

Focus Intervention Effects in Questions

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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

- (1) Wen hat Luise *wo* gesehen?
whom has Luise where seen
'Where did Luise see whom?'
- (2) a. *Wer hat **niemanden** *wo* angetroffen?
who has nobody_{acc} where met
b. Wer hat *wo* **niemanden** angetroffen?
who has where nobody_{acc} met
'Who didn't meet anybody 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*

Similar intervention effects are observed 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?'

Note that the universal quantifier *nwukwuna* 'everyone' in (13) cannot induce a pair-list reading¹ (in contrast to the corresponding English sentence *Which professor does everyone respect?*, which is ambiguous between a pair-list reading and a single-answer reading).

¹This seems to be the case in Japanese, too. See Tomioka (2004) for a promising pragmatic account for this fact.

Beck (1996) and 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

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 in Dutch (de Swart 1992, Honcoop 1998), French (Chang 1997, Cheng and Rooryck 2000), Hindi/Urdu, Turkish (Beck and 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.

1.4 Overview of Paper

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 (to appear) and give a formalization in syntactic terms. In section 5 I show another construction sensitive to focus intervention, alternative questions, and in section 6 I show that NPI licensing is also subject to the intervention effect. Section 7 concludes the paper.

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 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?’

²According to Aoun and Li (1993a), (14) is ambiguous. Both a pair-list answer and a single answer are allowed.

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) Minimal Quantified Structure Constraint (MQSC). This is unexpected as the property that was held responsible for making an expression induce intervention effect in the MQSC 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?

We have seen that 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.

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

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:

- (20) 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?’

- (21) 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?’
- (22) 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.

- (23) **ellaawarum** *eetə pustakam-aanə* waayicc-atə?
 everyone which book-be read-NMZ
 ‘Which book did everyone read?’
- (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’)

According to recent analyses of NPIs (e.g., Lee & Horn 1994, 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 Syntactic and Phonological Similarities between Focus and WH

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 1996, 1999) and Serbo-Croatian (Stjepanović 2003)). *Wh*-movement in these languages is argued to be an instance of focus movement. The underlying idea is that *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 (27-a) and (27-c) with (27-b); only quantifiers cannot scope out of the island:

- (27) a. Dr. Svenson only rejected the proposal that [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.
- (Rooth 1996:283f.)

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 (28) and Korean (29)/(30):

- (28) 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?'
- (29) 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?'
- (30) NWUKWU-ka MWUES-ul sa-ss-ni?
who-NOM what-ACC buy-PAST-Q
'Who bought what?'

This shows that focal stress has the function of distinguishing between the question word meaning and the indefinite existential meaning of *wh*-pronouns in German and Korean.

Deguchi & Kitagawa (2002) and Ishihara (2002) show 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.

4 Analysis of Focus Intervention Effects

4.1 Semantics of Focus Intervention Effects

Beck (to appear) suggests that *wh*-phrases and focused phrases both introduce alternatives into the computation, but that *wh*-phrases do not have any ordinary semantic value, unlike focus. She claims that 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.

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

- (31) $[\text{John}]_F \text{ left.}$
- (32) $\llbracket [\text{John}]_F \text{ left} \rrbracket^o$ ordinary semantic value
 $= \lambda w. \text{ John left in } w$
 $= \text{ that John left}$
- (33) $\llbracket [\text{John}]_F \text{ left} \rrbracket^f$ focus semantic value
 $= \{ \text{that John left, that Bill left, that Amelie left, } \dots \}$
 $= \{ \text{that } x \text{ left} \mid x \in D \}$
 $= \{ p : p = \lambda w. x \text{ left in } w \mid x \in D \}$

Hamblin's (1973) alternative semantics for questions:

- (34) Who left?
- (35) $\{ \text{that John left, that Bill left, that Amelie left, } \dots \}$
 $= \{ \text{that } x \text{ left} \mid x \in D \}$
 $= \{ p : p = \lambda w. x \text{ left in } w \mid x \in D \}$

Things go wrong when there is a focus in the question whose contribution is evaluated within the scope of the Q operator, as schematized in (36):

- (36) $*[Q \dots [\text{Op} [\phi \dots \text{XP}_F \dots \text{wh} \dots]]]$

The evaluation of focus will block at the interpretation of the *wh*-phrase because the *wh*-phrase has no ordinary semantics.

