

**Crosslinguistic study on intervention effects:
Howell, Hohaus, Berezovskaya, Braun, Sachs, Durmaz & Beck (2019)**
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1. Introduction

Intervention effect:

(1) * [Question operator ... [OP [... interrogative phrase ...]] ...]

State of our empirical knowledge:

- intervention effects are widespread
- their appearance is variable
- shortage of systematic theory-guided crosslinguistic studies

Some prominent analyses:

- focus intervention (Beck (2006, 2016); also Kotek (2014, 2019)) - (A)
- information structure (Tomioka (2007); also Eilam (2011)) - (B)
- question presupposition (Mayr (2014)) - (C)
- different expectations regarding crosslinguistic patterns

Howell et al. (2019):

- presuppose analysis (A)
- systematic crosslinguistic study following up on (A)'s predictions
- support for (A) and candidate universals for alternative evaluation

Structure of the talk:

- crosslinguistic study by Howell, Hohaus, Berezovskaya, Braun, Sachs, Durmaz & Beck
- digression: Old English alternative evaluating operators
- results, discussion, conclusions

2. The crosslinguistic study

2.1. Plot of Howell et al.'s paper

(1) * [Question operator ... [OP [... interrogative phrase ...]] ...]

Analysis (A):

- OP is Rooth's (1992) ~ for evaluating focus alternatives
- ~ is unselective, evaluates all alternatives triggered in its scope
- interrogative phrase is alternative trigger only, it has no ordinary semantics
- requires Q to yield ordinary semantic value
- being evaluated by ~ leads to undefined ordinary and alternative semantics
- no rescue by Q possible.

Issue:

- intervention by various expressions ('only', 'every', NPIs, ...) observed crosslinguistically
- no explicit argument that ~ is involved, hence no decisive argument for (A)

Goal:

- theory-guided investigation to close this gap
- analytically parallel data in systematic fieldwork study

2.2. Procedure

Fieldwork on five unrelated languages:

- Palestinian Arabic, Russian, Samoan, Turkish, Yoruba
- in addition to English and German, where parallel data are available.

Prerequisites questions:

- basic grammar of interrogatives
- structures in which interrogative phrase and Q operator are not adjacent.

- (2) a. Which boy did Sally introduce Tom to? (not informative)
b. Which girl introduced Tom to which boy? <= relevant structure

Prerequisites focus:

- basics on focus realization
- association at a distance is possible.

- (3) a. Only TOM brought combava. (not informative)
b. Sally only introduced TOM to combava. <=
c. Sally only said that TOM likes combava. <=

Intervention by ~:

- (4) [Question operator ... [~ [... interrogative phrase ...]] ...] (intervention)
(5) ? Which girl only introduced TOM to which boy?

Intervention by Q:

- (6) a. [Q ... [Q [... interrogative phrase ...]] ...] (Baker amb.)
b. [~ ... [Q [... focus ...]] ...] (focus across Q)
(7) a. [Who knows [where we bought what]]?
b. ? 'For which x, y: x knows where we bought y?'

- (8) a. [Sally only wondered [who TOM introduced to combava]]
 b. ? 'For no x≠Tom: Sally wondered who x introduced to combava.'

(multiple focus not included because of difficult judgements.)
 ("?": judgement to be determined)

2.3. Example 1: Samoan

Prerequisites - questions:

- (9) a. Context: At her office's annual potluck picnic one of Sina's colleagues, Peter, always brings an interesting dish, so she is very curious to discover what he brought this year. She asks one of the colleagues:
 b. ['O ā] mea'ai na 'aumai e Pita ___?
 ALT. what thing+eat TAM(past) bring ERG. Peter
 'Which food did Peter bring?'
- (10) a. Context: Picture depicting a group of boys and girls with arrows indicating who loves whom.
 b. * 'O le fea teine o le fea tama e alofa i ai?
 ALT. the which girl ALT. the which boy ERG. love PREP. PRN.
 (Intended:) 'Which girls love which boys?'
 c. * 'O ai teine e alofa i ai ('o) ai tama?
 ALT. what girl TAM love PREP. PRN. ALT. what boy
 (Intended:) 'Which girls do which boys love?'
- (11) a. Context: You went shopping with your friends Ese and Fata. Ese saw two things she wanted to buy: a book and a *lavalava* [cloth garment], but only has enough money for one of them. You have to go home before she decides which one to buy so later that evening, when you see Fata, you ask:
 b. Na fa'atau e Ese le tusi po'o le lavalava?
 TAM(past) buy ERG. Ese the book or. or+ ALT. the *lavalava*
 'Did Ese buy the book or the *lavalava*?'
 (= 'Which of the Book or the Lavalava did Ese buy?')

Prerequisites - focus:

- (12) a. Context: At her office's annual potluck picnic one of Sina's colleagues, Peter, always brings an interesting dish, so she is very curious to discover what he brought this year. She asks one of the colleagues: "'O a mea'ai na 'aumai e Pita?" ('What did Peter bring?') Sina's colleague replies:
 b. 'O le talo na 'aumai e Pita ___ .
 ALT. the taro TAM(past) bring ERG. Pita
 'Peter brought TARO.'

- (13) a. Context: Before her mother comes for a visit, Mele always washes the dishes, cleans the living room and cooks a meal. Today, her mother phoned to say that she was in the area and would drop in in half an hour. Mele did not have enough time to get everything ready, so...
- b. *Na'o le MEA'AI lava na kukaina e Mele ananei.*
only+ALT. the thing+eat emph. TAM(past) cook ERG. Mele today
- c. 'O ananei, na fai e Mele na'o le MEA'AI.
ALT. today TAM(past) make ERG. Mele only+ALT. the thing+eat
'Today, Mele only cooked a MEAL.'

- (14) a. Context: Sina is very well informed. She is always the first to know who has asked whom on a date, and who is in love with whom. That's why, shortly after three girls move to town, some of the boys in the village ask Sina whether she has any information about the new girls. She answers:
- b. [*Na'o le tagata lava [RC e alofa i ai MALIA]] ou te iloa.*
EXCL.+ALT. the person EMPH. TAM love PREP. PRN. Mary 1sg. TAM know
'I only know the person who MARY loves.'

Intervention by ~ (4):

- (15) a. Context: Sina is very fast. Only a very strong person can be faster than Sina. John says: "I know that I can beat you in a canoe race". So, Sina and John decide to do a canoe race. Peter says: "Sina's going to be the winner". Eseta says: "Sina's going to be the winner". Sina's sister says; "Sina's going to be the winner." But Sina's father says: "John's going to be the winner!" So, they start the canoe race. John wins the competition! Only Sina's father knew who would win the competition.
- b. # *Sa talitonu na'o le tama o Sina 'o le'a malo [Sina po'o Ioane]?*
TAM(past) believe EXCL.+ALT. the father of Sina TAM(fut.) win Sina or+ ALT. Ioane (Intended:)
'For which of Sina or Ioane did only Sina's Father believe they would win?'

Intervention by Q (6b):

- (16) a. Context: During a crime investigation, the police were interested in two questions: Who noticed a certain boat and who noticed a certain car. But there have been developments and there's just one questions now that matters, as the police is no longer interested in the boat.
- b. *E tauā na'o le fesili [pe 'o ai sā iloa atu le TA'AVALE].*
TAM vital EXCL.+ALT. the question Q ALT. who TAM(past) notice DIR. the car
'Only the question who noticed the CAR matters.'

==> ~ problematic intervener, Q unproblematic.

