Diagnosing covert movement

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February 2017
The question

*Wh*-questions in English involve an **overt movement step**:

1. *Who* did Mary introduce ____ to Fred?

   ![Diagram]

In **multiple** *wh*-questions, only **one** *wh*-phrase moves overtly.

2. *Who* did Mary introduce ____ to *whom*?  

   ![Diagram]

☞ **How are in-situ *wh*-phrases interpreted?**
Two traditional approaches to *wh*-in-situ

The covert movement approach:
*Wh*-phrases **must move to C** by Logical Form (LF) for interpretability (Karttunen, 1977, among others).

(3) LF: *Who whom C did Mary introduce ____ to ____?*

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The in-situ approach:
*Wh*-phrases **are interpreted in their base-positions**, without movement (Hamblin, 1973; Rooth, 1985, 1992, among others).

(4) LF: *Who C did Mary introduce ____ to whom ?*
Wh-in-situ and intervention effects

Certain elements (interveners) cannot precede wh-in-situ.

(5) **Japanese: Intervention effects avoided through scrambling**

a. ✓ Hanako-ga [nani-o] yon-da-no?
   Hanako-NOM what-ACC read-PAST-Q
   ‘What did Hanako read?’

b. ?* Dare-mo [nani-o] yom-ana-katta-no?
   no-one what-ACC read-NEG-PAST-Q

c. ✓ [Nani-o] [dare-mo] ___ yom-ana-katta-no?
   ↑
   what-ACC no-one read-NEG-PAST-Q
   ‘What did no one read?’

*data from Tomioka (2007)*
Certain elements *(interveners)* cannot precede *wh*-in-situ.

(6) **Tibetan** (Tashi Wangyal, p.c.)

- **a.** ✓ Tenzen-khi *thēp-kāngḥi* lòk-sòng(-pe)?
  Tenzen-\textit{ERG} book-which read-\textit{AUX-Q}
  ‘Which book did Tenzen read?’

- **b.** * sùuchīye *thēp-kāngḥi* lòk-ma-song(-pe)?
  no-one.\textit{ERG} book-which read-\textit{NEG-AUX-Q}
  ‘Which book did no one read?’

- **c.** ✓ *thēp-kāngḥi* sùuchīye  lòk-ma-song(-pe)?
  book-which no-one.\textit{ERG} read-\textit{NEG-AUX-Q}
  ‘Which book did no one read?’

(see Erlewine and Kotek 2016)
Wh-in-situ and intervention effects

(7) German: intervention above wh-in-situ, rescued by scrambling

a. ✓ *Wer* hat Luise *wo* angetroffen?
   who has Luise where met
   ‘Who met Luise where’?

b. ?? *Wer* hat *niemanden wo* angetroffen?
   who has no-one where met

   ‘Who met no-one where’?

   *data from Beck (1996)*

c. ✓ *Wer* hat *wo niemanden ___* angetroffen?
   who has where no-one met
   ‘Who met no one where’?

   *data from Beck (1996)*
**Wh-in-situ and intervention effects**

Intervention effects affect regions of alternative computation but not (overt or covert) movement (Beck, 2006; Beck and Kim, 2006; Kotek, 2014, 2016; Kotek and Erlewine, 2016)

(8) **The Beck (2006) intervention schema:**

a. LF: \*\[\text{CP C ... interveners ... wh} \]

b. LF: \(\sqrt{\text{CP C ... wh interveners ... t}} \)

Different theories of what interveners/intervention is about:

- **Focus** (Beck, 2006; Beck and Kim, 2006)
- **Quantification** (Beck, 1996; Mayr, 2014)
- **Topics** (Grohmann, 2006)
- **Prosody** (Tomioka, 2007)
Wh-in-situ and intervention effects

Puzzle: no intervention effects in corresponding English questions.

(9)  a.  ✓ Who didn’t _____ meet anyone where?
     b.  ✓ Who met no one _____ where?

... enter: Pesetsky (2000)!
Pesetsky (2000): intervention correlates with superiority

(10)  a. Which student _____ read which book?    obeying
b. Which book did which student read _____?     violating
c. Which student didn’t _____ read which book?  obeying
d. * Which book didn’t which student read _____? violating
   (cf Which book did which student not read _____?)

**TODAY:** It’s about (covert) movement, not superiority.
§1 Background: Pesetsky (2000) and Beck (2006)
§2 Intervention is about movement, not superiority
§3 A wrench in the works: ACD and parasitic gaps
§4 Conclusion
§1 Background: Pesetsky (2000) and Beck (2006)
  • Some English data
  • An account of intervention effects

§2 Intervention is about movement, not superiority

§3 A wrench in the works: ACD and parasitic gaps

§4 Conclusion
Pesetsky (2000): intervention correlates with superiority

(10)  a. Which student _____ read which book?  obeying
    b. Which book did which student read _____?  violating
    c. Which student didn’t _____ read which book?  obeying
    d. * Which book didn’t which student read _____?  violating
A note on judgments

These judgments are hard!

