Diagnosing covert syntax: Lessons from *wh*-in-situ

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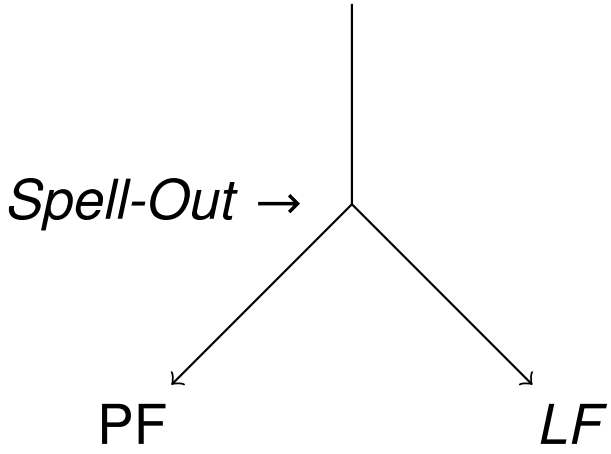
The question

- Consider Syntax and its interfaces:

(1) **The Y-model of grammar:**



Two big-picture questions:

1. What causes LF/PF mismatches and how are they constrained?
2. How does this vary cross-linguistically?

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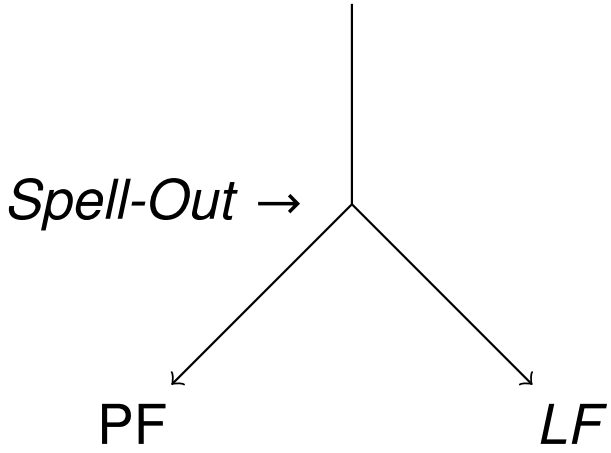

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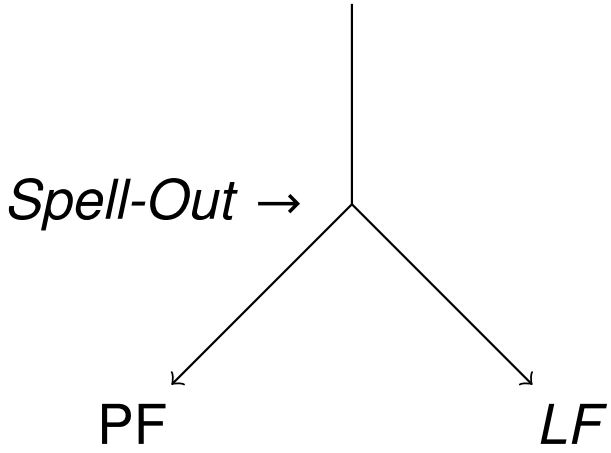

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Two LF/PF mismatches:

(2) **A scope ambiguity:**

Some student read every book. ∃ > ∀, ∀ > ∃

a. some student every book read ____. ∃ > ∀

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- Resolved through (covert) **Quantifier Raising** (May 1977, 1985).

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Some student read every book. $\exists > \forall, \forall > \exists$

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In *wh*-questions, (phonologically) in-situ *wh*-phrases also appear to take wide scope, at the left edge of the clause:

(3) **_Wh_-in-situ in a Japanese question:**

Hanako-ga *nani*-o kai-mashi-ta-ka?
Hanako-NOM what-ACC buy-POLITE-PAST-Q

'What did Hanako buy?'

$\rightsquigarrow$ what x is such that Hanako bought x?

(4) **_Wh_-in-situ in an English multiple _wh_-question:**

Who did Mary introduce to whom?

$\rightsquigarrow$ what x, y are such that Mary introduced x to y?

- **How are in-situ _wh_-phrases interpreted?**

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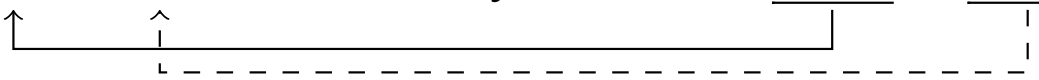
Two approaches to *wh*-in-situ

The covert movement approach:
Wh-phrases **must move to C** by LF for interpretability (Karttunen 1977, Huang 1982, among others).

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



The in-situ approach:
Wh-phrases **are interpreted in their base positions**, without requiring movement (Hamblin 1973, Kratzer and Shimoyama 2002, among others).

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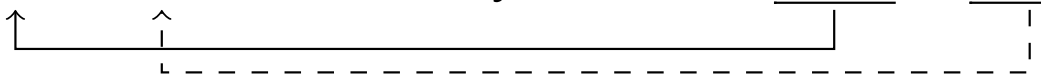

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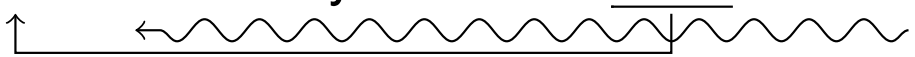

Two approaches to *wh*-in-situ

Spoiler alert!

I will argue that both approaches are sort of correct — we need both in-situ composition (focus alternatives) *and* movement to derive *wh*-questions.

- But the movement we get is **not** what you think it will be.

Diagnosing covert movement

- **How can we tell if covert *wh*-movement happened?**

1. Intervention effects (Kotek 2017b, in prep.)
2. Island effects (Kotek 2016a)
3. Processing signature (Kotek 2014, 2019)

(Antecedent Contained Deletion licensing (Pesetsky 2000),
Parasitic Gap licensing (Nissenbaum 2000))

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Wh-in-situ and intervention effects

- *Wh*-in-situ is sensitive to **intervention effects**.

(3) Hanako-ga *nani*-o kai-mashi-ta-ka?
Hanako-NOM what-ACC buy-POLITE-PAST-Q
'What did Hanako buy?'

(7) a. ?? **Da're-mo**-ga *nani*-o kai-mashi-ta-ka?
everyone-MO-NOM what-ACC buy-POLITE-PAST-Q

b. ✓ *Nani*-o **da're-mo**-ga ___ kai-mashi-ta-ka?
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Wh-in-situ and intervention effects

Intervention effects affect *wh*-phrases that are truly in-situ at LF
but not ones that have undergone (overt or covert) movement
(Beck 2006, Beck and Kim 2006, Kotek 2014, Kotek and Erlewine 2016).

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

a. ✓ [$_{CP}$ C ... *wh*]

b. * [$_{CP}$ C ... **intervener** ... *wh*]

c. ✓ [$_{CP}$ C ... *wh* **intervener** ... *t*]

What's an intervener?

- **Two related unresolved questions:**
  1. What counts as an intervener?

