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Questions, Focus, and Intervention Effects

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1 Introduction

Beck (1996) and Beck & Kim (1997) discuss the interaction between *wh*-in-situ and quantifiers, proposing that an intervening quantifier blocks LF movement of *wh* to an operator position.*

1.1 *Wh*-Intervention Effects in German

Beck (1996) argues that LF *wh*-movement may not cross a quantifier based on the following contrast. Overt movement of the *wh*-in-situ to a position higher than the intervening quantifier makes the structure well-formed, as in these contrasts:[1]

(1) a. *Wer hat **niemanden** *wo* angetroffen?
who has nobody where met
b. Wer hat *wo* **niemanden** angetroffen?
who has where nobody met
'Who didn't meet anybody where?'

(2) a. *Wen hat **nur Karl** *wo* getroffen?
whom has only Karl where met
b. Wen hat *wo* **nur Karl** getroffen?
whom has where only Karl met
'Who did only Karl meet where?'

(3) a. *Wen hat **fast jeder** *wo* getroffen?
whom has almost everyone where met
b. Wen hat *wo* **fast jeder** getroffen?
whom has where almost everyone met
'Who did almost everyone meet where?'

Beck (1996) proposes that for semantic reasons, *wh*-in-situ has to move at LF to an operator position. And this LF movement is blocked by an intervening quantifier.

(4) Quantifiers block LF movement.
*[… X_i …[QP …[… t_i ^{LF} …]]]

1.2 *Wh*-Intervention Effects in Korean

Beck & Kim (1997) observe similar intervention effects in Korean, illustrated by the contrasts in (5)–(7):

(5) a. *__Amwuto__ *nwukwu-lul* chotayha-ci anh-ass-ni?
anyone who-ACC invite-COMP not do-PAST-Q
b. *Nwukwu-lul*$_i$ __amwuto__ t$_i$ chotayha-ci anh-ass-ni?
who-ACC anyone invite-COMP not do-PAST-Q
'Who did no one invite?'

(6) a. ?*__Mira-man__ *nwukwu-lul* chotayha-ess-ni?
Mira-only who-ACC invite-PAST-Q
b. *Nwukwu-lul*$_i$ __Mira-man__ t$_i$ chotayha-ess-ni?
who-ACC Mira-only invite-PAST-Q
'Who did only Mira invite?'

(7) a. *__MIRA-ka__ *nwukwu-lul* chotayha-ess-ni?
Mira-NOM who-ACC invite-PAST-Q
b. *Nwukwu-lul*$_i$ __MIRA-ka__ t$_i$ chotayha-ess-ni?
who-ACC Mira-NOM invite-PAST-Q
'Who did MIRA invite?'

Universal quantifiers such as *nwukwuna* 'everyone' seem to show a similar effect, although the effect is much weaker than the NPI elements or the focus phrases.[2]

(8) a.$^{?(?)}$__Nwukwuna-ka__ *enu kyoswu-lul* conkyengha-ni?
everyone-NOM which professor-ACC respect-Q
b. *Enu kyoswu-lul*$_i$ __nwukwuna-ka__ t$_i$ conkyengha-ni?
which professor-ACC everyone-NOM respect-Q
'Which professor does everyone respect?'

Beck & Kim (1997) suggest that these examples require a uniform treatment and propose that for semantic reasons the *wh*-phrases in situ have to be moved at LF to the interrogative SpecCP and an intervening quantifier blocks that LF movement.[3]

1.3 *Wh*-Intervention Effects Crosslinguistically

The intervention effects observed in German and Korean *wh*-questions can be found in a wide variety of languages. In addition to German and Korean, intervention effects are found, for example, in Dutch (Honcoop 1998), French (Chang 1997), Hindi/Urdu, Turkish (Beck & Kim 1997), Japanese (Hoji 1985, Tanaka 1997, Hagstrom 1998), Malayalam (Kim 2002b), Hungarian (Lipták 2001), and English (Pesetsky 2000). This seems to suggest that the intervention effect has a universal character.[4]

2 Problems

2.1 Overgeneralization

Despite its apparent universal character, the intervention effect shows some crosslinguistic variation. In Mandarin Chinese, for example, ordinary quantifier NPs, quantificational adverbs, and negation do not show intervention effects for nominal *wh*-phrases (see Huang 1982, Aoun & Li 1993, and Soh 2005):

(9) **Meigeren** dou mai-le *shenme*?[5]
everyone all buy-ASP what
'What did everyone buy?'

