A structural asymmetry in intervention effects

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1 Introduction

A famous and important set of puzzles in the word order of many languages are known as ‘intervention effects’ (henceforth ‘IEs’). The puzzle can be characterized as: in certain languages, wh-phrases cannot be interpreted in situ when these phrases are overtly c-commanded by scope-bearing elements, known as interveners, such as NPI's (Beck, 1996; Beck and Kim, 1997; Hagstrom, 1998; Pesetsky, 2000; Miyagawa, 2002; see Honcoop, 1998; Kim, 2002; Beck, 2006 for semantic accounts). 2

According to Beck (1996) and Beck and Kim (1997), questions with the relevant elements in languages like German, Turkish, Korean, and Japanese require a word order permutation which is otherwise optional: one in which the otherwise in situ question word is overtly scrambled to a position structurally superior to the intervener. The discovery of intervention effects has stimulated a large amount of research which has crucially relied on syntactic constraints on Logical Form to account for them.

In the previous literature, however, IEs in wh-questions have been generally assumed to hold for all wh-phrases; 3 in fact, most of the literature follows the lead of Beck and Kim in examining structurally low wh-phrases, in particular those corresponding to who and what. In a series of experiments I have confirmed that such ‘low’ wh-phrases trigger intervention effects, as in (1). But the same experiments show that structurally ‘high’ wh-phrases (when, how, why) do not trigger intervention effects, as in (2). 4 This has never been noticed in the literature.

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1 Among various interveners, this paper concentrates on the interaction of wh-phrases and negation/NPIs in Korean, since these form the traditional core of the facts to be explained (see Pesetsky, 2000 for a relevant discussion).

2 Although I present a syntactic analysis along the lines of Beck and Kim (1997) and Ko (2005), as a reviewer notes, the results of the current experiments work equally well with the semantic accounts.

3 There have been some discussions on the idiosyncrasy of there being no IEs for reason why for Korean (Ko, 2005), Turkish (Ko p.c.) and Japanese (Hoji, 1985; Takahashi, 1990; Tanaka, 1997; Kuwabara, 1998; Miyagawa, 2002).

4 The term low vs. high wh-phrase is adopted for reasons to become clear later in section 4.
This novel fact is extremely surprising given much earlier work on the nature of wh-phrase asymmetries: in fact, it is almost diametrically the opposite of what the line of thinking originating in Szabolcsi and Zwarts (1993) would lead us to expect. Arguing for a semantic treatment of certain relativized minimality effects in English and Dutch, they posit that low wh-phrases that range over individuals (e.g., what, who) are good extractors out of all weak islands (they can scope over any intervener). However, the present paper provides a counter-argument that it is the high wh-phrases that are insensitive to the interveners in Korean (and potentially in Japanese and Turkish) and discusses its theoretical consequences.

The paper is organized as follows. Section 2 introduces a previous account of IEs, and I present a novel set of data that is unexplored by prior theories. In section 3, since judgments about IEs are crucial for the current discussion yet notorious for being subtle (Lee and Tomioka, 2001; Tomioka, 2007; Ishihara, 2002, 2003; Kitagawa and Fodor, 2003; Kitagawa and Tomioka, 2003), experiments are conducted by adopting a magnitude estimation task (Bard et al., 1996) analyzed by a three-way ANOVA, and the program Praat, the results of which confirm the asymmetric grammaticality judgments of the data given here. Having established the empirical pattern of IEs, I attempt to answer the fundamental question: why does the divergence between wh-phrases arise? To see why, section 4.1 examines the syntactic properties of each wh-phrase, and it is further shown that the attested properties of wh-phrases reflect their syntactic base position. Section 4.2 shows how the proposed syntactic split between wh-phrases plays a crucial role in the derivation that does or does not induce IEs. The conclusion is given in section 5.

2. Syntactic constraints on intervention effects and new data


Korean and Japanese are wh-in situ languages which lack the obligatory overt wh-movement of English-type languages. Instead, a wh-phrase can be scrambled over to the initial position in wh-interrogatives. Scrambling has been claimed to be an optional operation (Fukui, 1993; Hoji, 1985; Kuroda, 1988; Saito, 1985, 1992; Saito and Fukui, 1998; Takano, 1998; Tada, 1989, 1993) since it triggers neither grammaticality differences nor logical meaning contrasts between the sentences in (3a) and (3b).

Thus, both sentences are perfectly grammatical wh-questions with the identical meaning of ‘what did Swuna buy?’ in Korean.

(3) a. Swuna-ka mwues-ul sa-ss-ni?
   Swuna-NOM what-ACC buy-PST-Q
   ‘What did Swuna buy?’

b. Mwues-ul Swuna-ka sa-ss-ni?
   what-ACC Swuna-NOM buy-PST-Q
   ‘What did Swuna buy?’

However, Beck and Kim (1997) argue that scrambling of wh-phrases becomes obligatory in cases where the element preceding the wh-phrase is a scope-bearing element such as a Negative Polarity Item (NPI), e.g., amwuto ‘anyone’ in Korean, or daremo ‘anyone’ in Japanese. Therefore, the in situ counterparts of wh-phrases as seen in (4b) and (5b) result in ungrammaticality, despite the fact that they remain in their canonical positions.

(4) a. Nwukwu-lul amwuto manna-ci anh-ass-ni?
   who-ACC anyone meet-CI NEG-PST-Q
   ‘Who did no one meet?’

b. *Amwuto nwukwu-lul manna-ci anh-ass-ni?
   anyone who-ACC meet-CI NEG-PST-Q
   ‘Who did no one meet?’

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5 The following abbreviations are used for the data: ACC: accusative; CI: ‘ci’-marker (complementizer); DAT: dative case; DIR: directive case; DECL: declarative sentence ending; LOC: locative case; NEG: negation; NOM: nominative case; PST: past tense; Q: question marker; TOP: topic marker.

6 The optionality of scrambling is in fact controversial. See Miyagawa (1997) for counterarguments in Japanese.
a. **Mwues-ul** amwuto sa-ci anh-ass-ni?
   
   what-ACC anyone buy-CI NEG-PST-Q

b. ‘Amwuto **mwues-ul** sa-ci anh-ass-ni?
   
   anyone what-ACC buy-CI NEG-PST-Q

‘What did no one buy?’

The surprising fact that wh-phrases cannot follow an NPI has been accounted for as intervention effects (IEs) as generalized above.7 In order to capture the empirical facts, Beck (1996; Beck and Kim, 1997) proposes the following: (i) the notion of Quantifier Induced Barrier (QUIB) defines an intervener; (ii) the Minimal Quantifier Structure Constraint (MQSC) accounts for the IE data by restricting the binding relation of LF traces.