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

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

The two semantic values of John_F are shown in (38). Compositional interpretation integrates both into the larger structure, yielding (39) for the category labeled α in (37-b):

- (38) a. $\llbracket [\text{John}]_F \rrbracket^o = \text{John}$ ordinary semantic value
 b. $\llbracket [\text{John}]_F \rrbracket^f = D = \{ \text{John, Bill, Amelie, } \dots \}$ focus semantic value

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

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. $\llbracket \sim C \phi \rrbracket^o$ is only defined if C is a subset of $\llbracket \phi \rrbracket^f$ and contains both $\llbracket \phi \rrbracket^o$ and an element distinct from $\llbracket \phi \rrbracket^o$.
 If defined, $\llbracket \sim C \phi \rrbracket^o = \llbracket \phi \rrbracket^o$.
 b. $\llbracket \sim C \phi \rrbracket^f = \{ \llbracket \sim C \phi \rrbracket^o \}$

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 (clause (40-b)).

The semantics of *only* is given in (41) (cf. Rooth 1996):

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

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. $[Q [\phi \text{ who left}]]$

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

(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. This gives us the desired semantics for the example.

- (45) a. $\llbracket Q \phi \rrbracket^o = \llbracket \phi \rrbracket^f$
 b. $\llbracket Q \phi \rrbracket^f = \{ \llbracket Q \phi \rrbracket^o \}$
 (46) $\llbracket [Q [\phi \text{ who left}]] \rrbracket^o = \llbracket [\phi \text{ who left}] \rrbracket^f = \{ p : p = \lambda w. x \text{ left in } w \mid x \in D \}$

Both Q and \sim operators are focus sensitive operators.

The Intervention Effect

- (47) a. *Only John_F invited who?
 b. $[\text{CP Q } [\text{IP}_3 \text{ only}_C [\text{IP}_2 \sim C [\text{IP}_1 \text{ John}_F \text{ invited who}]]]]$
- (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:³

- (49) *Principle of Interpretability* (Beck, to appear)
 An LF must have an ordinary semantic interpretation.

Hence, intervention effect examples are predicted ungrammatical as they are uninterpretable.

The focus operator \sim extends to cases that involve no particle such as *only*. Consider the Korean (50-a) and its structure (50-b):

- (50) a. ***MIRA-ka** *nwukwu-lul* chotayha-ess-ni?
 Mira-NOM who-ACC invite-PAST-Q
 ‘Who did MIRA invite?’
 b. $[\text{CP Q } [\text{IP}_2 \sim C [\text{IP}_1 \text{ Mira}_F \text{ invited who}]]]$

In (50-b), $[[\text{IP}_1]]^o$ is undefined since the *wh*-phrase’s ordinary semantics is undefined. Accordingly, $[[\text{IP}_2]]^o$ is undefined; but then $[[\text{IP}_2]]^f$ is also undefined. $[[\text{IP}_2]]^f$ is the input to the question operator, but is undefined, so there is no coherent interpretation, and thus ungrammaticality.

Overt movement (here, scrambling) of the *wh*-phrase across the problematic intervener circumvents the intervention effect. The trace left behind by the *wh*-phrase is an ordinary variable, and as such, does not interfere with the formation and evaluation of alternative sets. The crucial category ϕ has well-defined ordinary and focus semantic values, which happen to contain an ordinary variable bound from the outside.

- (51) a. *Nwukwu-lul*_{*i*} **Mira-man** *t_i* chotayha-ess-ni?
 who-ACC Mira-only invite-PAST-Q
 ‘Who did only Mira invite?’
 b. $[\text{Q } [\text{nwukwu-lul}_i [\phi \text{ Mira-man } t_i \text{ chotayha-ess-ni}]]]$
 $[[\phi]]^o = \text{that only Mira invited } x$
 $[[\phi]]^f = \{\text{that only Mira invited } x\}$

These facts indicate that the *wh*-phrase in (51) is interpreted in its moved position, and that alternatives are introduced by the *wh*-phrase.

³Cf. 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.