     (9) ***Subete*** **'all' is not an intervener (cf 7a):**

     ✓ [**Subete**-no hito]-ga *nani*-o kai-mashi-ta-ka?
     all-GEN person-NOM what-ACC buy-POLITE-PAST-Q
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  2. What causes intervention?
     - Focus (Kim 2002, Beck 2006, Beck and Kim 2006)
     - Quantification (Beck 1996, Mayr 2014)
     - Anti-topichood (Grohmann 2006)
     - Prosodic mismatch (Tomioka 2007, Branan 2018)
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1. The problem is with **movement** into a position between *wh* and C at LF.
   - Explained as a semantic problem with *predicate abstraction* over *focus alternatives* (see Appendix).

(10) **Intervention schema (Kotek 2017b, in prep.):**

2. Covert *wh*-movement is not 'regular' probe-driven movement, but rather **covert scrambling**.

3. Many consequences for the grammar:
   - Probing and movement
   - Overt vs covert structure building
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Roadmap

§1 Introduction

§2 Intervention effects in Japanese

§3 Intervention effects in English

§4 Covert movement and islands

§5 The bigger picture: Implications for grammar

Roadmap

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§2 **Intervention effects in Japanese**

- Intervention tracks scope-rigidity in Japanese (Erlewine and Kotek 2018)
- Analysis following Kotek 2017b
- Some predictions

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§4 Covert movement and islands

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Wh-in-situ and intervention effects

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Shibata's correlation

Quantifiers in Japanese vary in their ability to take scope below negation:

- Q > Neg only $\rightsquigarrow$ scope rigid
- Q > Neg or Neg > Q $\rightsquigarrow$ not scope rigid

- Shibata (2015a) notes that the scope of different disjunctors correlates with their status as interveners.

Shibata's correlation

Two disjunctors in Japanese, *ka* and *naishi*: (from Shibata 2015a)

(11) ***ka*-disjunction is scope-rigid; *naishi* is not:**

a. [Taro **ka** Jiro]-ga ko-**nak**-atta.
Taro or Jiro-NOM come-NEG-PAST
'Taro or Jiro didn't come.' ✓or > not, *not > or

b. [Taro **naishi** Jiro]-ga ko-**nak**-atta.
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(12) ***ka*-disjunction is an intervener; *naishi* is not:**

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'*What* did [Taro or Jiro] read?'

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Intervention tracks scope-rigidity

- Shibata's correlation extends to other quantificational DPs:

(13) **Generalization: Intervention correlates with scope-taking**
Scope-rigid DP quantifiers above an in-situ *wh*-phrase cause intervention. DP quantifiers that allow scope ambiguities—i.e., those that can reconstruct below the *wh*-phrase—do not.
(Erlewine and Kotek 2018)

- Explained by and supports Kotek's (2017b) theory of intervention, (10).

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Universals

(14) ***wh-mo* universal quantifier is scope-rigid; *subete* is not:**

a. [**Dono** mondai]-o-**mo** toka-**nak**-atta.
every problem-ACC-MO solve-NEG-PAST

‘*pro* did not solve every problem.’ ✓every > not, *not > every

b. [**Subete**-no mondai]-o toka-**nak**-atta.
all-GEN problem-ACC solve-NEG-PAST (Mogi 2000:59)

‘*pro* did not solve every problem.’ ✓every > not, ✓not > every

Universals

(15) ***wh-mo* is an intervener; *subete* is not:** =(7a)

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Intended: 'What did everyone buy?' (Hoji 1985:270)

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Two positions for *-dake* 'only'

(27) **-P-*dake* is scope-rigid; *-dake*-P is not:**

a. Taro-wa Hanako-to-**dake** hanashi-tei-**nai**.
Taro-TOP Hanako-with-only talk-PERF-NEG

lit. 'T. hasn't talked only with H.' ✓only > not, *not > only

b. Taro-wa Hanako-**dake**-to hanashi-tei-**nai**.
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b. ✓ Taro-wa Hanako-**dake**-[to] *nani*-o tabe-ta-no?
Taro-TOP Hanako-only-with what-ACC eat-PAST-Q
'*What* did Taro eat (only) with (only) Hanako?'

Summary

	disjunction		universal		also	even	NPI
	ka	*naishi*	*wh-mo*	*subete*	*-mo*	*-sae*	*wh-mo*
scope-rigid?	○ (11a)	× (11b)	○ (14a)	× (14b)	○ (16)	○ (16)	○*
intervener?	○ (12a)	× (12b)	○ (15a)	× (15b)	○ (17)	○ (18)	○ (19)

	NPI only	indefinite		modified	only	
	-shika	*wh-ka*	*suu*-CL	numerals	-P-*dake*	*-dake*-P
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* See Kataoka 2006; Shimoyama 2011 on the rigid wide scope of so-called "NPIs."

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Proposal

1. All arguments evacuate *v*P in Japanese (Shibata 2015a,b), moving out of NegP (if present).
2. Some (but not all) quantifiers can reconstruct into base positions.
3. Intervention reflects the uninterpretability of (10) at LF:

(10) **Kotek (2017b) intervention schema** (repeated)

* LF: [$_{CP}$ C … **DP** λx … *wh* … ***x***]

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Shibata on Japanese quantifier scope

(29) a. All arguments move out of *v*P:

$[_{CP}$ ... DP ... $[_{vP}$ ... *t* ... V]]

b. Interpretation in surface position ⇒ wide scope over Neg:

LF: $[_{CP}$ ... DP λx ... $[_{NegP}$ $[_{vP}$ ... ***x*** ... V] Neg]] DP > Neg

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c. Some (not all) quants. reconstruct into *v*P ⇒ narrow scope:

LF: $[_{CP}$ ... $[_{NegP}$ $[_{vP}$ ... DP ... V] Neg]] Neg > DP

Deriving the correlation

(30) a. Potential intervener (DP) above *wh*:

$[_{CP}$ C ... DP ... *wh* ... $[_{vP}$ ... *t* ... V]]

b. *LF interpretation in surface position leads to intervention!*

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c. Reconstruction avoids the intervention configuration:

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d. Scrambling *wh* above also avoids intervention:

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This proposal makes a number of predictions, which we can test. . .

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Non-intervention through reconstruction

- A “non-intervening” quantifier must be reconstructed in *v*P.

(31) Taro-wa Hanako-**dake**-to *nani*-o tabe-**nai**-no?
Taro-TOP Hanako-only-with what-ACC eat-NEG-Q

a. * ‘What does Taro only not eat with Hanako$_F$?’ only > not
Answer: Squid ink pasta (because he gets embarrassed)

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Base-generated quantifiers

- Quantifiers that are base-generated high and can be interpreted in their base positions are not interveners.

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'What does Taro eat only on Tuesdays?'

Recall that -P-*dake* was an intervener in (28). *-dake* in (32) associates with a temporal modifier that is base-generated high and can be interpreted in-situ.

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Interim summary

- **Recall our two questions:**
  1. What counts as an intervener?

  A: **Anything that takes scope in a derived position at LF.**

  2. What causes intervention?

  A: An incompatibility between predicate abstraction and focus-alternatives computation (see Appendix).

(10) **Kotek (2017b) intervention schema** (repeated)

* LF: $[_{CP}$ C … **DP** λx … *wh* … ***x***]

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  - Reconstruct quantifier below *wh* — *covert*
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Roadmap

§1 Introduction

§2 Intervention effects in Japanese

§3 **Intervention effects in English (Kotek 2017a,b,c, in prep.)**

- Intervention in English rescued via covert movement
- Intervention effects and reconstruction

§4 Covert movement and islands

§5 The bigger picture: Implications for grammar

Intervention in *wh*-movement languages

Intervention also affects *wh*-movement languages like English and German. Here, we must consider **multiple *wh*-questions**.

