University of Pennsylvania Working Papers in Linguistics

Volume 15
Issue 1 *Proceedings of the 32nd Annual Penn Linguistics Colloquium*

Article 16

3-23-2009

Intervention Effects and wh-movement

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Abstract
Intervention effects visible in many natural languages have been a lively issue in the syntactic and semantic literature in the last decade, starting with the seminal work by Beck (1996) and followed by a number of equally influential analyses. This paper highlights the limitations of some of these studies and proposes a reanalysis of intervention effects in terms of head movement. This paper also suggests an alternative Wh-movement approach for some Wh in-situ languages that show intervention effects, and claims that the nature of Wh-movement in natural languages has a direct consequence on the nature of Wh-quantifier interactions. I discuss data from various languages, particularly Hindi, English and Chinese to show how the nature of Wh-movement in these languages determines the presence of intervention effects as well as island effects. In this exploration, the paper also investigates the nature of constraints that regulate movement in these languages.

Intervention Effects and *wh*-movement*

Shiti Malhotra

1 Introduction

The presence of intervention effects is seen in many languages like Hindi, German and Japanese. Intervention effects appear when a focus element (NPI/ Focus) precedes an "in-situ" *wh*-phrase in these languages. Consider the following representative example from Hindi (1).

(1) *John-hi kyaa khariide-gaa?
John-only what buy-FUT
'What will only John buy?'

In the literature, there have been many syntactic (Beck, 1996; Pesetsky, 2000) as well as semantic (Beck, 2006) explanations of this phenomenon. This paper presents yet another approach to intervention effects, which is syntactic in the sense that intervention effects are seen as Relativized Minimality effects. The proposal is that intervention effects arise when a c-commanding quantificational element intervenes in the movement of the *wh*-operator across it. In particular, *wh*-operator movement is treated as an instance of overt *wh*-movement, and intervention effects result when the *wh*-operator moves over an intervening quantifier. The paper provides an alternative *wh*-movement account for some "*wh* in-situ" languages like Hindi. The claim is that these languages involve overt *wh*-movement, and evidence for this idea comes from island effects and their repair under sluicing, which implicates overt movement (cf. Merchant, 2001; Lasnik, 2001). More evidence comes from "*wh* scope marking" constructions in which a *wh*-operator in the matrix clause marks the scope of a *wh*-element in the embedded finite clause.

The discussion in section 2 provides an overview of intervention effects in languages like Hindi. I discuss two alternative accounts proposed in the literature, Beck (1996) and Pesetsky (2000), and point out some problems with each. In section 3, I sketch out the alternative *wh*-movement account for languages like Hindi. Section 4 is devoted to a reanalysis of intervention effects in the present framework. In section 5, I conclude with some remarks on the nature of *wh*-movement and on *wh*-quantifier interaction seen in natural languages.

2 An Overview of Intervention Effects

2.1 Beck (1996)

The first in-depth analysis of intervention effects was proposed by Beck (1996), who claimed that intervention effects are a result of a restriction on LF *wh*-movement to an interrogative C position. An expression with inherent quantificational force creates a blocking effect for the binding of traces left by LF movement. Beck assumed that a *wh* in-situ moves from its S-structure position to an LF landing site, and an intervening quantificational element can act as a barrier for the licensing of the trace left by this LF movement, creating a Quantifier-Induced Barrier Effect (2).

(2) Quantifier-Induced Barrier (QUIB):
The first node that dominates a quantifier, its restriction, and its nuclear scope is a quantifier-induced barrier.

* For useful comments and suggestions on this paper, I am very grateful to Howard Lasnik, Norbert Hornstein, and Juan Uriagereka. I also thank the audience at Penn Linguistics Colloquium at University of Pennsylvania, especially Satoshi Tomioka, for their insightful remarks. I would also like to thank the audience at Syntax Lunch Meetings, Department of Linguistics UMCP for the comments and the feedback. The paper looks decidedly better after incorporating these suggestions. All errors are of course mine.

