

INTERVENTION EFFECT, WH-MOVEMENT, AND FOCUS *

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This study starts out from a re-investigation into the issue of covert *wh*-movement with the advent of Intervention Effect and reaches an interim conclusion supporting Tsai's (1994) observation on the parameterized *wh*-construal among languages. Nonetheless, the parameterized (non-) movement issue is not compatible with the Focus Effect (Kim 2002, 2005 and Beck 2006), which runs stable cross-linguistically. On the other hand, the Focus Effect is too restricted and would, in turn, leave the scopes beyond it unexplained. In this study, I show that such a dilemma can be solved by a uniform analysis with the notion of feature intervention in the sense of Starke (2001) and Rizzi (2002).

1. Introduction

Since Huang's (1982) pioneering work, issues of covert *wh*-movement have attracted much attention and have thus yielded fruitful results. Huang points out that although in-situ *wh*-elements apparently do not move at surface structure, they still move covertly at the level of LF. By doing so, he successfully bridge the seemingly discrepancy between *wh*-movement and *wh*-in-situ languages in a uniform way. In the '90s, with the advent of Minimalist program, the spirit of Economy plays a dominant role in the linguistic studies. Issues of covert *wh*-movement are re-examined with respect to "last resort" and "least effort" (Chomsky 1993). Accordingly, Tsai (1994) (see also Aoun & Li 1993, Reinhart 1998 among others) suggests that no movement should occur to in-situ *wh*-arguments in Chinese-type languages even at the level of LF. Their scope marking or interpretation, in turn, is determined by a base-generated Q-operator merged at CP and the *wh*-construal is built up in an unselective binding fashion. On the other hand, being genuine quantifiers in nature, the in-situ *wh*-adverbs still maintain their LF-movement property distinct from the *wh*-arguments.

Recently, the exploration of *wh*-intervention effects has once again directed the linguistic studies toward the issues of covert *wh*-movement (see, for

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example, Beck 1996, Beck & Kim 1997, Ko 2003 among many others). The general idea of Intervention Effect is this. The Intervention Effect can serve as a diagnostics on covert *wh*-movement. Specifically, when a scope-bearing element, SBE, intervenes the path of an in-situ *wh*-element undergoing covert *wh*-movement as illustrated in (1), the sentence is ruled out. For example, Korean is a *wh*-in-situ language and its unmarked word order is SOV. (2a) is ill-formed because an intervention NPI *amuto* ‘anyone’ blocks the LF-movement of the *wh*-in-situ *muôs-ûl* ‘what’, a typical intervention effect. In (2b) after *muôs-ûl* ‘what’ undergoes scrambling across *amuto* ‘anyone’, there is no way to block its further LF-movement. Hence it becomes well-formed. The German case in (3) has similar distribution.

- (1) * [... *wh*_i ... [SBE ... [... t_i^{LF} ...]]] (adapted from Beck 1996)
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- (2) a. *Amuto muôs-ûl sa-chi anh-ass-ni? (Beck & Kim 1997)
 anyone what-Acc buy-CHI not do-Past-Q
 b. Muôs-ûl_i amuto t_i sa-chi anh-ass-ni?
 what-Acc anyone buy-CHI not do-Past-Q
 ‘What did no one buy?’
- (3) a. *Wer hat niemanden wo angetroffen? (Beck 1996)
 who has nobody where met
 b. Wer hat wo_i niemanden t_i angetroffen?
 who has where nobody met
 ‘Who didn’t meet anybody where?’

Nonetheless, as explorations on Intervention Effect accumulated more and more, what contributes to the Intervention Effect turns out to be controversial. In this study, I illustrate the syntactic issue as well as the semantic issue of Intervention Effect and try to see if we can have a general approach toward it. Section 2 looks into the movement issue and to what extent the movement issue can explain. Section 3 discusses the semantic issue involving focus with respect to alternative semantics and shows that it still has its limit. Section 4 brings forth a simple solution trying to unify both accounts by feature intervention. Section 5 concludes this study and remarks on the potential problem.