(6) **Quantifier Induced Barrier (QUIB):**

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

(7) **Minimal Quantifier Structure Constraint (MQSC):**

If an LF trace $\beta$ is dominated by a QUIB $\alpha$, then the binder of $\beta$ must also be dominated by $\alpha$.

Given this, let us see how they account for the Korean data. For the LF structures, Beck & Kim assume the notion of transparent LF (à la Stechow, 1993; Heim and Kratzer, 1991). This means that since LF is the input to compositional interpretation, semantic composition rules motivate their assumptions on the landing sites of an expression. Furthermore, adopting a Karttunen (1977) style semantics for interrogatives, they assume that wh-phrases must move at LF to [Spec,C(P)] or a related position above $C^0$ which is occupied by an interrogative operator in Korean. They further assume that negation can be adjoined to any V-projection and that, in a sentence with an NPI and negation, the NPI indicates the scope of negation since it must be licensed under the scope of negation.

Thus in the course of the semantic composition of (8) below (=40 in Beck and Kim, 1997), the wh-phrase *nwukwu-lul* needs to move up to the higher position ([Spec,CP]) across the NPI *amwuto* in order to receive an interpretation at LF. However, the sentence (8a) becomes ungrammatical because its LF violates the MQSC: in the LF structure (8b), the LF trace of the wh-phrase is dominated by the QUIB (i.e., the VP dominating Neg according to the definition above) whereas its binder nwukwu-lul is not.

(8) a. ‘**Amwuto nwukwu-lul** po-ci anh-ass-ni?’

   anyone who-ACC see-CI NEG-PST-Q

   ‘Who did no one see?’

   b.

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7 Although Intervention Effects are cross-linguistically frequent phenomena, the scope of this paper is limited to Korean, Japanese and Turkish. The extension of the current analysis to other languages remains to be seen.
Crucially, however, the scrambling of the wh-phrase to the initial position in (9a) eliminates IEs.

(9) a. **Nwukwu-lul amwuto** po-ci anh-ass-ni?
    who-ACC anyone see-CI NEG-PST-Q
    ‘Who did no one see?’

The newly adopted linear order at the surface structure – the wh-phrase preceding the intervener – reflects a different LF structure in which the QUIB (again, the VP dominating Neg) is located below the LF trace of the wh-phrase and hence the LF does not violate the MQSC. In this vein, they argue that scrambling is not a semantically vacuous operation since the scrambling of a wh-phrase has the effect of altering the structural hierarchy at LF. Thus it provides evidence against Hale (1980) claim that free word order in Japanese is due to nonconfigurational, flat phrase structure.

However, one important thing to note is that previous approaches depend on a limited set of intervention data. In following sections, it will be shown that although the prior theories may be able to capture the interactions between interpretation components in interrogatives with low wh-phrases, these analyses require a refinement since they do not distinguish low wh-phrases from high wh-phrases and hence the insensitivity of high wh-phrases (when, how, why) to IEs is unexplained.

2.2. New data: IEs for low wh-phrases vs. no IEs for high wh-phrases

Starting here, additional data on IEs in other wh-phrases will be examined to show that previous analyses are incoggnizant of the important asymmetry between wh-phrases. Low wh-phrases such as what, who, and where in Beck and Kim’s (1997) examples above reveal a strong constraint on triggering their scrambling over the intervening NPI. However, empirical discoveries show that the IEs do not strictly hold for high wh-phrases in Korean and Japanese. As illustrated below, the constraint becomes significantly weaker or nullified with high wh-phrases such as when, how, and why. In the following Korean data (10) and (11), the scrambling of high wh-phrases across NPIs seems to be optional even in the presence of interveners, in sharp contrast with the low wh-phrases observed in the preceding sections.

(10) **Way/encey/ettehkey(hayse)** amwuto swukcey-lul ceychwulha-ci anh-ass-ni?
    why/when/how anyone homework-ACC submit-CI NEG-PST-Q

(11) **Awmuto way/encey/ettehkey(hayse)** swukcey-lul ceychwulha-ci anh-ass-ni?
    anyone why/when/how homework-ACC submit-CI NEG-PST-Q
    ‘Why/when/how did nobody submit their homework?’
The same conclusion is drawn from the evidence that Beck & Kim’s own ungrammatical sentence in (12) becomes perfectly grammatical if the low wh-phrase what is replaced by a high wh-phrase such as why, when, or how in (13).  

(12) *Swuna-ka amwu-eykey-to mwues-ul poyecwu-ci anh-ass-ni?
Swuna-NOM anyone-DAT what-ACC show-CI NEG-PST-Q
‘What didn’t Swuna show to anyone?’

(13) Swuna-ka amwu-eykey-to way/encey/ettehkey(hayse) kukes-ul poyecwu-ci anh-ass-ni?
Swuna-NOM anyone-DAT why/when/how it-ACC show-CI NEG-PST-Q
‘Why/when/how didn’t Swuna show it to anyone?’

Furthermore, the plausibility of an asymmetry analysis is supported by the fact that such phenomena are observed in another wh-in situ language. The Japanese data below exhibit an identical pattern between obligatorily scrambled low wh-phrases in (14) and (15), and optionally scrambled high wh-phrases in (16) and (17).  

(14) a. Dare-o dare-mo mi-na-katta-no.
who-ACC anyone-even see-NEG-PST-Q
b. *Dare-mo dare-o mi-na-katta-no.
who-ACC anyone-even see-NEG-PST-Q
‘Who did no one see?’

what-ACC anyone-even buy-NEG-PST-Q
b. *Dare-mo nani-o kawa-na-katta-no.
who-ACC anyone-even buy-NEG-PST-Q
‘What did no one buy?’

(16) Naze/itu/doo(nikasite) dare-mo shukudai-o dassa-na-katta-no.
why/when/how anyone-even homework-ACC submit-NEG-PST-Q

(17) Dare-mo naze/itu/doo(nikasite) shukudai-o dassa-na-katta-no.
who-ACC anyone-even homework-ACC submit-NEG-PST-Q
‘Why/when/how did no one submit their homework?’

Given this, I am going to propose that there is a clear discrepancy between low wh-phrases what, who, where, and high wh-phrases how, when, with respect to IEs. Before moving on to the question why the asymmetry arises, a confirming process for the crucial data is provided in the following section.

3. Experiments on intervention data

3.1. Grammaticality judgments: the experiment Part I

In this section, the results of an experiment conducted with Korean native speakers are presented. The purpose of the experiment is to lay a solid empirical basis for my claims regarding the wh-phrase asymmetry. This additional substantiation is advisable since judgments for IEs are claimed to be notoriously subtle (Lee and Tomioka, 2001; Tomioka, 2007; Ishihara, 2002, 2003; Kitagawa and Fodor, 2003; Kitagawa and Tomioka, 2003).

