More Evidence that Intervention Effects are Focus Effects

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SICOGG 8, Sookmyung Women's University, August 9, 2006

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

(1) Wen hat Luise *wo* gesehen?
whom has Luise where seen
'Where did Luise see whom?'

(2) a. *Wen hat **niemand** *wo* angetroffen?
whom has nobody where met
b. Wen hat *wo* **niemand** angetroffen?
whom has where nobody met
'Who did nobody meet where?'

(3) 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?'

(4) 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?'

(5) Wen hat **jeder** *wo* gesehen?
whom has everyone where seen
'Where did everyone see whom?'
(i) For each person x: who did x see where?
(ii) *Which person and which place are such that everyone saw the person in that place?

(6) [$_{CP}$ jeder$_i$ [$_{CP}$ wen$_j$ wo$_k$ [$_{C'}$ C [$_{IP}$ t$_i$ t$_j$ t$_k$^{LF} gesehen hat]]]] (only LF for (5))

(7) Quantifiers block LF movement.
*[… X$_i$ … [QP … [… t$_i$^{LF} …]]]

(8) a. *Quantifier-Induced Barrier (QUIB)*
The first node that dominates a quantifier, its restriction, and its nuclear scope is a Quantifier-Induced Barrier.

b. *Minimal Quantified Structure Constraint (MQSC)*
If an LF trace β is dominated by a QUIB α, then the binder of β must also be dominated by α.

(Beck 1996)

1.2 *Wh*-Intervention Effects in Korean

(9) a. Mira-ka *mwues-ul* ilk-ess-ni?
Mira-NOM what-ACC read-PAST-Q

b. *Mwues-ul*$_i$ Mira-ka t$_i$ ilk-ess-ni?
what-ACC Mira-NOM read-Past-Q
'What did Mira read?'

(10) 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?'

(11) 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?'

(12) 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?'

(13) 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 to LF to the interrogative SpecCP and an intervening quantifier blocks that LF movement.

1.3 *Wh*-Intervention Effects Crosslinguistically

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 suggests that the intervention effect has a universal character.

1.4 Overview of Talk

In section 2 I point out some problems with the analysis proposed by Beck (1996) and Beck & Kim (1997). In section 3 I introduce a new generalization, namely the focus intervention effect. In section 4 I show how the intervention effect is derived in the semantic approach of Beck (2006) and give a formalization in syntactic terms. In section 5 I show another construction sensitive to focus intervention, alternative questions. Conclusions are drawn in section 6.

2 Problems

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

(14) **Meige ren** dou mai-le *shenme*?
every man all buy-ASP what
'What did everybody buy?'

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

(16) 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:

(17) a. **Taypwupwun-uy haksayng-tul-i** *nwukwu-lul* hoycang-ulo chwuchenha-ess-ni?
most-GEN student-PL-NOM who-ACC president-as recommend-PAST-Q
'Who did most students recommend as president?'
b. For which x, x a person: most students recommended x as president.

(18) a. 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?'
b. For which x, x a person: it is always/often the case that Mira took x 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) and Beck & Kim's (1997) 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?

It seems even more important to ask *why* quantifiers should block LF *wh*-movement. Note that negation and quantificational elements do not have the same make-up as *wh*-elements. And *wh*-elements do not move to the position of negation or quantificational elements, nor vice versa.

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 (see Kim 2006 for more details):

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

The underlying idea is that the Q operator is a focus sensitive operator and *wh*-phrases in-situ are dependent (i.e., semantically deficient) focus elements which must be associated with the Q operator in order to be interpreted. An intervening independent focus element blocks that association.

I further proposed in Kim (2002b) that the *wh*-intervention effect is actually an instance of the more general intervention effect, as given in (20):

(20) *Focus Intervention Effect*
In a focus-sensitive licensing construction, no independent focus phrase may intervene between the licensor Op and the licensee XP.
*[Op$_1$ … [FocP [… XP$_1$ …]]]

By 'focus-sensitive licensing' I mean to refer to licensing of a *wh*-phrase in a *wh*-question, the disjunctive phrase in an alternative question, or an NPI in a negative sentence. These are all dependent focus elements which have to be associated with a licensing operator in order to be properly interpreted (a Q operator for the first two cases, and NEG for NPIs). I proposed that the Q(uestion) operator in questions and the NEG operator (licensing NPIs) are focus-sensitive operators, such that an intervening focus phrase induces an intervention effect in all of these three constructions.

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:

(21) 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?'

(22) 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?'

(23) 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?'
(*shei ye* 'who also' meaning *anyone*)

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

(24) 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?'

(25) a. ***LILI***-aanə *eetə pustakam* waangi-yatə?
Lili-be which book bought-NMZ
b. *eetə pustakam*-aanə ***LILI*** waangi-yatə?
which book-be Lili bought-NMZ
'Which book did LILI buy?'

(26) 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?'
(*aar-um* = *aar* 'who' + *um* 'also')

It turns out that NPIs are very consistent interveners for the licensing of *wh*-in-situ across languages. NPIs can be analyzed as focus phrases (e.g., Lee & Horn 1994, Krifka 1995, Lahiri 1998), 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).