**Note:** for many (perhaps all) speakers, intervention will be diagnosed by the loss of the pair-list reading of the question. A single-pair may survive.

(11) *Who ate what?*

a. Fred ate the beans.  \[single-pair\]

b. Fred ate the beans, Mary ate the eggplant, and John ate the broccoli.  \[pair-list\]

(This has been reported for both English and German questions in footnotes in previous work (Beck, 2006; Pesetsky, 2000; Kotek, 2014, cf also Beck 1996).)
More intervention effects in English

Pesetsky (2000): intervention correlates with superiority

(12)  a.  Which book did only Mary give _____ to which student?
   b.  * Which student did only Mary give which book to _____?

(13)  a.  Which book did no one give _____ to which student?
   b.  * Which student did no one give which book to _____?

(14)  a.  Which picture did very few children want to show _____ to which teacher?
   b.  * Which teacher did very few children want to show which picture to _____?
An account of intervention effects

Syntax by Pesetsky (2000); Semantics by Beck (2006):

Superiority-obeying questions: *Wh*-in-situ covertly moves to C at LF.

(15) LF: *Which student which book C read ?*  

                                            ^-------------------------^  
                                            \_____________________/  

Predict: no intervention

Superiority-violating questions:

*Wh* is truly LF-in-situ, interpreted via focus-alternatives computation.

(16) LF: *Which book C did which student read ?*  

                                            ^--------------------------^  
                                            \_______________________/  

Predict: intervention!
§1 Background: Pesetsky (2000) and Beck (2006)

§2 Intervention is about movement, not superiority

- Covert wh-movement as covert scrambling
- Intervention and islands
- Manipulating movement and consequences for intervention

§3 A wrench in the works: ACD and parasitic gaps

§4 Conclusion
In previous work I have argued that covert wh-movement is not a long-distance operation that necessarily targets interrogative C. Instead, it is a local scrambling operation (Kotek, 2014, 2016)

(17) LF: Who C _____ met where no one _____?

(18) LF: Wer hat _____ wo niemanden _____ angetroffen?

‘Who met no one where’?

\[ Wh\text{-in-situ can scramble (potentially up to C); interpreted in-situ in its landing site. } \]
Intervention in superiority-obeying questions

Intervention is avoided in superiority-obeying questions because \textit{wh}-in-situ can covertly move above interveners.

\textbf{Prediction:} If covert movement is restricted, intervention happens when intervener occurs \textbf{above highest possible landing site of movement}.

- \textit{Wh} can move up to the barrier \hfill (19)
- No intervention in region where movement happens
- \textit{Wh} cannot move past barrier
- Intervention happens above the barrier, where focus alternatives must be used.
Multiple questions with islands

Baseline: Multiple *wh*-questions with islands are grammatical.

(20) **Context:** The linguists at the conference are very picky about attending the conference dinner. However, each of them adores one philosopher and will certainly attend the dinner if that philosopher is invited. What I want to know is:

Q: *Which* linguist will come [if we invite *which* philosopher]?

A: ✓ **Pair-list answer:**
   Chomsky will come if we invite Quine,
   Kayne will come if we invite Lewis,
   Labov will come if we invite Russell, ...

(based on Cheng and Demirdache 2010, citing Tancredi (p.c.), cf Dayal 2002)
Add interveners: here, *only*.

(21) **Context:** The linguists at the conference are looking forward to the conference dinner. However, each of them dislikes all but one philosopher and will attend the dinner just in case that philosopher alone is invited. What I want to know is:

Q: *Which* linguist will come [if we *only* invite *which* philosopher]?

A: ✓ **Pair-list answer:**

- Chomsky will come if we only invite Quine,
- Kayne will come if we only invite Lewis,
- Labov will come if we only invite Russell, ...

Intervener **inside** the island is *grammatical*. 

Add interveners: here, *only*.

(22) **Context:** The linguists at the conference don’t really want to attend the conference dinner. However, each of them adores one philosopher and has said that they will come just in case that philosopher is invited. What I want to know is:

Q: *Which* linguist will *only* come [if we invite *which* philosopher]?

A: *Pair-list answer:*

- Chomsky will only come if we invite Quine,
- Kayne will only come if we invite Lewis,
- Labov will only come if we invite Russell, ...