(10) Zhangsan **changchang** mai *shenme*?
Zhangsan often buy what
'What does Zhangsan often buy?'

(11) Zhangsan **bu** xiang mai *shenme*?
Zhangsan not want buy what
'What doesn't Zhangsan want to buy?'

And it is not even the case that all quantifiers induce an intervention effect for *wh*-in-situ in Korean. For example, quantifiers like *most N* or *always/often* do not induce intervention effects:

(12) **Taypwupwun-uy haksayng-tul-i** *nwukwu-lul* hoycang-ulo
most-GEN student-PL-NOM who-ACC president-as
chwuchenha-ess-ni?
recommend-PAST-Q
'Who did most students recommend as president?'

(13) Mira-nun **hangsang/cacwu** *nwukwu-lul* phathi-ey teyliko ka-ss-ni?
Mira-TOP always/often who-ACC party-to take-PAST-Q
'Who did Mira always/often take to the party?'

The fact that there is some parametric variation in what constitutes the set of problematic interveners seems to be a problem for Beck's (1996) analysis. This is unexpected as the property that was held responsible for making an expression induce intervention effect in her analysis was a semantic property (that of being a quantifier), which is not something we would expect to be subject to crosslinguistic variation. Is it possible to identify a set of interveners that produce the intervention effect crosslinguistically?

2.2 Why Should Intervention Effects Hold?

The intervention effect itself may well be universal, though subject to some crosslinguistic variation. But why should intervention effects hold in the first place?

3 Focus Intervention Effects

3.1 The Generalization

I proposed in Kim (2002a,b) that the core set of interveners, which is crosslinguistically stable, consists of focus phrases.

(14) A focus phrase may not intervene between a *wh*-phrase and its licensing complementizer.
*[$_{CP}$ Q$_i$ … [FocP [… *wh*$_i$ …]]]

In Mandarin Chinese, focus phrases (including NPIs, which morphologically consist of a *wh*-pronoun and the focus particle *ye* 'also') induce an intervention effect even for nominal *wh*-phrases, which otherwise do not show the effect when c-commanded by a quantifier or negation:

(15) a. ?***Lian Lili ye*** kan de dong *na-ben shu*?
even Lili also read DE understand which-CL book
b. *Na-ben shu* **lian Lili ye** kan de dong?
which-CL book even Lili also read DE understand
'Which book could even Lili understand?'

(16) a. ?***Zhiyou Lili*** kan-le *na-ben shu* / *shenme*?
only Lili read-ASP which-CL book what
b. *Na-ben shu* / *shenme* **zhiyou Lili** kan-le?
which-CL book what only Lili read-ASP
'Which book/what did only Lili read?'

(17) a. ***Shei ye** kan bu dong *na-ben shu*?
who also read not understand which-CL book
b. *Na-ben shu* **shei ye** kan bu dong?
which-CL book who also read not understand
'Which book could no one understand?'

In Malayalam, universal quantifiers do not induce an intervention effect for *wh*-in-situ, but focus phrases and negative polarity items do. Overt scrambling of the *wh*-phrase to a higher position than the intervener makes the sentence grammatical:

(18) **ellaawarum** *eetə pustakam*-aanə waayicc-atə?
everyone which book-be read-NMZ
'Which book did everyone read?'

(19) a. ***Lili-maatram** *eetə pustakam*-aanə waayicc-atə?
Lili-only which book-be read-NMZ
b. *eetə pustakam*-aanə **Lili-maatram** waayicc-atə?
which book-be Lili-only read-NMZ
'Which book did only Lili read?'

(20) a. *__aarum__ *eetə* *pustakam*-aanə waayikk-aa-te irunn-atə?
anyone which book-be read-NEG-AUG AUX-NMZ
b. *eetə* *pustakam*-aanə __aarum__ waayikk-aa-te irunn-atə?
which book-be anyone read-NEG-AUG AUX-NMZ
'Which book did no one read?'
(*aarum* 'anyone' = *aar* 'who' + *um* 'also')

According to recent analyses of NPIs (e.g., Krifka 1995, Lahiri 1998), negative polarity items can be analyzed as focus phrases, supported by the fact that NPIs consist of an indefinite NP (or a *wh*-pronoun) and an overt focus particle meaning 'even, also' in many languages (cf. Haspelmath 1997).

To sum up, the data seem to show that an intervention effect occurs whenever a focus phrase intervenes between the interrogative C and the *wh*-phrase in situ.