Beck (to appear) proposes the general prediction in (52), which is essentially a reformulation of Kim's (2002a,b) empirical generalization (19), here repeated in (53):

- (52) A *wh*-phrase may not have the \sim operator as its closest c-commanding operator.
 *[$Q_i \dots [\sim C [\phi \dots wh_i \dots]]$] (Beck, to appear)
- (53) * $[_{CP} Q_i \dots [FocP [\dots wh_i \dots]]$ (Kim 2002a,b)

Regarding the class of interveners, Beck assumes that problematic interveners in a given language are the expressions that are accompanied by a \sim operator.

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.

- (54) *General Minimality Effect* (cf. Beck, to appear, Beck & Kim, to appear)
 The evaluation of alternatives introduced by an XP cannot skip an intervening \sim operator.
 * $[Op_1 \dots [\sim C [\phi \dots XP_1 \dots]]$

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 is adopted in Beck, to appear, and here), *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):

- (55) (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.

(56) Chomsky (2000):

- a. probe: [*u*Q] in C
 b. goal: [*i*Q,*uwh*] in *wh*-phrase

(57) My proposal (mirrors the semantics):

- a. probe: [*i*Q,*i*F] in C
 b. goal: [*u*Q,*u*F] 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 the interrogative C and the *wh*-phrase in situ.

(58) * $[_{CP} C_{[iQ,iF]} [\dots \text{Foc}_{[iF]} \dots [\dots \text{wh}_{[uQ,uF]} \dots]]]$

The *wh*-element has the uninterpretable features [*u*Q,*u*F], which need to be checked against the interpretable features of a matching operator. Only the interrogative C has the complete set of interpretable features [*i*Q,*i*F] for the [*u*Q,*u*F] 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 *i*F, but it cannot license the *wh*-in-situ because it does not have the feature *i*Q. 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. Beck (to appear) proposes that the cause of the intervention effect lies in the “unselectivity” of the focus operator, which evaluates ALL focus semantic values in its domain. This means that a higher Q operator would end up with nothing to operate on (recall that Q operates on the focus semantic values of its sister category), and then the whole structure cannot be interpreted as a question. If this is correct, it would mean that the

iF of Foc does not allow any *uF* in its domain to pass it without evaluation – Foc “catches” all focus alternatives.

This behavior is (crucially) different from that of the Q operator itself, as we know from the “Baker ambiguity” (also absence of *Wh*-Island effects in Chinese (cf. Huang 1982) and in some dialects of Japanese (cf. Ishihara 2002)).

- (59) Who remembers where we bought what?
- a. Mary remembers where we bought what.
 - b. Mary remembers where we bought the wine, and John remembers where we bought the salad.

The situation with *wh*-in-situ contrasts with overt movement out of an embedded interrogative, which is not possible in English:

- (60) ?*What do you remember where we bought?

It is not clear how the asymmetry between “overt” and “covert” *wh*-scoping can be accounted for in the current minimalist framework. Chomsky (2000) proposed that the *Wh*-Island effect is a defective intervention effect: analogous to the situation with A-movement, the [Q] feature of an already-checked *wh*-phrase (e.g., *where* in (60)) bars attraction of lower [Q] although the blocking element itself cannot move or check the uninterpretable feature of the probe. But then the question is why there is no such intervention effect in (59).

Nissenbaum (2000:228) suggests that there is no (defective) intervention effect, and derives the ungrammaticality of examples like (60) from the following spellout parameter setting for languages like English:

- (61) English *wh*-movement: Apply spellout after exactly one *wh*-phrase raises to the periphery of an interrogative clause.

In our analysis, too, the Baker ambiguity is unexpected as the C of the embedded CP has a full set of features [*iQ, iF*] which would match the uninterpretable features of *wh*-in-situ. We would then expect the *wh*-in-situ to Agree only with the closer embedded C under locality, but never with the matrix C.