Zubizarreta (2003) seems to provide further evidence for "focus-induced" (rather than quantifier-induced) intervention effects. Zubizarreta observes that a quantifier gives rise to an intervention effect in the French *wh*-in-situ construction *only if* it is contrastively focused. This is illustrated by the contrast in (27-a) and (27-b):

(27) a. Ils ont **tous** mangé *quoi*?
'They have all eaten what?'
b. *Ils ont **TOUS** mangé *quoi*?
'They have ALL eaten what?'

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

Why should focus 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), Malayalam (Jayaseelan 2003) and Serbo-Croatian (Stjepanović 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 (28-a) and (28-c) with (28-b); only quantifiers cannot scope out of the island:

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

(29) *Tell me who$_i$ John rejected the proposal that t$_i$ 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 (30) and Korean (31):

(30) 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?'

(31) 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's (1985, 1992) alternative semantics for focus:

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

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

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

Hamblin's (1973) alternative semantics for questions:

(35) Who left?

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

Note that the focus semantic value of (32) is identical to the ordinary semantic meaning of the question (35). A *wh*-phrase, like a focus, triggers the introduction of alternatives.

4 Analysis of Focus Intervention Effects

The common properties of focus and *wh*-elements described in section 3.2 can be incorporated into the semantic and syntactic analysis of focus intervention effects. Following the generalization of focus intervention effects proposed by Kim (2002a,b), Beck (2006) proposes a semantic analysis of the intervention effects based on focus semantics, which will be introduced in 4.1. In section 4.2, I will show how the intervention effects can be analyzed in the syntax, building on my previous proposals.

4.1 Semantics of Focus Intervention Effects

Beck (2006) 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.

We begin with (37-a), which is associated with the LF structure in (37-b) (cf. Rooth 1992):

(37) a. [only [John$_{\text{F}}$ left]]
b. [only$_C$ [$\sim C$ [$_\alpha$ John$_{\text{F}}$ left]]]

(38) a. $[\![\text{John}_{\text{F}}]\!]^o$ = John
b. $[\![\text{John}_{\text{F}}]\!]^f = D = \{\text{John, Bill, Amelie, } \dots\}$

(39) a. $[\![\alpha]\!]^o = \lambda w.$ John left in w
b. $[\![\alpha]\!]^f = \{\lambda p : p = \lambda w.x$ left in $w \mid x \in D\}$
$= \{$that John left, that Bill left, that Amelie left, $\dots\}$

In Rooth's (1992) focus theory, the focus interpretation operator $\sim$ is involved, whenever the contribution of focus is used in the semantics. The $\sim$ operator is a purely presuppositional operator: it introduces a presupposed alternative set C.

(40) a. $[\![\sim C\ \phi]\!]^o$ is only defined if C is a subset of $[\![\phi]\!]^f$ and contains both $[\![\phi]\!]^o$ and an element distinct from $[\![\phi]\!]^o$.
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, and it resets the focus semantic value of the whole structure to a singleton containing the ordinary semantic value.

(41) $[\![\text{only}_C\ \phi]\!]^o$ = 1 iff for all propositions $p \in C$, if p is true, then $p = [\![\phi]\!]^o$.

Accordingly, (37-a) means that of all the relevant propositions, the only true one is that John left.

For the interrogative, its structure is given in (42-b), with the Q operator.

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

Now Beck assumes that while a *wh*-phrase has a well-defined focus semantic value in (43-b), its ordinary semantic value is undefined (see (43-a)). Both interpretive properties project to the larger structure that contains the *wh*-phrase, labeled ϕ in (42-b). The ordinary semantic value of ϕ is also undefined, while its focus semantic value is the set of alternatives given in (44-b).

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

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

Note that (44-b) is already the semantic object we want for the ordinary semantics of the question (cf. Hamblin 1973). It is the task of the question operator Q to lift the focus semantic value of its sister to the level of the ordinary semantics (see (45-a)) (see von Stechow (1991) for a similar idea). This gives us the desired semantics for (42), given in (46).

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

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

Both Q and $\sim$ operators are focus sensitive operators.

The Intervention Effect

(47) a. *Only John_{F} invited who?
b. $[_{\text{CP}}\ \text{Q}\ [_{\text{IP}_3}\ \text{only}_C\ [_{\text{IP}_2} \sim C\ [_{\text{IP}_1}\ \text{John}_{\text{F}}\ \text{invited who}]]]]$

(48) $[\![\text{IP}_1]\!]^o$ is undefined.
$[\![\text{IP}_2]\!]^o$ is undefined, hence $[\![\text{IP}_2]\!]^f$ is undefined.
$[\![\text{IP}_3]\!]^o$ and $[\![\text{IP}_3]\!]^f$ are both undefined.
$[\![\text{CP}]\!]^o$ is undefined.

We can assume that a structure that cannot be assigned an interpretation is not grammatical (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. Hence, intervention effect examples are predicted ungrammatical as they are uninterpretable.