3.2 Focus and WH

Now the question is why focus should induce an intervention effect for *wh*-in-situ. It is well-known that focused elements and *wh*-elements share some similarities in terms of their overt syntax, semantics and phonology in a number of languages.

Syntactic Similarities

Some languages require *wh*-phrases to appear in the designated structural position for (contrastive) focus (for example, Hungarian (Brody 1990), Chadic (Tuller 1992) and Malayalam (Jayaseelan 2003)). *Wh*-movement in these languages is argued to be an instance of focus movement: *wh*-phrases bear a focus feature that enables them to target the same position as other focused constituents.

Moreover, it is also observed that focus and *wh*-phrases in situ share the syntactic property of being insensitive to island constraints (see Rooth 1996) – compare (21-a) and (21-c) with (21-b); only quantifiers cannot scope out of the island:

(21) a. Dr. Svenson only rejected the proposal that $[\text{John}]_{F}$ submitted.
b. Dr. Svenson rejected the proposal that no student/almost every student submitted.
c. Tell me who rejected the proposal that who submitted.

Phonological Similarities

Phonologically, a *wh*-element carries a pitch accent which is characteristic of focused elements. A property of *wh*-elements which has often been noted is that they have to carry focal stress in order to receive a question word meaning, especially when they stay in situ. Without focal stress, a *wh*-in-situ receives an indefinite reading – see German (22) and Korean (23):

(22) a. Wer hat WAS gelesen?
who has what read
'Who read what?'
b. Wer hat was gelesen?
who has what read
'Who read something/anything?'

(23) a. Mira-ka MWUES-ul masi-ess-ni?
Mira-NOM what-ACC drink-PAST-Q
'What did Mira drink?'
b. Mira-ka mwues-ul masi-ess-ni?
Mira-NOM what-ACC drink-PAST-Q
'Did Mira drink something/anything?'

So focal stress has the function of distinguishing the question word meaning from the indefinite existential meaning of *wh*-pronouns in German and Korean.

Other languages corroborate this view: Ishihara (2002) shows that Japanese *wh*-questions always exhibit focus intonation; Hayes & Lahiri (1991) show that interrogative *wh*-words exhibit the same prosodic pattern as contrastively focused elements in Bengali.

Semantic Similarities

The idea that *wh*-elements are similar to focus elements is also supported by semantic considerations. It has long been thought that the semantics of questions and of focus (particularly, contrastive focus) are closely related. In particular, Rooth (1985, 1992) developed alternative semantics for focus along the same lines as Hamblin's (1973) alternative semantics for questions. A focused constituent in a sentence evokes alternatives similarly to a *wh*-word in a question.

Rooth (1985, 1992) suggests that sentences with focus are associated with two semantic objects: the ordinary semantic value ($[\![.]\!]^o$) and the focus semantic value ($[\![.]\!]^f$). Informally, the focus semantic value for a sentence is the set of propositions obtained by replacing the focus with an alternative of the same type. For example, the ordinary semantic value of (24) is the single proposition in (25), whereas its focus semantic value is a set of propositions, as in (26):

(24) $[\text{John}]_{\text{F}}$ left.

(25) $[\![[\text{John}]_{\text{F}} \text{ left}]\!]^o$ ordinary semantic value
$= \lambda w.$ John left in w
= that John left

(26) $[\![[\text{John}]_{\text{F}} \text{ left}]\!]^f$ focus semantic value
$= \{$that John left, that Bill left, that Amelie left, $\dots\}$
$= \{p : p = \lambda w.\ x$ left in $w \mid x \in D\}$

According to Hamblin (1973), the denotation of a question is a set of propositions corresponding to potential answers to the question, as given in (28) for (27).

(27) Who left?

(28) {that John left, that Bill left, that Amelie left, ...}
$= \{p : p = \lambda w.\ x \text{ left in } w \mid x \in D\}$

Note that the focus semantic value of (24) is identical to the ordinary semantic meaning of the question (27). A *wh*-phrase, like a focus, triggers the introduction of alternatives.

4 Analysis of Focus Intervention Effects

4.1 Semantics of Focus Intervention Effects

Beck (to appear) claims that intervention effects follow from focus interpretation. More specifically, an intervention effect occurs whenever a focus sensitive operator other than the question operator tries to evaluate a constituent containing a *wh*-phrase – the resulting LF fails to have an ordinary semantic interpretation.