2. Intervention Effect and Wh-movement

The Intervention Effect brings about an exciting perspective to re-investigate into the issues of covert *wh*-movement. Huang’s (1982) proposal claims that all the in-situ *wh*-elements undergo LF-movement, only that Subjacency is not observed at LF. Therefore, in (4) no *wh*-island or complex NP island violation is observed for the in-situ *wh*-object *what*. Similar distribution applies to Mandarin Chinese in (5).

- (4) a. Who asked [who bought what]?
 b. Who saw [the woman [that bought what]]? (Bošković 1997a:(1))

- (5) Ni xiang-zhidao [shei mai-le shenme]?
 you want-know who buy-Prf what
 a. Lit. ‘Who do you wonder ___ bought what?’
 b. Lit. ‘What do you wonder who bought ___?’
 (Huang 1982:267(198)):¹

On the other hand, for Tsai (1994) the *wh*-arguments do not move at all levels. The absence of Subjacency/Island Effect is consequently expected. Now, since the Intervention Effect as mentioned in the introduction can serve as a diagnostics on LF-movement, we would like to see how it fares with Chinese *wh*-elements.

At first sight, the tests of Intervention Effect on Chinese *wh*-elements seem to side with Tsai’s (1994) non-movement approach. As exemplified in the following examples, Chinese *wh*-arguments do not exhibit intervention effects as exhibited in (6), while the *wh*-adverbs and A-not-A phrases, which are consistently regarded as involving LF-movement by Huang (1982) and Tsai (1994) among many others, do exhibit intervention effects as in (7-9). The intervention contexts are irrelevant to Subjacency which is structure-dependent and none of them violates ECP. In this sense, the *wh*-in-situ in Chinese is in line with Tsai’s non-movement approach.

- (6) a. Zhangsan chi shenme?
 Zhangsan eat what
 ‘What does he eat?’
 b. Zhangsan {bu/hui/hensao/zongshi} chi shenme?
 Zhangsan not/will/seldom/always eat what
 Lit. ‘What does he not/will/seldom/always eat?’

(Reason-*why* *weishenme* ‘why’)

- (7) a. Ta renwei Lisi weishenme xihuan Wangwu?²
 he think Lisi why^{adv} like Wangwu

¹ Richards (2001:245) suggests that Chinese *wh*-words do obey Superiority (contra Huang (1982)). That is, Attract Closest seems to also apply at LF:

- (i) Jingcha xiang-zhidao [shei sha-le shei]?
 police want-know who kill-Prf who
 a. ‘Who_i are the police trying to find out who_j t_i killed t_j?’
 b.*‘Who_j are the police trying to find out who_i t_i killed t_j?’

According to my informants, including myself, both readings in (i) are acceptable. Even though (ia) is more prominent, (ib) is still fine. In other words, there is no obvious superiority effect in such an example. Our judgment is therefore akin to Huang’s (1982:267(198)) judgment.

² Please note that in this paper the *wh*-adverbs are limited to the reason-*why* *weishenme* ‘why’ and the manner-*how* *zenme(yang)* ‘how’, both of which are genuine *wh*-quantifiers subject to island constraints at LF (Tsai 1994, 1999, see also Reinhart 1998). A superscript ^{adv} is added to indicate such a property.

- ‘Why does he think Lisi likes Wangwu ___?’
- b. *Ta {bu/hui/hensao/zongshi} renwei Lisi weishenme
 he not/will/seldom/always think Lisi why^{adv}
 xihuan Wangwu?
 like Wangwu
 Lit. ‘Why does he {not/will/seldom/always} think Lisi
 likes Wangwu ___?’