Binding of LF traces in such a domain is prohibited and intervention effects come from a constraint on LF-traces, called the *Minimal Quantified Structure Constraint (MQSC)*:

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

Beck further points out that whether a given expression is a quantifier can be read off of its semantic type. This kind of information must be accessible at LF, as it triggers certain kinds of LF movement. In fact, if it is only at LF that the semantic structure of a quantified expression is available, it is plausible that the MQSC is an LF condition. If some quantifiers induce barriers, then the MQSC applies to LF traces. S-structure traces, on the other hand, are not constrained by an intervening quantifier.

2.1.1 Intervention Effects and *wh*-scope-marking Constructions

In support of her theory, Beck (1996) discusses the presence of intervention effects in *wh*-scope-marking constructions in German (4). Example (4) is unacceptable as the in-situ *wh*-expression has to be interpreted outside the scope of the quantificational element. It ought to be moved from its S-structure position at the level of LF. However, the trace created by this LF movement violates the MSQC, rendering the sentence ungrammatical.

(4) *Was glaubt Hans **nicht**, **wer** da war?
What believes Hans not who there was
'Who does Hans not believe was there?'

Beck sees *wh*-scope-marking construction as an instance of expletive-associate construction and, in line with the Direct Dependency Approach (McDaniel, 1989), suggests that in *wh*-scope-marking constructions, the *wh*-phrase in the embedded clause moves at LF to the matrix CP and replaces the scope marker, which is semantically vacuous. Consider example (5) and its LF (6) in this regard, where the quantifier interferes between the LF moved *wh*-phrase, and its LF trace.

(5) ??Was glaubst **niemand** [**wen**$_k$ [Hans gesehen hat **t**$_k$]]?
What believe nobody whom Hans seen has
'Who does nobody believe that Hans saw?'
(6) [$_{CP}$ **wen**$_k$ [$_{C'}$ C^0 [$_{IP}$ **niemand** **t**$_k^{LF}$ Hans gesehen hat **t**$_k$]]]]

In (6), the quantificational element *niemand* induces a QUIB that is the first dominating node, i.e., the IP. The LF trace t_k is dominated by this QUIB, but the binder of the trace, *Wen*, is not. Thus (6) violates the MQSC and is excluded by this condition on the binding of LF traces.

2.1.2 Problems with Beck's Account

There is, however, one conceptual problem with Beck's account of intervention effects. Intervention effects, in this account, are due to a constraint on the traces left by covert movement, but not on the traces created by overt movement. It would follow that traces created by covert movement must satisfy constraints that traces of overt movement do not. This approach is problematic since, at CI interface, both S-structure traces and LF traces are the same.

Another related problem is that Beck at times states the MSQC as a derivational constraint, i.e., as a constraint on LF movement. Though she defines the MSQC as a representational constraint, her explanation of the phenomena suggests it to be a constraint on LF movement. Her proposal is problematic even under a derivational view of grammar where both overt and covert operations satisfy uniformity (Chomsky, 1995). In such a framework, the derivation from the numeration to LF is uniform, i.e., both overt and covert movement must be regulated by the same constraints.

2.2 Pesetsky (2000)

For Pesetsky, intervention effects are due to a representational constraint (7) at LF. He suggests that any feature or morpheme movement is an instance of "separation," where a piece of the *wh*-phrase moves, stranding the restriction inside the clause. Intervention effects arise when a feature or a morpheme is separated from its semantic restriction by an intervening scope-bearing element. He thus reinterprets intervention effects as an LF constraint on *wh*-feature/morpheme movement instead of *wh*-phrasal movement.

(7) Intervention effect
A semantic restriction on a quantifier (including *Wh*) whereby it may not be separated from that quantifier by a scope-bearing element.