(33) **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 didn't meet anybody where'? (Beck 1996)

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Intervention in English multiple *wh*-questions

In English, intervention appears to track **superiority** (Pesetsky 2000):

- Superiority-violating questions are susceptible to intervention effects; superiority-obeying ones are immune to these effects.

(34) a. *Which* book did **no one** give ____ to *which* student?

b. * *Which* student did **no one** give *which* book to ____?

(35) a. *Which* girl did **only Mary** introduce ____ to *which* boy?

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A note on judgments

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

(36) *Who* ate *what*?

a. Fred ate the beans. *single-pair*

b. Fred ate the beans, Mary ate the eggplant, and Sue ate the broccoli. *pair-list*

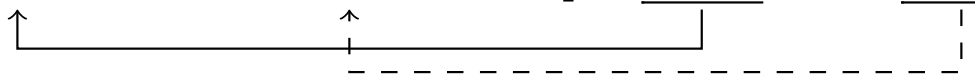
(This has been reported for German and for superiority-violating questions in English in footnotes in previous work (Beck 2006, Pesetsky 2000; see also Beck 1996). See discussion in Kotek 2014.)

Background: intervention effects in English

- Superiority-obeying and violating questions differ in their available LFs. This follows from mechanisms of probing (Pesetsky 2000):

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

(37) LF: [$_{CP}$ *Which student* *which book* C [$_{TP}$ _____ read _____]]?



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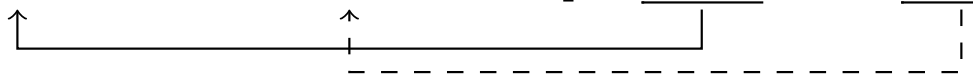

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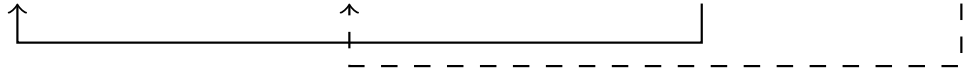

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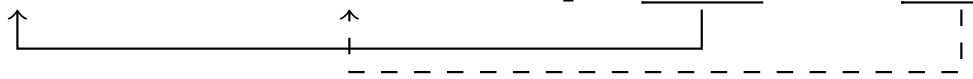

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Building on Pesetsky's syntactic proposal, Beck's (2006) influential semantic theory of intervention:

1. *Wh*-in-situ is computed using focus alternatives (⇜)
2. Interveners are focus-sensitive operators. They disrupt the relation between *wh*-in-situ and C.

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- As we have seen already, there is no fixed set of interveners.
  - Interveners don't have to be focus-sensitive (recall *wh*-mo and *subete*)
- **Languages differ in how they 'rescue' potential intervention configurations:**
  - Move the *wh*-phrase out of the way
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Q: Under the proposal given here, why don't subjects always intervene?

A: Subjects are normally able to **reconstruct**, avoiding intervention.

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A-movement chains and intervention

But reconstruction can also be blocked by **binding from the subject** into a pronoun or reflexive, leading to intervention.

(39) Context: The lawyers seem to be likely to appeal different decisions to different courts.

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- Intervention rescued via reconstruction of a potential intervener:

(40) Context: The first-year students took several classes this past semester, taught by different professors. Each professor thought that the students particularly enjoyed one topic that she taught. Tell me,

a. ✓ *Which topic* did it seem to *which professor* that **all** of the students enjoyed _____? *baseline*

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(Floating a quantifier fixes its scope, preventing it from moving out of the way of *wh*-in-situ, leading to intervention (see Pesetsky 2000).)

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No intervention if *wh* scopes above intervener

- Intervention rescued via exceptional (non-interrogative) movement of an otherwise in-situ *wh*-phrase:

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

(41) 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 rescue intervention effects in superiority-violating questions:

(42) a. * *Which book* did **only Mary** allow *which student* to read ____?

b. ✓ *Which book* did [**only Mary** allow], and [**only Sue** require], *which student* to read ____?

(Other means of scope extension include Extraposition; see Branan 2017.)

Intervention and superiority: Binding

- Conversely, intervention is predicted if covert *wh*-movement is unavailable in a superiority-obeying question.

Using **binding** to restrict covert movement: bindee cannot move out of the scope of a binder.

(43) **Baselines, with binders underlined:**

a. *Which daughter* showed Obama *which picture of herself*?

b. *Which daughter* showed Obama *which picture of himself*?

(44) **Target sentences, with intervener and binder underlined:**

a. ?*Which daughter* showed **only** Obama *which picture of herself*?

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a. ?*Which daughter* showed **only** Obama *which picture of herself*?

b. **Which daughter* showed **only** Obama *which picture of himself*?

Intervention and superiority: Binding

- Conversely, intervention is predicted if covert *wh*-movement is unavailable in a superiority-obeying question.

Using **binding** to restrict covert movement: bindee cannot move out of the scope of a binder.

(43) **Baselines, with binders underlined:**

a. *Which daughter* showed Obama *which picture of herself*?

b. *Which daughter* showed Obama *which picture of himself*?

(44) **Target sentences, with intervener and binder underlined:**

a. ?*Which daughter* showed **only** Obama *which picture of herself*?

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Interim summary

- **No correlation between superiority and intervention.** Instead, intervention correlates with available movement possibilities for intervener and *wh* at LF.
  - Reconstruction of potential intervener
  - (QR of intervener)
  - Exceptional movement for *wh*
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Roadmap

§1 Introduction

§2 Intervention effects in Japanese

§3 Intervention effects in English

§4 **Covert movement and islands (Kotek 2016a)**

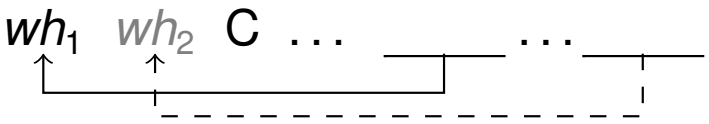
- Covert *wh*-movement as covert scrambling
- Intervention out of islands

§5 The bigger picture: Implications for grammar

Two approaches to *wh*-in-situ

Recall: Two strategies for interpreting *wh*-in-situ at LF

(45) **Covert movement:**



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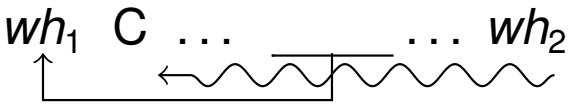

Kotek (2014, 2016a, 2019): covert movement in English superiority-obeying questions is a form of **covert scrambling**.

(47) $[_{CP}\ wh_1\ C\ \ldots\ wh_2\ [_{VP}\ \ldots\ t\ ]]$

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- Judgement data evidence

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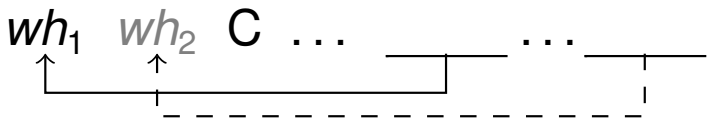

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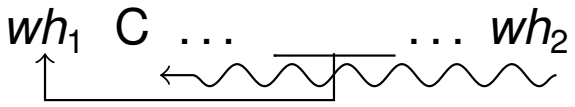

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Intervention effects in English

This covert movement operation is the parallel of an observable **overt scrambling** step in German questions — *covert* scrambling.

