# Multiple WH-fronting and the Superiority Condition : A Minimalist Approach

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## Abstract

This paper explores Superiority effects in multiple WH-fronting in Korean/Japanese and Slavic within a minimalist framework (cf. Chomsky 1995). I argue that Superiority effects do not appear with focus movement by which WH-phrases move together via Checking-through-Adjunction as if they were a single constituent. However, Superiority effects appear with WH-movement by which the highest-WH moves to Spec of the strong [+WH] C. Hence, I show that WH-movement to Spec of CP is not a necessary requirement in forming multiple WH-questions in Korean, Japanese, Serbo-Croatian, Bulgarian, and Russian.

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## 1. Introduction

In English multiple WH-questions, only one WH-phrase is allowed to move overtly, leaving the rest in-situ:

(1)  a.  *Who* did John give t what where?
     b.  *Who* what did John give t t where?
     c.  *Who* what where did John give t t t?

However, in some languages such as Serbo-Croatian, Bulgarian, and Russian, all WH-phrases must move overtly in forming multiple WH-questions (cf. Rudin 1988, Bošković In press, 1998, Richards 1997, Stepanov In press, among others):[1]

(2)  a.  *Kome*  je   *šta*   *gdje*   Ivan  dao?  (Serbo-Croatian)
         who    is   what   where    given
         'Who did Ivan give t what where?'
     b.  *Kome*  je   Ivan  *gdje*   dao   *šta*?
         who    is   where  given   what
     c.  *Kome*  je   Ivan  *šta*   dao   *gdje*?
         who    is   what   given   where

In other languages such as Korean and Japanese, WH-phrases typically remain in-situ:

(3)  John-i *etieyse nwukwu-eykey  mwues-ul* cwuess  ni?
     -Nom  where   who-to        what-Acc  gave    Q
     'Who did John give t what where?'

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1) In these examples, I will ignore *je*, which is a second position clitic in Serbo-Croatian. See Bošković (1995).

There has been much debate over the optimal way of characterizing the differences among these languages.

In this paper, I show that in order to derive multiple WH-questions, Korean/Japanese may choose a movement strategy: move all WH-phrases long-distance to a scopal position.[2] In this case, WH-fronting is driven by a strong focus feature, which is optional in Korean/Japanese. I extend my analysis to multiple WH-fronting in Slavic, with respect to Superiority effects, which has been extensively discussed by Bošković (e.g., 1997a, 1997b, 1997c, In press, 1998) and others.

# 2. Multiple WH-fronting in Korean/Japanese

## 2.1 Multiple WH-questions

Saito (1989) argues that Scrambling in Korean/Japanese is semantically vacuous S-structure A'-movement, which does not construct an operator-variable relation, and hence can be freely undone in LF:[3]

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2) Here, I refer to *scopal position* as a position outside of the IP/TP/AgrsP domain.

3) The reviewer pointed out that examples (4b), (5b), and (7a, b) are highly degraded according to his/her intuition, so that Korean and Japanese might behave differently regarding the construction at issue. To my knowledge, however, example (4b) is standardly reported as a

(4) a. John-un [Mary-ka *nwukwu-wa* mannass nunci]
   -Top -Nom who-with saw Q
   alkosiphehanta
   wants to know
   'John wants to know who Mary saw'

b. *Nwukwu-wa* John-un [Mary-ka t mannass nunci]
   who-with -Top -Nom saw Q
   alkosiphehanta
   wants to know

In (4a) the WH-phrase remains in-situ, while it is scrambled to sentence-initial position in (4b). Despite their different surface positions, the WH-phrases in (4) both have embedded scope. According to Saito (1989), this is possible if the scrambled phrase moves back to its original position in LF, and then undergoes LF WH-movement to the embedded Spec of CP.

Takahashi (1993) observes, however, that a particular instance of Scrambling does not exhibit such undoing effects:[4]

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good instance of Scrambling in the Korean literature. Regarding example (5b), as I acknowledge in footnote 3, judgments are questionable even in the Japanese literature. Interestingly, Moon (1996) reports that the Korean counterpart of example (5b) is good. This type of example (7a, b) has not been much discussed in the literature. My informants, who accept (5b), report that (7a, b) are acceptable. In this light, I assume that Korean and Japanese pattern together with respect to multiple WH-fronting.

4) There is a discrepancy among judgments regarding WH-in-situ inside WH-islands. Contra Nishigauchi (1990) and Watanabe (1992), but agreeing with Takahashi (1993), I claim that WH-in-situ in Korean/Japanese does not demonstrate WH-island effects.

