Movement and alternatives don't mix: Evidence from Japanese

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Amsterdam Colloquium 2017
December 2017

Wh-in-situ and intervention effects

(1) Hanako-ga *nani-o* yon-da-no?
Hanako-NOM what-ACC read-PAST-Q
'What did Hanako read?'

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

(2) a. * **Dare-mo** *nani-o* yoma-nak-atta-no?
who-MO what-ACC read-NEG-PAST-Q

b. ✓ *Nani-o* **dare-mo** __ yoma-nak-atta-no?

what-ACC who-MO read-NEG-PAST-Q
'What did no one read?' (Tomioka, 2007, 1571–1572)

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Wh-in-situ and intervention effects

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

(3) **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 questions:**

- What counts as an intervener?

(4) ***Subete* 'all' is not an intervener (cf 2a):**

✓ [**Subete**-no gakusei]-ga *nani*-o yon-da-no?
all-GEN student-NOM what-ACC read-PAST-Q
'What did every student read?'

- What causes intervention?
  - Focus semantics (Beck, 2006; Beck and Kim, 2006)
  - Quantification (Beck, 1996; Mayr, 2014)
  - Anti-topic items (Grohmann, 2006)
  - Prosodic mismatch (Tomioka, 2007)

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Today

☞ We consider intervener-hood and scope properties of different quantifiers in Japanese and establish the generalization in (5):

(5) **Generalization: Intervention correlates with scope-taking**
Scope-rigid quantifiers above an in-situ *wh* cause intervention. Quantifiers that allow scope ambiguities with respect to negation — i.e., which can reconstruct into a base position — do not.

Proposal

The problem is not with quantification in regions of alternative computation, but rather with quantifiers in *derived* positions:

(6) **The new intervention schema**

* LF: C ... λ ... *wh*

Heim and Kratzer (1998): **a λ-binder is introduced below the landing site of movement**, abstracting over the trace.

(7) **Predicate Abstraction:**

PA in regions of alternative computation is not well-defined (Rooth, 1985; Poesio, 1996; Novel and Romero, 2009; Shan, 2004). (See Appendix.)

Movement can't target a region where alternatives are computed.

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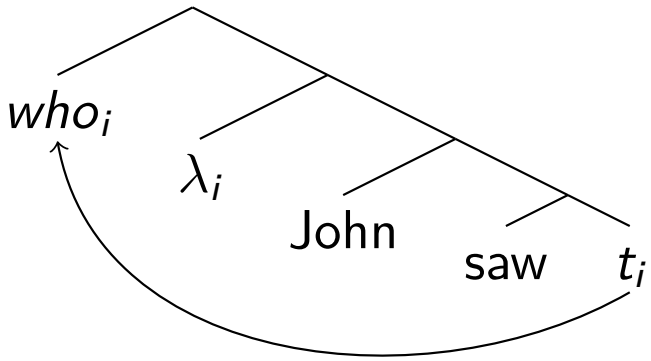

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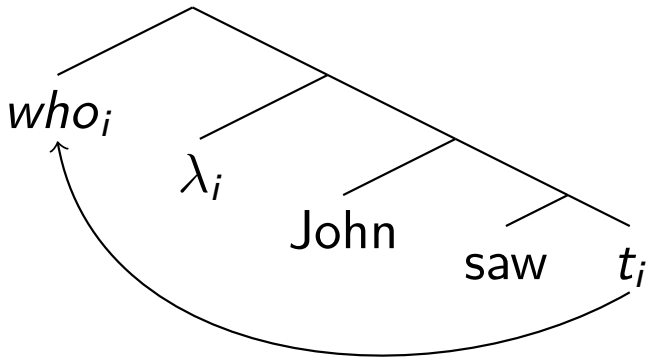