(Manner-how *zehme(yang)* ‘how’)

- (8) a. Ta renwei jingcha zhenme(yang) chuli zhe-ge anzi?
 he think police how^{adv} handle this-CI case
 ‘How does he think the police handle this case ___?’
- b. *Ta {bu/hui/hensao/zongshi} renwei jingcha zhenme(yang)
 he not/will/seldom/always think police how^{adv}
 chuli zhe-ge anzi?
 handle this-CI case
 Lit. ‘How does he {not/will/seodom/always} think the police
 handle this case ___?’

(A-not-A question)

- (9) a. Ta chi-bu-chi yu?
 he eat-not-eat fish
 ‘Does he eat fish or not?’
- b. *Ta bu/zhi/zongshi chi-bu-chi yu?
 he not/only/always eat-not-eat fish
 ‘Does he not/only/always eat fish or not?’

On the other hand, the intervention effects in Korean and German cases in (2-3) suggest that these *wh*-elements do undergo LF-movement, contrary to those of Mandarin Chinese. So we now have at least two types of *wh*-in-situ for the *wh*-arguments, the non-movement type in Chinese and the LF-movement type in Korean and German (see also Cheng & Rooryck 2002). How about English? Pesetsky (2000) provides an interesting observation on English *in-situ wh*-words in (10), from which we find that the Intervention Effect is variant even among *wh*-arguments.

- (10) a. Which person ___ did not read which book? (Pesetsky 2000:60)
 b. Which person ___ didn’t read which book?
 c. Which book did which person not read ___?
 d. *Which book didn’t which person read ___?
 [cf. also *Which book did which person read ___?*]

It appears that the intervening negation triggers the Superiority Effect to surface again even with the remedy of D-linking device (see the contrast between (10c,d)). The general observation in (10) is this. Intervention Effect occurs when an intervener, e.g., the negative marker, precedes the “*wh*₁-in-situ”, the first *wh*-element before any movement. Pesetsky suggests that evidence from ACD and anaphoric binding show that the *wh*₁-in-situ and other *wh*’s-in-situ behave

differently. Specifically, the former undergoes feature movement which nullifies Superiority Effect in (10c), while the latter undergoes covert phrasal movement to feed further ACD licensing (for detailed discussion, see Pesetsky 2000) or anaphoric binding (see Cheng & Rooryck 2002).

To account for the variation, Pesetsky proposes the universal characterization of Intervention Effect, dubbed Separation Principle in this paper, in (11) (see also Honcoop 1997, Cheng & Rooryck 2002), where intervention effects occur when the quantifier of a *wh*-element is separated from its semantic restriction by an intervening operator. That's why feature movement is out when an operator precedes *wh*₁-in-situ.

- (11) Intervention effect (universal characterization)
 A semantic restriction on a quantifier (including *wh*) may not be separated from that quantifier by a scope-bearing element.
 (Pesetsky 2000:67)

A natural consequence of Pesetsky's separation analysis is that Chinese *wh*-arguments should fall into the category of covert phrasal movement since no intervention effect is observed (see Pesetsky (2000:fn.109)). In fact, that is exactly what Soh (2005) proposes. Soh (2005), in an attempt to support Pesetsky's theory while also revive Huang's (1992) analysis, shows that the licensing of ACD constructions in Chinese in (12-13) suggests that Chinese nominal *wh*-phrases should in effect undergo covert phrasal movement just like their English counterparts. That's why Chinese *wh*-arguments do not exhibit intervention effects. Therefore, again, we still seem to have two competing approaches, i.e., movement vs. non-movement, on Chinese *wh*-arguments.

(ACD with 'every') (Soh 2005:(22,23))

- (12) a. Ta neng zuo mei-jian wo bu neng de shi.
 he can do every-Cl I not can DE thing
 'He can do everything I can't.'
 b. Ta gan zuo mei-jian wo bu gan de shi.
 he dare do every-Cl I not dare DE thing
 'He dares to do/*eat everything I don't dare to.'