(5) a. John-un [Mary-ka      *nwukwu-wa*       mannass nunci]
        -Top      -Nom       who-with          saw      Q
        alkosipheha    ni?
        wants to know Q
        'Does John want to know who Mary saw?' or
        'Who does John want to know whether Mary saw?'
    b. *Nwukwu-wa* John-un [Mary-ka    t       mannass nunci]
        who-with         -Top    -Nom            saw      Q
        alkosipheha        ni?
        wants to know    Q
        '*Does John want to know who Mary saw?' or
        'Who does John want to know whether Mary saw?'

As shown in (5b), when a WH-phrase undergoes A'-movement to a clause-initial position headed by a [+WH] C, it cannot reconstruct in LF. That is, (5a) is ambiguous: it has either an embedded WH-question reading or a matrix WH-question reading. However, only a matrix WH-question reading is allowed in (5b). On the face of it, a plausible hypothesis is that the displaced phrase and its trace in (5b) construct an operator-variable relation, which should be maintained throughout the derivation. In this vein, Takahashi (1993) regards (5b) as an instance of syntactic WH-movement in Korean/Japanese, so that the scope of the displaced WH-phrase in (5b) is fixed in overt syntax. For the time being, agreeing with Takahashi (1993), I assume that in order to create WH-questions, WH-phrases in Korean/Japanese may undergo long-distance movement to a clause headed by a [+WH] C.

    With this point in mind, consider a structure in which two

WH-phrases begin in a single clause, and neither of them moves to a scopal position. This structure, as well as its potential interpretations, is given below:

(6) John-un [Mary-ka *nwukwu-eykey*   *mwues-ul* cwuess nunci]
    -Top     -Nom  who-to        what-Acc gave   Q
    alkosipheha       ni?
    want-to-know    Q

  a. Both WH-phrases take embedded scope, and the matrix clause is a yes/no question.
    'Does John want to know whether Mary gave who what?'
  b. Both WH-phrases take matrix scope, and the embedded clause is a yes/no question.
    'For which x y, x a person and y a thing, does John want to know if Mary gave x y?'
  c. *Nwukwu-eykey* takes matrix scope, and *mwues-ul* takes embedded scope.
    'Who does John want to know what Mary gave t t?'
  d. *Mwues-ul* takes matrix scope, and *nwukwu-eykey* takes embedded scope.
    'What does John want to know who Mary gave t t?'

However, example (6) has only two readings, not the four which could be logically possible: it has an embedded WH-question reading (6a), and a matrix WH-question reading (6b). Single-WH-extraction readings, as in (6c) and (6d), are not acceptable (cf. Nishigauchi 1990, Saito 1994, Kim 1997).[5]

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5) A natural question is why the readings in (6c, d) are not available. Although it is a somewhat speculative observation, I suggest that an unselective binding approach to WH-in-situ provides an account for this mysterious question. Following Tsai (1994) and others, suppose that WH-in-situ is able to be interpreted via unselective binding by Q

Consider now the examples where both WH-phrases move long-distance to a clause headed by a [+WH] C:

(7) a. *Nwukwu-eykey   mwues-ul*  John-un [Mary-ka t t cwuess
       who-to          what-Acc    -Top      -Nom   gave
       nunci]    alkosipheha    ni?
       Q         want-to-know   Q
    b. *Mwues-ul    nwukwu-eykey* John-un [Mary-ka t t cwuess
       what-Acc    who-to          -Top      -Nom   gave
       nunci]    alkosipheha    ni?
       Q         want-to-know   Q

The sentences in (7) have only a matrix WH-question reading (6b). They do not have an embedded WH-question reading (6a), nor single WH-question readings (6c, d) (cf. Kim 1997).

The above data suggest that Korean/Japanese indeed employ at least two strategies in forming multiple WH-questions: move both (generally, all) WH-phrases long-distance to a scopal position or have both of them in-situ.[6] Below, I will focus on multiple WH-questions induced by the movement strategy.

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morphemes. The readings in (6c, d) are not allowed under this account since each WH-in-situ is selectively bound by the Q-morphemes in either the embedded or the matrix clause (See Kim 1997).

6) Certainly, short-distance fronting (= clause-internal Scrambling) of WH-phrases could be another way of forming multiple WH-questions. In this paper, I ignore this possibility.

## 2.2 Constituency

Now I explore how WH-phrases in Korean/Japanese undergo long-distance movement to a scopal position in a higher clause. For this purpose, I will discuss Superiority phenomena.

Consider first the following contrast in English multiple WH-questions:

(8)　a.　Who t saw what?
　　　b. *What did who see t?

In the framework of Chomsky (1995), Superiority is plausibly viewed as an effect of a certain definition of Shortest Move (cf. Kitahara 1993, Oka 1993, Cheng 1997, Bošković 1997a, In press, Richards 1997). In (8) we expect the higher-WH *who* to move, rather than the lower-WH *what*, since *who* moves a shorter distance. Hence, the strong [+WH] feature of C is checked in the most economical way.