Pesetsky discusses a variety of "separation" constructions from German that strand material belonging to the restriction of a *wh*-phrase inside their clause. In these "separation constructions," the phrases that can separate in this manner are of the form "*wh*-word + all." All these constructions are subject to the intervention effect (see the paradigm in (8)–(11)).

(8) [Wen alles] hat Hans ____ gesehen? [no separation, no intervener]
Whom all has Hans seen
'Who all did Hans see?'

(9) Wen hat Hans [___ alles] gesehen? [separation, no intervener]
Whom has Hans all seen

(10) [Wen alles] hat niemand ____ gesehen? [no separation, intervener]
Whom all has no one seen
'Who all did no one see?'

(11) ??Wen hat niemand [___ alles] gesehen? [separation, intervener]
Whom has no-one all seen

2.2.1 Problems with Pesetsky's Account

There are two problems with Pesetsky's account, one conceptual and one empirical. The first problem comes from standard cases of reconstruction. Under the assumption that reconstruction would delete the restriction from the operator position and will retain it in the base position,[1] the semantic restriction on the *wh* will be separated from that *wh* by a scope bearing element *everyone*. Pesetsky's constraint predicts that a sentence like (12) would be bad; however, it is not the case.

(12) Whose mother does everyone like?

The second problem with Pesetsky's account relates to the assumption that intervention effects are due to a constraint at LF, especially because sluicing, a PF deletion operation, can repair intervention effects. Consider the contrast between examples (13) and (14) from German.

(13) *Wen hat niemand [___ von den studenten] gesehen?
whom has no-one of the students seen
'Who among the students has no one seen?'

(14) Niemand hat einem von den studenten gesehen, aber ich weiß nicht wen hat niemand
nobody has some of the students seen but I know not whom has nobody
[__ von den studenten] gesehen.
of the students seen
'No one has seen someone among the students but I don't know who.'

3 An Alternative *wh*-movement Account for Some *wh* In-situ Cases

[1] Preference Principle for Reconstruction (Chomsky, 1995).

3.1 *wh*-scope-marking Constructions

Malhotra and Chandra (2007) show that in *wh*-scope-marking constructions, the two *wh*-phrases base-generate as a single DP. In the course of the derivation, the *wh*-operator *kya* moves to a position in the matrix clause while the *wh*-phrase remains stranded inside the embedded CP. The scope marker has a +Q feature that must be satisfied against the C head which propels it to move successive-cyclically via intermediate vP until it lands in the domain of matrix CP. It checks its Q feature against C, but it also checks some feature against the v by adjoining to it.

The moved *wh*-operator marks the wide scope reading of the in situ *wh*-phrase. Evidence in support for this overt *wh*-movement account comes from two empirical facts, (a) multiple occurrences of the *wh*-operator in all intermediate clauses, and (b) strong island effects. For the obligatory multiple occurrence of the *wh*-operator, contrast the acceptable (15) with the unacceptable (16)–(17):

(15) Raam-ne **kya** sochaa [ki Ravii-ne **kya** kaha [ki **kaun** aaya]]]?
Ram-ERG what thought that Ravi-ERG what said that who came
'Who did Ram think that Ravi said came?'

(16) *Raam-ne sochaa [ki Ravii-ne **kya** kaha [ki **kaun** aayaa]]]
Ram-ERG thought that Ravi-ERG what said that who came

(17) *Raam-ne **kya** sochaa [ki Ravii-ne kaha [ki **kaun** aayaa]]]
Ram-ERG what thought that Ravi-ERG said that who came

