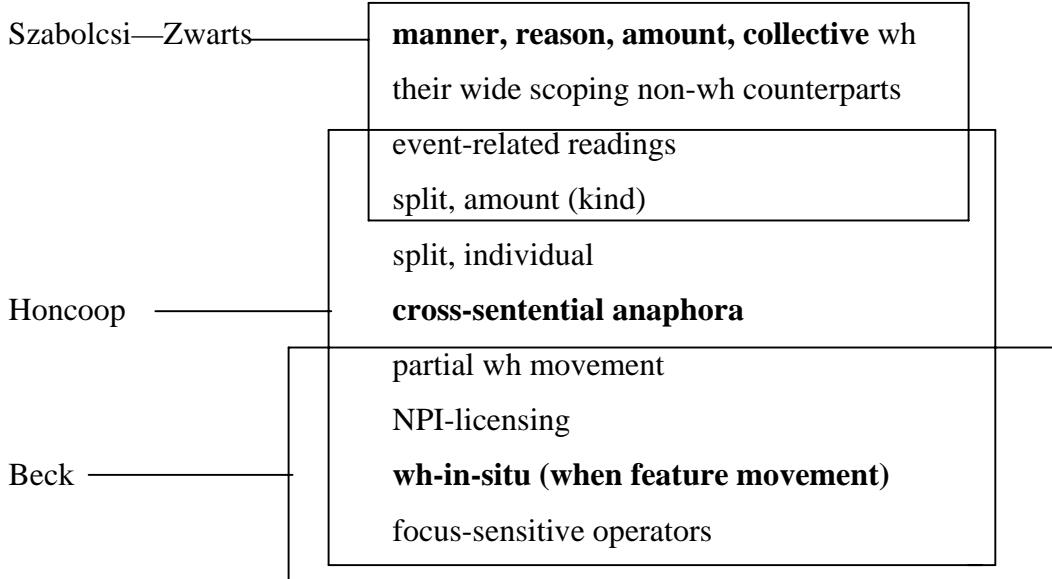


How unitary are intervention effects?

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1.1 Szabolcsi—Zwarts 1993: algebraic semantics of scope taking

what	<u>Mary read</u> --	$\{x: M \text{ read } x\}$
	<u>Mary did not read</u> --	$-\{x: M \text{ read } x\}$
	<u>every girl read</u> --	$\{x: M \text{ read } x\} \cap \{x: K \text{ read } x\} \cap \{x: S \text{ read } x\}$
	<u>two or more girls read</u> --	$\{ \{x: M \text{ read } x\} \cap \{x: K \text{ read } x\} \} \cup \{ \{x: K \text{ read } x\} \cap \{x: S \text{ read } x\} \} \cup \dots$

Intervention sensitive are those operators the denotation of whose scope does not lend itself to all the Boolean operations: mere (semi-)lattice denotations.

Intervenors are those operators which want to perform Boolean operations that cannot be performed on the (relevant part of the) denotation of scope.

how	<u>Mary behaved</u> --	$\iota x[M \text{ behaved } x\text{-ly}]$
	<u>*Mary did not behave</u> --	$\# \neg \iota x[M \text{ behaved } x\text{-ly}]$
	<u>*every girl behaved</u> --	$\# \iota x[M \text{ behaved } x\text{-ly}] \cap \iota x[K \text{ bhvd } x\text{-ly}] \cap \iota x[S \text{ bhvd } x\text{-ly}]$
	<u>*two or more girls behaved</u> --	$\# [\iota x[M \text{ behaved } x\text{-ly}] \cap \iota x[K \text{ behaved } x\text{-ly}]] \cup \dots$

1.2 Honcoop 1998: dynamic semantics of existential disclosure

Inaccessibility effects in non-c-command anaphora:

I have a new coat. It is grey. dynamic binding

I don't have a new coat. *It is / isn't grey.

Every boy has a new coat. *It is grey.

Two or more boys have a new coat. *It is grey.

\$ (...indefinite...) ... *pronoun ...