Takahashi (1993) observes that Japanese long-distance movement of WH-phrases exhibits a Superiority effect in certain contexts: long-distance movement of a WH-phrase over another WH-phrase is impossible. This is exactly what happens in Korean as well:

(9)　　a. John-i *nwukwu-eykey* [Mary-ka *mwues-ul* mekesstako]
　　　　-Nom who-to　　　　　-Nom　what-Acc　ate-C
　　　　malhayss　ni?
　　　　said　　　Q
　　　　'Who did John tell that Mary ate what?'

b.\*_Mwues-ul_ John-i _nwukwu-eykey_ [Mary-ka  t  mekesstako]
  what-Acc  -Nom who-to            -Nom      ate-C
  malhayss  ni?
  said      Q
  Lit. 'What did John tell who that Mary ate?'
c. Pizza-lul John-i  _nwukwu-eykey_ [Mary-ka  t  mekesstako]
  Pizza-Acc  -Nom who-to            -Nom      ate-C
  malhayss  ni?
  said      Q
  Lit. 'Pizza, did John tell who that Mary ate?'

Example (9a) is a grammatical multiple WH-question where the matrix and the embedded objects are WH-phrases in-situ.[7] However, once the lower WH-phrase is moved across the higher in-situ WH-phrase to sentence-initial position, the result is ungrammatical, as (9b) shows. Note that since this movement is long-distance movement of a WH-phrase to a clause headed by Q (= a [+WH] C), it counts as syntactic WH-movement. Takahashi compares (9b) with (9c). In the latter, a non-WH-phrase is moved across the WH-in-situ, but this movement does not cause any degradation. Drawing on the comparison of (9b) and (9c), Takahashi concludes that Korean/Japanese exhibit a Superiority effect.

However, Takahashi's discussion is not comprehensive. Suppose that both WH-phrases in (9a) are fronted to sentence-initial position, as in (10).

7) For some speakers, multiple WH-questions must observe a clausemate condition (cf. Kuno and Robinson 1972). Hence, (9a) is degraded as a multiple WH-question for these speakers.

(10) a. ?(?)*Mwues-ul    nwukwu-eykey* John-i t [Mary-ka t
         what-Acc    who-to        -Nom        -Nom
         mekesstako]  malhayss ni?
         ate-C       said      Q
     b. ?(?)*Nwukwu-eykey mwues-ul* John-i t [Mary-ka t
         who-to        what-Acc    -Nom        -Nom
         mekesstako]  malhayss ni?
         ate-C       said      Q

In (10), where the both WH-phrases are generated in different clauses and then extracted to the initial position of a sentence headed by a [+WH] C, Superiority effects also do not appear. If (9b) suggests Superiority, the absence of Superiority in (10) is rather surprising.[8]

In order to answer this question, I propose that the WH-phrases in (7, 10) move together as one constituent via adjunction. Contra Chomsky's (1995) suggestion that strong features reside only in the target, let us suppose that a strong feature may be located in both the target and the moved item s.[9] More precisely, in tandem with the idea developed in Kim (1997), I propose that a lower-WH can adjoin to a higher-WH, either to the right or to the left (Fukui 1993), in order to check off its strong feature F against the strong feature F of the higher-WH. After constituting a complex of two WH-phrases, the complex itself still needs to move to Spec of a functional

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8) Some speakers find (10) more degraded, ranging from ?? to ?*. But even these speakers find a contrast between (9b) and (10).

9) See Bošković (In press) and Lasnik's (1995, 1997a) for the arguments that a strong feature may be located in the moved items.

head with a matching strong feature in order to check off the strong feature F of that functional head. I assume that this strong feature F is interpretable (Chomsky 1995), and thus does not disappear after checking.[10] Under this account, no Superiority effects are expected to surface in the examples under discussion, since the fronted WH-phrases behave as one constituent. According to Chomsky (1995), Superiority is a relational notion. Hence, it does not pertain to a single constituent.[11]

## 2.3 What Fronts WH-phrases?

Thus far, I have investigated multiple WH-question constructions with fronted WH-phrases in Korean/Japanese. In some cases, however, a constituent may intervene between the fronted WH-phrases:

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10) In the next section, I will discuss the identity of the strong feature F.
11) There is evidence that this adjunction process is clause-bound (cf. Kim 1997). This is why there is a (slight) contrast between (7) where the WH-phrases are generated as clausemates, and (10) where they are not. Note that for some speakers, the contrast between (7) and (10) are rather clear. (See also footnote 8.) That is, the examples in (10) violate the Superiority condition since they became one category on their way to the sentence-initial position. Their marginality stems from the violation of the clausemate condition regarding the adjunction process.