Beck (2006) proposes the general prediction in (49), which is essentially a reformulation of Kim's (2002a,b) empirical generalization (19), here repeated in (50):

(49) A *wh*-phrase may not have the $\sim$ operator as its closest c-commanding operator.
*$[\text{Q}_i \ldots [\sim C\ [_{\phi} \ldots\ wh_i \ldots\ ]]]$ (Beck 2006)

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

Krifka (1999) suggests that expressions such as at least, at most or less than are focus-sensitive, similar to only in Rooth's (1985) semantics, and operate on a set of alternatives evoked by focus. In recent work, Penka (2006) proposes that the semantics of the particle almost is also analogous to that of only in the sense that almost evaluates alternatives in which the expression modified by almost is replaced by a value close by on the corresponding Horn scale. Interestingly, these expressions are all identified as harmful interveners for LF *wh*-movement in Beck (1996). So we could assume that any element whose interpretation involves alternatives gives rise to the intervention effect.

The General View of Intervention Effects

In principle, we could expect that the $\sim$ operator acts as an intervener whenever alternative semantics is involved, because 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.

(51) *General Minimality Effect* (cf. Beck 2006, Beck & Kim, to appear)
The evaluation 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 syntactic requirement on configuration 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, 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, 2004):

(52) (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.

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

(54) My proposal (mirrors the semantics):
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.

Intervention Effects

On the syntactic side I assume that the Agree relation between the *wh*-phrase and the interrogative C is disturbed by an intervening Foc operator. An intervention effect occurs whenever a focus phrase intervenes between an interrogative C and *wh*-in-situ, as shown in (55) with the relevant features:

(55) *[$_{\text{CP}}$ $\text{C}_{[iQ,iF]}$ [... $\text{Foc}_{[iF]}$ ...[... $wh_{[uQ,uF]}$ ...]]]

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.

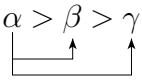
A *wh*-phrase not licensed by a Q operator will be uninterpretable, since it can never have a well-defined ordinary semantics; in fact, the Q operator must be the closest c-commanding operator, as it is the only operator which can lift the focus semantic values introduced by *wh*-phrases to an ordinary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

Intervention effects can be explained both in syntax (failure of Agree) and semantics (failure of interpretation).

Multiple *Wh*-in-situ

What happens if we have more than one *wh*-in-situ? I propose that they are licensed together by the operation Multiple Agree.

(56) *Multiple Agree* (cf. Hiraiwa 2001, Chomsky 2004)



(Agree (α, β, γ), where α is a probe and both β and γ are matching goals for α.)

$C_{[iQ,iF]}$ can check and delete the uninterpretable features of all *wh*-phrases in its domain.

(57) $[_{CP}\ C_{[iQ,iF]}\ [\ wh_{[uQ,uF]}\ [\ \ldots\ wh_{[uQ,uF]}\ \ldots\ ]]]$

The interpretation of the multiple question (58-a) will be (58-b):

(58) a. Nwukwu-ka nwukwu-lul chotayha-ess-ni? [Korean]
who-NOM who-ACC invite-PAST-Q
'Who invited who?'

b. $\{p : p = \lambda w.\ x$ invited y in $w \mid x, y \in D\}$

So, if $D = \{$Mary, Tom, Grace$\}$, then the question will denote the following set of alternative propositions (ignoring the possibility of collective arguments):

(59) {that Mary invited Tom, that Mary invited Grace, that Tom invited Grace, that Tom invited Mary, that Grace invited Mary, that Grace invited Tom}

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).

A simple English question like (60) is ambiguous between a yes-no question reading (expected answers: *yes/no*) and an alternative question reading (expected answers: *coffee/tea*).

(60) Did John drink coffee or tea?

The AltQ reading depends on intonation – both disjuncts in (60) must be focused. Note that (61), where a focus phrase precedes the disjunctive phrase, is unacceptable as AltQ.

(61) ??Did **only John** drink coffee_F or tea_F? [*AltQ]

Similar effects can be found in German (see (62)) and Korean (see (63)):

(62) a. ?*Hat **nur Maria** den Jonas oder die Ida eingeladen? [*AltQ]
has only Maria the Jonas or the Ida invited

b. Hat Maria den Jonas oder die Ida eingeladen? [$\surd$AltQ]
has Maria the Jonas or the Ida invited

c. Hat den Jonas oder die Ida **nur Maria** eingeladen? [$\surd$AltQ]
has the Jonas or the Ida only Maria invited
'Did (only) Maria invite Jonas or Ida?'

(63) a. Mira-ka cha-lul masi-ess-ni animyen khephi-lul masi-ess-ni? [$\surd$AltQ]
Mira-NOM tea-ACC drink-PAST-Q if not coffee-ACC drink-PAST-Q
'Did Mira drink tea or coffee?'

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

c. ***MIRA-ka** cha-lul masi-ess-ni animyen khephi-lul masi-ess-ni? [*AltQ]
Mira-NOM tea-ACC drink-PAST-Q if not coffee-ACC 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.

(64) [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 (51), repeated in (65).

(65) *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

To sum up, I have 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. I have also provided some syntactic, semantic and phonological evidence for the Focus Intervention Effects.

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