As we note with the sentences above, though the *wh*-phrase remains inside the lowest clause, the *wh*-operator must be visible in each intermediate clause. In a base generation account, there is no obvious motivation for *kya* to appear in all the intermediate clauses. If *kya* is just there to mark the scope of the *wh*-phrase, then it should only appear in the highest clause and not in each intermediate clause. Malhotra and Chandra (2007) argue that these intermediate copies result from the successive cyclic movement of the *wh*-operator. *Kya* base-generates in the lowest clause and moves successive-cyclically via each intermediary functional position. Intermediate copies are the spelled-out traces of successive-cyclic movement. Intermediate steps in this successive-cyclic *wh*-movement are triggered by features other than those involved in checking a *wh*-expression's *wh*-feature. The idea is that *kya* checks the EPP feature at the v head and a focus-like feature at the intermediate C head. A second piece of evidence comes from the fact that *wh*-scope-marking constructions are island sensitive. For instance, the following examples (18) and (19) are ill-formed with embedded *wh*-phrases contained within complex NP-islands and adjuncts, respectively. An account in terms of overt movement can provide the most natural explanation for why the following structures are bad. Assuming that island effects are PF violations, it must be only overt movement that is subjected to a PF constraint that results in islands.[2] In line with the uniformity principle, the idea is that the rules that regulate overt and covert movement are the same; however, overt movement has to satisfy both PF and LF constraints whereas covert movement satisfies only LF constraints. The implication of this idea is that the *wh*-operator in scope-marking moves overtly and therefore its movement is sensitive to islands.

(18) *[Raam-ne kya kaha [ki Ravii-ko [ye baat [ki Mira kya khaegi] pata hai]]?
Ram-ERG what said that Ravi-DAT this fact that Mira what eat-will know is
'What did Ram say that Ravi knows the fact that Mira will eat?'

(19) *Raam-ne kyaa kahaa [ki Sitaa bazaar jaayegii [kyunki Mohan kyaa nahi layaa]?
Ram-ERG what said that Sita market go-will because Mohan what not bring
'What did Ram say that Sita will go to the market because Mohan didn't bring?'

Under this framework, *wh*-scope-marking constructions involve overt, not covert, *wh*-movement. If this is correct, then intervention effects visible in *wh*-scope-marking constructions (20) are a consequence of overt movement.

[2] Merchant (1999) and Fox and Lasnik (2003) show that island violations are PF constraints, suggesting that island effects are due to a constraint on representations and not derivations.

(20) *John-ne kyaa sochaa ki har kisi-se kaun mila?
John-ERG what thought that everyone whom met
'Who did John think everyone met?'

3.2 Some Traditionally-claimed *wh* In-situ Languages

I extend the proposal made in the previous section to suggest that some cases of *wh* in-situ, despite appearances, involve overt *wh*-movement. One such case is *wh*-movement in Hindi/Urdu, where the *wh*-element *kis-ko* appears in the canonical position and seems to remain in-situ (21).

(21) Raam-ne kis-ko dekhaa?
Ram-ERG who-ACC saw
'Who did Ram see?'

One data point in support of an overt movement approach comes from parasitic gaps. Since Chomsky (1982), it has been widely accepted that parasitic gaps are licensed by A-bar movement in overt syntax. The fact that parasitic gaps are licensed in Hindi (22) indicates overt *wh*-movement.

(22) Raam-ne [Mohan-ke (usse) phadhne se pehle] kaunsa patr padh-liya tha?
Ram-ERG Mohan-of (it) tearing of before which letter read be-past
'Which letter did Ram read before Mohan tore (it) off?'

The gap inside the adjunct clause in (22) might appear to be an object pro, however this is not the case. Pro-drop in Hindi is determined by the discourse structure. Subject pro in Hindi is determined by the agreement marker on the verb, as in (23). For the object pro, the antecedent must be already present in the discourse, as in (24). However, if the antecedent had not been already introduced in the previous discourse, the object pro would be impossible. Thus, if a sentence like (25) were uttered without any discourse referent, it would result in unacceptability. In (22), the gap in the adjunct clause can't be an object pro because it has no overt antecedent. The *wh*-DP *kaunsa patr* cannot become its discourse antecedent because it is spelled out temporally later. The gap in the adjunct clause thus can only be a parasitic gap.

