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?
     \[ \text{For which } x, \text{ John bought } x. \]

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.
  (there is some alternate way to interpret a wh-in-situ)

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

Under “Position One” all of these languages look like Bulgarian at Logical Form. (hence, we can get away with a single crosslinguistic mechanism of interpretation).

The view of syntax position one suggests:

<table>
<thead>
<tr>
<th>{some initial state}</th>
<th>Typology of <em>wh</em>-movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>“base generated” structure</td>
<td>• English, …</td>
</tr>
<tr>
<td>movement (“overt”)</td>
<td>one <em>wh</em>-word before Spellout, the rest after</td>
</tr>
<tr>
<td>Spellout (≈“S-structure”)</td>
<td>• Bulgarian, …</td>
</tr>
<tr>
<td>movement (“covert”)</td>
<td>all <em>wh</em>-words before Spellout</td>
</tr>
<tr>
<td>LF (pronounced)</td>
<td>• Japanese, …</td>
</tr>
<tr>
<td>PF (interpreted)</td>
<td>all <em>wh</em>-words after 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 (and “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>Every question needs a <em>wh</em>-word in front?</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Some languages appear to fall somewhere in the middle though—[W:−, Q: ±]

(15) a.  *Qu’a-t-il donné à qui ?*  
> *What did he give to whom?*

b.  *Il a donné quoi à qui ?*  
> *He has given what to whom*

The question of interpretation of questions

First, let’s suppose with the rest of the world, for the sake of argument that *wh*-questions require an operator binding a variable in their interpretation.

(16)  *What i did John buy t ?*  
> (“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.

(17)  *Whose book did Mary read ?*  

(18) 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.

(19) **Who** *se book* did Mary read [*se book*]?
    
For which *x*?: Mary read [*x’s book*].

(Rudin 1998 *(NLLT 6:445–501)* (fairly abbreviated))

There are many languages which move all of their *wh*-words to the front. Including Bulgarian, Romanian, Serbo-Croatian, Czech, Polish…

But they seem to fall into two classes with respect to certain phenomena. These languages seem to differ in *how many* *wh*-words can be in SpecCP.

This means we have another parameter to differentiate languages:

<table>
<thead>
<tr>
<th>Parm. MFS</th>
<th>SpecCP can be “multiply filled”</th>
<th>Bulgarian</th>
<th>Czech</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

The implications of having the ability to “multiply fill” SpecCP like this are several.

- [+MFS] languages allow (require) all *wh*-words to move out of an embedded clause in a matrix question.
- [+MFS] languages are exempt from *wh*-island effects (both because having something in SpecCP doesn’t “fill it up”)
- All of the *wh*-words together should form a constituent in [+MFS] languages.

Multiple extraction out of a clause and wh-island violations out in [–MFS] languages…

(20) **Cine cui ce ziceai [că i –a promis ]?** *(Romanian)*
    who *to whom* what said-2s [that to-him has promised] [+MFS]
    ‘Who did you say promised what to whom?’

(21) a. **Vidjah edna kniša, [koj znae [koj prodova t_i]]?** *(BG)*
    saw-1s a book *which* wonder-1s *who* knows *who* sells [+MFS]
    ‘I saw a book which I wonder who knows who sells (it).’
    
    b. **? Koja ot tezi kniši se čudiš [koj znae [koj prodova t_i]]?** *(BG)*
    *which of these books* wonder-2S *who* knows *who* sells
    ‘Which of these books do you wonder who knows who sells?’

Multiple extraction out of a clause and wh-island violations out in [–MFS] languages…

(22) a. **Ko želite [da vam šta kupi ]?** *(Serbo-Croatian)*
    who want-2p to you what buy-3s [+MFS]
    ‘Who do you want to buy you what?’
    
    b. * **Ko šta želite [da vam kupi ]?** *(Serbo-Croatian)*
    who what want-2p to you buy-3s [–MFS]
    ‘Who do you want to buy you what?’

Note in (22), šta ‘what’ has moved inside the lower clause to the position usually occupied by focused elements.

(23) *(Serbo-Croatian)*
    * ...osoba, koja sam ti rekao gde (on) živi...*
    ...the individual who you asked me where (he) lives.

Constituency—all of the *wh*-words in SpecCP should form a constituent for [+MFS].

(24) a. **Zavisi ot tova, koj kogo pruž e udaril** *(Bulgarian)*
    depends on this *who whom* first has hit [+MFS]
    ‘It depends on who hit whom first.’
    
    b. * **Zavisi ot tova, koj pruž kogo e udaril** *(Bulgarian)*
    depends on this *who first whom* has hit [–MFS]
    ‘It depends on who hit whom first.’
That is: All of the *wh*-words in Bulgarian seem to form an uninterruptible chunk.

That is: All of the *wh*-words in Bulgarian seem to form an uninterruptible chunk.

And in [–MFS] languages, we’d expect the first *wh*-word should be separate and the whole cluster of *wh*-words should not act as a constituent.