[Intervener above the island causes an intervention effect.]
Multiple questions with islands: Summary

Intervention can be used as a **diagnostic** for regions of in-situ composition and regions of (covert) movement.

Intervention effects happen **above** an island but not **inside** it.

- Confirms the need for covert *wh*-movement.
- Confirms the need for in-situ composition.
Prediction: Intervention detected if covert *wh*-movement is restricted.

Using binding to restrict mvt: bindee cannot move out of scope of binder.

(23) Baselines, with binder underlined:
   a. Which daughter showed Obama which picture of herself?
   b. Which daughter showed Obama which picture of himself?

Adding an intervener:

(24) Target sentences:
   a. ? Which daughter showed only Obama which picture of herself?
   b. * Which daughter showed only Obama which picture of himself?
Prediction: Intervention can be avoided if in-situ *wh* can be given wide scope above an intervener through non-interrogative movement.

Right-Node Raising can feed exceptional wide scope of a *wh* that is otherwise unavailable in questions (Bachrach and Katzir, 2009, a.o.):

(25) a. *Which book* did John meet the man who wrote _____?  
    b. ✓ *Which book* did [John meet the man who wrote], and [Mary meet the man who published] _____?
No intervention when *wh* scopes above intervener

This exceptional wide scope in RNR is also able to escape intervention effects in superiority-violating questions:

(26) a.  *Which book did only John allow which student to read _____?*

b.  ✓ *Which book did [only John allow], and [only Mary prohibit], which student to read _____?*

(See also Branan 2017: data from extraposition, parasitic gap licensing)
No correlation between superiority and intervention:

- Intervention in obeying Qs with restricted covert *wh*-movement
- No intervention in violating Qs, *wh*-in-situ given wide scope via non-interrogative movement

However, *allowing covert movement to target non-interrogative positions*, the analysis in Pesetsky (2000) makes the right prediction: intervention effects are observed when covert movement is unavailable.
§1 Background: Pesetsky (2000) and Beck (2006)
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In superiority-obeying questions, *wh-in-situ* can host Antecedent Contained Deletion (data from Pesetsky 2000, p.30).

(27) **ACD possible with sup.-obeying question:**

a. I need to know *which girl* _____ ordered [*which boy* that Mary (also) did △] to congratulate Sarah.

b. Paraphrase: I need to know for which girl *x* and for which boy *y* such that Mary ordered *y* to congratulate Sarah, *x* also ordered *y* to congratulate Sarah. [i.e., I need to know the girl-boy pairs such that both the girl and Mary ordered the boy to congratulate Sarah.]

*Wh-in-situ* moves at LF, allowing for ACD resolution.
ACD licensing as a diagnostic of covert movement

(28) **ACD not possible with sup.-violating question:**

a. * I need to know *which girl* Sue ordered [*which boy* that Mary (also) did △] to congratulate ____.

b. Paraphrase: I need to know for which girl $x$ and [*which boy $y$* such that Mary ordered $y$ to congratulate $x$], Sue also ordered $y$ to congratulate $x$. [i.e., I need to know the girl-boy pairs such that both Sue and Mary ordered the boy to congratulate the girl.]

☞ No covert movement $\Rightarrow$ no ACD resolution.
Parasitic gaps are licensed by movement.

In multiple questions, parasitic gaps are licensed in both superiority-obeying questions and superiority-violating questions.

(29)  

a. Which senator$_1$ did you persuade _____ to borrow *which car*$_2$ [after getting [an opponent of *pg*$_1$ to put a bomb in *pg*$_2$]]?

b. Which kid$_1$ did you give *which candy bar*$_2$ to _____ [without first speaking with *pg*$_1$ about the ingredients in *pg*$_2$]?

(data from Nissenbaum 2000)

Predicts covert movement regardless of superiority…!
§1  Background: Pesetsky (2000) and Beck (2006)
§2  Intervention is about movement, not superiority
§3  A wrench in the works: ACD and parasitic gaps
§4  Conclusion
Three diagnostics of covert movement (and lack thereof):

- Intervention effects
- Licensing of Antecedent Contained Deletion
- Parasitic gaps

All three diagnostics predict covert movement in superiority-obeying questions.

Only the first two predict no covert movement in superiority-violating questions.

Open question: why are parasitic gaps licensed?
Thank you! Questions?

For comments and help with different aspects of this work, I would like to thank Martin Hackl, Danny Fox, Irene Heim, Michael Yoshitaka Erlewine, audiences at Yale, MIT and McGill University, NSF Dissertation Improvement Grant #1251717, and the Mellon Foundation. Special thanks to David Pesetsky for inspiring much of this work, and for his support of this and other work.