(23) (Vo) ja-aa rah-aa hai.
(He) come-AGR PROG-AGR is
'He is going.'

(24) Speaker A: Kis-ne seb_i khaayaa?
who-ERG apple ate
'Who ate the apple?'
Speaker B: Sohan-ne pro_i khayaa.
Sohan-ERG ate
'Sohan ate it.'

(25) Speaker A: *Sohan-ne pro_i khayaa.
Sohan-ERG ate
'Sohan ate it.'

Another piece of evidence comes from island effects. Hindi shows strong island effects (26), unlike some other *wh* in-situ languages like Chinese. The fact that Hindi exhibits island effects follows if, in examples like (21), *wh*-movement takes place overtly.

(26) *Raam-ko ye baat ki Siita **kis-se** mili pata hai? [CNPC island]
Ram-DAT that claim that Sita who-with met know be
'Who does Ram know the claim that Sita met?'

The idea that these island violations are due to movement in "overt syntax" gets support from

the fact that all these island violations get repaired under sluicing (27).[3] Note the contrast between examples (26) and (27).

(27) [$_{CP}$ [$_{IP}$ Raam-ko [$_{DP}$ ye baat [$_{CP}$ ki [$_{IP}$ Sita [$_{vP}$ [$_{DP}$ kisi-se] mili pata hai]]]], par
Ram-DAT that claim that Sita someone-with met knows be but
[$_{CP}$ [$_{IP}$ mai nahi janta [$_{CP}$ ki **kis-se** [$_{IP}$ ~~Raam-ko ye baat ki Sita mili pata hai]]]].~~
I not know that who-with ~~Ram-DAT this claim that Sita met knows be.~~
'Ram knows the claim that Sita met someone, but I don't know who.'

Assuming that sluicing is a deletion process at the level of phonetic form and that it can repair violations that occur in overt syntax or pre spell-out and not otherwise (Merchant, 2001; Lasnik, 2001), then since sluicing can repair island violations in Hindi, they must be a result of an overt movement operation. It is important, however, to note that sluicing involves overt movement of the *wh*-phrase in examples like (27). In these constructions, it is not possible to show cases that involve sluicing with *wh*-operator movement. Sluicing involves overt *wh*-movement followed by IP deletion (Merchant, 2000). Here I assume that only those constructions that involve overt movement (phrasal or feature) allow sluicing. Wang (2002) showed that Chinese *wh*-nominals don't allow sluicing (see (28)), and it is also known that Chinese *wh*-nominals don't involve overt *wh*-movement (Huang, 1982). We will discuss this in more detail in the following sections.

(28) a. *Zhangsan zuotian yujian mouren, keshi wo bu zhidao shei.
Zhangsan yesterday met someone but I not know who.
'Zhangsan met someone yesterday, but I don't know who.'
b. Zhangsan zuotian yujian mouren, keshi wo bu zhidao Zhangsan zuotian
Zhangsan yesterday met someone but I not know Zhangsan yesterday
yujian shei
met who.
'Zhangsan met someone yesterday, but I don't who Zhangsan met yesterday.'

3.2.1 Nature of *wh*-movement

We have evidence that movement of some kind of *wh*-element takes place in overt syntax in Hindi. However, we also know that in languages like Hindi, nothing appears to move overtly, as we saw in examples like (21). For such cases, I assume as Watanabe (1993) did for Japanese that in Hindi, a phonetically null subpart of the *wh*-phrase separates from the rest of the overtly realized *wh*-phrase and moves to a higher projection. This idea goes back to some early transformational accounts (Chomsky, 1964; Katz & P. Postal, 1964; Klima, 1964; Kuroda, 1969) where interrogative expressions are derived from an underlying question operator plus an indefinite pronoun. A modern version of this idea was proposed in Sloan (1991), who suggested that interrogatives have an articulated structure composed of a question operator Q_{Wh} and a null anaphoric pronoun pro_{Wh}. In line with this tradition, I propose that the *wh*-DP in Hindi decomposes into a *wh*-indefinite and a *wh*-operator, as in (29), and it is the *wh*-operator that undergoes overt *wh*-movement in Hindi/Urdu. Consider structure (30) for a sentence like (21).