For the analytic method, I adopt the ‘Magnitude Estimation Task (MET)’ of linguistic acceptability developed by Bard et al. (1996). The test is designed to reveal the gradience in relative acceptability perceived by the subjects assuming that the acceptability is a reflection of the grammatical effects. Thus the following test is used to clarify the asymmetry of the

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8 Following Miyagawa’s (1997) analysis in Japanese, I assume that in double object constructions dative case can be either a structural case marker (forming a DP) in the dative-accusative order or a postposition headed by ni[j]eykey(K) (forming a PP) in the accusative-dative order. Given this, Miyagawa’s analysis accounts for why Korean amwu-eykey-to ‘anyone-DAT’ in (12) above is acting as a harmful intervener: since the sentence is in the dative-accusative order, eykey is a structural case marker. See Miyagawa (1997) for the dual properties of dative ni that is evidenced by floating numeral quantifiers.

9 More remarkably, Turkish is another wh-in situ language showing a low-high wh-phrase asymmetry similar to Korean and Japanese with respect to IEs (Cagri p.c.). This is unsurprising considering that a certain syntactic similarity between Turkish and Korean has been frequently noted in the literature (e.g., Kelepir, 2001; Cagri, 2005). Specific syntactic characteristics of Turkish wh-phrases will be discussed in section 4.

10 As for the Japanese IE data, the judgments were also tested by five Japanese linguists. Although informally surveyed, the obvious low-high wh-phrase asymmetry was commented on by all the informants while judging the Japanese data.
intervention data in terms of relative 'acceptability' from which grammaticality can be inferred. In the experiment kit, the data contain a total of 12 wh-questions given in the following (I).

I. Data:  

WH > NPI: (a) sentences  
NPI > WH: (b) sentences

(18) a. Nwukwu-lul amwuto manna-ci anh-ass-ni?  
   who-ACC anyone meet-CI NEG-PST-Q  
   'Who did no one meet?'

   b. Amwuto nwukwu-lul manna-ci anh-ass-ni?  
   anyone who-ACC meet-CI NEG-PST-Q

(19) a. Mwues-ul amwuto sa-ci anh-ass-ni?  
   what-ACC anyone buy-CI NEG-PST-Q

   b. Amwuto mwues-ul sa-ci anh-ass-ni?  
   anyone what-ACC buy-CI NEG-PST-Q  
   'What did no one buy?'

(20) a. Eti-lul amwuto ka-ci anh-ass-ni?  
   where-ACC anyone go-CI NEG-PST-Q

   b. Amwuto eti-lul ka-ci anh-ass-ni?  
   anyone where-ACC go-CI NEG-PST-Q  
   'Where did no one go?'

(21) a. Encey amwuto swukcey-lul ceychwulha-ci anh-ass-ni?  
   when anyone homework-ACC submit-CI NEG-PST-Q

   b. Amwuto encey swukcey-lul ceychwulha-ci anh-ass-ni?  
   anyone when homework-ACC submit-CI NEG-PST-Q  
   'When did nobody submit their homework?'

(22) a. Ettehkey amwuto say-pepan-ey panungha-ci anh-ass-ni?  
   how anyone new-bill-to respond-CI NEG-PST-Q

   b. Amwuto ettehkey say-pepan-ey panungha-ci anh-ass-ni?  
   anyone how new-bill-to respond-CI NEG-PST-Q  
   'How did nobody respond to the new bill?'

(23) a. Way amwuto swukcey-lul ceychwulha-ci anh-ass-ni?  
   why anyone homework-ACC submit-CI NEG-PST-Q

   b. Amwuto way swukcey-lul ceychwulha-ci anh-ass-ni?  
   anyone why homework-ACC submit-CI NEG-PST-Q  
   'Why did nobody submit their homework?'

II. Subjects: The experiment was conducted with two subgroups of subjects, a group of eight non-linguist Korean graduate students at the University of Chicago who came to the USA after the age of 25 and a group of five Korean linguists. After each subject scored the twelve wh-question sentences (a/b sentences given in data above), a total of 156 score responses were acquired.

III. Procedure: In the experiment kit, the above twelve sentences are given with a gloss of intended wh-question interpretation (e.g., (18) 'Who did no one meet?' → 'Who is the person x such that no one met that particular person x?') in Korean. For acceptability judgments of linguist and especially non-linguist groups, the written direction instructed the subjects are required to score each sentence based on their intuition regarding structural well-formedness (i.e., whether a given sentence is a possible Korean sentence) and interpretability (i.e., whether a given sentence obtains the intended reading).

As a reviewer notes, the ungrammaticality of (20b), shown in the results of the experiment, is particularly interesting since in Beck, 1996Beck’s (1996) original discussion of German, the difference between bad and good example sentences was very often the placement of the wo 'where'. I assume that this crosslinguistic variation is due to the fact that eti 'where' in Korean can receive ACC, instead of LOC or DIR. Section 4 discusses how case is relevant to the sensitivity to IEs. This means that judgments could be different (i.e., more acceptable) if eti receives a non-structural case like LOC.
In order to avoid any interfering prosodic effects, the data was provided in a written format and the instructions explicitly stated that the subject should process the data under a continuous monotonic contour excluding any intentional intonational break or emphasis on a particular item (i.e., just like when they read a dry theoretical text without incorporating any emotion). 

IV. Result: The arithmetic means of the judgments are represented in the following Fig. 1. As can be clearly seen in the contrast between wh-phrases, the preference of high wh-phrases over low wh-phrases in intervention environments is borne out.

The subjects scored the acceptability of each data from 0 (terribly unacceptable) to 6 (perfectly acceptable) given in the experiment kit. First, the judgments for the (18–23a) sentences throughout the data are given as diamonds connected by a line in Fig. 1 (wh $\gg$ NPI) in which a wh-phrase precedes an NPI. As can be inferred from the uniformly high scores assigned to these items, these are grammatical non-intervention sentences provided only for comparison purposes.

Rather, let us focus on the double bars that give the mean scores for the (23–28b) sentences in which the interveners precede the wh-phrases (NPI $\gg$ wh). Drastic contrasts between low wh-phrases (who/what/where) and high wh-phrases (when/how/why) are revealed here, which suggests that the intuition about the asymmetry is robust. (Note that the slight lower scores (4–5 points) for when and how are still under the score range of grammatical sentences, as the instructions define score 6 as ‘perfectly acceptable’, score 5 as ‘very acceptable’ and score 4 as ‘acceptable’ sentences).