(48) **Obligatory overt short *wh*-scrambling in German:**

a. *Wer* hat denn (das Buch) gestern (das Buch) gelesen?
who has *denn* (the book) yesterday (the book) read
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Additional evidence for covert scrambling comes from the interaction of *wh*-in-situ with islands and interveners.

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Multiple questions with islands

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

(49) 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]?

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Prediction: No intervention *inside* an island, as the *wh* can scramble above the intervener; **intervention *above* of the island**, where movement is blocked.

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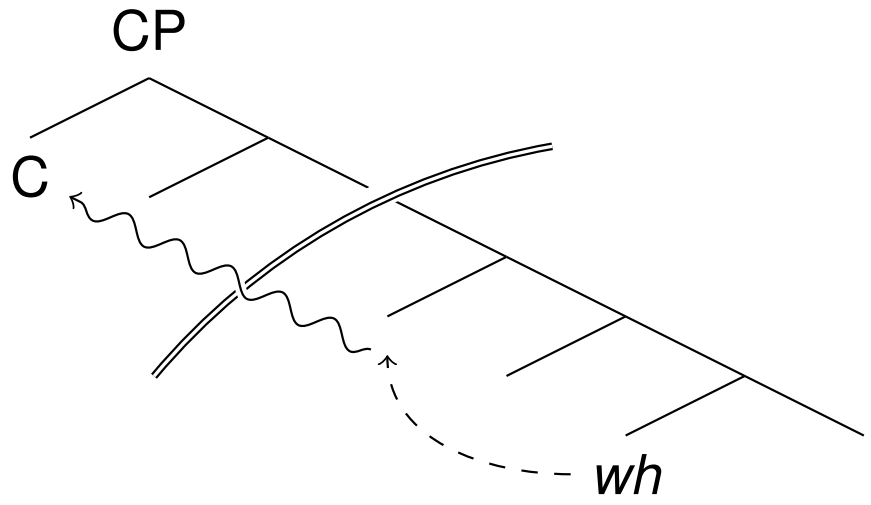

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§5 **The bigger picture: Implications for grammar**
(Kotek 2014, 2016b, 2017b, 2019, in prep.)

- Probing and movement
- Overt vs covert movement
- Successive-cyclic movement and reconstruction
- Cross-linguistic variation and language acquisition
- Scope-taking operations and their limitations

So, what have we learned?

- Today: a close investigation of *wh*-in-situ and intervention effects.

  - *Wh*-in-situ is susceptible to intervention effects
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  - Reconstruction and covert *wh*-scrambling are two ways to avoid an intervention configuration

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We require **some movement**, but **not to interrogative Spec,CP**.

Covert movement is driven not by the needs of a probe, but by the need to achieve a convergent derivation (cf free Merge, Chomsky 2004).

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Covert movement doesn't (have to) target interrogative C.

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- Intermediate landing sites of successive-cyclic movement behave differently than the final landing site of movement.

They cannot “count” for intervention!

(53) *Which book* did Jill think that [$_{CP}$ *which kid* read *t*]?

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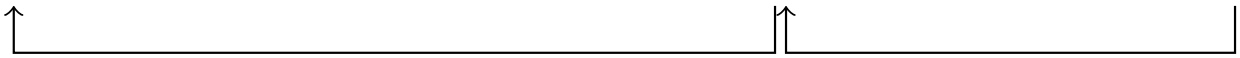

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- Two scope-taking mechanisms: movement, focus alternatives

They fail to compose in one particular way, leading to intervention:

(10) **Kotek (2017b) intervention schema** (repeated)

* LF: $[_{CP}$ C … **DP** λx … *wh* … x]

Grammar is very resilient, able to avoid this in a variety of ways (overt/covert scrambling, reconstruction, RNR, QR, extraposition).

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Language variation and language acquisition

- Intervention is a logical property of UG.

There is no independent theory of intervention.

Advantageous from the viewpoint of acquisition and variation:

- A universal description for intervention.
- Learners must discover scope-taking properties of individual quantifiers.
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Additional predictions

- Many other consequences for syntax/semantics:

  Phases, modals, types, subjects, negation, focus association, $\mathcal{E}xh$, QR, top-down vs bottom-up structure building, . . .

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Thank you!

Thank you! Questions?

For questions, comments, and discussion, I would like to thank David Pesetsky, Danny Fox, Irene Heim, Martin Hackl, Michael Yoshitaka Erlewine, Bob Frank, Jim Wood, Raffaella Zanuttini, participants of the NYU seminar on *wh*-constructions cross-linguistically—in particular Lucas Champollion, Chris Collins, and Anna Szabolsci—as well as audiences at MIT, McGill, Yale, Leiden University, UCLA, Rutgers, GLOW 38, NELS 47, LENLS 2017, the 2017 Amsterdam Colloquium, the workshop on Recent Issues in the Syntax of Questions in Konstanz, and the Road Ahead conference in Greece. Errors are mine.

References I

Aoyagi, Hiroshi, and Toru Ishii. 1994. On agreement-inducing vs. non-agreement-inducing NPIs. In *Proceedings of NELS 24*, 1–15.

Bachrach, Asaf, and Roni Katzir. 2009. Right-node raising and delayed spellout. In *Interphases: Phase-theoretic investigations of linguistic interfaces*, ed. Kleanthes K. Grohmann. Oxford, UK: Oxford University Press.

Beck, Sigrid. 1996. Quantified structures as barriers for LF movement. *Natural Language Semantics* 4:1–56.

Beck, Sigrid. 2006. Intervention effects follow from focus interpretation. *Natural Language Semantics* 14:1–56.

Beck, Sigrid, and Shin-Sook Kim. 2006. Intervention effects in alternative questions. *Journal of Comparative German Linguistics* 9:165–208.

References II

Branan, Kenyon. 2017. In-situ *wh*-phrases in superiority violating contexts don't have to be in-situ. In *A pesky set: Papers for David Pesetsky*, ed. Claire Halpert, Hadas Kotek, and Coppe van Urk, volume 80, 353–359. Cambridge, MA: MITWPL.

Branan, Kenyon. 2018. Relationship preservation. Doctoral Dissertation, Massachusetts Institute of Technology.

Cheng, Lisa Lai-Shen, and Hamida Demirdache. 2010. Trapped at the edge: On long-distance pair-list readings. *Lingua* 120:463–480.

Chomsky, Noam. 2004. Beyond explanatory adequacy. In *Structures and beyond: The cartography of syntactic structures*, ed. Adriana Belletti, volume 3, 104–131. Oxford, UK: Oxford University Press.

Comorovski, Ileana. 1989. Discourse and the syntax of multiple constituent questions. Doctoral Dissertation, Cornell University.

Comorovski, Ileana. 1996. *Interrogative phrases and the syntax-semantics interface*. Dordrecht: Kluwer.

Dayal, Veneeta. 2016. *Questions*. Oxford, UK: Oxford University Press.

References III

Diesing, Molly. 1992. *Indefinites*. Cambridge, MA: MIT Press.