(ACD with 'which') (Soh 2005:(26))

- (13) a. Ta neng zuo na-yi-jian wo bu neng de shi.
 he can do which-Numeral-Cl I not can DE thing
 'Which is the thing x such that he can do x and I can't do x?'
 b. Ta gan zuo na-yi-jian wo bu gan de shi.
 he dare do which-Numeral-Cl I not dare DE thing
 'What is the thing x such that he dares to do x and I don't dare to do x?'

However, we have reasons not to believe that Soh's (2005) observation on ACD is conclusive. First, as Soh herself points out, ACD licensing is highly restricted in Chinese. Her examples show ACD can only occur with some deontic modals together with the contrastive negation, and the verb is restricted to a general verb *zuo* 'do'. With verbs other than *zuo* 'do', they have to be

always present as (14) shows.

- (14) a. Ta neng chi mei-dao wo bu neng *(chi) de cai.
 He can eat every-Cl I not can eat DE dish
 ‘He can eat every dish I can’t (eat)’
 b. Ta gan chi mei-dao wo bu gan *(chi) de cai.
 he dare eat every-Cl I not dare eat DE dish
 ‘He dares to eat every dish I don’t dare to (eat).’

Second, Chinese quantifiers typically exhibit rigid scope interaction (Huang 1982, Aoun & Li 1993, among others). That is, whether Chinese quantifiers undergo QR is still arguable. Even if it does undergo QR, the QR of object quantifier is limited to a “smaller domain”, i.e., VP (Aoun and Li 1993). It is then unclear to us whether such a “smaller domain” can license the ACD.

Third, Lin and Tang (1995) suggest that modals in Chinese should be treated as verbs. In this sense, the modal support in the Soh’s ACD cases is nothing but verb copying, which cannot be subsumed into ACD constructions.

Fourth, Cheng & Rooryck (2002) show that evidence from anaphoric binding suggests that Chinese nominal *wh*-phrases do not undergo covert phrasal movement. In (15) the reflexive within the in-situ *wh*-phrase in the embedded clause cannot be co-indexed with the matrix subject. This suggests that the whole *wh*-phrase do not undergo covert phrasal movement, contrary to English non-*wh*₁-in-situ’s.

- (15) Hufei_j yiwei Huangrong_i na-le na-yi-zhang
 Hufei think Huangrong take-PERF which-one-CL
 taziji_{i/*j} de zhaopian
 himself DE picture
 ‘Which picture of herself/*himself did Hufei think that Huangrong took?’

Fifth, as Jonah Lin points out to me, the following “donkey *wh*-questions” in (16) strongly endorse the unselective binding, non-movement, approach for the in-situ *wh*-arguments.

- (16) a. (Nimen), sheide_i mama zui xihuan shei?
 you whose mother most like who
 ‘You guys, whose_i mother likes whom_i most?’
 b. (Nimen), sheide_i mama renwei shei_i zui congming?
 you whose mother think who most smart
 ‘You guys, whose_i mother thinks who_i is the most smart?’

The “donkey *wh*-question” is interesting here since it is a multiple *wh*-question where both the *wh*-words are co-referential. The only way to substantiate such a co-referential reading is to assume a Q-operator at matrix CP binding both *wh*-words in a Kamp-Heim style. The LF-movement approach will not be able to explain the “donkey *wh*-question” here.

If what is presented above is plausible, the non-movement approach seems to be preferable. Nevertheless, we would not be able to explain why Chinese

wh-arguments do not exhibit intervention effects per Pesetsky's Separation Principle. More specifically, as mentioned before, the non-movement approach employs a base-generated Q-operation which in turn binds the in-situ *wh*-element serving as the semantic restriction of the base-generated Q-operator. In this sense, the O-operator is always separated from its semantic restriction. When an intervener occurs between them, we should be able to observe the Intervention Effect by Separation Principle, contrary to fact.