V. Variation in responses: In the bar graph, the double bar of each wh-phrase designates two subgroups of subjects, the former is the non-linguist group and the latter the linguist group. Three way ANOVA (Analysis of Variance) in Fig. 2 below provides empirical evidence that both the sentence types (a/b) and the wh-phrases have a significant effect on the collected sentence evaluation scores. This result turns out robust regardless of how the six wh-phrases are grouped.

Given the statistical significance, both subject groups can be concluded to show reliable judgments within and across the wh-phrase groups. In fact, these variations are unsurprising considering that linguists are more sensitive to grammaticality judgments, effectively disregarding the prosodic factors that are well-known to ameliorate IE data. However, the difference between two subject groups (linguist vs. non-linguist) turns out statistically insignificant in this experiment (see p-value of ‘major’ in (1) and (2) of Fig. 2). In the next section, the role of prosody in improving the degenerate sentences will be discussed, and it will provide further evidence for the asymmetry between wh-questions.

3.2. Prosody: the experiment Part II

In this section, an analysis of wh-questions is presented based on an experiment regarding the intersecting natures of prosody and syntax.

I. Theoretical background: The interaction between syntax and prosody has been extensively discussed in recent literature based on the common assumption that the interpretation of wh-questions is significantly affected by prosody. The interactions between focus and phonological prominence and between pitch accent and length are attested in Japanese (Lee and Tomioka, 2001; Deguchi and Kitagawa, 2002; Ishihara, 2003; Hirotani, 2003; Kitagawa and Fodor, 2003; Kitagawa and Tomioka, 2003) and in Korean (Choe, 1985; Lee and Chung, 1999; Jun and Oh, 1996, among others).

The crucial connection is also revealed from the IE data, where the ungrammaticality is attributed to the fact that the wh-phrase is difficult to interpret because wh-feature movement is blocked by an NPI at LF. Thus a speaker’s strategy to successfully obtain the intended interpretation obviating IEs can be either one of the following: First, an overt scrambling of the wh-phrase to the initial position adjusts the linear order and hence restructures the LF into one in which the LF trace of the wh-phrase escapes out of the intervener NPI. Second, if wh-phrase scrambling is unavailable, a speaker may employ a

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12 The instruction asking to imagine a continuous monotonic contour when processing the sentences is used to control the prosody simply for the lack of a better method. Note that, as a reviewer points out, one must in fact intentionally ignore the normal intonation of wh-questions which involves a high pitch on the wh-phrase in Korean (Choe, 1985; Lee and Chung, 1999; Jun and Oh, 1996) and Japanese (Deguchi and Kitagawa, 2002). However, controlling the prosody is crucial here in order to prevent cases where the acceptability of the sentence is substantially improved by a prosodic remedy that will be discussed in the next section.
prosodic strategy by producing a phonetic effect such as a long pause (##) before the wh-phrase and/or a strong emphasis on the wh-phrase, as illustrated in Korean (24a) and Japanese (24b).

(24) a. Amwuto ## NWUKWU-lul po-ci anh-ass-ni?
    anyone who-ACC see-CI NEG-PST-Q
    ‘Who did no one see?’

b. Dare-mo ## NANI-o kawa-na-katta-no.
    anyone-even what-ACC buy-NEG-PST-do-Q
    ‘What did no one buy?’

In accounting for the cancellation of IEs above, Ko (2005) notes the possibility that the scope-bearing element (SBE, i.e., the NPI amwuto) might have undergone string-vacuous scrambling as illustrated in (25b), assuming that subject scrambling is possible in Korean and Japanese (contra Saito, 1985) and that some speakers may allow string-vacuous scrambling that is typically marked by a pause (Sohn, 1995). Under a multiple Spec structure a scrambled NPI has been relocated to the higher [spec,CP] with a wh-phrase and the reversed hierarchical order accounts for the obviation of IEs.

(25) a. *[CP [C[+Q] [IP SBE ... wh[uWH] ...]]]

b. *[CP SBE1 [C[+Q] [IP t1 ... wh[uWH] ...]]]

That said, the present experiment is conducted based on the assumption that syntactically caused IEs at lower levels can be to some extent fixed by the prosodically marked rearrangement of the syntax at higher levels (Bruce, 1998). Therefore prosody is another crucial aspect that tells us about the grammaticality of IE data.

II. No violation, no remedy – sentence production experiment: Given the interrelation between grammaticality and prosody, I propose that, if there is any hint of unusual prosodic effects in a produced sentence, it can be analyzed as having been adopted by the speaker in order to ameliorate the otherwise degenerate sentence. This motivates a sentence production experiment conducted with a different group of six native Korean speakers. The anticipated result is that the degree of prosodic effects will differ between (ungrammatical) low wh-phrases and (grammatical) high wh-phrases in the IE data corresponding to their asymmetry in grammaticality.

The prediction is borne out in the phonetic descriptions, analyzed by Praat, in Figs. 3–5 below. The following sentences in phonetic description are recordings from one speaker when asked to pronounce the sentences with who, when, and why in order to successfully convey the intended wh-question reading. The non-intervention sentences (wh-phrase [ /C29 non intervention]) are given in the A parts and the intervention sentences (anyone [ /C29 intervention]) are given in the B parts of each figure.

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13 Based on NPI-licensing and inverse scope facts, Sohn (1995) convincingly argues that some speakers allow string-vacuous scrambling in Korean and Japanese and that a pause signals string-vacuous scrambling. For a detailed discussion on its implications for IE phenomena, see Ko, 2005 K (2005:53-59). Ko further assumes that this kind of prosodic impact on syntax could be the reason why judgments about IEs are claimed to be subtle (e.g., Lee and Tomioka, 2001).
(26)  

a. **Nwukwu-lul**  
amwuto manna-ci anh-ass-ni?  
who-ACC anyone meet-CI NEG-PST-Q  
‘Who did no one meet?’

b. Amwuto **# # NwUKWU-lul** manna-ci anh-ass-ni?  
anyone who-ACC meet-CI NEG-PST-Q  
‘Who did no one meet?’

(27)  

a. **Encye**  
amwuto swucey-lul nay-ci anh-ass-ni?  
when anyone homework-ACC submit-CI NEG-PST-Q  
‘When did nobody submit their homework?’

b. Amwuto **Encye**  
swucey-lul nay-ci anh-ass-ni?  
anyone when homework-ACC submit-CI NEG-PST-Q  
‘When did nobody submit their homework?’
Way amwuto swucey-lul nay-ci anh-ass-ni?
why anyone homework-ACC submit-CI NEG-PST-Q
‘Why did nobody submit their homework?’

Amwuto way swucey-lul nay-ci anh-ass-ni?
anyone why homework-ACC submit-CI NEG-PST-Q
‘Why did nobody submit their homework?’