Erlewine, Michael Yoshitaka, and Hadas Kotek. 2018. Intervention tracks scope-rigidity in Japanese. Manuscript.

Grohmann, Kleanthes K. 2006. Top issues in questions: Topics—topicalization—topicalizability. In *Wh-movement: Moving on*, ed. Lisa Lai-Shen Cheng and Norbert Corver. Cambridge, MA: MIT Press.

Hallman, Peter J. 1997. Reiterative syntax. Master's thesis, University of California at Los Angeles.

Hamblin, Charles. 1973. Questions in Montague English. *Foundations of Language* 10:41–53.

Hasegawa, Nobuko. 1995. *Wh*-gimonbun, hitei-taikyoku-hyogen-no *shika*, to *also* no *mo* [*wh*-questions, NPI *shika*, and 'also' *mo*]. In *Proceedings of the Third International Nanzan University Symposium on Japanese Language Education and Japanese Linguistics*, 107–128.

Hoji, Hajime. 1985. Logical Form constraints and configurational structures in Japanese. Doctoral Dissertation, University of Washington.

References IV

Huang, C. T. James. 1982. Move *wh* in a language without *wh* movement. *The Linguistic Review* 1.

Jackendoff, Ray. 1972. *Semantic interpretation in generative grammar*. MIT Press.

Johnson, Kyle, and Satoshi Tomioka. 1997. Lowering and mid-size clauses. In *Proceedings of the 1997 Tübingen Workshop on Reconstruction*, ed. Graham Katz, Shin-Sook Kim, and Winhart Haike, 185–206.

Karttunen, Lauri. 1977. Syntax and semantics of questions. *Linguistics and Philosophy* 1:3–44.

Karttunen, Lauri, and Stanley Peters. 1980. Interrogative quantifiers. In *Time, tense, and quantifiers*, ed. Christian Rohrer, 181–205. Niemeyer.

Kataoka, Kiyoko. 2006. Neg-sensitive elements, neg-c-command, and scrambling in Japanese. In *Japanese/Korean Linguistics 14*, 221–233.

Kennedy, Christopher. 1994. Argument contained ellipsis. Linguistics Research Center Report LRC-94-03, University of California, Santa Cruz.

References V

Kennedy, Christopher. 2004. Argument contained ellipsis revisited. Manuscript.

Kim, Shin-Sook. 2002. Intervention effects are focus effects. In *Proceedings of Japanese/Korean Linguistics 10*, 615–628.

Kotek, Hadas. 2014. Composing questions. Doctoral Dissertation, Massachusetts Institute of Technology.

Kotek, Hadas. 2016a. Covert partial *wh*-movement and the nature of derivations. *Glossa* 1(1):1–19.

Kotek, Hadas. 2016b. On the semantics of *wh*-questions. In *Proceedings of Sinn und Bedeutung 20*.

Kotek, Hadas. 2017a. Dissociating intervention effects from superiority in English *wh*-questions. *The Linguistic Review* 34:397–417.

Kotek, Hadas. 2017b. Intervention effects arise from scope-taking over alternatives. In *Proceedings of NELS 47*, ed. Andrew Lamont and Katerina Tetzloff, 153–166. Amherst, MA: GLSA.

References VI

Kotek, Hadas. 2017c. Questioning superiority. In *A pesky set: Papers for David Pesetsky*, ed. Claire Halpert, Hadas Kotek, and Coppe van Urk, volume 80, 457–466. MITWPL.

Kotek, Hadas. 2019. *Composing questions*. Cambridge, MA: MIT Press.

Kotek, Hadas. in prep. Intervention arises from scope-taking over alternatives. Invited target article for *Theoretical Linguistics*.

Kotek, Hadas, and Michael Yoshitaka Erlewine. 2016. Covert pied-piping in English multiple *wh*-questions. *Linguistic Inquiry* 47:669–693.

Kratzer, Angelika, and Junko Shimoyama. 2002. Indeterminate pronouns: the view from Japanese. In *Proceedings of the 3rd Tokyo conference on psycholinguistics*, 1–25.

Li, Haoze, and Jess Law. 2016. Alternatives in different dimensions: A case study of focus intervention. *Linguistics and Philosophy* 39:201–245.

May, Robert. 1977. The grammar of quantification. Doctoral Dissertation, Massachusetts Institute of Technology.

May, Robert. 1985. *Logical Form: Its structure and derivation*. MIT Press.

References VII

Mayr, Clemens. 2014. Intervention effects and additivity. *Journal of Semantics* 31:513–554.

Mogi, Toshinobu. 2000. Toritate-shi-no kaisosei-ni tsuite [on the layeredness of focus particles]. In *Proceedings of the Fall 2000 meeting of the Society for Japanese Linguistics*, 54–61.

Nissenbaum, Jon. 2000. Investigations of covert phrase movement. Doctoral Dissertation, Massachusetts Institute of Technology.

Pesetsky, David. 2000. *Phrasal movement and its kin*. Cambridge, MA: MIT Press.

Rooth, Mats. 1985. Association with focus. Doctoral Dissertation, University of Massachusetts, Amherst.

Shibata, Yoshiyuki. 2015a. Exploring syntax from the interfaces. Doctoral Dissertation, University of Connecticut.

Shibata, Yoshiyuki. 2015b. Negative structure and object movement in Japanese. *Journal of East Asian Linguistics* 24:217–269.

References VIII

Shimoyama, Junko. 2011. Japanese indeterminate negative polarity items and their scope. *Journal of Semantics* 28:413–450.

Takahashi, Daiko. 1990. Negative polarity, phrase structure, and the ECP. *English Linguistics* 7:129–146.

Tomioka, Satoshi. 2007. Pragmatics of LF intervention effects: Japanese and Korean interrogatives. *Journal of Pragmatics* 39:1570–1590.

Williams, Edwin. 1974. Rule ordering in grammar. Doctoral Dissertation, Massachusetts Institute of Technology.

Yanagida, Yuko. 1996. Syntactic QR in *wh-in-situ* languages. *Lingua* 99:21–36.

F-marking

The focused constituent in the sentence is formally **F-marked** (Jackendoff 1972).

(55) $[\text{Mary}]_{\mathbf{F}}$ came $\Rightarrow$ "MARY came."

Alternatives to Mary (John, Sue, Bill) correspond to alternatives at the proposition level (John came, Sue came, Bill came).

Focus-sensitive operators quantify over these alternatives:

(56) a. **Only** $[\text{Mary}]_F$ came.

b. $\rightsquigarrow$ Mary came
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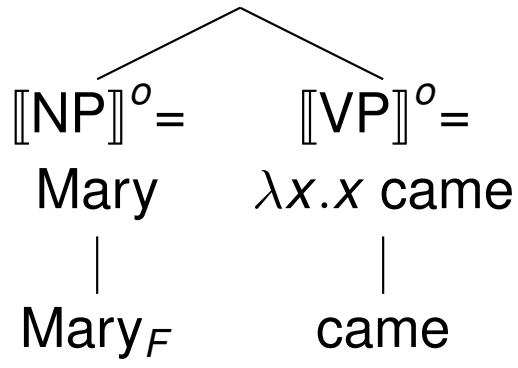
Alternative computation

Sentences are interpreted in a multi-dimentional system: Each node has an *ordinary value* $[\![\cdot]\!]^o$ & *focus value* $[\![\cdot]\!]^f$ (Rooth 1985, a.o.).