So, what is Intervention Effect? In the beginning, I show that if it is anything about LF-movement in the sense of Beck (1996), Chinese *wh*-arguments should be best analyzed as involving no movement at all since they do not exhibit intervention effects. Then, the distinction between English *wh*₁-in-situ and other *wh*'s-in-situ suggests a finer categorization on covert movement according to Pesetsky's (2000) Separation Principle. Chinese *wh*-arguments would, then, have to be analyzed as involving covert phrasal movement, a revival to Huang (1982). Yet, still various evidence suggests that covert phrasal movement is not plausible. Therefore, we seem to be stuck by attempts of syntactic approaches to solve the problem, at least in terms of covert *wh*-movement.

3. Intervention Effect and Focus

One interesting observation on Chinese *wh*-elements is that in some context involving contrastive focus, even the *wh*-arguments are ruled out:

- (17) a. *Shi Zhangsan chi-le shenme?
 SHI Zhangsan eat-ASP what
 Lit. 'It is Zhangsan who ate what?'
 b.?*Zhiyou Zhangsan chi-le shenme?
 only Zhangsan eat-ASP what
 Lit. 'Only Zhangsan eat what?'
 c.?*Lian Zhangsan dou chi-le shenme?
 even Zhangsan all eat-ASP what
 Lit. 'Even John ate what?'

Similar pattern is also observed in German (18) and Korean (19).

- (18) a. *Wen hat nur Karl wo getroffen? (Kim 2005)
 whom has only Karl where met
 b. Wen wo hat nur Karl getroffen?
 whom where has only Karl met
 'Who did only Karl meet where?'
 (19) a.?*Mira-man nwukwu-lul chotayha-ess-ni? (Kim 2005)
 Mira-only who-ACC invite-PAST-Q
 b. nwukwu-lul_i Mira-man *t*_i chotayha-ess-ni?
 who-ACC Mira-only *t*_i invite-PAST-Q
 'Who did only Mira invite?'

Being aware of this, in their later studies Kim (2002, 2005) and Beck (2006) limit their discussions to a core set of intervention effects, i.e., focus effect. The beauty of focus effect is that it enjoys a stable blocking phenomenon across languages.

- (20) *_{[CP Q_i [FocP [...*wh*-phrase_i ...]]]} (Beck 2006, from Kim 2002)
 A focused phrase (e.g. only+NP) may not intervene between a *wh*-phrase and its licensing complementizer.

The basic idea of focus effect is this. According to Beck (2006), both the in-situ *wh*-phrase and the focus phrase involve focus semantic value since they both can denote a set of alternatives (see Hamblin 1973, Karttunen 1977, for question interpretation, and Rooth 1985, 1992 for focus interpretation). They differ in that the latter further involves ordinary semantic value contributed by the focus operator which in turn is introduced by the focus element. When the in-situ *wh*-phrase occurs in the c-commanding domain of the focus operator, the focus operator will reset the focus semantic value of the *wh*-phrase and the focus phrase to the ordinary semantic value. Meanwhile, the Q-operator associated with the question is the only binder for the in-situ *wh*-phrase serving as a distinguished variable which uses just the focus semantic value. Focus Effect occurs when the intervening focus operator wrongly resets the focus semantic value of the *wh*-phrase to the ordinary semantic value and the Q-operator has nothing to license. Since covert *wh*-movement is irrelevant in such a framework, the Focus Effect does not have to be the diagnostics of LF-movement. In turn, it is now a diagnostics on focus sensitive constructions.

Although the Focus Effect is stable, several questions are still pending. First, the focus effect analysis leaves unaccounted for the linguistic variations beyond the scope of focus effect. For example, how come the LF-moving *wh*-adverbs and A-not-A-operator are still ruled out in the non-focused intervention context in (7-9)?

Likewise, the following paradigm in French does not involve focus interveners, yet they are all ill-formed.

(from Pesetsky 2000 due to Chang 1997; ‘#’ means echo question only.)