Note first that no prosodic strategy is taken in the non-intervention sentences (wh-phrase) represented in the A parts of Figs. 3–5. Now let us compare the ‘pitch’ height, indicated by F0, between nwukwu ‘who’ and encey ‘when’/way ‘why’ in the intervention sentences (anyone wh-phrase) given in the B parts. In the lower part of Fig. 3B, a strong emphasis on the low wh-phrase (nwukwu) is expressed as a higher pitch, resulting in a circumvention of the IEs. In contrast, the equivalent pitch height of the high wh-phrases (encey in Fig. 4B and way in Fig. 5B) and the intervener (amwuto ‘anyone’) indicates that this sentence is already grammatical without any prosodic manipulation. Thus it can be concluded that no remedy is necessary if there is no violation of grammaticality to begin with.

The second contrast to note is the ‘pause length’ difference between Fig. 3B and Figs. 4B/5B. Since a pause has been claimed to improve IE sentences (Sohn, 1995; Ko, 2005), the ‘long pause’ between amwuto ‘anyone’ and nwukwu ‘who’ in Fig. 3B indicates that there must have been a high degree of grammaticality violation before it was remedied by the prosodic cue. However, no noticeable pause is observed between amwuto ‘anyone’ and encey ‘when’/way ‘why’ in Figs. 4B/5B, presumably due to the lack of IEs. Note that a similar pattern is consistently observed in the recordings of the other five subjects: a distinctively long pause after the intervener and a high pitch on a wh-phrase are adopted only in interrogatives with low wh-phrases.

Given that the asymmetric pattern among IE questions has been established by new data from syntactic and phonetic experiments, the next step is to find out where the contrast stems from. This will be discussed in section 4.

4. Accounting for the asymmetry

4.1. Syntactic base positions of low vs. high wh-phrases

Now that an important interlinguistic variation is revealed between wh-phrases, it will be shown how the asymmetry can be captured under syntactic LF constraints. The key to understanding the proposed contrast in IEs lies in the syntactic base positions of wh-phrases. On this matter I claim that the syntactic properties of wh-phrases in languages like Korean, Japanese, and Turkish are discernable based on case assignment: in (29–30), the low base position of what, who, where and the high base position of how, when, why are shown by structural case attachability tests (NOM/ACC) in Korean and Japanese.
Extending Miyagawa’s (1997) analysis of Japanese to Korean, I further assume that the former with a structural case marker is a DP and the latter with a postposition is a PP.14

(29) NOM/ACC-marker attachability test: Korean wh-phrases

mwukwu-ka/lul ‘who-NOM/ACC’ * ettehkey-ka/lul ‘how-NOM/ACC’
nwukwu-ka/lul ‘who-NOM/ACC’ * encey-ka/lul ‘when-NOM/ACC’
eti-ka/lul ‘where-NOM/ACC’ * way-ka/lul ‘why-NOM/ACC’

(30) NOM/ACC-marker attachability test: Japanese wh-phrases

nani-ga/o ‘what-NOM/ACC’ * doo-ga/o ‘how-NOM/ACC’
dare-ga/o ‘who-NOM/ACC’ * itsu-ga/o ‘when-NOM/ACC’
doko-ga/o ‘where-NOM/ACC’ * naze-ga/o ‘why-NOM/ACC’

Given that the case-based dichotomy of wh-phrases exactly corresponds to their sensitivity to IEs discussed in section 2, it is now safe to assume that high wh-phrases without structural case are not involved in the IE configuration.15

Based on the observation that the case assignment of an XP indicates its syntactic base position that is crucial in the IE configuration, I am going to propose the syntactic status of each wh-phrase in Korean and Japanese. The connection between syntactic base position and structural case discussed so far is in line with Kim’s (2001) claim that the lul(ACC)-marking is indicative of the syntactic position of adverbs in Korean. In particular, assuming that abstract [ACC] checking occurs within v, she proposes that ACC-marked adverbs stem from v whereas non-ACC-marked adverbs are base adjoined outside the maximal projections, i.e., outside v.16

Turning back to wh-phrases, I assume that the syntactic position of wh-phrases with ACC is within the maximal projection of v whereas wh-phrases without ACC are adjoined outside vP. Furthermore, Kim’s distinction of other adverbs depending on ACC-marking allows us an extension to their wh-phrase counterparts. Given that the position of ACC-receiving adverbs such as path length, multiplicative, and durational adverbs in Korean is within vP, an analogous syntactic position is suggested for their wh-counterparts – myet meyta ‘how many meters’, myet pen ‘how many times’, and elma tongan ‘for how long’. Based on durational and directional adverbs with ACC such as iti-jikan-o ‘one-hour-ACC’ and yoko-o ‘side-ACC’ in M. Kim’s data, I assume that their wh-counterparts such as nan-jikan-o ‘how many hours-ACC’ and dotino-hookoo-o ‘which direction-ACC’ are base generated within vP along with other low wh-phrases.

On the other hand, the position of non-ACC-receiving adverbs, i.e., outside vP, also indicates the position for their wh-counterparts. It is predicted that wh-forms for location, manner and frequency adverbs such as distance, manner, and durational adverbs in Korean is within vP, an analogous syntactic position is suggested for their wh-counterparts – myet meyta ‘how many meters’, myet pen ‘how many times’, and elma tongan ‘for how long’. Based on durational and directional adverbs with ACC such as iti-jikan-o ‘one-hour-ACC’ and yoko-o ‘side-ACC’ in M. Kim’s data, I assume that their wh-counterparts such as nan-jikan-o ‘how many hours-ACC’ and dotino-hookoo-o ‘which direction-ACC’ are base generated within vP along with other low wh-phrases.

In light of the above, I propose the base syntactic position of wh-phrases in Korean and Japanese in (31). Note that how and when are base-generated outside vP, while who, what, where and other ACC-attachable wh-expressions such as how many N and which N are located within vP either at a subject or an object position where structural case is assigned.

15 Although nominative case is null in Turkish, the accusative/dative case attachment test (i) reveals an equivalent pattern between low wh-phrases and high wh-phrases.

(i) ACC/DAT-marker attachability test: Turkish wh-phrases

ne-yi ‘what-ACC’ * nas?ili-i ‘how-ACC’
kim-i ‘who-ACC’ * ne zaman-i ‘when-ACC’
ner-e ‘where-DAT’ * niye/niecin-i ‘why-ACC’

16 The current proposal is also in line with the standard assumption on two possible adjunction positions, the IP adjunction and the VP adjunction in English, which result in two different types of adjunct clauses (De Hoop, 1992).