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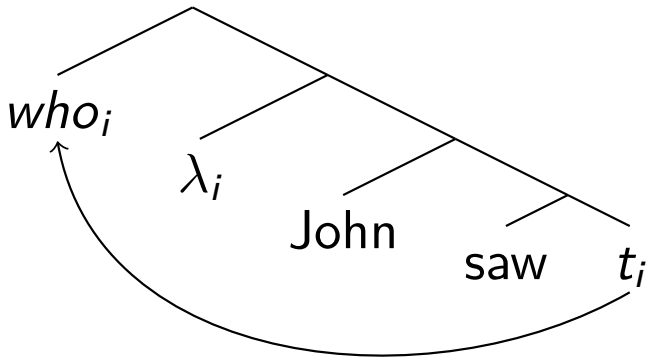

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§2 *Intervention tracks scope-rigidity*

Shibata's correlation

Quantifiers in Japanese vary in their ability to take scope under negation: only Q $>$ Neg, or Q $>$ Neg / Neg $>$ Q.

☞ 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*:

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

a. [Taro **ka** Jiro]-ga ko-**nak**-atta.
Taro or Jiro-NOM come-NEG-PAST (Shibata, 2015a:23)
'Taro or Jiro didn't come.' ✓or > not, *not > or

b. [Taro **naishi** Jiro]-ga ko-**nak**-atta.
Taro or Jiro-NOM come-NEG-PAST (Shibata, 2015a:96)
'Taro or Jiro didn't come.' ✓or > not, ✓not > or

(9) ***ka*-disjunction is an intervener; *naishi* is not:**

a. ??? [Taro **ka** Jiro]-ga *nani*-o yon-da-no?
Taro or Jiro-NOM *what*-ACC read-PAST-Q (Hoji, 1985:264)

b. ✓ [Taro **naishi** Jiro]-ga *nani*-o yon-da-no?
Taro or Jiro-NOM what-ACC read-PAST-Q
'*What* did [Taro or Jiro] read?' (Shibata, 2015a:98)

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Taro or Jiro-NOM what-ACC read-PAST-Q
'*What* did [Taro or Jiro] read?' (Shibata, 2015a:98)

Intervention tracks scope-rigidity

☞ We show that Shibata's correlation extends to other quantificational DPs as well, supporting (5), repeated here:

(5) **Generalization: Intervention correlates with scope-taking**
Scope-rigid quantifiers above an in-situ *wh* cause intervention. Quantifiers that allow scope ambiguities with respect to negation— i.e., which can reconstruct into a base position — do not.

Universals

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

a. **Da're**-o-**mo** tsukamae-**nak**-atta.
who-ACC-MO catch-NEG-PAST

'*pro* did not catch anyone.' ✓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

(11) ***wh-mo* is an intervener; *subete* is not:**

a. ?? **Da're-mo**-ga *nani*-o kai-mashi-ta-ka?
who-MO-NOM what-ACC buy-POLITE-PAST-Q
Intended: 'What did everyone buy?' (Hoji, 1985:270)

b. ✓ [**Subete**-no gakusei]-ga *dono-mondai*-o toi-ta-no?
all-GEN student-NOM which-problem-ACC solve-PAST-Q
'Which problem(s) did every student solve?'

Two positions for *-dake* 'only'

(20) **-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. 'Taro hasn't talked only with H.' ✓only $>$ not, *not $>$ only

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

lit. 'Taro hasn't talked with only H.' ✓only $>$ not, ✓not $>$ only

Two positions for *-dake* 'only'

(21) **-P-*dake* is an intervener; -*dake*-P is not:**

a. ??? Taro-wa Hanako-to-**dake** *nani*-o tabe-ta-no?
Taro-TOP Hanako-with-only what-ACC eat-PAST-Q

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?	◯ (8a)	× (8b)	◯ (10a)	× (10b)	◯ (12)	◯ (12)	◯*
intervener?	◯ (9a)	× (9b)	◯ (11a)	× (11b)	◯ (13)	◯ (14)	◯ (2b)

	NPI only	indefinite	modified	only	
	-shika	*wh-ka*	numerals	-P-*dake*	*-dake*-P
scope-rigid?	◯*	◯ (16)	× (18)	◯ (20a)	× (20b)
intervener?	◯ (15)	◯ (17)	× (19)	◯ (21a)	× (21b)

* See Kataoka (2006) and Shimoyama (2011) on the rigid wide scope of so-called NPIs.