(29) [Wh $_{operator}$-Wh $_{indefinite}$]
(30) [$_{CP}$ Wh$_i$ $_{operator}$ [$_{IP}$ Raam-ne [t_i-kisko] dekhaa]]

In a minimalist framework, all movement is motivated by some necessity. For *wh*-movement, it is the [Wh] feature on C that is the driving force behind the *wh*-movement of the *wh*-phrase to C. A strong [Wh] feature forces overt movement of the *wh*-phrase and a weak feature induces feature movement (Chomsky, 1995). In line with tradition, I assume that *wh*-movement in Hindi is driven by a weak [Wh] feature on C. The null operator carrying the [Wh] feature must move in overt syn-

[3]Mahajan (2005) suggests that sluicing in Hindi cannot repair all island violations. He claims that sluicing in Hindi-Urdu is island-sensitive and provides evidence from Genitive Subject islands in this regard. Chandra and Ince (2007), however, argue against his claim, and show that sluicing can repair all island violations in Hindi/Urdu.

tax to check this weak feature on C. This phonologically-null operator is immune to the PF-imposed ban on overt movement for weak features (Watanabe, 1993). The idea here is that both English- and Hindi-type languages involve overt *wh*-movement. The *wh*-operator, however, doesn't get phonologically realized at the C head in languages like Hindi. Thus the difference between the two languages is largely phonological.

Hindi *wh*-movement, in this framework, involves overt movement of the *wh*-operator, leaving the rest of the *wh*-phrase in-situ. The *wh*-operator carrying the relevant feature moves to CP in order to check the [Wh] feature at the C head. Evidence in support of overt movement of the *wh*-operator in Hindi comes from the fact that when structures like (21) are embedded inside another clause, a *wh*-operator appears in the matrix clause (31).

(31) John **kyaa** maantaa hai [ki [Raam-ne **kis-ko** dekhaa]]?
John what believes is that Ram-ERG Who-ACC saw
'Who does John believe that Raw saw?'

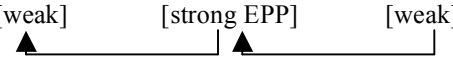
The *wh*-operator in Hindi can only be pronounced when it appears in Spec,vP, i.e., when the operator checks the EPP feature of the v head. Note that in structures like (31), the object DP appears to the left of the verb. Assuming a universal SVO order for languages, I contend that the object DPs in Hindi move to the matrix vP to check the EPP feature of the verbal head. The verbal head in Hindi has a strong EPP feature which must be checked overtly.

The absence of *kya* thus can be explained as follows: for *kya* to be overtly realized, it must move to check the EPP feature at the v head. Thus in structures like (21), the object DP moves to Spec,v to check the EPP feature. Since the object DP has already checked the EPP of the v head, *kya* can't move there and check the feature again. The *wh*-operator *kya*, however, appears when it moves to a v head to check its EPP features, and as consequence, the *wh*-operator appears next to the v head of the matrix clause. Consider structure (32) for example (31) here.

(32) [kyaa [John **kyaa-**maantaa hai [kyaa-ki [raam-ne [kyaa **kis-ko** dekhaa]]

The idea is that the *wh*-operator moves to Spec,vP to check its EPP feature. The *wh*-operator movement in (32) thus creates a chain (33). In this chain, PF receives the information to pronounce a single element of the chain, which is associated with the EPP feature at the v head. As a consequence, *kya* gets pronounced only at Spec,vP.