A reviewer points out that the proposed position of how (i.e. higher than vP) in Korean and Japanese is higher than what is generally assumed for the VP adjoined position of manner how in English (Cinque, 2002; 2006, among others). As already noted with the flexibility of K/J where, however, I have shown that the crucial syntactic property in these languages is determined by the case assignment. Furthermore, the idea is not new since the potentially higher position of how in other languages such as English, French, and Chinese, has been already suggested in the literature (Ernst, 2002; see Rizzi, 1990; Frampton, 1991 for discussion on argument vs. adjunct how). In (i), for instance, the adverb politely is ambiguous between lower (manner) and higher (clausal) readings. Given this, I claim that the availability of higher how than vP indicates the availability of higher how than NegP. George was politely speaking to him.
The position of wh-phrases in Korean and Japanese

High Wh-phrases:
why, how, when

XP = QUIB

Low Wh-phrases:
who, what, where,
how many N, which N

As argued in prior studies, there are possibilities for more detailed locational variability of wh-phrases depending on the interaction of compositional rules and lexicosemantic requirements of individual wh-phrases (Ernst, 2002), and the distinction between higher type adverbials (why/how) and lower type adverbials (when/where) (Stroik, 1996; Haider, 2004; see also Jackendoff, 1972; Travis, 1988; Cinque, 1999, 2004; Ernst, 2002; Belletti, 2004; Rizzi, 2004). One crucial hypothesis here is that semantic representations are constructed based on syntactic structure (Jackendoff, 1972; Ernst, 2002; Haider, 2004), and so the hierarchical arrangement of adverbs at LF corresponds to the syntactic structure above.

In wh-in situ languages like Korean and Japanese, it has been noted that the insensitivity of why to IEs reflects a distinct syntactic configuration (Hoji, 1985; Takahashi, 1990; Tanaka, 1997; Kuwabara, 1998; Miyagawa, 2002; Ko, 2005). Following earlier assumptions on why, I will assume that why is directly merged into [Spec,CP] of an interrogative clause with a question marker, which implies that why does not have to move at LF to check the Q-feature. Then a question concerning other high wh-phrases like how or when arises. Are they merged into [Spec,CP], just like why? Or, are they merged into somewhere lower than [Spec,CP] and expected to undergo a short movement to [Spec,CP]?

The precise position of each wh-phrase can be clarified by application of the diagnostics that Ko (2005) suggests for why to other wh-phrases. First, she notes that although Korean freely allows A’-movement (A’-scrambling and A’-topicalization), epistemic adverbs like amato ‘probably’ and pwunmyenghi ‘evidently’ cannot undergo A’-topicalization or A’-scrambling: they are unable to host a topic-marker or cross a clause boundary. Then the following data showing that amato and pwunmyenghi cannot precede way ‘why’ supports her hypothesis of way being merged into [Spec,CP].

Given this, the base position of other high wh-phrases like ettehkey ‘how’ and encey ‘when’ can be attested by these adverbs. Just like etten iyu-lo, ettehkey and encey can be preceded by amato and pwunmyenghi as illustrated in (35) and (36). Thus I assume that they are adjoined lower than [Spec,CP].
Second, the following asymmetry in an infinitival clause (Control) reconfirms the distinct syntactic status between way ‘why’ and etten iyu-lo ‘for what reason’. Assuming further that way is a CP-modifier which must be merged with [+finite]C, Ko notes that the unavailability of a long-distance reading reveals the fact that way cannot be merged in a clause without the appropriate projection of C. In contrast, both long-distance and short-distance readings are available for etten iyu-lo because it is not a CP-modifier.

(37)  John-un ne-eykey [{{way, /etten iyu-lo}} hakkyo-lul kosoha-lako] chwungkohayss-ni?
John-TOP you-to why/what reason-for school-ACC sue-C recommended-Q
‘What is the reason x s.t. John recommended that you sue the school for reason x?’

In (38), both long-distance and short-distance readings are available for ettenkey ‘how’ and encey ‘when’. Once again they are shown to be adjoined lower than [Spec,CP].

(38)  John-un ne-eykey [{etretehkey/encey} hakkyo-lul kosoha-lako] chwungkohayss-ni?
John-TOP you-to how/when school-ACC sue-C recommended –Q
‘What is the method/time x s.t. John recommended that you sue the school by method/at time x?’

Though ettehkey ‘how’ and encey ‘when’ seem to be adjoined lower than [Spec,CP], their insensitivity to IEs indicates that they are located still quite high, at least higher than TP. Thus I assume that they are adjoined to outer [Spec,TP], as a TP-modifier, and undergo a short movement to [Spec,CP].\(^{*}\) The concrete derivational process will be discussed in section 4.2, illustrating how the IE asymmetry can be systematically captured under the current hypothesis.

4.2. The derivations

The evident empirical split on IEs is revealing about the nature of the structural division between wh-phrases, and it will be shown how the syntactic base position of a wh-phrase crucially determines its (in)sensitivity to IEs.

Before going into the details of the proposed derivations, I add the following assumptions to Beck & Kim’s previous structures of Korean wh-interrogatives (given in (9) and (10) in section 2) in addition to some minor differences on the structural nodes. First, EPP is assumed to be active in Korean as well as in Japanese (in the sense of Miyagawa, 2001; Chomsky, 2000; Alexiadou and Anagnostopoulou, 1998) which constrains the core functional categories such as C, T, and v to be associated with the EPP-feature. The EPP may be satisfied either by a movement of an appropriate XP to the Spec of the head with the EPP-feature or by a raising of an appropriate head to the head with the EPP-feature. Furthermore, the EPP-feature constrains [Spec,TP] to be filled either by a subject or an object. If object scrambling has occurred (i.e., [Spec,TP] is filled by an object), then the canonical SOV order is changed into the OSV order. Second, I assume that, in wh-in situ languages like Korean and Japanese, [Spec,CP] is associated with the wh-feature and must be filled by the (covert or overt) movement of a wh-phrase in order to check the wh-feature (Chomsky, 1999, 2000, 2001; Hagstrom, 1998; Miyagawa, 2001). The head C, on the other hand, is associated with the Q-feature which is checked off by the occupation of the question particle ni at the right edge of the structure. As noted above, however, way ‘why’ does not have to undergo such movement since it is directly merged into [Spec,CP] and licensed therein via Spec-Head agreement. Furthermore, following Sohn (1995) and Ko (2005), I assume that a NPI in Korean and Japanese is licensed via Spec-Head agreement with a clausemate negation in the overt syntax.