- (21) a. #Tous les étudiants ont rencontré qui?
 all the student have met who
 b. #Chaque étudiant a rencontré qui?
 each student has met who
 c. #Il n’a pas rencontré qui?
 he has-NEG met who
 d. #Il admire toujours qui?
 he admires always who
 e. #Personne n’admire qui?
 no-one NEG admires who

Also, as Pesetsky (2000:61) notes, the non-*wh*₁-in-situ in English does not exhibit intervention effects even in the focus context as in (22). This leaves us wondering to what extent can Kim (2002, 2005) and Beck’s (2006) focus effect apply.

(22) Which girl did only Mary introduce ___ to which boy?

Finally, when the focus element serves as an adverbial in Chinese, no focus effect is observed (cf. (17)).

- (23) a. Zhangsan shi chi-le shenme?
 Zhangsan SHI eat-ASP what
 ‘What was it that Zhangsan ate?’
 b. Zhangsan zhi chi-le shenme?
 Zhangsan only eat-ASP what
 ‘What did Zhangsan only eat?’
 c. ?Zhangsan shenzhi chi-le shenme?³
 Zhangsan even eat-ASP what
 ‘What did John even ate?’

So, what is Intervention Effect? In this section I show that, as admitted by Kim (2002) and Beck (2006), the Focus Effect is limited to a core set of intervention effects. Such an analysis enjoys the crosslinguistic observation regardless of whether the in-situ *wh*-elements undergo LF-movement or not. Nonetheless, it leaves unaccounted for the linguistic variations beyond the scope of focus effect. In the following section, I would like to propose a simple account to explain the variations observed so far in terms of feature intervention (cf. Starke 2001, Rizzi 2002).

4. Feature Intervention

The distributions of intervention effects illustrated in previous sections suggest that there are at least two types of intervention effects. One is movement-related and the other one is focus-related. What I would like to propose here is to suggest a feature intervention account to subsume the two types of intervention effects into one general effect. The reasoning is simple. In the same vein of Rizzi’s Revised Relativized Minimality (2002) (see also Starke 2001), intervention effects occur when the dependency between X and Y is blocked by an Intervener Z which bears the same feature [α] as X and Y as the following

³ The focus marker *lian* ‘even’ cannot occur in this position. It has nothing to do with the *wh*-phrase since it is ruled out even without the *wh*-phrase as in (i). We hereby use another focus marker *shenzhi* ‘even’ which has similar focus force while it is acceptable in this position.

- (i) a. *Zhangsan lian chi-le dou yu?
 Zhangsan even eat-ASP all fish
 ‘John even ate fish.’
 b. *Zhangsan lian chi-le yu dou?
 Zhangsan even eat-ASP fish all
 ‘John even ate fish.’
 (ii) Zhangsan shenzhi chi-le yu?
 Zhangsan even eat-ASP fish
 ‘John even ate fish.’

schema exhibits.

- (24) *[… X_[α] … […Z_[α] …[…Y_[α] …]]

Meanwhile, Tsai's (1994) unselective binding approach for the Chinese-type *wh*-in-situ construal is also adopted. Simply put, the Chinese-type in-situ *wh*-elements can be divided into two types, *wh*-nominals and *wh*-adverbs. Their distinction is that the Q-feature/operator of the former is detached from the feature specification of the in-situ lexical *wh*-word and is base-generated and merged at CP checking the Q-feature, whereas the Q-feature/operator of the latter is merged with the *wh*-adverb in lexicon which then undergoes further feature movement to C to take its scope. For the *wh*-nominals, as shown in (25a), since what is left in the feature specification of the *wh*-nominal is the focus feature [Foc], when the intervener bears an quantificational feature [Op] distinct from [Foc], there is no way to block the further licensing/valuation of the [Foc] from the probing C head. On the other hand, for the *wh*-adverbs, as shown in (25b), since the Q-feature/operator is merged within the *wh*-words in lexicon, it later undergoes feature movement to take its scope. Such a movement is, then, blocked by the intervener bearing the same feature [Op]. The same derivation applies to the A-not-A construction as well.