(33) [weak] [strong EPP] [weak]



In non-interrogative sentences in Hindi, the EPP feature of the v head is checked by a pronominal element *yeh* (see 34). Mahajan (1990) proposed that *yeh* is a non-interrogative counterpart of *kyaa*, i.e., *kyaa* has a [+Wh] feature that *yeh* doesn't. The difference between *yeh* and *kyaa* aside from the [+Wh] feature is that *kyaa* is obligatory whereas *yeh* can be optionally dropped. I assume this to be a consequence of the optional strong EPP features of the v head that marks definiteness or specificity when present.

(34) John **(yeh)** maantaa hai [ki [Raam-ne Siita-ko dekhaa]]?
John (this) believes is that Ram-ERG Sita-ACC saw
'John believes that Raw saw Sita?'

These cases show that although the *wh*-operator doesn't get phonologically realized at the CP in Hindi, it does move overtly. The operator only gets pronounced at Spec,vP in Hindi. The *wh*-operator moves from its base-generated position inside the complex DP. The in-situ *wh*-phrase is the sister of the moved *wh*-operator. The *wh*-operator movement approach that I have proposed here makes interesting claims about the constraints that regulate *wh*-movement. Constraints like subjacency are constraints on overt *wh*-movement, and thus induce island effects in only those cases that involve movement. Another constraint on *wh*-movement results in intervention effects that we will discuss in the following section.

4 Reanalysis of Intervention Effects

There is an interesting symmetry between the appearance of island effects and intervention effects. In the cases where island effects are visible, intervention effects also appear. More crucial are the cases which don't show island effects and, interestingly, also don't induce intervention effects. The co-existence of the two phenomena comes out clearly in Chinese. Chinese nominal *wh*-phrases don't induce island effects (35), nor do they show intervention effects as in (36) (compare Chinese cases with Hindi *wh*-phrases (37–38)).

(35) Ni zui xihuan [shei mai de shu]?
You most like [who buy PRT book]
'Who do you like the books that bought?'
(36) Meiyouren gan gen shei dajia?
nobody dare person who fight
'Who does nobody dare to fight?'
(37) *Tumhe vo kitaab jo kaun laya pasand hai?
you that book that who bought like be
'Who do you like the books that *t* bought?'
(38) *Koi-bhi kis-se ladna nahi chahta?
nobody who-with fight not want
'Who does nobody dare to fight?'

Thus I propose that the movement, which results in both island effects and intervention effects, is basically overt movement. However, there seems to be a difference between intervention effects and island effects. Languages like English, which move the entire *wh*-phrase, show island effects but do not show intervention effects (39).

(39) What did only John eat?

Thus, a difference between the constraints that induce island effects and intervention effects is that constraints like subjacency (with regards to island effects) affect both *wh*-phrasal and *wh*-operator movement, whereas intervention effects seem to care only about *wh*-operator movement.

Under this assumption, intervention effects are an interaction between the quantificational element and the overt *wh*-operator movement. A way to reconcile these observations is to treat them in terms of Relativized Minimality.[4] An intervening Quantificational element blocks the movement of the *wh*-operator across it. A c-commanding Quantificational element stands in its way to a higher projection and prevents movement of the *wh*-operator.

4.1 Intervention Effects in Hindi and *wh*-operator Movement

In Hindi, focus markers (40) like "also" (marking inclusive contrastive focus) and "only" (marking exclusive contrastive focus), and NPIs (41) induce strong intervention effects.

(40) *John-**hi** **kyaa** khaaye-gaa?
John-only what eat-will
'What will only John eat?'
(41) *Kisi-ne-**bhi** **kyaa** nahi kharidaa?
no one what not bought
'What did no boy buy?'

[4] Rizzi's (1990): Relativized Minimality imposes a locality constraint such that, in a structure such as (a), the relation between X and Z is licit if there is no Y (of the relevant kind) such that Y is structurally closer to Z than X is.
(a) [..X..Y..Z..]