4.2.1. The derivation of low wh-phrases

For facilitating the comparison with the high wh-phrase counterparts, let us first observe the following derivations of the low wh-phrase questions that are slightly modified from Beck and Kim’s (1997). In the scrambled wh-question (39), the low wh-phrase nwukwu-lul overtly raises to [Spec,TP] via object scrambling which saturates the EPP-feature on T, and a covert movement to [Spec,CP] occurs. Since the scrambling operation is a substitution into the [Spec,TP] position (i.e., A-movement), the LF trace of the wh-phrase resides at the target of scrambling, [Spec,TP]. Note further that, in this OSV order, [Spec,TP] is already filled by the scrambled object and the otherwise possible raising of the NPI amwuto becomes unavailable. Then the subject NPI stays in situ in [Spec,vP] and is interpreted within the scope of negation. Thus there arises no violation of MQSC in Beck’s constraints (7–8) above, because both the binder wh-phrase nwukwu-lul and its LF trace are located higher than the QUIB. Therefore the scrambling of the wh-phrase nwukwu-lul to the initial position eliminates IEs in (39a).

(39) A scrambled low wh-phrase question (no IEs):

a.  Nwukwu-lul amwuto po-ci anh-ass-ni?
who-ACC anyone see-CI NEG-PST-Q
‘Who did no one see?’

\(^{*}\) As Ko notes, a similar assumption has been made before. Tsai (1999) and Tsai and Chang (2003) argued that causal why and causal how in Tsou are sentential operators that are merged higher than TP (or IP).
On the other hand, when the wh-phrase *nwukwu-lul* stays in situ as in (40), the subject NPI *amwuto* moves to \[Spec,TP\] in order to satisfy the EPP-feature on T. Then only a covert movement of the wh-phrase occurs from \[Spec,VP\] to \[Spec,CP\]. Consequently at LF the trace of the wh-phrase *nwukwu-lul* is located below the NPI *amwuto* and the relation between the binder wh-phrase and its trace is intervened by the QUIB. This violation of MQSC gives rise to IEs.

(40) *An in situ low wh-phrase question (IEs):*

a. "**Amwuto** nwukwu-lul po-ci anh-ass-ni?  
anyone who-ACC see-CI NEG-PST-Q  
‘Who did no one see?’

b. "**Amwuto** nwukwu-lul po-ci anh-ass-ni?  
anyone who-ACC see-CI NEG-PST-Q  
‘Who did no one see?’

---

19 As a reviewer notes, one might wonder why *amwuto* in (40) cannot undergo an overt A'-movement to outer \[Spec,CP\] which will salvage the sentence from IEs. However, unlike the overt A'-movement of *amwuto* in (42) that gives out the correct linear order by making it precede *encey* 'when', such movement of *amwuto* in (40) will be vacuous resulting in the same word order. As already noted in section 3.2, this kind of string vacuous scrambling in Korean is posited only when it is marked by a strong prosodic cue such as a long pause (Sohn, 1995). Since (40a) lacks such cue, it is sensitive to IEs. If, however, there is a noticeable pause between *amwuto* and *nwukwu* in (40a), the sentence becomes grammatical due to the movement of *amwuto* to outer \[Spec,CP\].
Thus far it has been shown that the (un)grammaticality of low wh-phrase interrogatives can be captured along the lines of the previous constraints of QUIB and MQSC. Let us visit now the derivations of high wh-phrase interrogatives and see how the assumed constraints account for the exemption of high wh-phrases from IEs that went unnoticed by prior analyses.

4.2.2. The derivation of high wh-phrases

The key idea here is that the relevant wh-phrase asymmetry originates from the syntactic dichotomy that is supported by ample evidence in section 4.1. In the question (41) below, for instance, the NPI amwuto is overtly moved from its original position at [Spec,vP] to (lower) [Spec,TP] to satisfy the EPP-feature on T. When the covert movement of the wh-phrase encey to [Spec,CP] occurs to check off the wh-feature, nothing blocks the relation between the binder encey and its LF trace because the LF trace of the wh-phrase (at outer [Spec,TP]) is already above the scope of the QUIB. Hence there is no violation of MQSC.

(41)  A scrambled high wh-phrase question (no IEs):

a. Encey amwuto swukcey-lul nay-ci anh-ass-ni?
   when anyone homework-ACC submit-CI NEG-PST-Q
   `When did nobody submit their homework?'

b. [Diagram of the derivation of a scrambled high wh-phrase question]

On the other hand, in the question (42) below, the wh-phrase encey stays in situ at outer [Spec,TP] maintaining its LF trace therein and a covert movement to [Spec,CP] satisfies the wh-feature on C. Once again the trace of the wh-phrase is located higher than the scope of the QUIB when IEs apply, hence no clash with the MQSC. As such, it is predicted that IEs do not arise in high wh-phrase questions irrespective of the wh-phrase scrambling.

(42)  An in situ high wh-phrase question (no IEs):

a. Amwuto encey swukcey-lul nay-ci anh-ass-ni?
   anyone when homework-ACC submit-CI NEG-PST-Q
   `When did nobody submit their homework?'
b. 

\[
\begin{array}{c}
\text{CP} \\
\text{amwuto}_{j} \\
\text{anyone} \\
\text{encey}_{i} \\
\text{when} \\
\text{CP} \\
\text{C'} \\
\text{TP} \\
\text{ni} \\
\text{tj} \\
\text{VP} \\
\text{swukcey-lul} \\
\text{homework-ACC} \\
\text{tj} \\
\text{TP} \\
\text{C^0} \\
\text{TP} \\
\text{T} \\
\text{T/Neg} \\
\end{array}
\]

Crucially, extending previous assumption about why (Lee, 1993; Sohn, 1995; Ko, 2005) to other high wh-phrases, I assume that an element may precede high wh-phrases like why, how, and when in Korean and Japanese via A'-movement (A'-scrambling/topicalization) or base-generation in the overt syntax. Given that why is located in [Spec,CP] and how and when are adjoined to outer [Spec,TP], I assume that the scrambling of the subject amwuto over a high wh-phrase comes to targets the outer [Spec,CP]. This assumption is further supported by the following facts.

At this point it is important to note that subject scrambling in Korean and Japanese has been controversial between those who claim that it does not exist (Saito, 1985; Hoji, 1985) and those who claim that it does exist (Kurata, 1991; Lee, 1993; Sohn, 1995). However, since a subject may precede way ‘why’ as illustrated in (43b), Ko (2005:901) notes that her hypothesis of why being externally merged into [Spec,CP] entails that a subject scrambling is possible in Korean and Japanese.

    b. [John-i, **way** t_{1} ku chayk-ul ilk-ess-nunci] (kwunggumhata).

    ‘(I wonder) why John read that book.’

In a similar fashion, a subject may precede encey/ettehkey ‘when/how’ in (44b). Thus subject scrambling over encey/ettehkey is posited under the current assumption that when and how are directly merged right below C.

    b. [John-i, **encey/ettehkey** t_{1} ku chayk-ul ilk-ess-nunci] (kwunggumhata).