§3 Analysis

Analysis

1. All arguments evacuate *v*P in Japanese (Shibata, 2015a,b), moving out of NegP (if present). We adopt the *v*P-internal subject hypothesis for Japanese (see e.g. Fukui, 1986; Kitagawa, 1986; Kuroda, 1988).
2. Some (but not all) quantifiers can reconstruct into base positions.
3. Intervention reflects the uninterpretability of (6) at LF:

(6) **Kotek (2017) intervention schema** (repeated)

* LF: C ... λ ... *wh*

The logical problem caused by (6) has been discussed by Rooth (1985); Poesio (1996); Novel and Romero (2009); Shan (2004). (See Appendix.) Kotek (2017) proposes that this is the source of intervention effects.

A quantifier moved above *wh* could lead to (6), but quantifiers that can reconstruct into *v*P can avoid (6) at LF.

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(22) **Scope-rigidity in Japanese (Shibata, 2015a,b):**

a. All arguments move out of *v*P:

$[_{CP} \ldots \overset{\uparrow}{DP} \ldots [_{vP} \ldots \underset{\downarrow}{t} \ldots V\ ]\ ]$

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

LF: $[_{CP} \ldots DP\ \boldsymbol{\lambda x} \ldots [_{NegP} [_{vP} \ldots \boldsymbol{x} \ldots V\ ] Neg\ ]\ ]$ DP > Neg

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

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LF: $[_{CP} \ldots \text{DP } \boldsymbol{\lambda x} \ldots [_{NegP} [_{vP} \ldots \boldsymbol{x} \ldots \text{V}] \text{Neg}]]$ DP $>$ Neg

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Analysis

(23) **Deriving the generalization (5):**

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

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

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

* LF: $[_{CP}$ C ... DP λx ... *wh* ... $[_{vP}$ ... x ... V]]

c. Reconstruction avoids the intervention configuration:

✓ LF: $[_{CP}$ C ... *wh* ... $[_{vP}$ ... DP ... V]]

d. Scrambling *wh* above also avoids intervention:

✓ LF: $[_{CP}$ C ... *wh* λy ... DP λx ... y ... $[_{vP}$ ... x ... V]]

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Predictions

This analysis makes a number of predictions:

- A "non-intervening" quantifier is interpreted as reconstructed in *v*P (or otherwise moved out of the way).
- Quantifiers that are base-generated high and can be interpreted in their base positions are not interveners.

Non-intervention through reconstruction

☞ A "non-intervening" quantifier is interpreted as reconstructed in *v*P.

(24) 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)

b. ? 'What does Taro not eat with only Hanako$_F$?' not > only
Answer: Dimsum (because it's better with more people)

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Non-intervention through reconstruction

Consider also the collective vs distributive event interpretation of subjects:

(25) [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

(26) [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 students all buy together?'
collective

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

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Non-intervention by scoping out

☞ A "non-intervening" quantifier could "scope out" of the question.

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

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

a. ✓ 'The teacher wants to know [which book(s) the students all bought together].' collective

b. * 'The teacher wants to know [which book(s) the students all bought individually].' distributive

c. ✓ 'The teacher wants to know [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).

Base-generated quantifiers

What we have seen so far is compatible with the interpretation of *wh*-in-situ being interrupted by (a) *any* quantification or (b) λ-binders of quantifiers in *derived* positions.

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

Base-generated quantifiers

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Base-generated quantifiers

(28) **Temporal modifiers base-generated high do not cause intervention:**

✓ Taro-wa kayoubi-ni-**dake** *nani*-o tabe-ru-no?
Taro-TOP Tuesday-on-ONLY what-ACC eat-NONPAST-Q
'What does Taro eat only on Tuesdays?'