Sharma (2003) suggests that discourse markers like focus and topic markers in Hindi are syntactic clitics. These clitics attach to the phrase they modify. She further proposes that the focus clitic attaches to the NP via adjunction. In line with her idea, I assume that when focus/topic particles in Hindi adjoin to the NP, they modify and occupy an A-bar like position. By virtue of being adjoined to the NP, they get into a c-commanding position.[5] In this configuration, the focus particles act as a potential intervener for the movement of the *wh*-operator across them and thus induce intervention effects (42).

(42) $[_{CP}$ Wh…$[_{IP}$ $[_{DP}$ $[_{DP}$]-**hi** $[_{vP}$ $[_{DP}$ t-Wh]….]]]

Similar to focus particles, NPIs also induce intervention effects in Hindi. Lahiri (1998) proposed that NPIs in Hindi are inherently focused and are composed of "one" or "some" and a focus particle "also." I assume that the NPI-DPs in Hindi have a structure similar to the focused DPs and, in this configuration, the focus particle blocks the movement of the *wh*-operator across it.

Let's go back to intervention effects in *wh*-scope-marking constructions now. In section 3, I showed that *wh*-scope-marking constructions involve overt movement of the *wh*-operator. The *wh*-operator moves to the matrix CP via intermediate Spec,vP. And as we noted before, *wh*-scope-marking constructions show intervention effects when a quantificational element precedes the *wh*-element (43).

(43) *Meri-ne **kyaa** sochaa ki **John-ne hi** **kis-ko** dekhaa?
Mary-ERG what thought that John-ERG only who-ACC saw
'What did Mary think only John bought?'

Consider structure (44) for (43) where the focus particle *hi* acts an intervener in the *wh*-movement of the operator *kyaa*, thus resulting in intervention effects.

(44) $[_{CP}$kya$[_{IP}$Meri-ne$[_{vP}$**kya** sochaa$[_{CP}$ ki$[_{IP}$ [John-ne]-**hi** $[_{vP}$ [kya-**kis-ko]** dekhaa]]]

In all these cases, the quantified elements, like NPIs and Focus elements, reside in an adjoined position and thus can act as potential interveners in the movement of the *wh*-operator across them. In this account, intervention effects are seen as Relativized Minimality effects, where a c-commanding Quantifying element acts as an intervener in the movement of a *wh*-operator to a higher projection.

5 Conclusion

This paper highlights some of the problems in the previous accounts (Beck, 1996; and Pesetsky, 2000) for intervention effects, and suggests that, contra the claims made in the literature, intervention effects are not LF effects. The paper provides a reanalysis of constructions that show intervention effects. For instance, "*wh*-scope-marking constructions" in languages like Hindi and German have been shown to involve overt movement of the *wh*-scope marker, thus claiming that intervention effects are due to overt *wh*-movement. In this exploration, the paper also sketches out an alternative account of *wh*-movement for languages like Hindi which are traditionally considered "*wh* in-situ" languages. The idea is that *wh*-movement in these languages involves overt movement of the *wh*-operator instead of phrasal movement. The *wh*-operator is pronounced only when it checks a strong feature at a functional head.

This paper also draws parallels between island effects and intervention effects and shows that constructions that show island effects are the constructions that show intervention effects, the reasoning being that both island effects and intervention effects are due to constraints on overt

[5] Chomsky (1986): *X* c-commands *Y* iff *X and Y are categories* and X excludes Y and every category that dominates *X* dominates *Y*. (*X excludes Y* if no segment of *X* dominates *Y*)

movement. More interestingly, only such constructions allow sluicing, which provides further evidence for overt *wh*-movement. Here, intervention effects are seen as a consequence of overt movement of the *wh*-operator across an intervening Quantificational element. Intervention effects are thus seen as Relativized Minimality effects, where a potential c-commanding quantificational element acts as an intervener in the movement of a *wh*-operator. Quantified elements, like Focus particles and NPIs that appear in an A-bar position in Hindi, behave like potential blockers for the *wh*-operator movement.

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