==> classification of Samoan: unselective ~, selective Q

2.4. Example 2: Turkish

Prerequisites - questions:

- (17) a. *Nilüfer ne-yi hediye et-ti?*
Nilüfer what-ACC. gift make-past.3sg.
'What did Nilüfer gift?'
b. % *Ne-yi Nilüfer hediye et-ti?*
what-ACC. Nilüfer gift make-past.3sg.
'What did Nilüfer gift?'
- (18) a. Context: Your neighbor admires the many gifts your son got for his birthday. For each of the gifts, she wants to know who gave it. She asks:
b. *Kim ne-yi hediye et-ti?*
who what-ACC. gift make-past.3sg.
'Who gifted what?'
c. % *Ne-yi kim hediye et-ti?*
what-ACC. who gift make-past.3sg.
'Who gifted what?'
- (19) *Can kahve mi yoksa çay mı iç-ti?*
John coffee Q or tea Q drink-past.3sg.
'Did John drink coffee or tea?' (Coffee./ Tea.)

Prerequisites - focus:

- (20) a. Context: Who is looking for Fatma?
b. *Fatama'yı ALİ arı-yor.*
Fatma-ACC. Ali look-prog.3sg.
'ALI is looking for Fatma.'
c. # *ALİ Fatama'yı arı-yor.*
Ali Fatma- ACC. look-prog.3sg.
(Intended:) 'ALI is looking for Fatma.'
- (21) a. Context: Merve, Derin and Talya are in a bookstore. All three of them looked at books, but in the end...
b. *Sadece DERİN bir kitap satın al-dı.*
EXCL. Derin one book purchase buy-past.3sg.
'Only DERİN bought a book.'
- (22) a. Context: A cook was hired to assassinate several people at a dinner party, with either arsen or rat poison. Without noticing, he however adds both to the stew that he is planning to serve. Yet...
b. *Aşçı [sadece [[güvec-e ARSEN ekle-diğ-in-i] sanı-yor]].*
cook EXCL. stew-ABL. arsen add-NOML-POSS.3sg.-acc. think-prog.3sg.
'The cook only thinks that he added ARSEN to the stew.'

Intervention by ~ (4):

- (23) a. Context: You're working as an assistant at the medical center. Your neighbor's son Berat is a doctor there. Your neighbor tries to find out about his patients, and she is particularly interested in those that in the past have preferred to be treated by no one but her son. She asks you:
- b. ^{??/*} *Sadece BERAT kim-ler-i tedavi et-ti?*
EXCL. Berat who-pl.-ACC. treatment make-past.3sg
'Who did only BERAT treat?'
- c. *Kim-ler-i sadece BERAT tedavi et-ti?*
who-pl.-ACC. EXCL. Berat treatment make-past.3sg.
'Who did only Berat treat?'
- (24) * *Sadece Can kahve mi yoksa çay mı iç-ti?*
EXCL. John coffee Q or tea Q drink-past.3sg.
(Intended:) 'Of coffee and tea, which did only John drink?'

Intervention by Q (6b), (6a):

- (25) a. Context: A notorious thief is finally caught after robbing a wealthy business man of a large amount of money and jewels of substantial value, which he then sent to different accomplices. Surprisingly, at the trial, the judge does not seem interested in the jewels:
- b. *Hakim [sadece*
judge EXCL.
[[*hırsız-ın PARA-YI kim-e yolla-dıĝ-in-i* *sor-du*]].
thief-GEN. money-ACC. who-DAT. send-NOML-POSS.3sg.-ACC. ask-past.3sg.
'The judge only asked who the thief sent the MONEY to.'
- (26) a. Context: Yesterday, Şehriban and her sister Selina went shopping for clothes. Surprisingly, their aunt Meryem seems not interested in what Selina bought.
- b. *Meryem*
Meryem
[[*sadece [[dün ŞEHRİBAN-IN ne al-dıĝ-in-ı* *sor-du*]].
EXCL. yesterday Şehriban-GEN. what buy-NOML-POSS.3sg.-ACC. ask-past.3sg.
'Meryem only asked what ŞEHRİBAN bought yesterday.'
- (27) *Kim [Tolga'nın ne-yi ner-den al-dıĝ-in-i] bil-iyor?*
who Tolga-GEN. what-ACC. where-ABL. buy-NOML-POSS.3sg.-ACC. know-prog.3sg.
'Who knows where Tolga bought what?'
- (i) *İşil.*
- (ii) *İşil Tolga'nın elbise-yi ner-den al-dıĝ-in-ı bil-iyor,...*
İşil Tolga- GEN. dress- ACC. where-ABL. buy- NOML- POSS.3sg.-ACC. know-prog.3sg.
'İşil knows where Tolga bought the dress, ...'