Recall that -P-*dake* was an intervener above (21). -*dake* in (28) is on a temporal modifier which is base-generated high and can be interpreted in-situ.

§4 Conclusion

Conclusion

1. Intervention effects track the ability of quantifiers to reconstruct:

   (5) **Generalization: Intervention correlates with scope-taking**
   Scope-rigid quantifiers above an in-situ *wh* cause intervention.
   Quantifiers that allow scope ambiguities with respect to negation — i.e., which can reconstruct into a base position — do not.

2. Intervener-hood is not predicted from a quantifier surface position nor from its semantics.
3. Instead, everything that **moves** into a position above *wh*-in-situ and is interpreted there causes intervention.
4. Intervention can be avoided by
   - Scrambling the *wh* above the quantifier.
   - Reconstructing the quantifier below *wh*.
   - Scoping the quantifier out of the question.

   ...for items that allow reconstruction/quantifying-in.
5. Problematic for all previous accounts of intervention effects, which assume a fixed set of interveners, but predicted by Kotek (2017).

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Thank you!

Thank you! Questions?

For comments and questions on this work, we thank participants of the NYU seminar on *wh*-constructions cross-linguistically and the NUS syntax/semantics reading group—in particular Lucas Champollion, Chris Collins, Paloma Jeretic, Haoze Li, Anna Szabolsci—as well as audiences at Stony Brook University and at the University of Pennsylvania. For discussion of judgments, we thank Minako Erlewine, Hiroki Nomoto, Yohei Oseki, and Yosuke Sato. Errors are each other's.

Existential codas

☞ An environment which disallows scope reconstruction makes *any* quantifier an intervener.

Existential "codas" cannot take narrow scope with respect to negation:

(29) **Existential coda must scope above negation:**

[Itsu-tsu-ijyoo-no machi]-ni neko-ga i-nai.
five-CL-or.more-GEN town-LOC cat-NOM EXIST-NEG
'There are no cats in five or more towns.'
✓$(\geq 5) >$ not $> \exists$, *not $> (\geq 5) > \exists$

Recall that modified numerals 'five or more' generally allow scope reconstruction, allowing narrow scope with respect to negation (18).

Existential codas

(30) a. Baseline *wh* in the existential pivot:

Kono-machi-ni(-wa) [*nani*-iro-no neko]-ga iru-no?
this-town-LOC-TOP what-color-GEN cat-NOM EXIST-Q
'What color cats are there in this town?'

b. ?? [**Subete**-no machi]-ni [*nani*-iro-no neko]-ga iru-no?
all-GEN town-LOC what-color-GEN cat-NOM EXIST-Q
Intended: 'What color cats are there in every town?'

c. ?? [**Itsu-tsu-ijyoo**-no machi]-ni [*nani*-iro-no neko]-ga iru-no?
five-CL-or.more-GEN town-LOC what-color-GEN cat-NOM EXIST-Q
Intended: 'What color cats are there in five or more towns?'

d. ?? Tokyo-**dake**-ni [*nani*-iro-no neko]-ga iru-no?
Tokyo-only-LOC what-color-GEN cat-NOM EXIST-Q
Intended: 'What color cats are there only in Tokyo?'

The quantifiers in (30b–d) were all non-interveners above in §1. (30b–d) are all grammatical with scrambling of the pivot (NOM) above the coda

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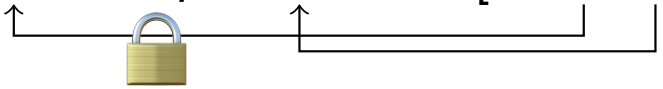
Existential codas

☞ We propose that existential codas are generated low but must move out and cannot reconstruct if quantificational.

(31) *coda*-LOC *pivot*-NOM [$_{vP}$ *t* *t* EXIST]



All quantifiers are interpreted high using Predicate Abstraction, disrupting *wh*-in-situ in the pivot.

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