- (62) [_{CP} who₁ C_[*iQ, iF*] [_{IP} t₁ remembers [_{CP} where₂ C_[*iQ, iF*] [_{IP} we bought what_[*uQ, uF*] t₂]]]]

To account for the Baker ambiguity, Beck assumes that the Q operator is “selective”, unlike the focus operator, in the sense that it only binds the variables that it is coindexed with. This is compatible with Baker’s own analysis (1970) of the ambiguity, illustrated in (63):

- (63) a. [Q₁ [who remembers [Q_{2,3} [where₂ we bought what₃]]]]
 b. [Q_{1,3} [who remembers [Q₂ [where₂ we bought what₃]]]]

But it seems to me that there is no really satisfactory analysis that explains the asymmetry between overt vs. covert *wh*-scoping.

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. The intervention effect holds only if the intervening element is not checked by the same probe *P* (see Chomsky 2004, Hiraiwa 2001).

$C_{[iQ,iF]}$ can – but need not (see (62)) – check and delete the uninterpretable features of all *wh*-phrases in its domain.

$$(64) \quad [_{CP} C_{[iQ,iF]} [\text{wh}_{[uQ,uF]} \dots \text{wh}_{[uQ,uF]} \dots]]$$

The interpretation of the multiple question (65-a) will be (65-b):

- (65) a. NWUKWU-ka NWUKWU-lul chotayha-ess-ni? [Korean]
 who-NOM who-ACC invite-PAST-Q
 ‘Who invited who?’
 b. $\{p : p = \lambda w. x \text{ invited } x' \text{ in } w \mid x, x' \in D\}$

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

- (66) $\{\text{that Mary invited Tom, that Mary invited Grace, that Tom invited Grace, that Tom invited Mary, that Grace invited Mary, that Grace invited Tom}\}$

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 intervention effects in alternative questions).

5.1 The Phenomenon

In English, a simple question like (67) is ambiguous between a yes-no question (Y/NQ, for short) reading and an alternative question (AltQ, for short) reading.

- (67) Did John drink coffee or tea?

- (68) Alternative Question Reading

- a. Question meaning: $\{\text{that John drank coffee, that John drank tea}\}$
 b. Paraphrase: Which of coffee and tea did John drink?
 c. Example answer: Coffee

- (69) Yes/No-Question Reading

- a. Question meaning: $\{\text{that John drank coffee or tea, that John didn't drink coffee or tea}\}$
 b. Paraphrase: Is it the case that John drank coffee or tea or not?
 c. Example answer: Yes

The availability of the AltQ reading depends on intonation – both disjuncts must be focused:

(70) Did John drink coffee_F or tea_F?

Note that (71), where a focus phrase precedes the disjunctive phrase, is unacceptable.

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

Similar effects can be found in German (see (72)) and in Korean (see (73)).

(72) a. Hat Peter Maria_F oder Susanne_F eingeladen? [*√AltQ*]
has Peter Maria or Susanne invited
'Did Peter invite Maria or Susanne?'

b. *Hat nur Peter Maria_F oder Susanne_F eingeladen? [**AltQ*]
has only Peter Maria or Susanne invited
'Did only Peter invite Maria or Susanne?'

(73) a. 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?'

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 German examples in (74) illustrate the same effect: (74-a), in which the intervener *nur Peter* 'only Peter' precedes the disjunction, is unacceptable as an alternative question. The question is fine without the intervener ((74-b)), or with the disjunction moved past the intervener ((74-c)).

(74) a. *War nur Peter gestern_F oder heute_F im Büro?
was only Peter yesterday or today in the office
'Was only Peter in the office yesterday or today?'

b. War Peter gestern_F oder heute_F im Büro?
was Peter yesterday or today in the office
'Was Peter in the office yesterday or today?'

c. War gestern_F oder heute_F nur Peter im Büro?
was yesterday or today only Peter in the office
'Was only Peter in the office yesterday or today?'

(75) shows that the element *cacwu* 'often', which was harmless as an intervener in Korean *wh*-questions, is equally harmless as an intervener in AltQ.

(75) Mina-ka cacwu John-ul chotayha-ess-ni animyen Bill-ul chotayha-ess-ni?
Mina-NOM often John-ACC invite-PAST-Q if not Bill-ACC invite-PAST-Q
'Did Mina often invite John or Bill?'

Beck & Kim (to appear) observe that in a given language, the set of problematic interveners is the same in both types of questions – while at the same time, there is variation between languages regarding what the set of problematic interveners is.