Beck suggests that *wh*-phrases and focused phrases both introduce alternatives into the computation. However, unlike focus, a *wh*-phrase makes no ordinary semantic contribution while it has a well-defined focus semantic value as in (30-b). Its ordinary semantic value is in fact undefined ((30-a)).

(29) a. Who left? b. [Q [$_{\phi}$ who left]]

(30) a. $[\![\text{who}]\!]^o$ is undefined. b. $[\![\text{who}]\!]^f = D$

The ordinary semantic value of the larger structure that contains the *wh*-phrase, labeled ϕ in (29-b), is also undefined, while its focus semantic value is the set of alternatives given in (31-b).

(31) a. $[\![\phi]\!]^o$ is undefined.
b. $[\![\phi]\!]^f = \{p : p = \lambda w.\ x \text{ left in } w \mid x \in D\}$

It is the function of the Q operator to lift the focus semantic value of its sister node to the level of the ordinary semantics (see (32-a)). This gives us the desired semantics for (29), given in (33).

(32) a. $[\![\text{Q } \phi]\!]^o = [\![\phi]\!]^f$ b. $[\![\text{Q } \phi]\!]^f = \{[\![\text{Q } \phi]\!]^o\}$

(33) $[\![[\text{Q } [_{\phi} \text{ who left}]]]\!]^o = [\![[_{\phi} \text{ who left}]]\!]^f = \{p : p = \lambda w.\ x \text{ left in } w \mid x \in D\}$

In Rooth's (1992, 1996) focus theory, the focus operator $\sim$ evaluates all foci. That is, whenever the contribution of focus is used in the semantics, the $\sim$ operator is involved. The $\sim$ operator introduces a presupposed alternative set C, which is constrained in the following way:

(34) a. $[\![\sim C\ \phi]\!]^o$ is defined only if C is a subset of $[\![\phi]\!]^f$ containing $[\![\phi]\!]^o$ and at least one other element. If defined, $[\![\sim C\ \phi]\!]^o = [\![\phi]\!]^o$.

b. $[\![\sim C\ \phi]\!]^f = \{[\![\sim C\ \phi]\!]^o\}$

The $\sim$ operator uses both the ordinary and the focus semantic value of its sister node, and it evaluates all foci in its scope unselectively (see (34-a)) and resets the focus semantic value of the whole structure to a singleton containing the ordinary semantic value (see (34-b)).

Consider now (35-a), a prototypical example of the intervention effect, and its LF structure in (35-b):

(35) a. *Only John_{F} invited who?

b. $[_{\text{CP}}\ \text{Q}\ [_{\text{IP}_3}\ \text{only}_C\ [_{\text{IP}_2}\ \sim C\ [_{\text{IP}_1}\ \text{John}_{\text{F}}\ \text{invited who}]]]]$

The category IP_1 contains an element whose ordinary semantic value is undefined (i.e., *who*); hence IP_1 does not have an ordinary semantic value. Similarly, the category labeled IP_2 cannot have a well-defined ordinary semantic value. Then the focus value of IP_2 cannot be defined, and this carries over to $[\![\text{IP}_3]\!]^o$ and $[\![\text{IP}_3]\!]^f$. It is precisely the focus semantic value of IP_3 which should be the input to the Q operator; since it is undefined, the whole structure does not have an interpretation. A structure that cannot be assigned an interpretation is ungrammatical.[6] Hence, intervention effect examples are predicted bad as they are uninterpretable.

Beck (to appear) proposes the general prediction in (36), essentially a reformulation of Kim's (2002a,b) empirical generalization (14), here repeated in (37):

(36) A *wh*-phrase may not have the $\sim$ operator as its closest c-commanding operator.
*$[\text{Q}_i \ldots\ [\sim C\ [_{\phi} \ldots\ wh_i \ldots\ ]]]$

(37) *$[_{\text{CP}}\ \text{Q}_i \ldots\ [\ \text{FocP}\ [\ \ldots\ wh_i \ldots\ ]]]$ (Kim 2002a,b)

In principle, we expect the $\sim$ operator to act as an intervener whenever alternative semantics is involved, for the properties of the $\sim$ that cause the intervention effect in *wh*-constructions – unselectivity and resetting of focus semantic value – should trigger a similar minimality effect in other focus-related constructions.