Second position clitics follow the first *wh*-word in a series, and sound bad after the whole group. Parentheticals can appear between *wh*-words, as can adverbials.

This suggests that in Czech (i.e. [–MFS] languages), one *wh*-word goes to SpecCP (like in English), and the rest adjoin to IP (quite possibly in a “focus” position).

In Bulgarian, the *wh*-words have to stay in order:

<table>
<thead>
<tr>
<th>26</th>
<th>a.</th>
<th>Kojto kakvoto iska …</th>
<th>Bulgarian</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b.</td>
<td>Koj kakvoto iska …</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>who what wants</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c.</td>
<td>* Kojto kakvo iska …</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>who what wants</td>
<td></td>
</tr>
</tbody>
</table>

| 27 | a. | Ko je koga prvi udario? | (Serbo-Croatian) |
|    | b. | Ko je prvi koga udario? | (Serbo-Croatian) |
|    |    | who has whom first hit |           |
|    |    | ‘Who hit whom first?’  |           |

| 28 | a. | Kdo ho kde viduľ je nejasné | (Czech) |
|    | b. | * Kdo kde ho viduľ je nejasné | (Czech) |
|    |    | who him$_{3}$ where saw is unclear | [–MFS] |
|    |    | ‘It is unclear who saw him.’  |           |

| 29 | a. | Kdo, podle tebe, co komu dal? | (Czech) |
|    | b. | Kdo co, podle tebe, komu dal? | (Czech) |
|    |    | who according to you what to whom gave | [–MFS] |
|    |    | ‘Who, according to you, gave what to whom?’ |           |

| 30 | a. | Kdo rychle co komu dal? | (Czech) |
|    | b. | Kdo co rychle komu dal? | (Czech) |
|    |    | who what quickly to whom gave | [–MFS] |
|    |    | ‘Who quickly gave what to whom?’ |           |

| 31 | Spec kdo CP |
|    | C′ Spec | C |
|    | IP Adv rychle co IP |
|    | IP komu |

| Superiority |
| English: “Move one *wh*-word” means “move the one closes to the top of the structure” |

| 32 | a. | Who will John persuade to buy what? |
|    | b. | * What will John persuade to buy? |

| 33 | a. | What did John give to who(m)? |
|    | b. | * Who(m) did John give what to? |

| 34 | a. | Koj kogo običa? | (Bulgarian) |
|    |    | who whom | [+MFS] |
|    |    | loves     |           |
|    |    | ‘Who loves whom?’ |           |
b. * Kogo koj običa?
   whom who loves
   (‘Who loves whom?’) (Bulgarian)

(35) a. Koj kogo kazvače e nabil?
   who whom say that is beaten
   ‘Who do you say beat whom?’

b. * Kogo koj kazvače e nabil?
   whom who say that is beaten
   (‘Who do you say beat whom?’) (Bulgarian)

But in Serbo-Croatian (one wh-word into SpecCP, the rest front to above IP), the wh-
words can be in any order in simple (one-clause) sentences:

(36) a. Ko koga voli?
   whom whom loves
   ‘Who loves whom?’

b. Koga ko voli?
   whom whom loves
   ‘Who loves whom?’

(Serbo-Croatian)

Rudin doesn’t discuss this, but the wh-words even in S-C have to stay in order if they are
both coming out of a lower clause.

(37) a. ? Kogo koga tvrdiš da je istukao?
   whom whom claim that is beaten
   ‘Who do you claim beat whom?’

b. * Koga ko tvrdiš da je istukao?
   whom whom claim that is beaten
   (‘Who do you claim beat whom?’)

(Serbo-Croatian)

Where are we?

It seems like we can classify languages of the multiple wh-movement type into two
groups. One moves all wh-words into SpecCP, one moves all wh-words but not
necessarily into SpecCP—perhaps for focus-related reasons.

Parm E SC P B J
Q Question needs a wh-word in SpecCP Y Y N ? N
WF Wh-words need to be in front N Y Y ? N
MFS SpecCP can hold many wh-words N N N Y N

Ah, if only it were that straightforward…
But first… “Partial” wh-movement—German (McDaniel 1989, NLLT)

(42) a. Mit wem glaubst du dass Maria gesprochen hat?  
   with whom believe you that Maria spoken has  
   ‘Who do you think Maria has spoken to?’

   b. Was glaubst du mit wem Maria gesprochen hat?  
   what think you with whom Mary spoken has  
   ‘Who do you think Mary has spoken to?’

(43) a. [Mit wem], glaubst [u du] [cr t, dass [ur Hans meint [cr t, dass  
   with whom believe you that Hans thinks that  
   [ur Jakob t, gesprochen hat]]]]?  
   ‘With whom do you believe that Hans thinks that Jakob talked has’

   b. Was, glaubst [ur du] [cr [mit wem]], [ur Hans meint [cr t, dass  
   what believe you with whom Mary think that  
   [ur Jakob t, gesprochen hat]]]?  
   ‘Who do you think that Mary thinks Jakob talked has?’

   c. Was, glaubst [ur du] [cr was], [ur Hans meint [cr [mit wem],  
   what think you that Mary think that  
   [ur Jakob t, gesprochen hat]]]?  
   ‘Who do you think Mary thinks Jakob talked has?’