- (76) A focus element may not intervene between disjunctive phrase and its licensing complementizer. $*[_{CP} Q_i [\text{FocP} [\dots [A \text{ or } B]_i \dots]]]$

5.2 Interpretation of Alternative Questions

Following von Stechow (1991), Beck & Kim (to appear) assume that the disjunctive phrase in alternative questions introduces a set of alternatives (shown in (77-b)), which are evaluated by the question operator; an intervening focus operator blocks the evaluation of the alternatives.

- (77) a. Did John drink coffee_F or tea_F?
 b. {that John drank coffee, that John drank tea}
 c. $[Q [_{\phi} \text{John drank } [_{\text{DisjP}} \text{coffee}_F \text{ or tea}_F]]]$
- (78) a. $[[\text{DisjP}]]^o = [\text{coffee or tea}]$
 b. $[[\text{DisjP}]]^f = \{\text{coffee, tea}\}$
- (79) a. $[[\phi]]^o = [\lambda w. \text{John drank coffee in } w \text{ or John drank tea in } w]$
 b. $[[\phi]]^f = \{\lambda w. \text{John drank coffee in } w, \lambda w. \text{John drank tea in } w\}$
 c. $[[Q \phi]]^o = [[\phi]]^f$
 $[[Q \phi]]^f = \{[[\phi]]^o\}$
 d. $[[[Q [_{\phi} \text{John drank } [_{\text{DisjP}} \text{coffee or tea}]]]]^o$
 $= [[[_{\phi} \text{John drank } [_{\text{DisjP}} \text{coffee or tea}]]]^f$
 $= \{\lambda w. \text{John drank coffee in } w, \lambda w. \text{John drank tea in } w\}$

5.3 The Intervention Effect

- (80) a. ??Did only John_F drink coffee_F or tea_F?
 b. $[_{CP} Q [_{\phi} \text{only}_C [\sim C [_{IP} \text{John}_F \text{ drank } [_{\text{DisjP}} \text{coffee}_F \text{ or tea}_F]]]]]$
- (81) a. $[[\text{DisjP}]]^o = [\text{coffee or tea}]$
 $[[\text{DisjP}]]^f = \{\text{coffee, tea}\}$
 b. $[[IP]]^o = [\lambda w. \text{John drank coffee in } w \text{ or John drank tea in } w]$
 $[[IP]]^f = \{\lambda w. \text{John drank coffee in } w, \lambda w. \text{John drank tea in } w,$
 $\lambda w. \text{Mary drank coffee in } w, \lambda w. \text{Mary drank tea in } w, \dots \}$
 c. $[[\sim C IP]]^o = [[IP]]^o$
 $[[\sim C IP]]^f = \{[[\sim C IP]]^o\} = \{[[IP]]^o\}$
 d. $[[\phi]]^o = \lambda w. \text{the single true proposition in } C \text{ is } [[IP]]^o.$
 $[[\phi]]^f = \{[[\phi]]^o\}$
 e. $[[CP]]^o = \{[[\phi]]^o\} \implies \text{this is not a question meaning!}$
- (82) $[[Q \phi]]^o$ is only defined if $[[\phi]]^f$ has two or more members. If defined:
 a. $[[Q \phi]]^o = [[\phi]]^f$
 b. $[[Q \phi]]^f = \{[[Q \phi]]^o\}$

- (83) [DisjP] may not have the \sim operator as its closest c-commanding operator.
 *[Q ... [\sim C [$_{\phi}$... [A or B] ...]]]
- (84) *General Minimality Effect*
 The evaluation of alternatives introduced by an XP cannot skip an intervening \sim operator.
 *[Op₁ ... [\sim C [$_{\phi}$... XP₁ ...]]]