The focus-semantic value is the set of *alternatives* for a node. Nodes compose through **pointwise Function Application**.

(57) **Ordinary and alternative values for "[Mary]$_F$ came":**

a. $[\![S]\!]^o$ = that Mary came



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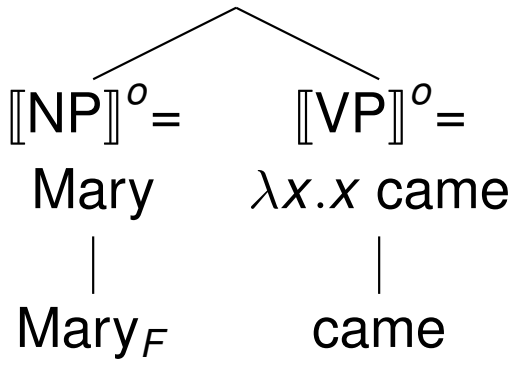

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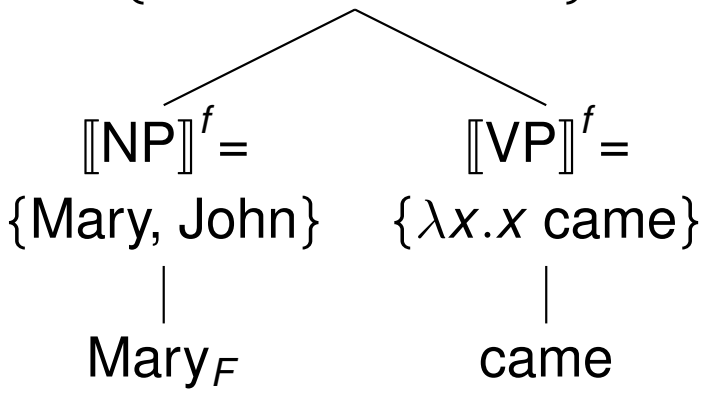
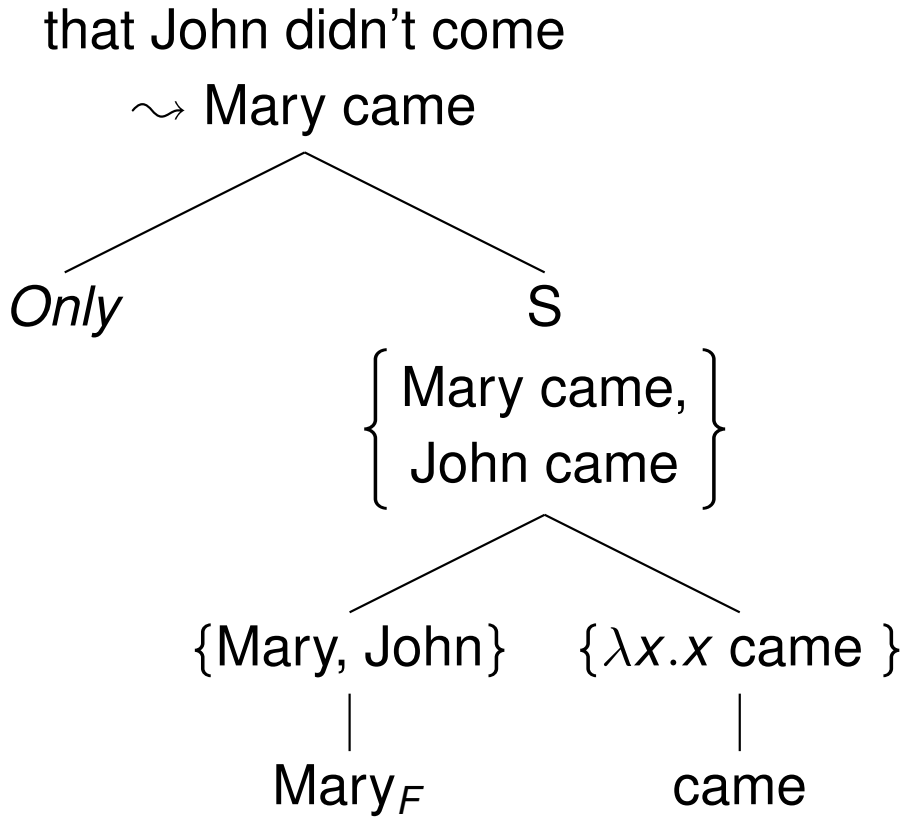


Alternative computation

Operators such as **only** operate on alternative values:

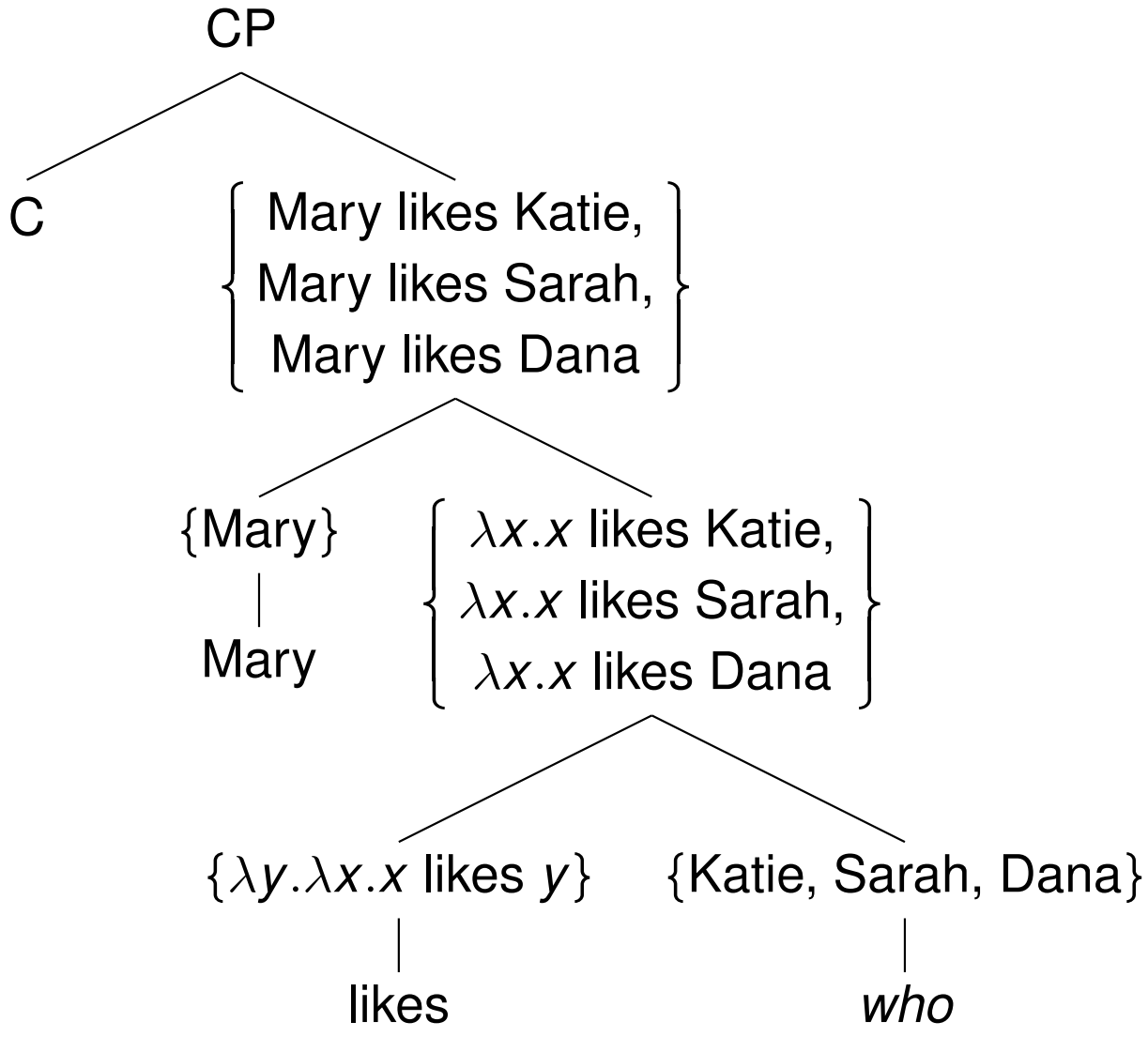
(58) **Only** [Mary]$_F$ came.