(11) a. *Etise Bill-eykey mwues-ul* John-un [Mary-ka t t t
　　　　where　　　　-to　what-Acc　　-Top　　-Nom
　　　　cwuess nunci]　alkosipheha　　　ni?
　　　　gave　　Q　　　want-to-know　Q
　　b. *Mwues-ul Bill-eykey etise* John-un [Mary-ka t t t
　　　　what-Acc　-to　　　　where　-Top　　-Nom
　　　　cwuess nunci]　alkosipheha　　　ni?
　　　　gave　　Q　　　want-to-know　Q

In (11) the scope of the fronted WH-phrases is fixed in the matrix clause too. Then, a question can be raised as to how a non-WH-phrase can appear between WH-phrases, which were previously claimed to undergo syntactic WH-movement to Spec of a [+WH] C. Apparently, there seems to be no pure agreement of [+WH] among the fronted phrases.

At this point, I wish to make clear what the issue is. The previous proposal was based on the assumption that overtly moved WH-phrases to a scopal position obligatorily induce Spec-Head agreement with a functional head. Therefore, in order to maintain the previous proposal, we must find an agreement feature among the displaced phrases in (11).[12]

I propose that the agreement feature among the displaced phrases in (11), repeated as (12), is [+focus], and that the displaced phrases are located in Spec of a [+focus] head, which I call Foc(us).

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12) A similar question arises in Sluicing in Korean/Japanese. See Kim (1997).

(12) a. [$_{FocP}$ Etise Bill-eykey mwues-ul [John-un [Mary-ka t t t
       cwuess nunci] alkosipheha]    ni$_{Foc}$]?
    b. [$_{FocP}$ Mwues-ul Bill-eykey etise [John-un [Mary-ka t t t
       cwuess nunci] alkosipheha]    ni$_{Foc}$]?

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                          FocP1
                         /\
        ⎧ etise Bill-eykey mwu-es-ul ⎫    Foc'
        ⎨ mwues-ul Bill-eykey etise  ⎬   /\
        ⎩                           ⎭  /    \
                          TP1            FocP1
                           ⋮              |
                           ⋮          overt Q1 with [+focus]
                         FocP2
                            \
                             Foc'
                            /\
                         TP2    Foc2
                         /\      |
                        /  \  overt Q2
                       t  t  t
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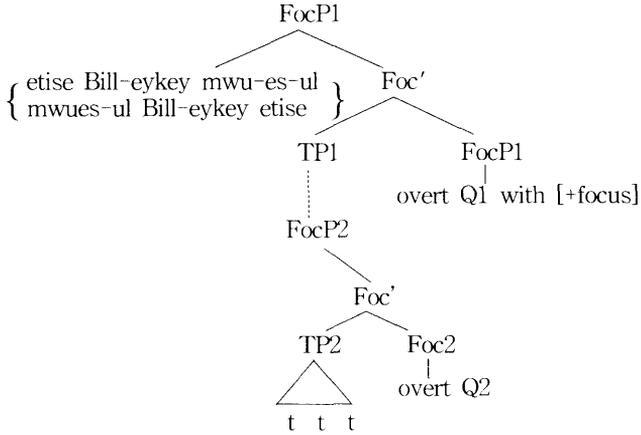
To summarize, concerning the lack of Superiority effects
among fronted WH-phrases in Korean/Japanese, I argue that
this results from the fact that they move together, via
adjunction, as if they were one constituent.[13]

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13) A reviewer posed the question of why CP is required if FocP is
    independently motivated and its specifier position is an operation
    position. This is exactly one of the questions I raised and tried to
    answer in this paper. In a nut shell, what I propose is that in
    languages without overt WH-movement such as Korean and
    Japanese, the requirement of the [+focus] feature checking may
    induce apparent WH-fronting effects. (Overt Scrambling may be
    another option for WH-fronting. I will not  discuss this possibility in
    this paper.) Hence, the CP projection is not mandatory for overt
    WH-fronting.

## 3. Multiple WH-fronting in Slavic

In this section, I explore an alternative to Bošković's (In press) economy-driven account of Superiority effects in Slavic.[14]

Slavic languages are characterized by multiple WH-fronting in overt syntax. Rudin (1988) claimed that there are two types of multiple WH-fronting languages. In one type, represented by Bulgarian, all WH-questions show Superiority effects:

(13) a. Koj     kogo     e   vidjal
       who    whom   is  seen
      'Who saw whom?'
    b. *Kogo koj     e   vidjal
       'whom who   is  seen

(14) a. Koj     kak     udari  Ivan
       who    how    hit
      'Who hit Ivan how?'
    b. *Kak   koj     udari  Ivan
       how    who    hit

In the other type of multiple WH-fronting languages, represented by Serbo-Croatian, no WH-questions demonstrate Superiority effects:

(15) a. Ko    je     koga    vidio?
       who   is     whom   seen
      'Who saw whom?'