Dekker 1993: Existential Disclosure (ED):

(a) $\exists x[M \text{ arrived from}(x)]$	\Rightarrow ED, using dynamic binding
(b) $\{y: \exists x[M \text{ arrived from}(\underline{x})] \& y=\underline{x}\}$	=
(c) $\{y: M \text{ arrived from}(y)\}$	

Intervention sensitive are those constructions whose interpretation necessitates the removal of an existential quantifier and thus the use of Existential Disclosure.

Interveners are those operators \$ that create inaccessible domains for non-c-command anaphora and thus block Existential Disclosure.

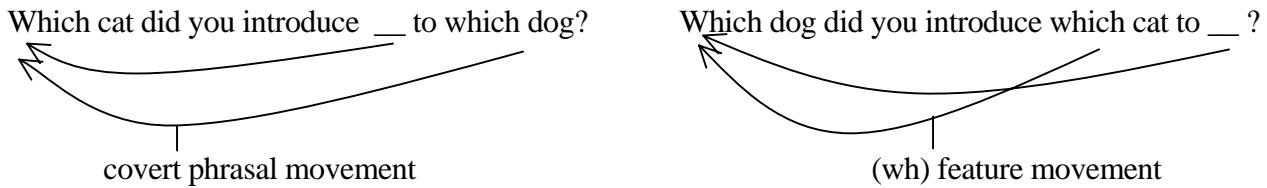
- *combien ...(\$... de camions)... (split, amount; $\exists de camions$)
- *wat ... (\$... aan boeken)... (split, individuals; $\exists boeken$)
- *kyaa ... (\$... kahaaN ...)... (partial wh-movement, Dayal; $\exists kahaaN$)
- *no one ...(\$... anything) ... (computation of scalar alt's; $\exists anything$: ED but no split)

1.2.1 Extensions of Honcoop's account:

- Szabolcsi 2004: Resumptive quantifier analysis of NPI licensing: operator/restrictor split

*no<x,y>[person x ... \$... thing y]

- Pesetsky 2000: Feature movement is operator/restrictor split



Feature movement, though not overt or covert phrasal movement, can violate superiority (superficially speaking) and is blocked by intervention:

Which cat did only you introduce to which dog?
[every boy]

*Which dog did only you introduce which cat to?
[every boy]

- Butler—Mathieu 2004: Adjuncts reconstruct (Williams), hence operator/restrictor split

$[\text{CP how}...]$ \Rightarrow $[\text{CP Q} \dots [\text{TP...how}...]]$

Problem: *in which of these ways* and D-linked *how* are adjuncts but immune to intervention; dir.obj. *what/how much* and collective arguments are not adjuncts but intervention sensitive.

Szabolcsi—Zwarts vs. Honcoop:

Purely denotational semantics vs. logico-syntax of anaphora & split in syntax proper.

Apply to largely different intervention sensitive relations.

Predict the same interveners.

1.3 Beck 2006: intervention effects follow from focus interpretation

- Background: Rooth's theory of focus: Mary only [VP introduced Bill_F to Sue].

Focus semantic value of VP (alternatives induced by focus on *Bill*):

$$C = \{\wedge \text{introduced Bill to Sue, } \wedge \text{introduced Mary to Sue, } \dots\}$$

$$\text{only}(C)(\sim C(\text{VP}))(mary) : \forall P[(P \in C \ \& \ P(\text{mary})) \rightarrow P = \text{VP}']$$

'for every property P, where P comes from the set C and holds of Mary, P is VP'

where $\sim C(\text{VP})$ is the ordinary semantic value of VP and C is a contextually relevant subset of the focus semantic value of VP, i.e., $C \subseteq \{P : \text{Ey}[P = \wedge \{x : \text{introduce}(x, y, s)\}]\}$

- Relevant to Beck: The \sim operator, which fixes the value of C that restricts *only*, resets the focus semantic value of its own mother node to the ordinary semantic value of VP, so that the alternatives introduced by this focus cannot be used by another operator beyond *only*.

- Beck adds:

The variable that replaces the focussed expression is a distinguished variable.

Wh-phrases and scalar NPIs are also distinguished variables (introduce alternatives). Traces are not.

Wh-phrase wants to be directly bound by Q operator, NPI by affective operator.

The \sim operator unselectively binds all distinguished variables in its scope.

Hence, if \sim intervenes between Q/Aff and wh-phrase/NPI, it unselectively binds the distinguished variable of the wh-phrase/NPI. Hence the wh-phrase/NPI will never get bound by Q/Aff.