Alternative computation

Questions likewise can use Rooth-Hamblin alternatives:

(59)



Non-intervention through reconstruction

Consider the collective vs distributive interpretation of subjects:

(60) [Gakusei **zen'in**]-ga LGB-o ka-tta.
student all-NOM LGB-ACC buy-PAST

a. 'All the students together bought a copy of LGB.' collective

b. 'All the students each bought a copy of LGB.' distributive

Distributive interpretation requires scoping out of the event description (*v*P).

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Non-intervention through reconstruction

(61) [Gakusei **zen'in**]-ga *dono* *hon*-o ka-tta-no?
student all-NOM which book-ACC buy-PAST-Q

a. ✓ 'Which book(s) did the st's all buy together?' collective

b. * 'Which book(s) did the students all individually buy?'
(and they each bought other books too) distributive

Non-intervention by scoping out

- A “non-intervening” quantifier could “scope out” of the question.

(61) also has a *pair-list* reading, made salient by embedding:

(62) Sensei-wa [[gakusei **zen’in**]-ga *dono* *hon*-o ka-tta-ka]
teacher-TOP student all-NOM which book-ACC buy-PAST-Q
shiri-tai.
know-want
‘The teacher wants to know...

a. ✓ [which book(s) the students bought all together].’ collective

b. * [which book(s) the students bought individually].’ distributive

c. ✓ [for each student$_i$, which book(s) they$_i$ bought].’ pair-list

The pair-list reading can be derived by scoping the universal quantifier out of the question (see e.g. Karttunen and Peters 1980, Comorovski 1989, 1996).

Intervention in *wh*-movement languages

German also uses **Quantifier Raising** to rescue intervention configurations:

(63) a. *Wen* hat **jeder Junge** *wann* beobachtet?
who has every boy when observed

b. *Wen* hat *wann* **jeder Junge** beobachtet?
who has when every boy observed

(64) **Only wide scope reading attested for (63a);**
Both readings attested for (63b):

a. 'For every boy, who did he observe when?' wide scope

b. 'Who is s.t. every boy observed him when?' narrow scope

(Examples and paraphrases from Dayal 2016, p. 246)

No intervention if intervener scopes out of Q

- Intervention rescued via **QR** of a potential intervener:

(65) **Baseline: superiority-obeying question**

Tell me *which adult* **each kid** will try to persuade ____ to read *which book*. (Pesetsky 2000)

Two possible readings:

a. 'For each kid, which adult will she try to persuade to read which book?' ∀ > *book-adult pairs*

b. 'What book-adult pairs are s.t. each kid will try to persuade the adult to read the book?' *book-adult pairs* > ∀

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Tell me *which book* **each kid** will try to persuade *which adult* to read ____. (Pesetsky 2000)

Only one reading attested, through QR:

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- **Floating the quantifier fixes its scope**, preventing it from moving out of the way of the in-situ *wh*, leading to intervention.

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(68) *Which newspaper* did **everyone** write to ____ about *which book*?

a. Wide-scope answering pattern:
Bill wrote to the New York Times about book X,
Mary wrote to the Boston Globe about book Y, and
Tom wrote to the Maquoketa Sentinel about book Z.

b. Narrow-scope answering pattern:
Everyone wrote to the New York Times about book X,
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(69) *Which book* did **everyone** write to *which newspaper* about ____?

Only has answer pattern a, but not b. (Pesetsky 2000)

- *Every* must **scope out of the question** in superiority-violating questions, to avoid intervention.

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Successive cyclic movement

Prediction: if there is no λ-binders in intermediate landing sites of movement, parasitic gaps should not be licensed (Nissenbaum 2000).

(70) **baselines:**

a. ✓ *Which programmer* did you say solved *which bug* [before *pg* talking to her boss]?

b. ✓ *Which programmer* did you say solved *which bug* [after *pg* hearing from her boss about *pg*]?

c. * *Which programmer* did you say solved *which bug* [after hearing about *pg*]?

(71) **Test case:**

* *Which bug* did you say that *which programmer* solved [after hearing about *pg*]?

Intervention with CNPC

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

(72) Context: The linguists at the conference are very suspicious of rumors. However, each of them believed the rumor that we invited one philosopher to the conference party. What I want to know is:

Q: *Which* linguist believed the rumor [that we invited *which* philisopher]?

A: ✓ Pair-list answer:
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Intervention with CNPC

Add interveners: here, sentential negation.

(73) Context: The linguists at the conference are very suspicious of rumors. However, each of them believed the rumor that we failed to invite one philosopher to the conference party. What I want to know is:

Q: *Which* linguist believed the rumor [that we **didn't** invite *which* philosopher]?

A: ✓ Pair-list answer:
Chomsky believed the rumor that we didn't invite Quine,
Bresnan believed the rumor that we didn't invite Lewis,
Kratzer believed the rumor that we didn't invite Russell,
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- Intervener **inside** the island is **grammatical**.

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Q: *Which* linguist **didn't** believe the rumor [that we invited *which* philosopher]?

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Chomsky didn't believe the rumor that we invited Quine,
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- Intervener **above** the island causes an **intervention effect**.

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Intervention is about in-situ computation

(75) **Williams' generalization (Williams 1974:ch. 4):**
When an adjunct β is extraposed from a "source NP" α, the scope of α is at least as high as the attachment site of β (the extraposition site).

(Informally: extraposition extends the scope of α at least as high as β)

Intervention is about in-situ computation

Prediction: No intervention effect if we are able to extrapose the island high, above the intervener.

(76) **Extraposition allows exceptional wide scope for in-situ *wh*:**

a. ✓ *Which* linguist believed the rumor [that we **didn't** invite *which* philosopher]?

b. * *Which* linguist **didn't** believe the rumor [that we invited *which* philosopher]?

c. ? *Which* linguist **didn't** believe the rumor yesterday [that we invited *which* philosopher]?

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c. ? *Which* linguist **didn't** believe the rumor yesterday [that we invited *which* philosopher]?