- (25) a. [Q-Op_i[C_[Q, Foc] […Z_[Op] …[…‘who/what’_[Foc] …]]]
 b. *[C_[Q, Foc] […Z_[Op] …[…‘why/how/A-not-A’_[Q-Op, Foc] …]]]

As for the focus construction, as one can easily observe from the schema in (26), since both the intervener and the *wh*-element bear the same [Foc] feature, it is naturally blocked during the feature checking/valuation no matter the *wh*-element is a *wh*-nominal like (26a) or a *wh*-adverb (26b).

- (26) a. *[Q-Op[C_[Q, Foc] […Z_[Foc] …[…‘who/what’_[Foc] …]]]
 b. *[C_[Q, Foc] […Z_[Foc] …[…‘why/how/A-not-A’_[Q-Op, Foc] …]]]

The prediction of such an analysis is that for languages exhibiting intervention effects in the non-focus context, their Q-feature/-operator of the *wh*-element should be merged within the lexical *wh*-word, so that further movement of the Q-feature/-operator across an intervener with [Op] feature is blocked, hence the intervention effects. Examples of German in (27), French in (21), repeated here as (28), and English in (10d), repeated here as (29), suggest such a property.

- (27) a. ??Was glaubt niemand wen Karl gesehen hat? (Beck 1996)
 what believes nobody whom Karl seen has
 ‘Who does nobody believe that Karl saw?’
 b. ??Wen hat fast jeder wo getroffen?
 whom has almost everyone where met
 ‘Where did almost everyone see whom?’
 c. ??Wen haben wenige wo getroffen?
 whom have few (people) where met
 ‘Who did few people meet where?’

(from Pesetsky 2000 due to Chang 1997; ‘#’ means echo question only.)

- (28) a. #Tous les étudiants ont rencontré qui?
 all the student have met who
 b. #Chaque étudiant a rencontré qui?
 each student has met who
 c. #Il n’a pas rencontré qui?
 he has-NEG met who
 d. #Il admire toujours qui?
 he admires always who
 e. #Personne n’admire qui?
 no-one NEG admires who

- (29) *Which book didn’t which person read ___?

Note that the feature intervention approach developed here is similar to the observation in Pesetsky’s (2000) feature movement violation in the sense that they all involve feature movement. Yet, the former approach departs from the latter one in that the former is triggered by the intervention of the same feature whereas the latter by Separation Principle.

How, then, to deal with the cases of covert phrasal movement in English in (10a,b), repeated below?

- (30) a. Which person ___ did not read which book? (Pesetsky 2000:60)
 b. Which person ___ didn’t read which book?

Pesetsky’s (2000) original idea is that that these non-*wh*₁’s-in-situ in fact undergo covert phrasal movement where all the features are pied-piped to CP across the intervener so that the Separation Principle is not violated. Now, since we resort to the feature intervention approach instead of the Separation Principle, we would like to see how to deal with such cases.

Rizzi (2006) (see also Starke 2001) suggests an interesting approach in dealing with *wh*-island effects with respect to argument/adjunct asymmetry. In (31a) the embedded *how* does not block the movement of *which problem* because *how* does not fully match the feature specification of *which problem* as shown in (32a) (the angle bracket “< >” indicates the launching site of the *wh*-phrase). On the other hand, (31b) is out because *which problem* fully matches the feature specification of *how*.

- (31) a. Which problem did John wonder how to solve <which problem>?
 b. *How did John wonder which problem to solve <how>?

- (32) a. [_{CP} Which problem Q+Top ... [_{CP} how Q ...<which problem>]]
 b. *_{[CP} How Q ... [_{CP} which problem Q+Top ...<how>]]

Following the same vein, I suggest that in the cases of covert phrasal movement as in (33), no intervention effects occur because the SBE does not fully match the feature specification of the LF-moved *wh*-phrase. Hence, no intervention effects occur. On the other hand, in the cases of feature movement in (34), since

the moved stuff is restricted to the Q-feature/-operator which is fully matched by the intervening SBE, the intervention effects occur as predicted.