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14) For a different analysis, see Koizumi (1995) and Richards (1997), who provide accounts under the multiple Spec hypothesis.

    b. oga      je        ko         vidio?
       whom     is        who        seen
(16) a. ome     se        kako       predstavlja?
       whom     Refl      how        presents
       'How does he present himself to whom?'
    b. ako      se        kome       pedstavlja?
       how      Refl      whom       presents

However, Bošković (In press, 1998) observed that although Serbo-Croatian does not show Superiority effects in short-distance matrix null C questions, it does in embedded, long-distance, and overt C questions:

(17) a.  [Ko   oga        oli],     aj    o    njemu i govori
         who whom loves that-one about him        and talks
         'Everyone talks about the person they love'
    b.  *[Kogako          voli],    taj   o    njemu/o i govori
        whom who loves that-one about him        and talks
(18) a.  [Kome se kako predstaviš] taj      će
         whomRefl how present that-one    will
         te      tako     i          tretirati
         you    that-way and treat
         'The way you present yourself, this is how people will treat you'
    b.  *[Kako se kome predstaviš] taj      će
        how   Refl whom present that-one will
        te      tako     i          tretirati
        you    that-way and treat
(19) a.  Ko    si         koga tvrdio       da       je istukao?
         who   are        whom claimed      that     is beaten
         'Who did you claim beat whom?'
    b. *Koga si         ko   tvrdio        da       je istukao?
       whom  are        who claimed        that     is beaten

(20) a. Ko     li         šta       kupuje?
       who   C        what     buys
       'Who on earth buys what?'
   b. *Šta   li       ko        kupuje?
       what  C       who     buys

In addition, according to Stepanov (In press), in Russian, no questions of any type show Superiority effects. (21) and (22) show that WH-phrases in Russian, just like in Serbo-Croatian, are freely ordered in short-distance matrix WH-questions.

(21) a. Kto     kogo     videl?
       who    whom   saw
       'Who saw whom?'
   b. Kogo  kto      videl?
       whom  who     saw
(22) a. Kto     kak      spit?
       who    how     sleeps
       'Who sleeps how?'
   b. Kak    kto      spit?
       how    who    sleeps

However, unlike in Serbo-Croatian, in Russian, WH-phrases are able to appear without a particular ordering restriction even in embedded WH-questions and long-distance questions:

(23) a. Ivan i Petr     ne       pomnjat kto kogo   pobil
       Ivan and Peter   not remember who whom beat
       'Ivan and Peter do not remember who beat whom'
   b. Ivan i Petr     ne       pomnjat kogo kto   pobil
       Ivan and Peter   not remember whom who beat

(24) a.  Kto  kak  postaraetsj,        u togo      tak
         who  how  will-try          that-one-Gen        that-way
         i       polučitsja
         and  will-come out
         'The way someone/whoever tries, that way it will come out'
      b.  Kak  kto  postaraetsj,        u togo      tak
         how  who  will-try          that-one-Gen        that-way
         i       polučitsja
         and  will-come out
(25) a.  A       etomu       čeloveku  kto  kogo   predstavil?
         that       man        who  whom         introduced
         'And to that man, who introduced whom?'
      b.  A       etomu       čeloveku  kogo       ktopredstavil?
         that       man        whom  who         introduced

Thus, it seems that there are three types of multiple WH-fronting languages, represented by Bulgarian, Serbo-Croatian, and Russian, as opposed to the two types proposed by Rudin (1988).

One common property among these three languages is that all WH-phrases must be fronted in multiple WH-questions, and even in echo questions:

(26) a.  Ko       šta        gdje       kupuje?    (Serbo-Croatian)
         who      what       where      buys
         'Who buys what where?'
      b.  *Ko       kupuje     šta        gdje?
         who      buys       what       where
      c.  *Ko       šta        kupuje     gdje?
         who      what       buys       where
      d.  *Ko       gdje       kupuje     šta?
         who      where      buys       what

(27) a. *Koj     e           vidjal      kogo      (Bulgarian)
         who     is          seen        whom
         'Who saw whom?'
     b. *Koj     udari       Ivan        kak
         who     hits        Ivan        how
         'Who hit Ivan how?'
(28) a. (Tak)  Ivan         to           kupil?     (Russian)
         so      what        bought
         'So, Ivan bought what?'
     b. ?*(Tak)Ivan          kupil        to?
         so      bought      what

Bošković argues that since the strong [+WH] feature is invariably located in the target, which should be checked through the shortest movement possible, this feature checking fronts the highest-WH only. Then, there must be another strong feature which is responsible for fronting of the remaining WH-phrases. Bošković (In press, 1998) and Stepanov (In press) assume that this strong feature is [+focus], meaning that WH-phrases in Slavic are inherently focused (cf. Stjepanović 1995). It was argued that the strong [+focus] feature resides in the WH-phrases, rather than in the target, because all the remaining WH-phrases must be fronted.