Intervention sensitive are those expressions that introduce alternatives (i.e. distinguished variables).
Interveners are those operators that have \sim appended to their scope.

What operators (may) have \sim appended to their scope? All and only those operators that may have focus affected readings, even if in the given sentence there is no focus affected reading. In the latter case the C in $\sim C$ and the C in the restriction are just not coindexed. But allows for flexibility in whether \sim is present then (!).

Everyone saw BILL. possible focus affected reading: every(human \cap saw someone)(saw Bill)

Therefore: *Which dog did **every** man introduce which cat to?
 every(man \cap C₂)(\sim C₁ (introduced *which cat* x to y))

*I don't think that **every** boy lost any weight.

*Wen hat **nur** der Dick wo gesehen?
 who has only the Dick where seen

*minsu-**man** nuku-lul po-ass-ni versus $\sqrt{}$ nuku-lul minsu-**man** po-ass-ni
 Minsu-only who-acc see-past-Q who-acc Minsu-only see-past-Q

2 Some test cases for Beck 2006:

- Operators that cannot have focus affected readings cannot be interveners. Intersective operators cannot have focus-affected readings.

More than two men introduced Bill_F to Sue.

>2(men \cap intr. someone to S)(introduced B to S) = by CONS

>2(men \cap intr. someone to S)(men \cap intr. someone to S \cap introduced B to S) = by INT

>2(men \cap intr. someone to S \cap introduced B to S) (men \cap introduced B to S \cap intr. someone to S)

Do intersectives act as interveners – if yes, in what empirical domain?

- Positive polarity items like *someone* are not thought to introduce alternatives. But their anti-licensing is blocked by operators that count as interveners in NPI-licensing and in other sensitive constructions (Szabolcsi 2004).

2.1 English speakers who can get a list of pairs reading for singular wh in (11); see Appendix

- (1) How did Mary react to the cell phone ban? – Rather calmly.
- (2) * How did **none** of the teachers react to the cell phone ban?
- (3) * How did every council member react to the cell phone ban? [wh>every]
- (4) * How did **more than one** parent react to the cell phone ban?
- (5) * How did **fewer/less than five** teachers react to the cell phone ban?
- (6) * How did **more** teachers **than** parents react to the cell phone ban?

- (7) I don't think that Bill lost any of his books / any weight.
- (8)* I don't think that every boy lost any of his books / any weight.
- (9)? I don't think that **more than one** boy lost any of his books / any weight.
- (10)? I don't think that **more** boys **than** girls lost any of their books / any weight.

Group A (majority in sample):

- (11) Which student did the teacher recommend which book to?
- (12) * Which student did **no** teacher recommend which book to?
- (13) * Which student did every teacher recommend which book to? [wh>every]
- (14) * Which student did **more than one** teacher recommend which book to?
- (15) * Which student did **fewer/less than five** teachers recommend which book to?
- (16) * Which student did **more** teachers **than** friends recommend which book to?

Group B (minority in sample):

- (11) Which student did the teacher recommend which book to?
- (12) * Which student did **no** teacher recommend which book to?
- (13) * Which student did every teacher recommend which book to? [wh>every]
- (14) ? Which student did **more than one** teacher recommend which book to?
- (15) * Which student did **fewer than five** teachers recommend which book to?
- (16) ? Which student did **more** teachers **than** friends recommend which book to?

2.2 German (excluding collective/cumulative readings)

(17) Wie hat Maria auf das Telefonverbot reagiert? -- Ziemlich gelassen.
 (18) ? Wie hat **keiner** der Lehrer auf das Telefonverbot reagiert?
 (19) ? Wie hat jedes Ratsmitglied auf das Telefonverbot reagiert?
 (20) ?(?) Wie hat **mehr als ein** Vater auf das Telefonverbot reagiert?
 (21) ?(?) Wie haben **weniger als fünf** Lehrer auf das Telefonverbot reagiert?
 (22) ?? Wie haben **mehr** Lehrer **als** Eltern auf das Telefonverbot reagiert?
 (23) ? Wie hat nur Maria auf das Telefonverbot reagiert?