6 Another Intervention Effect: NPI Licensing

6.1 The Phenomenon

The NPI-licensing is known to be subject to an intervention or minimality effect, originally captured in Linebarger's (1987) *Immediate Scope Constraint*:

- (85) *Immediate Scope Constraint* (Linebarger 1987:338)
 A negative polarity item is acceptable in a sentence S if in the LF of S the subformula representing the NPI is in the immediate scope of the negation operator. An operator is in the immediate scope of NOT only if (i) it occurs in a proposition that is the entire scope of NOT, and (ii) within this proposition there are no logical elements intervening between it and NOT.
- (86) Mary didn't wear *any earrings* at every party.
- a. There are no earrings that Mary wore at every party. (NOT \succ *any* \succ *every*)
 b. At every party Mary wore no earrings. (*every* \succ NOT \succ *any*)
 c. *It wasn't at every party that Mary wore any earrings. (NOT \succ *every* \succ *any*)
- (87) a. Nobody gave John *a red cent/anything*.
 b. *Nobody gave **most beggars/every beggar** *a red cent/anything*.
 (Honcoop 1998:116)

The effect is strongly reminiscent of the *wh*-intervention effect, and it has been suggested in Honcoop (1998), Kim (2002b), Beck (to appear), and Guerzoni (to appear) that it should be viewed as related to the intervention effect in questions.

Kim's (2002b) observed that the same items that are problematic for *wh*-licensing are also problematic for NPI-licensing in a given language. Consider the following examples:

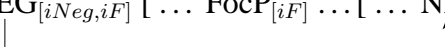
- (88) weil niemand für Otto *einen Finger gerührt* hat [German]
 because nobody for Otto a finger lifted has
 'because nobody lifted a finger for Otto'
- (89) a. ?*weil niemand **nur für Otto** *einen Finger gerührt* hat
 because nobody only for Otto a finger lifted has
 b. weil **nur für Otto_i** niemand *t_i einen Finger gerührt* hat
 because only for Otto nobody a finger lifted has
 'because nobody lifted a finger only for Otto'

- (90) a. weil niemand den Hans *je* eingeladen hat
 because nobody the Hans ever invited has
 ‘because nobody ever invited Hans’
 b. ?*weil niemand **jeden** *je* eingeladen hat
 because nobody everyone ever invited has
 ‘because nobody ever invited everybody’
- (91) *Amwuto* i chayk-ul ilk-ci anh-ass-ta [Korean]
 anyone this book-ACC read-COMP not do-PAST-DEC
 ‘No one read this book.’
- (92) a. ?**Amwuto* i **chayk-man** ilk-ci anh-ass-ta
 anyone this book-only read-COMP not do-PAST-DEC
 ‘No one read only this book.’
 b. **I** **chayk-man**_i *amwuto* t_i ilk-ci anh-ass-ta
 this book-only anyone NEG read-PAST-DEC
 ‘Only this book is what no one read.’
- (93) a. ?*Mina-nun *amwu-eykey-to* **kulehkey cohun sosik-to** alli-ci
 Mina-TOP anyone-DAT such good news-even tell-COMP
 anh-ass-ta
 not do-PAST-DEC
 ‘Mina didn’t tell anyone even such a good news.’
 b. **Kulehkey cohun sosik-to**_i Mina-nun *amwuey-key-to* t_i alli-ci
 such good news-even Mina-TOP anyone-DAT tell-COMP
 anh-ass-ta
 not do-PAST-DEC
 ‘Even such a good news, Mina didn’t tell anyone.’
- (94) *Amwuto* kukos-ey **cacwu** ka-ci anh-ass-ta
 anyone that place-to often go-COMP not do-PAST-DEC
 ‘No one went there often.’

In the case of *wh*-in-situ with an intervening NPI, there will be actually a “double” violation due to the focus intervention effect. Both NPI and *wh* are focus elements, and they each block the other’s licensing. That might explain why intervention effects are stronger with NPIs than with the other interveners in many languages (see Tomioka 2004 for a pragmatic/prosodic account for this fact).

- (95) **Amwuto* nwukwu-lul chotayha-ci anh-ass-ni?
 anyone who-ACC invite-COMP not do-PAST-Q
 ‘Who did no one invite?’

