

Diagnosing covert movement

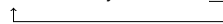
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1 Introduction

1.1 The question

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

- (1) *Who* did Mary introduce ___ to Fred?


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

- (2) *Who* did Mary introduce ___ to whom?


☞ **How are in-situ *wh*-phrases interpreted?**

1.2 Two 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 ___?


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*?


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1.3 Intervention effects

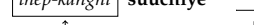
Certain elements (**interveners**) cannot precede *wh*-in-situ.

(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?'

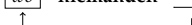
data from Tomioka (2007)

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

- a. ✓ Tenzen-khi thēp-kāngñi lōk-sōng(-pe)?
Tenzen-ERG book-which read-AUX-Q
'Which book did Tenzen read?'
- b. * **sūuchīye** thēp-kāngñi lōk-ma-song(-pe)?
no-one.ERG book-which read-NEG-AUX-Q
- c. ✓ thēp-kāngñi **sūuchīye** ___ lōk-ma-song(-pe)?

book-which no-one.ERG read-NEG-AUX-Q
'Which book did no one read?'

(see Erlewine and Kotek 2016)



(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
- c. ✓ *Wer* hat wo **niemanden** ___ angetroffen?

who has where no-one met
'Who met no one where?'

data from Beck (1996)

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: *[_{CP} C ... **intervener** ... *wh*]

- b. LF: ✓ [_{CP} C ... *wh* **intervener** ... *t*]


Different theories of what interveners/intervention are: **Focus** (Beck, 2006; Beck and Kim, 2006); **Quantification** (Beck, 1996; Mayr, 2014); **Topics** (Grohmann, 2006); **Prosody** (Tomioka, 2007).

Puzzle: no intervention effects in corresponding English questions.

- (9) a. ✓ *Who didn't ___ meet anyone where?*
 b. ✓ *Who met no one ___ where?*

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.

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.²


- (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

Pesetsky (2000):

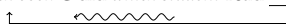
- (12) a. *Which book did only Mary give ___ to which student?*
 b. **Which student did only Mary give which book to ___?*
 (13) a. *Which book did no one give ___ to which student?*
 b. **Which student did no one give which book to ___?*
 (14) a. *Which picture did very few children want to show ___ to which teacher?*
 b. **Which teacher did very few children want to show which picture to ___?*

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.


- (16) LF: *Which book C did which student read ___?* **Predict: intervention!**


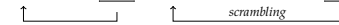
²This has been reported for superiority-violating questions in English and for German questions in footnotes in previous work (Beck, 2006; Pesetsky, 2000, cf also Beck 1996). See discussion in Kotek (2014).

2 Intervention is about movement, not superiority

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 ___?* (= 9b)


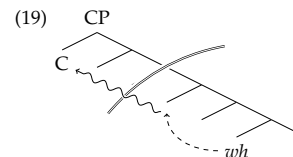
- (18) LF: *Wer hat ___ wo niemanden ___ angetroffen?*

 who has where no one met
 'Who met no one where?' (= 7c)

☞ *Wh*-in-situ can scramble (potentially up to C); interpreted in-situ in its landing site.

Intervention is avoided in superiority-obeying questions because *wh*-in-situ can covertly move above interveners.

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

- *Wh* can move up to the barrier
- ☞ No intervention in region where movement happens
- *Wh* cannot move past barrier
- ☞ Intervention happens above the barrier, where focus alternatives must be used.



Baseline: Multiple *wh*-questions with islands are grammatical.³

- (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 [_{island} 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 [_{island} 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**.

- (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 [_{island} 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**.

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.

³It is important to target the pair-list reading of the question in these examples. Intervention effects in English and German have been argued to affect specifically the pair-list reading, while a single-pair reading may survive. This is indeed the case for the vast majority of speakers who I have consulted with regarding examples (21)–(22) below. See Beck (1996); Pesetsky (2000); Kotek (2016) for details; see Dayal (2002) for a claim that multiple question with islands never have pair-list readings.

Prediction: Intervention detected if covert *wh*-movement is restricted.

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

(23) **Baselines, with binder underlined:**

- Which* daughter showed Obama *which picture of herself*?
- Which* daughter showed Obama *which picture of himself*?

Adding an intervener:

(24) **Target sentences:**

- ? *Which* daughter showed **only** Obama *which picture of herself*?
- * *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] ___ ?

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)

Summary:

☞ **No correlation between superiority and intervention:**

- Intervention in obeying questions with restricted covert *wh*-movement
- No intervention in violating questions, *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**.

3 A wrench in the works: ACD and parasitic gaps

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 Δ] 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.

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

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

The wrench:

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 senator₁ did you persuade ___ to borrow *which car*₂ [after getting [an opponent of *pg*₁ to put a bomb in *pg*₂]]?
- b. Which kid₁ 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...!

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?

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