==> ~ problematic intervener, Q unproblematic.

==> classification of Turkish: unselective ~, selective Q

2.5. Summary of results of crosslinguistic study

Intervention by ~:

(4) * [Question operator ... [~ [... interrogative phrase ...]] ...] (*intervention*)

* in English, German, Palestinian Arabic, Russian, Samoan, Turkish, Yoruba

Intervention by Q:

(6b) [~ ... [Q [... focus ...]] ...] (*focus across Q*)

ok in English, German, Palestinian Arabic, Russian, Samoan, Turkish, Yoruba

(6a) [Q ... [Q [... interrogative phrase ...]] ...] (*Baker amb.*)

ok in English, German, Russian, Turkish
not testable in Palestinian Arabic, Samoan, Yoruba

==> unselective ~ in English, German, Palestinian Arabic, Russian, Samoan, Turkish, Yoruba
(if ~ were selective, structures corresponding to (4) should be acceptable.)

selective Q in English, German, Palestinian Arabic, Russian, Samoan, Turkish, Yoruba
(if Q were unselective, it should evaluate all alternative triggers in its scope, and the relevant readings of (6a) and (6b) should be unavailable.)

==> **Alternative evaluation:**

Which evaluating operators are selective and which ones are unselective?

2.6. Aside: selective Q in Old English

Evidence for selectivity of Q from pair-list readings in questions:

(28) & hlotu wurpon hwæt gehwa name.
& (they) lots cast what GE-who take
(cowsgosp,Mk_[WSCp]:15.24.3471)
'They cast lots what each one should take.'

(28') For each x: what should x take?

(29) ... ond siððan geornlice geðence hu he gehwelcne læran scyle ...
... and then well think how he GE-which teach should
(cocura,CP:13.77.22.515)
'... and then think carefully how he should teach each one.'

(29') For each x: how should he teach x?

Beck (2019): Old English *ge*-indeterminate phrases are alternative triggers. Sentence interpretation is determined by a separate alternative evaluating operator.

(30) *ge*-indeterminate pronouns: *ge* 'and, also' (ADD) + indeterminate pronoun

- | | | | | | |
|----|---------------------------|----|-------------------------------|----|---------------------------------------|
| a. | <i>ge</i> -hwa
ADD-who | b. | <i>ge</i> -hwelc
ADD-which | c. | <i>ge</i> -hwæðer
ADD-which_of_two |
|----|---------------------------|----|-------------------------------|----|---------------------------------------|

Motivation from ambiguity: universal, existential and plausibly NPI and FCI interpretations are possible for *ge*-indeterminate phrases.