(38) *General Minimality Effect* (cf. Beck, to appear, Beck & Kim, to appear)
The evaluation by Op of alternatives introduced by an XP cannot skip an intervening $\sim$ operator.
*$[\text{Op}_1 \ldots [\sim C\ [_{\phi} \ldots\ \text{XP}_1 \ldots\ ]]]$

When XP_1 is not a *wh*-phrase, this effect would not necessarily be observed as uninterpretability, i.e., ungrammaticality. Rather, it would consist in the absence of a certain interpretation, namely the one where the alternatives introduced by XP_1 are evaluated by Op_1.

4.2 Syntax of Focus Intervention Effects

Wh-Licensing

The standard assumption that the *wh*-phrase raises for semantic reasons at LF has always faced the problem that covert movement of *wh*-in-situ does not show the island effects observed for overt *wh*-movement. In the minimalist framework (Chomsky 2000, 2001 and most recently, Chomsky 2005) it is assumed that overt *wh*-movement is not triggered by the need to check some feature, but is merely driven by EPP (or *edge-feature*), a purely structural requirement which does not involve any feature matching. Feature checking is done by Agree at a distance, so there is no reason for *wh*-in-situ phrases to undergo any LF movement.

In the alternative semantics for questions proposed by Hamblin (1973) (which I adopt), *wh*-movement is not necessary. Hamblin suggests that there is no semantic reason for *wh*-movement, mentioning that in many languages, the word order of an interrogative sentence is always that of the corresponding indicative sentence.

Feature Checking

Feature checking is done by the Agree operation, which has the following properties (cf. Chomsky 2000, 2001):

(39)
- (i) Agree between a probe P and a goal G is based on the relation Matching under the locality condition of closest c-command, where Matching is feature identity.
- (ii) Agree deletes the uninterpretable features of P and G, allowing derivations to converge at LF.

For the relation between an interrogative C and a *wh*-phrase, Chomsky (2000) proposes that the *wh*-phrase has an uninterpretable [wh] feature and an interpretable [Q] feature, and the interrogative complementizer has an uninterpretable [Q] feature. Instead, I propose (41), which mirrors the semantics for questions.

(40) Chomsky (2000):
- a. probe: [uQ] in C
- b. goal: [iQ,$u$wh] in *wh*-phrase

(41) My proposal:
- a. probe: [iQ,iF] in C
- b. goal: [uQ,uF] in *wh*-phrase (must be valued by C)
- c. The probe must have a complete set of features matching those of the goal in order to delete its uninterpretable features ($\approx$ *Maximize Matching Effects* proposed by Chomsky 2001).

Intervention Effects

An intervention effect occurs whenever a focus phrase intervenes between an interrogative C and *wh*-in-situ, as shown in (42) with the relevant features:

(42) *[$_{\text{CP}}$ C$_{[iQ,iF]}$ [… Foc$_{[iF]}$ … [… *wh*$_{[uQ,uF]}$ …]]]

The *wh*-element has uninterpretable features [uQ,uF], which need to be checked against the interpretable features of a matching operator. Only the interrogative C has the complete set of interpretable features [iQ,iF] for the [uQ,uF] of the *wh*-in-situ and so only it can Agree with the *wh*-in-situ, eliminating all of the uninterpretable features.

The intervening focus operator (which comes with the focused element) has an interpretable focus feature iF, but it cannot license the *wh*-in-situ because it does not have the feature iQ. Even though Foc does not match on every feature with *wh*-in-situ and hence cannot be in an Agree relation with it, it does induce an intervention effect.

A *wh*-phrase not licensed by a Q operator will be uninterpretable, since it can never have a well-defined ordinary semantics; in fact, the Q operator must be the closest c-commanding operator, as it is the only operator which can lift the focus semantic values introduced by *wh*-phrases to an ordinary semantic value.

5 Intervention Effects in Alternative Questions

Another construction sensitive to focus intervention is the alternative question (see Beck & Kim, to appear, for a detailed discussion of such intervention effects).

In English, a simple question like (43) is ambiguous between a yes-no question (Y/NQ) reading (expected answers: *yes/no*) and an alternative question (AltQ) reading (expected answers: *coffee/tea*).

(43) Did John drink coffee or tea?

The availability of the AltQ reading depends on intonation – both disjuncts in (43) must be focused. And note that (44), where a focus phrase precedes the disjunctive phrase, is unacceptable as AltQ.

(44) ??Did **only John** drink coffee$_{\text{F}}$ or tea$_{\text{F}}$? [*AltQ]

Similar effects can be found in German (see (45)) and in Korean (see (46)).