But you can’t skip—if the wh-word hasn’t moved that high, there has to be a was in each clause…

…was…was…mit wem…j…j…

Now, Malay

Wh-movement to scope position

(44) a. Siapa, (yang) [Bill harap [yang t₁ akan membeli baju untuknya]]  
   who (that) Bill hope that will buy clothes for him  
   ‘Who does Bill hope will buy clothes for him?’

   b. Kenapa, [awak fikir [dia pergi t₁]]?  
   why you think he leave  
   ‘Why do you think he left?’

or, wh-in-situ:

(45) a. Ali memberitahu kamu tadi [Fatimah baca apa]  
   Ali informed you just-now [Fatimah read what]  
   ‘What did Ali tell you Fatimah was reading?’

   b. Bill harap [guru itu akan mendenda siapa]  
   Bill hope teacher that will punish who  
   ‘Who does Bill hope that teacher will punish?’

or, partially moved wh-words:

(46) a. Ali memberitahu kamu tadi [apa₁ (yang) [Fatimah baca t₁]]?  
   Ali told you just.now what (that) Fatimah read  
   ‘What did Ali tell you just now that Fatimah was reading?’

   b. Kamu percaya [ke mana, (yang) [Mary pergi t₁]]?  
   you believe to where (that) Mary go  
   ‘Where do you believe that Mary went?’

   c. John fikir [kenapa, (yang) Mary rasa [Ali dipecat t₁]]?  
   John think why (that) Mary felt that Ali was-fired  
   ‘Why does John think Mary felt Ali was fired?’

Certain adjuncts (why and how) cannot remain in situ.

Overt wh-movement is sensitive to island constraints:
• You can’t move overtly out of CNP, adjuncts islands, wh-islands, subjects…
• You can’t move out from under a negative or out of a factive complement.

Wh-in-situ is immune to all of these things, allowed in these islands.

Transitive verbs appear with a meng- prefix, but this prefix disappears when a nominal phrase (including a wh-phrase, but not limited to wh-phrases—other preposing phenomena force omission of meng- too) crosses over it, either from the object position or from an embedded clause.

(47) a. Siapa, t₁ mem-bel buku itu  
   who meng bought book that  
   ‘Who bought that book?’
b. **Buku mana** Fatimah (*mem*-beli $t_i$)?

> book which Faitmah (*meng*-buy

> ‘Which book did Fatimah buy?’

c. **Siapa** Ali (*mem*-buktikan [yang $t_i$ (men)-curi kereta] who Ali (meng) prove that (meng)steal car

> ‘Who did Ali prove stole the car?’

And with wh-in-situ questions, all meng-s remain.

(48) Ali (mem)-beri Fatimah apa?

> Ali (meng)give Fatimah what

> ‘Whad did Ali give Fatimah?’

**Idea:** Wh-movement is really movement because it acts like movement

> (knocks out meng-, obeys islands).

Wh-in-situ is really not movement because it doesn’t act like movement.

> (leaves meng-, disobeys islands).

As for partially moved wh-words…

Meng- deletion is only sensitive to the overt movement part of a partial wh-movement.

Also, partial wh-movement can’t take a wh-word out of an island, naturally.

But surprisingly enough, **wh-words can’t be partially moved even inside an island.**

Abstractly:

> * $\left[ \text{CP} + \text{Q} \ [\text{island} \ \text{wh} \ldots t_i] \right]$

This suggests that there is still a movement relation all the way up to the CP, which is sensitive to islands, even though we can’t see it happening.

Cole & Hermon’s proposal (following some previous ones in part)

Wh-word interpretation requires an operator-variable structure, like so:

(49) • **what appears initially, not in its interpretation position (argument of buy).**

> 

> [ what ] i did John buy $t_i$

They interpret this to mean that there is an OP part and a variable part.

(50) $\left[ \text{CP} \ \text{OP}_1 \ldots \text{vbl}_1 \right]$

In some languages, like English, the wh-words have the OP part built into the wh-word.

So to get OP into SpecCP, you have to move the wh-word into SpecCP, interpreting the OP in SpecCP and the variable in situ:

(51) $\left[ \text{CP} \ \text{OP}-\text{vbl}_1 \ldots \text{OP}-\text{vbl}_1 \ldots \right]$

In other languages, like Chinese, the OP part is separate from the wh-word—the wh-word is just the variable part, and the OP part is generated in SpecCP to begin with.

(52) $\left[ \text{CP} \ \text{OP}_1 \ldots \text{vbl}_1 \ldots \right]$

Hence no movement is required (and binding doesn’t care about islands).

Malay is special in that it has both kinds of wh-word. One with OP built in and one not.

The partial movement structure has a silent expletive (corresponding to the German was), but that expletive is just a “place-holder” until after Spell-out, when the wh-word will have to move from its intermediate position (and therefore be sensitive to islands).