    ‘(I wonder) why John read that book.’

Contra Saito (1985) who argues that a subject cannot undergo scrambling because the quantifier san-nin cannot be licensed by the trace of the subject gakusei-ka in (45), Ko further notes that subject scrambling at least over way ‘why’ in Korean and naze ‘why’ in Japanese is possible based on the following data in (46)/(47) in which a floating quantifier is licensed by a subject.
4.2.3. The derivation with multiple scrambling

A reviewer raises the question of whether the current proposal on the IE asymmetry between high and low wh-phrases can capture the cases with multiple scrambling. To account for the ungrammaticality of the example in (49a), Ko (2005) offers the following analysis: in the sense of Koizumi (1995) and Yatsushiro (1996), when it appears that multiple items are scrambled, an XP node dominating the scrambling items moves. As illustrated in (49b), when both the NPI *amwuto* ‘anyone’ and *nwukwu* ‘who’ precede way ‘why’, what actually moves is a single XP node that contains them (IP in her account). She thus must further assume overt head movement of a verb to a higher head C, following Koizumi (1995, 2000). Ko posits that the IE in (49a) is triggered by the NPI within the moved IP-remnant, because *nwukwu* must further move out of the fronted XP to (here an outer) specifier position of C itself, for the usual reason, and this required second shift is blocked.

(49) a. *? Amwuto nwukwu-lul way chotayha-ci-anh-ass-ni?
   anyone      who-ACC    why invite-CI-NEG-Pst-Q
   ‘Why did no one invite whom?’

b. 

That said, the ungrammaticality of (50a) below can also be captured under the current proposal that *encey* ‘when’ and *ettehkey* ‘how’ are directly adjoined right below C. The only difference between (49b) and (50b) is that whereas the Q-feature of way ‘why’ is instantly checked off when it is merged, that of *encey* ‘when’ is checked off via a short movement to [Spec,CP]. Crucially, however, the wh-movement of way or *encey* is unblocked under the current hypothesis. Just like (49b), the
derivation in (50b) is crashed because the wh-movement of mwues ‘what’ is intervened by the NPI amwuto within the moved IP-remnant.

(50)  a. *Amwuto mwues-ul encey/ettehkey ceychwulha-ci anh-ass-ni?
       anyone what-ACC when/how submit-CI NEG-PST-Q
       ‘When/how didn’t anyone submit what?’

Thus far it has been shown that the IE asymmetry is a natural outcome of the distinctive characteristics between low wh-phrases and high wh-phrases: the insensitivity of high wh-phrases to IEs is accounted for by their syntactic base locations as compared to low wh-phrases.

4.2.4. The derivation with other interveners

As a reviewer notes, another important question that arises here is how the IEs triggered by other interveners such as only or also are constrained. Although a concrete proposal for these cases is beyond the scope of this paper, one possible inference from the current findings is the following: first, IEs triggered by only (or also) display a very similar pattern to IEs triggered by Neg/NPIs, as shown in the following wh-phrase asymmetry between (51) and (52).

(51)  Adam-man way sakwa-lul mek-ess-ni?
       Adam-only why apple-ACC eat-PST-Q
       ‘Why did only Adam eat the apple?’

(52)  *Adam-man mwues-lul mek-ess-ni?
       Adam-only what-ACC eat-PST-Q
       ‘What did only/also Adam eat?’

Then the asymmetry puzzle concerning these interveners will be resolved by the syntactic analysis that I propose by further assuming an analogous syntactic position for the DP that includes man ‘only’ in (51–52) and the current intervener NPI. This assumption is based on Lee’s (2004; see also Sauerland, 1998; Nielsen, 2003) flexible syntactic location of the focus particle man in Korean in which various scope interaction facts show that man is an agreement morpheme that is checked by movement to a VP-external projection headed by a silent counterpart of only. She notes that this indicates the presence of a head ONLY, and the empty head carries the quantificational meaning of English only, as illustrated in (53). Lee further assumes that the subject first moves to [Spec,ONLY–P], and then moves to [Spec,TP].

       Adam-only apple-ACC eat-PST-Decl
       ‘Only Adam ate the apple.’
b.

In this light, the current proposal can extend to the following cases with other interveners, a DP that contains only or also. In (54b), Swuna-man 'Swuna-only' is A'-moved to the higher [Spec,CP] via A'-scrambling or A'-topicalization in the overt syntax, preceded by its movement to [Spec,ONLY-P] and to [Spec, TP]. Thus, just like in the case with amwuto in (42) above, the high wh-phrase encey/ettehkey 'when/how' undergoes a short covert wh-movement to [Spec,CP] without any intervention.

(54) a. Swuna-man/to encey/ettehkey swukcey-lul ceychwulha-ess-ni?
   Swuna-only/also when/how homework-ACC submit-PST-Q
   'When/how did only/also Swuna submit the homework?'

b.
Finally, the current proposal can predict the ungrammaticality of the following data with multiple scrambling in (55) raised by a reviewer. Since I have been assuming an analogous syntactic position for the current intervener Neg/NPIs and the focused DP Swuna-man ‘Swuna-only’, the sentence in (55) is analyzed to have a similar structure to (49b) for why or (50b) for when.

(55) * Swuna-man nwukwu-lul way/encey chotayha-ess-ni?
    Swuna-only who-ACC why/when invite-PST-Q

‘Why/when did only Swuna invite whom?’

5. Concluding remarks

In exploring IE phenomena in Korean, the main goal of this paper is to show that there clearly exists an empirical asymmetry between low and high wh-phrases with respect to IEs. Furthermore some arguments have been presented for Japanese and (alluded to) for Turkish. In order to validate the empirical findings that are quite unexpected under the previous theoretical assumptions (Szabolcsi and Zwarts, 1993), a great part of the discussion is devoted to showing that the novel proposal is strongly supported by the results of two experiments. The grammaticality judgments and prosodic effects have revealed a systematic paradigm of wh-phrases, classifying how and when as high wh-phrases in addition to the previously noted why in these languages.

In trying to show how this wh-phrase asymmetry is captured along the lines of the original syntactic constraints for IEs, I propose that the distinct base positions of wh-phrases indicate the corresponding LF locations for low wh-phrases and high wh-phrases. While still following the crucial assumption about the nature of IEs – the thesis that the potential trigger of IEs is closely related to quantificational force (Beck, 1996; Beck and Kim, 1997; Kuwabara, 1998; Hagstrom, 1998; Pesetsky, 2000; Miyagawa, 2002; Ko, 2005, among many others), I have shown that the insensitivity of high wh-phrases to IEs in certain languages can be accounted for by their structurally higher positions.

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