(45) *Hat **nur Peter** Maria$_{\text{F}}$ oder Susanne$_{\text{F}}$ eingeladen? [*AltQ]
has only Peter Maria or Susanne invited
'Did only Peter invite Maria or Susanne?'

(46) a. ?***Mira-man*** cha-lul masi-ess-ni animyen khephi-lul
Mira-only tea-ACC drink-PAST-Q if not coffee-ACC
masi-ess-ni? [*AltQ]
drink-PAST-Q
'Did only Mira drink tea or coffee?
b. ****MIRA-ka*** cha-lul masi-ess-ni animyen khephi-lul
Mira-NOM tea-ACC drink-PAST-Q if not coffee-ACC
masi-ess-ni? [*AltQ]
drink-PAST-Q
'Did MIRA drink tea or coffee?'

The parallels with the *wh*-intervention effect are obvious, with the disjunctive phrase taking the place of the *wh*-phrase. Beck & Kim (to appear) show that the class of problematic interveners is in fact the same for both *wh*-questions and alternative quetions in a given language. Following von Stechow (1991), Beck & Kim assume that the disjunctive phrase in AltQs introduces a set of alternatives, which are evaluated by the Q operator; an intervening focus operator blocks the evaluation of the alternatives.

(47) [DisjP] in AltQ may not have the $\sim$ operator as its closest c-commanding operator.
*[Q_i … [$\sim$ C [$_\phi$ … [$_{\text{DisjP}}$ A or B]$_i$ …]]]

Beck & Kim further argue that the intervention effect in AltQs follows as the Q operator has no alternatives left to evaluate. The consequence is that AltQs would not be subject to the *wh*-intervention effect, but they would be one instance of the general minimality effect for focus evaluation (38), repeated in (48).

(48) *General Minimality Effect*
The evaluation by Op of alternatives introduced by an XP cannot skip an intervening $\sim$ operator.
*[Op_1 …[$\sim$ C [$_\phi$ … XP_1 …]]]

6 Conclusion

In this paper I proposed a new generalization of the intervention effects and an analysis which is based on the evaluation of focus alternatives. I introduced two constructions which are both sensitive to focus intervention, i.e., *wh*-questions and alternative questions. I showed that in both constructions, focus is involved, and that is why they are subject to the intervention effect induced by the focus operator. The new analysis is superior to previous approaches to intervention effects as it derives the effect from semantic uninterpretability.

Notes

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[1] Interveners are marked in **boldface** and *wh*-in-situ in *italics*.

[2] The universal quantifier *nwukwuna* 'everyone' in (8) cannot induce a pair-list reading (in contrast to the English *Which professor does everyone respect?*, which is ambiguous between a pair-list reading and a single-answer reading).

[3] Tomioka (2004) proposes that intervention effects in Japanese and Korean are not due to LF syntax but to pragmatics, arguing that the ungrammatical examples violate the requirements on the information structure of a sentence. Due to space limitation, I will not comment here (and also, his proposal does not seem to apply to languages like German) but refer the reader to Miyagawa & Endo (2004) for critical comments on Tomioka's arguments, and an interesting alternative analysis of the cases Tomioka observes.

[4] Kuno & Kim (2004) observe that in Korean, the (non-)specificity of *wh*-in-situ influences the relative acceptability of some examples, and the intervention effects exhibit varying degrees of strength depending on the extent to which the *wh*-expression is contextually restricted or specified, and propose a functional analysis of the intervention effect. Miyagawa & Endo (2004) make a similar observation that a D(iscourse)-linked *wh*-in-situ cancels the intervention effect in Japanese. This is certainly an important aspect which needs to be considered in formalizing the intervention effects.

It is interesting to note, though, that German does not show any improvement in acceptability with the D-linked (or specific) *wh*-in-situ expressions:

(i) *Welche Kinder haben **niemandem** *welche Bilder* zeigen wollen?
which children have nobody which pictures show wanted
'Which children wanted to show nobody which pictures?'

I leave the analysis of this variation for future research.

[5] According to Aoun and Li (1993), (9) is ambiguous. Both a pair-list answer and a single answer are allowed.

[6] Cf. Heim & Kratzer's (1998:48) view of uninterpretability as one source of ungrammaticality: uninterpretable structures are those filtered out by the semantic component of the grammar. The idea is consistent with Chomsky's (1986, 1995) principle of Full Interpretation, requiring every element of PF and LF, the two interface levels of linguistic representation, to have an appropriate interpretation – being licensed in the relevant sense.

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