- (33) a. *Structure before LF-operation*
 [... C_[Q, Foc] ... [SBE_[Op] ... [...wh_[Q-Op, Foc] ...]]
 b. *Structure after covert phrasal movement*
 [...wh_[Q-Op, Foc] C_[Q, Foc]... [SBE_[Op] ... [...t_i...]]
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- (34) a. *Structure before LF-operation*
 [... C_[Q, Foc] ... [SBE_[Op] ... [...wh_[Q-Op, Foc] ...]]
 b. *Structure after feature movement*
 [...Q-Op C_[Q, Foc]... [SBE_[Op] ... [...wh_[__, Foc]...]]
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5. Conclusion and further remarks

In this paper I show that the coverage of intervention effects is broader than it appears. At first, the Intervention Effect can serve as a diagnostics on LF-movement (Beck 1996, Beck & Kim 1997). Yet, it fails to cover the distinction between feature movement and covert phrasal movement. While the Separation Principle (Pesetsky 2000, see also Honcoop 1997) can account for the feature/covert-phrasal movement distinction, it wrongly predicts Chinese in-situ *wh*-arguments to undergo covert phrasal movement. Meanwhile, both approaches fail to explain the focus intervention effects across languages. On the other hand, although Kim (2002) and Beck (2006) can account for the focus intervention effects within the realm of alternative semantics, it is limited to a core set of intervention effects. We have no idea how it can be extended to other intervention contexts beyond focus. In section 4, I tentatively proposes a feature intervention analysis which boils down to the feature specification of the intervener and the intervenee in the sense of Rizzi (2002, 2006). Simply put, intervention effects occur when the intervener and the intervenee share the same feature. The variant distributions we observe are, then, due to the interaction between the types of movement (i.e., feature movement and covert phrasal movement) and the construals of their *wh*'s-in-situ (i.e., Q-Op merged at CP or lexicon).

An anonymous reviewer suggests that the following example with double focuses should run afoul of the analysis proposed in the previous section since the first focus phrase, *shuxue* 'math' may intervene the licensing of the second one, *xihuan* 'like'.

- (35) Zhangsan shuxue_i shi xihuan de t_i,
 Zhangsan math BE like DE
 ingy_ishi bu xihuan t_j de.
 English BE not like DE
 Lit. 'John, math, likes it, English, doesn't like it.'

I think this may have something to do with the inherent distinction between a focus phrase and a *wh*-phrase. Simply put, we may have the focus feature of focus phrase as interpretable while that of *wh*-phrase as uninterpretable (see Kim 2002, 2005, also Beck 2006 for the discussion on their difference in terms of semantics, and Pesetsky and Terrego 2004 for a finer-grained feature valuation system). Now, what is crucial here for the intervention effect is the licensing or checking of the uninterpretable focus feature of in-situ *wh*-phrase will be blocked by an intervening focus feature which is interpretable. If, on the other hand, the intervenee is also a focus phrase with the interpretable feature, there is no need to license/check this focus feature. Hence no intervention effect occurs to the double focus construction.

One concern I do have in mind on the feature intervention approach is that there does not seem to be a clear-cut distinction between focus and non-focus interveners. Although intuitively they are of two different categories, i.e., the former with focus feature while the latter without it, on second thought, focus element can also be a kind of quantificational operator (see also Rizzi 2002). Note that I label the focus element with [Foc] feature and the non-focus element with [Op] feature. If they are alike, or one is the subset of the other one (e.g., [Foc] is a subset of [Op]), we would lose ground on the distinction between (25) and (26). How to distinguish and categorize the focus/non-focus elements in terms of feature specification is still pending. I will leave it open here for further study.

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