 (24) Was hat Maria für ein Buch gekauft?
 (25)?(?) Was hat **kein** Junge für ein Buch gekauft?
 (26) ? Was hat jeder Junge für ein Buch gekauft?
 (27) ? Was haben **mehr als drei** Jungs für ein Buch gekauft?
 (28) ? Was haben **weniger als drei** Jungs für ein Buch gekauft?
 (29) ?(?) Was haben **mehr** Jungs **als** Mädchen für ein Buch gekauft?
 (30) ?? Was hat nur Maria für ein Buch gekauft?

 (31)?* Wen haben **keine** Jungs wo gesehen?
 (32) ?? Wen haben **weniger als drei** Jungs wo gesehen?
 (33) Wen haben **mehr als drei** Jungs wo gesehen?
 (34) Wen haben **mehr** Jungs **als** Mädchen wo gesehen?

2.3 Korean ??? (could not replicate judgments cited in Beck 2006)

(35)?? **more/less than 5** kids how much water drank ?? how much water **more/less than 5 kids** drank

(36) Minsu-only whom saw whom Minsu-only saw
 (37) **more/less than 3** boys whom saw whom **more/less than 3** boys saw

3 Taking stock

- No theory to date accounts for all the intervention cases (Butler—Mathieu doesn't seem to successfully generalize Honcoop to the outstanding Szabolcsi—Zwarts cases).
- For English speakers Group A, the same interveners seem to interfere with *how* extraction, NPI-licensing, and pair-list with superiority-violating wh in situ. This might call for a unified theory.
- For English speakers Group B, pair-list with superiority-violating wh in situ seems to differ from the other sets. These judgments are somewhat similar to German pair-list with normal wh in situ judgments. This might call for a non-unified theory. But none of the theories at hand predicts this pattern.
 - (i) Where wh in situ has feature movement, both Honcoop and Beck would class it with NPI-licensing.
 - (ii) None of the theories predict decreasing intersectives to be worse than increasing intersectives.
- Beck's prediction that only (potentially) focus affected operators induce intervention effects does not seem to be borne out in any of the data sets investigated (all or some intersectives act as interveners).

4 Honcoop vs. Beck

Both logico-syntactic, but Beck postulates more ad hoc features: (a) presence of ~ in absence of focus and (b) flexibility in presence of ~. Indeed necessary (Beck 2006: 49-51)?

Thai:

(38) Nit not buy book which [possibly stressed negation? -- AS]
 `Which book didn't Nit buy?'
 (39) *nobody like read book which [possibly stressed negation? -- AS]
 `Which book does nobody like to read?'

Korean:

(40) often have man be in garden. *he smoke cigarette.
 (41) Minsu-top often who-acc party-dir take-past-Q [possibly presuppositional reading? – AS]
 `Who did Minsu often take to the party?'

5 Appendix on single pair readings of multiple wh questions

“For example, suppose you pass a classroom and hear the teacher yelling. You know that this teacher only yells at the class when a student has failed to read his or her book for that day. In such a context (and only in such a context), some speakers accept a question like *Which book didn't which person read today?* For the time being I will put aside single-pair readings of examples like these...” (Pesetsky 2000: 60-61; adopted in Beck 2006: 9, fn 4).

- Single pair readings a subcase of Szabolcsi—Zwarts’s unicity presuppositional (independent) readings:

(42) I had expected the boys to ask for all sorts of different books, but guess *what book every boy ended up asking for*. Harry Potter!

- Correlated cross-speaker variation in pair-list readings with singular wh:

(43) Which man did every dog bite?	% pair-list	(Szabolcsi 1997)
(44) Who/Which men did every dog bite?	✓ pair-list	
(45) Which student did the teacher recommend which book to?	% pair-list	
(46) Which students did the teacher recommend which books to?	✓ pair-list	

For speakers who only accept (44), intervention is voided:

(47) Which students did no teachers/?every teacher/more than one teacher/fewer than one teacher/more teachers than parents recommend which book to?

(46)-(47) are not real pair-list but cumulative questions, cf. Krifka 1991, Srivastav 1992 on (48):

(48) Which men did the dogs bite? – Fido and Spot bit John and Bill.

- Cumulative questions are single-pair questions, hence immune to intervention.

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