- (31) a. Swa þonne her fram þære arleasan ðeode, hwæðere rihte
so then here from that impious people though just
Godes dome, **neh ceastra gehwylce** & land
God's judgement near (of) cities GE-which and land
forheregeode wæron.
wasted were
(cobede,Bede_1:12.52.27.487)
'So then here **almost every city** and district was wasted by this impious people,
though it was by the just judgment of God.' (Miller) (*universal*)
- b. & brohte of his weorce **gehwylce** grene &
and brought of his work GE-which green and
wel stincende wyrta.
good smelling herbs
(cogregdC,GDPref_and_3_[C]:1.181.16.2225) (*existential*)
'and brought from his work **some** green and pleasantly smelling herbs.'
'und brachte von seiner Arbeit wohlriechende und frische Kräuter'
(Translation: Des heiligen Papstes und Kirchenlehrers Gregor des Grossen vier Bücher Dialoge /
aus dem Lateinischen übers. von Joseph Funk. (Des heiligen Papstes und Kirchenlehrers Gregor
des Grossen ausgewählte Schriften Bd. 2; Bibliothek der Kirchenväter, 2. Reihe, Band 3)
Kempten; München : J. Kösel : F. Pustet, 1933. 3. Buch Kapitel I.
<http://www.unifr.ch/bkv/kapitel3223.htm>)
- c. Ne heold he no þa Eastran, swa swa sume men
neg held he not the easter so as some men
wenað, mid Iudeum on feowertynenihtne monan
think with Jews on fourteenth moon
gehwylce dæge on wucan, ac a symle on
GE-which day in week but ever always on
Sunnandæge fram feowertynenihtum monan oð twentigesnihtne,
Sunday from fourteenth moon up to twentieth night
for þam geleafan þære Dryhtenlican æriste, ...
for the belief (of) the lordly resurrection, ...
(cobede,Bede_3:14.206.27.2104)
'He did not keep Easter, as some imagine, in agreement with the Jews, on the
fourteenth night of the moon on **any day** of the week, but always on Sunday, from
the fourteenth night of the moon up to the twentieth night, from belief in our
Lord's resurrection, ...' (Miller) (*NPI*)

d. þæt is þonne heora biwist: land to bugianne, &
 that is then their provisions land to inhabit and
 gifta, & wæpnu, & mete, & ealo, & clapas, &
 gifts and weapons and meat and ale and clothes and
 gehwæt þæs ðe þa þre geferscipas behofiað.
 GE-what (of) that that the three classes need
 (coboeth,Bo:17.40.21.741)

'and these means are land to dwell in, gifts, weapons, meat, ale, clothing, and **what else soever** the three classes need.' (www.uky.edu) (FCI)

(32) a. $[[\text{GE-hwa}]_{\text{Alt}}] = \{x \mid x \in D\}$

b. $[[\text{GE-hwelc N}]_{\text{Alt}}] = \{x \mid x \in D \ \& \ [[\text{N}]_o(x)]\}$

(33) a. $[[\text{GE-hwelc cities were wasted}]_{\text{Alt}}] = \{\text{that } x \text{ was wasted} \mid x \text{ is a city}\}$

b. [ALL [GE-hwelc cities were wasted]]

c. All propositions in $\{\text{that } x \text{ was wasted} \mid x \text{ is a city}\}$ are true.

(34) $[[\text{ALL XP}]_o(w)] = 1$ iff for all $p \in [[\text{XP}]_{\text{Alt}}]$: $p(w) = 1$

(35) a. $[[\text{he brought GE-hwelc herbs}]_{\text{Alt}}] = \{\text{that he brought } x \mid x \text{ is a herb}\}$

a. [EXIST [he brought GE-hwelc herbs]]

b. Some proposition in $\{\text{that he brought } x \mid x \text{ is a herb}\}$ is true.

(36) $[[\text{EXIST XP}]_o(w)] = 1$ iff there is a $p \in [[\text{XP}]_{\text{Alt}}]$: $p(w) = 1$

(37) a. [EXH [not [he kept easter on GE-hwelc day]]]

b. $[[\text{not [he kept easter on GE-hwelc day]}]_{\text{Alt}}]$
 $= \{\text{that he didn't keep easter on } x \mid x \text{ a day}\}$

c. He did not keep easter on a random day,
 (& all unentailed propositions $\{\text{that he didn't keep easter on } x \mid x \text{ a day}\}$ are false).

(38) a. [All-Alt [they have GE-hwæt they need]]

b. $[[\text{they have GE-hwæt they need}]_{\text{Alt}}] = \{\text{that they have } x \mid x \text{ a thing they might need}\}$

c. All plausible propositions $\{\text{that they have } x \mid x \text{ a thing they might need}\}$ are true.