Intervention with non-bridge verbs

(77) **Non-bridge verbs are also an island for extraction:**

a. * *Which* linguist **didn't** shout [that we invited *which* philosopher]?

b. *Which* linguist shouted [that we **didn't** invite *which* philosopher]?

Intervention with three *wh*s

(78) **Questions w/three *wh* exhibit intervention *above* but not *inside* island:**

a. * *Which* linguist **didn't** believe the rumor [that *which* student invited *which* philosopher]?

b. *Which* linguist believed the rumor [that *which* student **didn't** invite *which* philosopher]?

Intervention with three *wh*s

If two *wh*-phrases occur outside the island with the intervener and one is inside the island, we get a pairlist reading with a third triplet held constant:

(79) **Questions with three *wh*: pair-list reading for *wh*s above island**
Which linguist **didn't** tell *which* philosopher about the rumor [that *which* student had won a dissertation prize]?

Intervener in island causes intervention in German

(80) ✓ *Welcher* Philosoph wird sich aergern wenn wir *welchen*
which philosopher will self be upset if we which
Linguisten einladen?
linguist invite
'Which philosopher will be offended if we invite which linguist?'

(81) * *Welcher* Philosoph wird sich aergern wenn **niemand**
which philosopher will self be upset if no one
welchen Linguisten einlaedt?
which linguist invite
'Which philosopher will be offended if no one invites which linguist?'

Overt scrambling of apparent in-situ *wh* in German

German *wh*-in-situ involves overt short scrambling (Hallman 1997)

(82) a. *Wer* hat denn (das Buch) gestern (das Buch) gelesen?
who has *denn* (the book) yesterday (the book) read
'Who read the book yesterday?'

b. *Wer* hat denn (*was*) gestern (**was*) gelesen?
who has *denn* (what) yesterday (what) read
'Who read what yesterday?'

c. *Wer* hat denn (die Maria) gestern (die Maria) angerufen?
who has *denn* (the Maria) yesterday (the Maria) called
'Who called Maria yesterday?'

d. *Wer* hat denn (*wen*) gestern (**wen*) angerufen?
who has *denn* (who) yesterday (who) called
'Who called who yesterday?'

Superiority-violating questions and extraposition

(83) **ACD with adjunct and extraposition ameliorates intervention:**

a. * *Which toxin* did you say that you'd never spray *which spy* with?

b. ? *Which toxin* did you say that you'd never spray *which spy* with in a loud voice [who Mary also did ~~say that . . .~~ in a whisper].

c. * *Which toxin* did you claim to never have sprayed *which spy* with?

d. ? *Which toxin* did you claim to never have sprayed *which spy* with in a loud voice [who Mary also did ~~claim that . . .~~ in a whisper].

From (Branan 2017)

Superiority-violating questions and parasitic gaps

Context: The boys at summer camp were supposed to get one candy bar each. They could choose any of the three, so long as they weren't allergic to the candy bar they chose. Your job was to inform the parents of the campers of the ingredients of these candy bars. You did your job! I heard some great news: all of the boys were denied their choice of candy bar, since they were allergic to it. What I'm now wondering is:

(84) a. *Which boy*$_1$ didn't they give *which candy bar*$_2$ to [because you told at least one parent of _____$_1$ about the ingredients in _____$_2$]?

b. *wh* > CAUS > NEG

c. ✓Pair-list answer:

It's because you told a parent of his about the ingredients in it that they didn't give Billy a Mars Bar;

It's because you told a parent of his about the ingredients in it that they didn't gave Jimmy an Almond Joy;. . .

From (Branan 2017)

A-movement chains and intervention

Subjects of individual-level predicates must vacate *v*P (Diesing 1992). Hence, the subject can't reconstruct and we observe intervention:

(85) a. ✓ *Which* person are **counselors** available to discuss *which* issue with ____? *stage-level*

b. * *Which* person are **counselors** careful to discuss *which* issue with ____? *individual-level*

cf plural *wh*-phrases lead to "plural" single-pair:

(86) ✓ *Which* people are **counselors** careful to discuss *which* issues with ____?

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Intervention in superiority-obeying questions

NPIs are licensed in downward entailing contexts:

(87) a. Mary *(**didn't**) read <u>any</u> books.

b. *Which* boy {**didn't** give, *gave} *which* girl <u>any</u> flowers?

Prediction: NPI inside a *wh*-phrase can't move out of the scope of negation. Negation is an intervener. **Expect intervention effects.**

(88) a. ✓ *Which* boy **didn't** read *which* book about some president?

b. * *Which* boy **didn't** read *which* book about <u>any</u> president?

Movement and intervention: Focus association

A focused item cannot move out of the scope of its associated operator:

(89) a. * Mary$_F$, John **only** likes ____.
Intended: 'As for Mary, John only likes her$_F$ (he doesn't like anyone else).'

b. ✓ John **only** likes Mary$_F$.

(90) a. * *Who*$_F$ do you **only** like ____?
Intended: Who *x* is such that you like only *x*?

b. ✓ You **only** like *who*$_F$?

Movement and intervention: Focus association

Prediction: Focus inside a *wh*-phrase can't move out of the scope of ***only***. ***Only*** is an intervener. **Expect intervention effects.**

(91) a. Baseline: I can tell you [*which* student read *which* book].

b. Context: The students in the class were supposed to read one book *and* one article about syntax. However, everyone got confused and read one book *or* one article. I've been reading everyone's squibs. I've finished all the ones about books, so:

* I can tell you [*which* student **only** read *which* book$_F$ (about syntax)].

Turning non-interveners into interveners

Argument contained ellipsis (ACE) (Kennedy 1994, 2004) requires movement for its interpretation.

(92) a. The woman who said she would △ bought the tuna.

b. The woman who said she would ~~buy the tuna~~

[*t* did buy the tuna].

NB: Definite descriptions like *the woman* can otherwise be interpreted without movement.

Non-interveners and Argument Contained Ellipsis

(93) **Baselines (*obeying* and *violating*):**

a. ✓ *Which boy* did you tell **someone** to introduce _____ to *which girl*?

b. ✓ *Which girl* did you tell **someone** to introduce *which boy* to _____?

(94) **More elaborate baselines:**

a. ✓ *Which boy* did you tell [**someone** who (really) shouldn't be here] to introduce _____ to *which girl*?

b. ✓ *Which girl* did you tell [**someone** who (really) shouldn't be here] to introduce *which boy* to _____?

(95) **ACE test case:**

a. ✓ *Which boy* did you tell [**someone** who (really) shouldn't △] to introduce _____ to *which girl*?

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Non-interveners and Argument Contained Ellipsis

(96) **This happens with other traditional non-interveners too:**

a. ✓ *Which boy* did you tell [{**the, a, some**} **man** who (really) shouldn't be here] to introduce ____ to *which girl*?

b. ✓ *Which girl* did you tell [{**the, a, some**} **man** who (really) shouldn't be here] to introduce *which boy* to ____?

(97) a. ✓ *Which boy* did you tell [{**the, a, some**} **man** who (really) shouldn't △] to introduce ____ to *which girl*?

b. * *Which girl* did you tell [{**the, a, some**} **man** who (really) shouldn't △] to introduce *which boy* to ____?

- **ACE forces covert movement of an otherwise in-situ element.**

As a result, we observe intervention effects in superiority-violating Qs.