6.2 Focus and NPI-licensing

- (96) * [NEG [... FocP ... [... NPI ...]]
A focus phrase may not intervene between an NPI and negation. (Kim 2002b)
- (97) * [NEG_[iNeg,iF] [... FocP_[iF] ... [... NPI_[uNeg,uF] ...]]
- 

According to recent analyses of NPIs (e.g., Lee & Horn 1994, Krifka 1995, Lahiri 1998), NPIs can be analyzed as focus phrases, supported by the fact that NPIs consist of an indefinite NP and an overt scalar focus particle meaning ‘even, also’ in many languages (cf. Haspelmath 1997). In particular Krifka (1995) develops this idea within an alternative semantics where NPIs introduce individual alternatives that can expand to propositional alternatives via the same semantic mechanism used in the Hamblin semantics for questions. The semantics of the ‘even’ part essentially relies on alternatives. A number of polarity items are necessarily associated with focus, and polarity items denote scalar endpoints (Fauconnier (1975)). NPI-licensing also seems to be subject to the general minimality effect for focus evaluation in (84).

7 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 three constructions which are all sensitive to focus intervention, i.e., *wh*-questions, alternative questions and NPI-licensing. I showed that in all of these 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.

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References

- Aoun, Joseph, and Yen-hui Audrey Li. 1993a. *Wh*-elements in situ: Syntax or LF? *Linguistic Inquiry* 24, 199–238.
- Aoun, Joseph, and Yen-hui Audrey Li. 1993b. On some differences between Chinese and Japanese *wh*-elements. *Linguistic Inquiry* 24, 365–372.
- Baker, Carl Lee. 1970. Note on the description of English questions: The role of an abstract question morpheme. *Foundations of Language* 6, 197–219.
- Beck, Sigrid. 1996. Quantified structures as barriers for LF movement. *Natural Language Semantics* 4, 1–56.

- Beck, Sigrid. to appear. Intervention effects follow from focus interpretation. To appear in *Natural Language Semantics*.
- Beck, Sigrid, and Shin-Sook Kim. 1997. On WH- and operator scope in Korean. *Journal of East Asian Linguistics* 6, 339–384.
- Beck, Sigrid, and Shin-Sook Kim. to appear. Intervention effects in alternative questions. To appear in *The Journal of Comparative Germanic Linguistics*.
- Brody, Michael. 1990. Some remarks on the focus field in Hungarian. *UCL Working Papers in Linguistics* 2, 201–225.
- Chang, Lisa. 1997. *Wh*-in-situ phenomena in French. Master's thesis, University of British Columbia, Vancouver.
- Cheng, Lisa Lai-Shen, and Johan Rooryck. 2000. Licensing *wh*-in-situ. *Syntax* 3, 1–19.
- Chomsky, Noam. 1986. *Knowledge of Language*. New York: Praeger.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, ed. by R. Martin, D. Michaels, and J. Uriagereka, 89–155. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A Life in Language*, ed. by Michael J. Kenstowicz, 1–52. Cambridge, Mass.: MIT Press.
- Chomsky, Noam. 2004. Beyond explanatory adequacy. In *Structures and Beyond: The Cartography of Syntactic Structures, Volume 3*, ed. by A. Belletti, 104–131. Oxford: OUP.
- Chomsky, Noam. 2005. On phases. Ms., MIT.
- Deguchi, Masanori, and Yoshihisa Kitagawa. 2002. Prosody and *wh*-questions. In *NELS 32: Proceedings of the North East Linguistics Society*, ed. by M. Hirotsu, volume 1, 73–92. Amherst, MA: GLSA, University of Massachusetts, Amherst.
- Fauconnier, Gilles. 1975. Polarity and the scale principle. In *CLS 11: Papers from the Eleventh Meeting of the Chicago Linguistic Society*, 188–199. Chicago: Chicago Linguistic Society.
- Guerzoni, Elena. to appear. Intervention effects on NPIs and feature movement: Towards a unified account of intervention. To appear in *Natural Language Semantics*.
- Hagstrom, Paul. 1998. *Decomposing Questions*. Doctoral dissertation, MIT.
- Hamblin, Charles Leonard. 1973. Questions in Montague English. *Foundations of Language* 10, 41–53.
- Haspelmath, Martin. 1997. *Indefinite Pronouns*. Oxford: Oxford University Press.
- Hayes, Bruce, and Aditi Lahiri. 1991. Bengali intonational phonology. *Natural Language and Linguistic Theory* 9, 47–96.
- Heim, Irene, and Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Oxford: Blackwell.
- Hiraiwa, Ken. 2001. Multiple agree and the defective intervention constraint in Japanese. In *The Proceedings of HUMIT 2000*, ed. by O. Matushansky et al., 67–80. Cambridge, MA: MITWPL.
- Hoji, Hajime. 1985. *Logical Form Constraints and Configurational Structures in Japanese*. Doctoral dissertation, University of Washington.
- Honcoop, Martin. 1998. *Dynamic Excursions on Weak Islands*. The Hague: Holland Academic Graphics.
- Huang, Cheng-Teh James. 1982. *Logical Relations in Chinese and the Theory of Grammar*.