Given this background, let us now explore how my account of multiple WH-questions in Korean/Japanese is able to account for the difference between WH-movement and focus movement in Slavic.

The standard minimalist assumption is that the checking operation takes place in two different configurations: a Spec-Head configuration and a Head-Head configuration.[15)]

Previously, I proposed a different checking configuration, which I call a Checking-through-Adjunction configuration. I assumed that the strong focus feature may reside both in the target and the WH-phrases. Given this feature specification, a lower-WH can adjoin to a higher-WH, either to the right or to the left, in order to check its strong focus feature against the strong focus feature of the higher WH. After forming a single constituent of two WH-phrases, this constituent must move to a checking domain of the strong focus feature in the Foc head. Under this scenario, no Superiority effects are expected to appear with focus movement since the fronted WH-phrases behave as one constituent. That is, I exploited the idea that Superiority, which is a relational notion, does not apply to a single constituent.

For ease of exposition, suppose that the target of focus movement is Spec of FocP. The following are the feature specifications relevant for focus movement:

(29) focus movement
        Foc           WH-α      WH-β      WH-γ
     strong +focus strong +focus strong +focus strong +focus

In (29) the lowest-WH, $WH-\gamma$, can adjoin to the right or left of the second higher-WH, $WH-\beta$, in order to check its strong focus feature against the strong focus feature of the latter. In the second stage, the complex of $WH-\beta-WH-\gamma$ can adjoin to

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15)   According  to  Chomsky  (1995),  the  checking  configuration  is Spec-Head in overt syntax, and is FF-Head in covert syntax.

the right or left of the highest-WH, $WH\text{-}\alpha$, in order to check the strong focus feature of $WH\text{-}\alpha$. Finally, the complex of $WH\text{-}\alpha\text{-}WH\text{-}\beta\text{-}WH\text{-}\gamma$ moves to Spec of FocP in order to check the strong focus feature of the target Foc. Since adjunction to Spec is allowed in either direction (Fukui 1993), left or right, different orders of WH-phrases are possible. Thus, it follows that focus movement results in free word order.

Concerning WH-movement, I assume, following Bošković (In press) and others, that the invariable location of the strong WH-feature is C. Since this strong feature must be checked in the most economical way, the highest-WH will move to Spec of CP. The feature specifications relevant to WH-movement are given in (30) below.

(30) WH-movement

|  | C | WH-α | WH-β | WH-γ |
|---|---|---|---|---|
| strong | +WH | +WH | +WH | +WH |

Finally, let us turn to cases where both WH-movement and focus movement are taking place. Bulgarian multiple WH-questions are good candidates. Recall that in Bulgarian, after the movement of the highest-WH to Spec of CP, the movement order of the remaining WH-phrases is free. In order to explain this fact, I propose the following feature specifications for Bulgarian WH-fronting:

(31)

|  | C | Foc | WH-α | WH-β | WH-γ |
|---|---|---|---|---|---|
| strong | +WH |  | +WH | +WH | +WH |
|  |  | strong +focus | strong +focus | strong +focus | strong +focus |

As in (29) and (30), I assume that the strong [+WH] feature resides only in the target C, while the strong [+focus] feature resides both in the target Foc and in the WH-phrases. Before WH-fronting, the structure of (31) will be as follows:

(32) before WH-fronting

$$VP$$

WH-α WH-β WH-γ
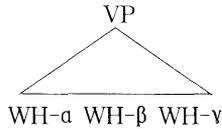
Under the strict derivational view of phrase structure, the three WH-phrases in (32) will first undergo focus movement to Spec of FocP as a single constituent via *Checking-through-Adjunction*. Since either right or left adjunction to Spec is possible, the complex of *WH-α-WH-β-WH-γ* may have several different manifestations of WH-phrase order in the specifier position of FocP, as shown below:

(33) after focus movement

FocP

Spec          Foc′

WH-α-WH-β-WH-γ      Foc    TP
WH-β-WH-α-WH-γ       |      |
WH-γ-WH-β-WH-α    [+focus] VP

t  t  t
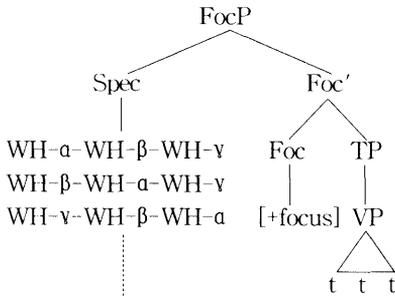
Suppose now that when a lower-phrase $\beta$ adjoins to a higher-phrase $a$ in forming a complex of $a$-$\beta$, $a$ is still structurally higher than $\beta$. Then, *WH-a* will still be the highest WH-phrase in the operator position of Foc, even though it is part of the complex of *WH-a-WH-β-WH-γ*. Suppose next that WH-movement takes place from the complex of *WH-a -WH-β-WH-γ* in Spec of FocP. Since the strong [+WH] feature is located only in the target C, the most economical way of feature checking is the movement of the highest-WH, *WH-a*, to Spec of CP:[16]