\Rightarrow ALL, EXIST and plausibly EXH and All-Alt evaluate *ge*-indeterminate pronouns (Kratzer & Shimoyama (2002), Krifka (1995), Menendez-Benito (2010)).

Back to pair-list readings: *gehwa* introduces alternatives evaluated by ALL; ALL above Q.

(28) & hlotu wurpon **hwæt gehwa** name.

& (they) lots cast what GE-who take

(cowsgosp,Mk_[WSCp]:15.24.3471)

'They cast lots what each one should take.'

(28") a. They cast lots [ALL [Q [what GE-hwa take]]]

b. They cast lots to determine all p in $\{p \text{ is the answer to what } x \text{ take} \mid x \in D\}$

4. Discussion and Conclusions

Methodology:

crosslinguistic comparison based on detailed grammatical analysis, theory-guided

Logic:

closes a gap in the argumentation: from observing badness of intervening expression to analysis in terms of ~

For future work:

- How would e.g. analyses (B) and (C) deal with Howell et al.'s findings?
- Make sure whether/why language specific structures really amount to (4), (6a,b)
- Test multiple ~ operators: [\sim ... [\sim [... F1 ... F2 ...]] ...]

Grammar:

Non-variation:

- (availability of) ~ (else uniformity less expected);
- unselective ~
- selective Q

- (43) a. This book belongs to Mary alone.
b. no $x \neq$ Mary: this book belongs to x

plus (very tentatively) selective EXIST from Old English

==> **Alternative evaluation:**

Which evaluating operators are selective and which ones are unselective?

==> major question about the grammar of alternatives

(\sim , Q, EXH, EXIST, ALL,...)

see Bade & Sachs (2019) for selectivity properties of EXH, Howell (2018) on All-Alt, Howell (2018) and Beck (2016) for raising the general issue.

Selected References

- Bade, Nadine & Konstantin Sachs (2019). EXH passes on alternatives - A comment on Fox & Spector (2018). *Natural Language Semantics* (online version available).
- Beck, Sigrid (2006). Intervention effects follow from focus interpretation. *Natural Language Semantics* 14:1–56.
- Beck, Sigrid (2016). Focus sensitive operators. In Caroline Féry & Shinichiro Ishihara (eds.), *Handbook of Information Structure*. Oxford University Press. Oxford. 227-250.
- Beck, Sigrid (2019). Indeterminate pronouns in Old English. Under revision.
- Eilam, Aviad (2011). "Explorations in the informational component." PhD thesis. University of Pennsylvania.
- Howell, Anna (2018). More on the grammar of alternatives. PhD dissertation, Universität Tübingen.
- Howell, Anna, Vera Hohaus, Polina Berezovskaya, Julia Braun, Konstantin Sachs, Sehiban Durmaz & Sigrid Beck (2019). (No) variation in the grammar of alternatives. Ms. Universität Tübingen.
- Kratzer, A. and J. Shimoyama (2002). 'Indeterminate Pronouns: The View from Japanese', in Yukio Otsu (ed.), *The Proceedings of the Third Tokyo Conference on Psycholinguistics*, pp. 1–25. Hituzi Syobo, Tokyo.
- Krifka, M. (1995). The semantics and pragmatics of polarity items. *Linguistic Analysis* 25, 1-49.
- Kotek, Hadas (2014). *Composing Questions*. PhD dissertation. MIT. Cambridge, MA.
- Kotek, Hadas (2019). *Composing Questions*. MIT Press.
- Mayr, Clemens (2014). "Intervention Effects and Additivity." *Journal of Semantics* 31.4, pp. 513–554.
- Menéndez-Benito, Paula (2010). "On Universal Free Choice Items". *Natural Language Semantics* 18(1), 33-64.
- Rooth, Mats (1992). 'A Theory of Focus Interpretation', *Natural Language Semantics* 1: 75-116.
- Tomioka, Satoshi (2007). "Pragmatics of LF Intervention Effects: Japanese and Korean Wh-Interrogatives". *Journal of Pragmatics* 39.9, pp. 1570-1590.