Diagnosing covert movement

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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?**

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* ?

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)*

Wh-in-situ and intervention effects

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

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

    a. ✓ Tenzen-khi | *thēp-kānghì* | lòk-sòng(-pe)?
        Tenzen-ERG book-which read-AUX-Q

        'Which book did Tenzen read?'

    b. * **sùuchīye** | *thēp-kānghì* | lòk-ma-song(-pe)?
        no-one.ERG book-which read-NEG-AUX-Q

    c. ✓ | *thēp-kānghì* | **sùuchīye** _____ lòk-ma-song(-pe)?

        book-which   no-one.ERG   read-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 $\boxed{wo}$ angetroffen?

             who has Luise where met

             'Who met Luise where'?

    b. ?? *Wer* hat **niemanden** $\boxed{wo}$ angetroffen?

             who has no-one   where met

    c.   ✓ *Wer* hat $\boxed{wo}$ **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: $^*[_{CP}$ C ... **intervener** ... *wh*]

   b. LF: $^{\checkmark}[_{CP}$ C ... *wh* **intervener** ... *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. $^{\checkmark}$ *Who* did**n't** _____ meet anyone *where*?

b. $^{\checkmark}$ *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.

Roadmap

Roadmap

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*

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*

$\left(\begin{array}{l}\text{This has been reported for both English and German questions in footnotes in previous}\\\text{work (Beck, 2006; Pesetsky, 2000; Kotek, 2014, cf also Beck 1996).}\end{array}\right)$

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 _____?

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!**

Roadmap

Covert *wh*-movement as scrambling

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)
        scrambling

(18)   LF: *Wer* hat _____ *wo* **niemanden** _____ angetroffen?
        who   has   where no one   met

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

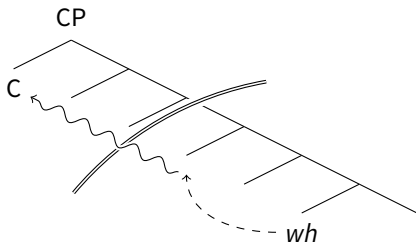☞   *Wh*-in-situ can scramble (potentially up to C); interpreted in-situ in its landing site.

Intervention in superiority-obeying questions

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.

(19)

Multiple questions with islands

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

(20) <u>Context:</u> 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: ✓ <u>Pair-list answer:</u>
        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)

Multiple questions with islands

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**.

Multiple questions with islands

Add interveners: here, **_only_**.

(22)   <u>Context:</u> 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: * <u>Pair-list answer:</u>
         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.

Intervention in superiority-obeying questions

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 <u>daughter</u> showed Obama which picture of herself*?

    b.   *Which daughter showed <u>Obama</u> which picture of himself*?

Adding an intervener:

(24) **Target sentences:**

    a.   [?] *Which <u>daughter</u> showed* **only** *Obama which picture of herself*?

    b.   * *Which daughter showed* **only** <u>Obama</u> *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)

☞ **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**.

Roadmap

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.

(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…!

Roadmap

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?

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