(34) after WH-movement

```
                    CP
              ┌──────┴──────┐
            Spec            C′
             │        ┌──────┴──────┐
           WH-a   C               FocP
                  │         ┌───────┴───────┐
               [+WH]      Spec            Foc′
                           │          ┌─────┴─────┐
              WH-a-WH-β-WH-γ        Foc         TP
              WH-β-WH-a-WH-γ         │           │
              WH-γ-WH-β-WH-a      [+focus]      VP
                      ┊                         /\
                      ┊                        t  t  t
```
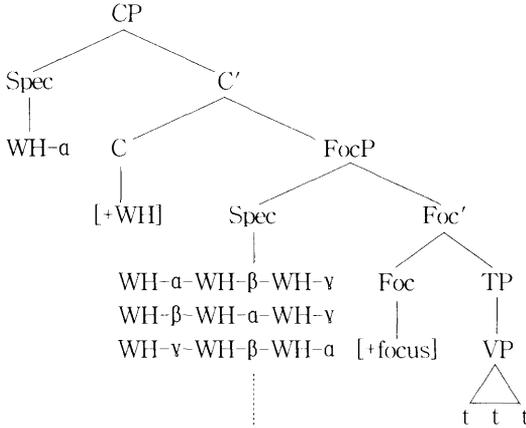
Notice that the highest WH-phrase before focus movement is

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16) Rudin (1988) claims that all fronted WH-phrases in Bulgarian form a constituent, which is not the case under my analysis. Hence, a new account of Rudin's facts is in order. I will leave this matter unsettled for further research.

still highest after focus movement. In accordance with Watanabe's (1993) economy account of excorporation, I claim that in (34) only part of the WH-complex moves to Spec of CP in order to check the strong [+WH] feature in C.[17]

One might wonder why the complex of *WH-α-WH-β-WH-γ* cannot move to Spec of CP as a single constituent. The explanation follows from the Economy principle which requires that movement carry as little material as possible. Notice also that the WH-complex in Spec of FocP is an operator in an operator position. As discussed by Huang (1982), Chomsky

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17) Watanabe (1993) argues that, given the configuration in (i), where all features of Z are checked and Y has a feature to check by adjunction to X, Y must excorporate and adjoin alone to X. Since Z has no features to be checked, the principles of economy of derivation prevent Z from undergoing head movement together with Y. The derivation in (ic) where Y pied-pipes Z is blocked by the more economical derivation in (id) where Y moves alone:

(i) a. $X$ $Y$ $Z$
    b. $X$ $[Y+Z_1]$ $t_1$
    c. $^*X+[Y+Z_1]_2$ $t_1$ $t_1$
    d. $X+Y_2$ $[t_2+Z_1]$ $t_1$

Following Watanabe's (1993) theory of excorporation, Bošković (1997d) argues that in Serbo-Croatian participle movement constructions, after the participle adjoins to the auxiliary, the auxiliary excorporates and moves to a higher $X^0$ position. Also, see Guasti (1991) for Italian causative constructions and Roberts (1991) for instances of V-excorporation out of Dutch verbal clusters, which support Watanabe's account of excorporation. In addition, note that this account of excorporation is compatible with Move-F theory (Chomsky 1995).

(1986b), and Bošković (1997c), among others, the operator in operator-variable chains is inaccessible to further movement. The following structure shows that the operator in operator-variable chains cannot undergo further movement:

(35) [+WH] C you wonder [+WH] C John bought what (when)

According to Chomsky (1995), interpretable features like [+WH] may form multiple feature checking relations. Given this, consider the following derivation for (35):

(36) *What$_1$ do you wonder [$_{CP}$ t$_1$ C [$_{IP}$ John bought t$_1$ (when)]]

In the first stage, *what* moves to the lower Spec of CP in order to check the strong [+WH] feature of the embedded C. In the next stage, it moves to the matrix Spec of CP, checking the strong [+WH] feature of the matrix C. Under this derivation, it is not clear at all why (36) is ruled out.[18)]

Following Bošković (1997c), I assume that the ungrammaticality of (36) results from the generalization that the operator in operator-variable chains cannot undergo further movement.[19)] This generalization, however, only bans movement of the operator itself. It does not ban movement out of an operator,

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18) Chomsky (1995) notes that (36) converges, but is gibberish, presumably because the embedded clause is interpreted as a yes-no question.
19) I will not discuss here the issue of whether this generalization could follow from a deeper principle.

either overtly or covertly.

Overt movement out of an operator in operator-variable chains is clearly allowed, as shown below (Torrego 1985, Chomsky 1986b, Lasnik and Saito 1992):

(37) ?Who$_2$ do you wonder [which picture of t$_2$]$_1$ John bought t$_1$

The same holds for covert movement out of an operator. According to Chomsky (1995), in LF only formal features move. As a result, if an operator needs to undergo feature checking in LF, instead of the entire operator moving, we expect only formal features to move out of the operator. Evidence of this is the following:

(38) John believes that himself$_1$ Mary likes t$_1$

In the embedded clause, the anaphor is topicalized. Under the LF anaphor movement hypothesis (Chomsky 1986a, 1993), *himself* has to undergo LF movement into the higher clause. Since the movement takes place in LF, it must involve feature movement out of *himself*, which heads the operator-variable chain formed in overt syntax. Hence, I conclude that even though the operator in an operator-variable chain cannot move further, part of the operator can.

To summarize, Superiority effects do not appear with focus movement where WH-phrases move together, via *Checking-through-Adjunction*, as a single constituent. However, Superiority effects do appear with WH-movement where the highest

WH-phrase moves to Spec of a functional head which has a strong [+WH] feature.[20]

# 4. Conclusion

In this paper, I examined the interaction between Superiority effects and multiple WH-fronting in Korean/Japanese and Slavic.

In the first part, I argued that multiple fronting of WH-phrases in Korean/Japanese is not driven by [+WH] which is weak, but by [+focus] which is a strong optional feature in these languages. Specifically, I argued that the

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20) A brief mention to (no) Superiority in Serbo-Croatian may be in order. In Serbo-Croatian null C short-distance matrix questions, no Superiority effects surface hence there is no a priori reason that WH-movement to Spec of C takes place. However, in Serbo-Croatian long-distance or overt C short-distance questions, Superiority effects appear, which suggests that WH-movement to Spec of C takes place. I have argued that Superiority effects appear when the strong feature resides only in the target. Suppose that the strong focus feature is located both in the target and the moved items and that the feature is insensitive to Superiority. Then, other strong features should be postulated in order to explain Superiority in some instances of WH-fronting. I have proposed that the feature is [+WH] whose strength is located only in the target, C. In sum, Serbo-Croatian is a (multiple) WH-fronting language where WH-questions are formed by either movement to Spec of Foc (if focus movement is substitution to Spec of FocP) or movement to Spec of C.

fronted WH-phrases move together as a single constituent to Spec of FocP, via the operation *Checking-through-Adjunction*, and hence do not show Superiority effects.

In the second part, I proposed that the adjunction plus excorporation account of multiple WH-questions in Slavic, as an alternative to Bošković's (In press) and Stepanov's (In press) economy accounts, can be made sensitive to the difference between focus movement and WH-movement. I assumed that the strong focus feature resides both in the target Foc and the moved WH-phrases, while the strong WH-feature resides only in the target C. Based on this assumption, I argued that when WH-phrases undergo only focus movement to Spec of FocP, Superiority effects disappear since all WH-phrases move together as a single constituent via *Checking-through-Adjunction*. After focus movement, if WH-movement is performed, Superiority effects appear, since this time, by economy, only the highest WH-phrase is allowed to move to Spec of CP. Following Bošković (1997c), I showed that the operator itself in an operator-variable chain cannot move further, although part of the operator can.

There is theoretical importance in the proposal that the strong feature, [+focus], driving the non-WH-movement fronting of Korean, Japanese, Serbo-Croatian, Bulgarian, and Russian WH-phrases, belongs to both the target and WH-phrases. Chomsky (1995) suggests that the strength of formal features is located only in the target but not in the moved items. However, there is evidence that a strong feature

may be present in the moved items (cf. Bošković 1997d, In press, 1998, and Lasnik 1995, 1997a), or it may be present both in the moved items and in the target (cf. Kim 1997). This conclusion requires a modification of Chomsky's (1995) derivational view of strong features, under which strong features cannot be tolerated by a derivation. If the derivational view of strong features is to be preserved, it should be modified by requiring that strong features be checked as soon as possible, as suggested in Bošković (1997c). Alternatively, we can adopt a completely different view of strong features, e.g., Chomsky's (1993) PF crash theory of strong features (cf. Lasnik 1997b).

In addition, I have argued throughout the paper that the direction of XP adjunction to Spec is free (Fukui 1993): it can proceed either to the left or to the right. To the extent that this is successful, the analysis presented above will provide evidence against Kayne's (1994) claim that rightward adjunction is not allowed. This analysis is also inconsistent with Chomsky (1994), where rightward adjunction is allowed in the case of head movement, but not in the case of XP movement.

In conclusion, WH-movement to Spec of CP is not a necessary requirement in forming (multiple) WH-questions in Korean, Japanese, Serbo-Croatian, Bulgarian, and Russian.

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