- Doctoral dissertation, MIT.
- Ishihara, Shinichiro. 2002. Invisible but audible *wh*-scope marking: *Wh*-constructions and deaccenting in Japanese. In *Proceedings of WCCFL 21*, ed. by L. Mikkelsen and C. Potts, 180–193. Somerville, MA: Cascadilla Press.
- Jayaseelan, K. A. 1996. Question word movement to focus and scrambling in Malayalam. *Linguistic Analysis* 26, 63–83.
- Jayaseelan, K. A. 1999. A focus phrase above *v*P. In *Proceedings of the Nanzan GLOW*, 195–212. Nanzan University, Nagoya, Japan.
- Kim, Shin-Sook. 2002a. Intervention effects are focus effects. In *Japanese/Korean Linguistics* 10, ed. by N. Akatsuka and S. Strauss, 615–628. Stanford: CSLI Publications.
- Kim, Shin-Sook. 2002b. Focus matters: Two types of intervention effect. Paper presented at WCCFL 21, UC Santa Cruz.
- Krifka, Manfred. 1995. The semantics and pragmatics of polarity items. *Linguistic Analysis* 25, 209–257.
- Lahiri, Utpal. 1998. Focus and negative polarity in Hindi. *Natural Language Semantics* 6, 57–123.
- Lee, Young-Suk, and Laurence R. Horn. 1994. *Any* as indefinite plus *even*. Ms., Yale University.
- Linebarger, Marcia. 1987. Negative polarity and grammatical representation. *Linguistics and Philosophy* 10, 325–387.
- Lipták, Anikó. 2001. *On the Syntax of Wh-Items in Hungarian*. Doctoral dissertation, University of Leiden.
- Nissenbaum, Jonathan. 2000. *Investigation of Covert Phrase Movement*. Doctoral dissertation, MIT.
- Pesetsky, David. 2000. *Phrasal Movement and Its Kin*. Cambridge, MA: MIT Press.
- Rooth, Mats. 1985. *Association with Focus*. Doctoral dissertation, University of Massachusetts, Amherst.
- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1, 75–116.
- Rooth, Mats. 1996. Focus. In *The Handbook of Contemporary Semantic Theory*, ed. by S. Lappin, 271–297. Oxford: Blackwell Publishers.
- Soh, Hooi Ling. 2005. *Wh*-in-situ in Mandarin Chinese. *Linguistic Inquiry* 36, 143–155.
- von Stechow, Arnim. 1991. Focusing and backgrounding operators. In *Discourse Particles*, ed. by W. Abraham, 37–84. Amsterdam: John Benjamins.
- Stjepanović, Sandra. 2003. Multiple *wh*-fronting in Serbo-Croatian matrix questions. In *Multiple Wh-Fronting*, ed. by C. Boeckx and K. K. Grohmann, 255–184. Amsterdam: John Benjamins.
- de Swart, Henriëtte. 1992. Intervention effects, monotonicity and scope. In *SALT II: Proceedings of the Second Conference on Semantics and Linguistic Theory*, ed. by C. Barker and D. Dowty, 387–406. Ohio State University.
- Tanaka, Hidekazu. 1997. Invisible movement in *sika-nai* and the linear crossing constraint. *Journal of East Asian Linguistics* 6, 143–188.
- Tomioka, Satoshi. 2004. Pragmatics of LF intervention effects: Japanese and Korean *wh*-interrogatives. Ms., University of Delaware.
- Tuller, Laurice. 1992. The syntax of postverbal focus constructions in Chadic. *Natural Language and Linguistic Theory* 10, 303–334.