
   - Compare *Which student read which book?* or *Who read what?*

   (Not an easy judgment, but probably there’s something to it…)

   - The distinction looks like movement (e.g., island sensitive) vs. not.

D. Certain *wh*-adjuncts (‘how’, ‘why’) tend to be unable to be in situ inside islands.

   Idea: movement of adjuncts is harder, so this suggests *wh*-adjuncts in situ move.

(29) a. *[[ Ta weishenme xie] de shu] zui you-yisi ne? (Chinese)*

   he why write REL book most interesting Q

   (‘For what reason is a book that he wrote for the most interesting?’)

   AGAINST! (Overt movement and “covert movement” just have different properties.)

   A. *Wh*-words in situ tend not to respect islands (a crucial property of movement)

   (30) a. *Who did John meet [ after investigating [ the rumor about what ]]?*

   b. *What did John meet Mary [ after investigating [ the rumor about t ]] ?*

   - Often taken to be evidence that “covert movement doesn’t obey Subjacency” but that’s not clearly better than “*wh*-words in situ don’t actually move.”

   - Another approach suggests that if a *wh*-word is in situ inside an island, the island moves at LF (lots more about this later). Hence: no island effects.

   B. only and moved elements: you can’t move the associate of only away.

(31) a. He only likes Mary. *(only can associate either with likes or Mary)*

   b. Mary, he only likes t. *(only associates with likes)*
But consider the following:

(32) a. Who does Mary only like?  
   (only associates with like)

   b. Which girl said she only liked what?  
   (only can associate with what)

C. Movement and licensing parasitic gaps.

(33) a. What did John send off without having copied?  
   b. * Who did John give what without having copied?

D. LF movement doesn’t obey the ECP either? (CF. Chinese (29))

Ancash Quechua:

(34) a. * Pi-taq Fuan musyan [ t i, tanta-ta ruranqan-ta ]? (Ancash Q)  
   who-Q Juan knows bread-ACC made-ACC  
   (Who does Juan know that made bread?)

   b. Fuan musyan [ pi tanta-ta ruranqan-ta ]?  
   Juan knows who bread-ACC made-ACC  
   ‘Who does Juan know made bread?’

Chinese (only some adjuncts disallowed in islands; ‘means how’ ok, not ‘manner how’):

   you more like he how cook REL food  
   ‘What is the means x such that you prefer the dishes which he cooks by x?’

E. Anaphor-antecedent binding relations (act like things in situ stay in situ)

   b. * John wondered when Mary saw [ which pictures of himself ] .

The question of interpretation of questions

First, let’s suppose with the rest of the world that wh-questions require  
an operator binding a variable:

(37) What did John buy?  
   (‘For what value of x is it true that John bought x?’)

Most people suppose that movement yields an operator-variable structure.  
Where there is no overt movement, people disagree:

   Approach 1: There is covert movement, both work the same way.

   Approach 2: wh-words can be variables (when in situ) bound by something else.  
   E.g., simultaneous binding by a moved wh-word, or  
   binding from a ‘+Q complementizer.’

   Approach 1.5: A wh-word can be bound by a “scope marker” which occupies  
   the same position as a moved wh-word would, but is base-generated  
   there.

But there are even problems with overt movement creating Op-vbl structure…

Chomsky (1977:83) noticed that the idea that the moved wh-phrase is an operator  
controlling a variable does not work in its simplest form.

(38) Whose book did Mary read _ ?

(39) a. For which x, x a person, Mary read [x’s book]  
   b. not For which x, x a book (owned) by somebody, Mary read x

That is, some material within the NP whose book has to be put back for interpretation.

(40) Who se book did Mary read [ _ se book ] ?

   Overt wh-movement in English moves more than is necessary for interpretation!

Another argument that reaches the same conclusion from Rullmann & Beck (1997)—  
We’ll read this & talk about it more later, but here’s a preview if there’s time left.

(41) Bill caught the Loch Ness Monster.

Presupposition: By saying this, you presuppose that there is a unique LNM.

(42) a. Did Bill catch the Loch Ness Monster?  
   b. Have you stopped stealing office supplies?
Presupposition projection—
Embed a sentence within another sentence (e.g., I know that S).
If S has certain presuppositions, I know that S will too.
Exactly what presuppositions “project” depend on the verb:

(43) John knows Bill caught the Loch Ness Monster.
    # There is no Loch Ness Monster.
(44) John thinks Bill caught the Loch Ness Monster.
    There is no Loch Ness Monster. (John has mistaken beliefs)
(45) John managed to catch the Loch Ness Monster.
    # There is no Loch Ness Monster.
(46) John wants to catch the Loch Ness Monster.
    There is no Loch Ness Monster (John has mistaken beliefs)

If $p$ presupposes $q$.
\[
\begin{align*}
    x & \text{ wants that } p & \text{ presupposes } & x & \text{ believes that } q. & \text{(“filter”) } \\
    x & \text{ knows that } p & \text{ presupposes } & q. & \text{(“hole”)}
\end{align*}
\]

John want [ {presuppose: $\exists$! LNM} John catch LNM ]
\{presuppose: John believes $\exists$! LNM} [John wants [John catch LNM ] ]

John manage [ {presuppose: $\exists$! LNM} John catch LNM ]
\{presuppose: $\exists$! LNM} [John manage [ John catch LNM ] ]

Which-phrases seem to have the similar presuppositions to definite the-phrases.

(47) Which book did you buy?
    # There are no books.
    # Homicide: A Year on the Killing Streets and The Corner.
(48) Which unicorn does Bill want to catch?
    (We’ll humor him; Bill thinks there are [distinguishable] unicorns,
    although we know there are no such beasts)
(49) Which unicorn does John think Bill caught?
    (We’ll humor him; John thinks there are [distinguishable] unicorns,
    although we know there are no such beasts)
(50) Which unicorn did Bill manage to catch?
    # (We’ll humor him; Bill thinks there are [distinguishable] unicorns,
    although we know there are no such beasts)
(51) Which unicorn does John know Bill caught?
    # (We’ll humor him; John thinks there are [distinguishable] unicorns,
    although we know there are no such beasts)

Which-phrases have an existence presupposition.
This presupposition is interpreted in the scope of the matrix verb
—even if the which-phrase has overtly moved out of its scope.
Point: Wh-words are actually interpreted in situ.
(So clearly wh-motion can’t be driven by interpretation, right?)

Some papers I may have mentioned: