Argument prominence and the nature of superiority violations

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This paper studies the mapping of argument structure into higher parts of the clause and examines the relation of argument structure to *multiple wh-structures* and Superiority phenomena. Superiority effects are commonly assumed to arise when *wh*-movement triggered by the feature-checking requirements of a [+Q] C^0 violates economy restrictions on movement (Shortest Move). The paper, however, points out certain serious difficulties for a purely structural approach to Superiority patterns, and suggests an alternative analysis of the data. First, it is shown that the non-occurrence of Superiority effects in cases of multiple *wh*-fronting in Bangla seems to contradict the fact that pair-list answers to multiple *wh*-questions are expected/required to the same degree as they are in languages with clear *wh*-movement such as English. The obvious question that is raised is how one should reconcile the lack of Superiority effects in a language with the assumption that genuine *wh*-movement nevertheless occurs in the language? The paper shows, re-examining the generalizations about English, that Superiority effects are not the result of a purely structural filter such as Shortest Move but are rather controlled by a variety of factors: animacy distinctions among *wh*-phrases, thematic relations of the *wh*-phrases, stressing and prosodic weight of the *wh*-phrases and referential familiarity of the expected answer to a *wh*-question. Finally, the "Superiority" effects observable in multiple *wh*-sluices in Bangla are attributed to the tendency to copy the argument prominence relation in the non-sluiced clause.

1. Introduction

Argument structure understood as the structured relation of a predicate's arguments to each other, is a set of relations which may sometimes be assumed to be encoded and present *as many as three times* within the structure of a single sentence, in certain special circumstances. Specifically, in the verbal domain, the arguments of a verb may first be structured relative to each other in a particular way in their base positions within the *v*P/VP of a sentence, due to the way that argument structure is initially projected. Secondly, the same arguments may be structured relative to each other in an essentially parallel hierarchical way in higher case/agreement-checking

positions (Spec,TP, Spec,AgrO/vP) as the result of attraction to such positions for feature-checking reasons. Thirdly, in languages with *multiple wh-movement,* the effects of argument structure are further argued to be (often) visible in the ordering of raised *wh*-elements, with the arrangement of fronted *wh*-subjects, -objects and -indirect objects directly mirroring the hierarchical structuring of these elements in lower positions in the clause (hence subject DPs are assumed to precede and c-command objects both within the vP/VP and in their higher case/agreement checking positions, and then again also within raised sequences of *wh*-elements). Such an apparent 'copying' of the original argument structure of verbs into higher case/agreement and *wh*-related positions is suggested to be regulated and produced in large part by economy conditions affecting the way that movement is carried out. It is argued that movement to higher positions must always be effected in the shortest possible way, and that a consideration of how the potential launching sites for movement are structurally related to each other will dictate how competing elements can move to higher positions (Chomsky 1995, Pesetsky 2000, Richards 2001). Given such assumptions about the arrangement of arguments in case/agreement and *wh* positions, it becomes clear that verbal argument structure can in theory be observed and studied not only within vP/VPs but also with reference to post-movement structures which are expected to preserve the original relation of arguments to each other. This paper therefore sets out to examine what the study of various *derived structures* may reveal about underlying argument structure and the mapping of argument structure into higher parts of the clause, and reconsiders, in particular, the assumed relation of argument structure to *multiple wh-structures* and Superiority phenomena.

The specific problem we intend to focus on here is the claim/observation that certain *variation* occurs in the Superiority-type patterns of multiple *wh*-fronting languages, and how this might best be accounted for. For example, Bošković (2002) argues that while Romanian and Bulgarian are languages which exhibit standard Superiority phenomena in all their clause-initial multiple-*wh* sequences, parallel restrictions appear to be absent from similar question forms in Russian, and are only sometimes found in Serbo-Croat. Under the assumption that a multiple-*wh* sequence consisting in a *wh*-subject and a *wh*-object should be ordered subject$_{WH}$ > object$_{WH}$ due to the principle of Shortest Move applying to the movement process (see Richards 2001 for details), the apparent well-formed occurrence of both subject$_{WH}$ > object$_{WH}$ and also object$_{WH}$ > subject$_{WH}$ sequences in languages such as Russian and Serbo-Croat is genuinely puzzling and clearly requires explanation. If it is furthermore assumed that Shortest Move is a universal principle not subject to cross-linguistic variation, there would seem to be three basic ways to attempt to approach the problematic patterns reported in languages such as Russian.

The first of these might be to suggest that the potential variation in fronted *wh*-phrase ordering is actually really a function of variation in the underlying argument structure of a language. Following Kiss's (2002) claim for Hungarian, it might be suggested that certain languages actually have no fixed underlying argument structure and that consequently either the subject or the object of a clause may be generated in a higher vP/VP internal position and allow for extraction to initial position within a multiple-*wh* string.[1] Though such an approach would allow for an account of the patterns reported in Russian, it is clearly no small step to hypothesize that languages vary as to whether they have fixed argument structure or not, and one consequently might hesitate to accept the possibility of such a dramatic parameter of variation. More concretely, such an account of Russian-type languages might be rejected for the simple reason that it will not generalize successfully to other languages such as Serbo-Croat, where Superiority effects are noted to occur in certain clauses but not others. Bošković (2002) reports that where an interrogative C position is not projected in a clause (as indicated by the absence of the interrogative morpheme *li*), Superiority effects are not found, but where an interrogative C position is projected (and filled with *li*), a strict subject$_{WH}$ > object$_{WH}$ ordering is imposed. If the absence of Superiority effects really were to be the result of an unfixed argument structure within the vP/VP, one would have to assume that

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1. The basic idea in Shortest Move approaches to Superiority phenomena is as follows. Supposing that both subject and object arguments of a verb are *wh*-elements, the argument which occurs higher in the vP/VP (in most analyses the subject) will first be selected for movement to Spec,TP to satisfy the EPP features of T. Movement of the higher argument to Spec,TP will be shorter (as it is closer to Spec,TP) than movement of the lower argument, and so will automatically be selected by economy (here, specifically, Shortest Move). From its raised position in Spec,TP such an argument will then be closer to Spec,CP than a second lower *wh*-argument and because of this will be selected (by Shortest Move) for movement to Spec,CP to satisfy the *wh*-feature checking requirement of the [+Q] C. Once this feature-checking requirement has been satisfied by movement of the closest *wh*-phrase to the [+Q] C, it is suggested that other *wh*-elements in multiple *wh*-fronting languages can undergo raising to a clause-initial position, and this will result in such elements following the first-raised *wh*-phrase due to a second economy-driven process of "tucking-in" (Richards 2001) or perhaps due to such elements raising to a somewhat lower position (Rudin 1988). It is therefore critically the closer proximity of the higher vP/VP internal argument to Spec,TP which gives it the advantage to raise first to Spec,TP and then to Spec,CP, both movements being shorter than potential attraction of the lower argument to Spec,TP and Spec,CP. Supposing one were to adopt the hypothesis that the object argument of a verb could in theory be positioned as the higher vP/VP-internal argument (in other words follow the suggestion that there might be no fixed structuring of arguments in the vP/VP in some languages), this would allow for it to be attracted first to Spec,TP and then to Spec,CP and so permit it to legitimately precede a subject *wh*-argument in a fronted string of *wh*-elements.

Serbo-Croat would be a language with both fixed and unfixed *v*P/VP-internal argument structure in different instances, and that it would be the presence/absence of an interrogative C position in a clause which would result in the presence/absence of such fixed/free *v*P/VP argument structure. As there would not seem to be any obvious, plausible connection between the presence/absence of the C position and fixed/free argument structure, and it is also unattractive to posit the existence of both fixed and free argument structure within the *v*P/VPs of a single language, it would seem that some alternative explanation of the absence of Superiority effects in Russian and Serbo-Croat is instead called for.

A second, rather different approach to the problem of cross-linguistic variation in Superiority patterns is proposed in Bošković (2002). Bošković suggests that where a language shows clear Superiority effects (i.e. a strict ordering of *wh*-elements in multiple fronted *wh*-strings, or restrictions on which *wh*-phrase can be raised in languages with overt movement of a single *wh*-phrase), this can be assumed to be genuine *wh*-movement triggered by the feature-checking requirements of a [+Q] C and governed by economy restrictions on movement (i.e. Shortest Move). The [+Q] C attracts the closest *wh*-element to it first, and this results in the presence of a strict ordering of raised *wh*-phrases. Where a language does *not* show any strict ordering in sequences of multiply-fronted *wh*-phrases, it is suggested that these elements do not undergo raising to satisfy an interrogative feature-checking requirement of the [+Q] C, but to satisfy a *focus* feature-checking requirement present in the *wh*-phrases themselves. Because the [+Q] C therefore does not attract any of the *wh*-elements for its own needs/requirements, Shortest Move does not apply to attract the highest *wh*-phrase first, and raising of the various *wh*-phrases is suggested to be able to occur in any order. Variation in Superiority patterns found within a single language such as Serbo-Croat are then suggested to result from variation in the occurrence of a [+Q] C being projected in the language. When a [+Q] C is present, it will attract the closest *wh*-phrase to it first, and Superiority patterns will be observed, but when a [+Q] C is optionally not projected in matrix clauses, *wh*-phrases will simply raise (in any ordering) to satisfy their own focus-feature-checking needs.[2]

Such an approach to Superiority has a number of very clear merits and offers a principled account of how language-internal and cross-linguistic variation in Superiority might be captured in a uniform way. There are however also certain potentially serious difficulties for such an approach, two of which can be

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2.   For Bošković, the raising of all secondary *wh*-phrases in languages which do display Superiority is also triggered by their own need to check focus-features, and so raising of the second/third *wh*-phrase in a clause is assumed to be possible in any order. This raising is not conditioned by Shortest Move, which only applies to movement triggered by a head with feature-checking requirements selecting from a range of lower elements which could in theory satisfy that need.

mentioned here. First of all, if the overt raising of *wh*-phrases in Russian (and in Serbo-Croat in clauses without a [+Q] C) were to be for focus feature-checking, one would expect for this focus movement to parallel other instances of focus movement in the language and be possible in any clause (as all clauses otherwise do allow for fronting of a focused constituent). This however turns out not to be true, and the 'focus'-movement of *wh*-phrases is always obliged to occur to the initial position of a clause which is interpreted as having a [+Q] C. This therefore suggests that what is involved in *wh*-fronting in Russian etc. is not simple movement for focus reasons but *wh*-movement which has to relate a *wh*-phrase to a [+Q] C. Consequently, the suggestion that multiple *wh*-fronting in languages such as Russian do not display Superiority effects because the movement of *wh*-phrases is focus-movement rather than *wh*-movement cannot easily be maintained.[3] A second problem for the focus-movement account of *wh*-fronting in Russian-type languages comes from observations made about Hungarian in Toft (2002). Hungarian is similar to Russian in being a language which does not seem to show ordering restrictions on multiple fronted-*wh* sequences, which should lead to the conclusion that *wh*-fronting in Hungarian is simply focus-movement. Toft also points out that in a multiple *wh*-question it is possible for a D-linked *wh*-phrase to remain in situ and not undergo any fronting, as seen in (1) below where the *wh*-phrase *kivel* 'with whom' is left in situ:

(1)   Ki   jár   kivel?
      who goes who.with
      'Who is going out with whom?'

Given that the focusing of D-linked *wh*-phrases in clause-initial position is therefore optional in Hungarian, one would expect that it should in fact be possible for *all* the *wh*-phrases in a multiple *wh*-question to remain in situ if all of these elements are D-linked. Remember that the absence of Superiority in multiple fronted-*wh* sequences is taken to indicate that there is no real *wh*-movement in a language and only focus-movement, so if focus-movement is optional when *wh*-phrases are D-linked, all such elements should indeed be free not to undergo focus-fronting. Surprisingly, this turns out *not* to be the case and it is found that at least one *wh*-phrase *always* has to be fronted in Hungarian. If all *wh*-phrases are left in situ, as in (2), the result is clear ungrammaticality, despite the fact that these *wh*-phrases are interpreted as being D-linked:

(2)   *Jár   ki   kivel?
       goes who who.with

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3.   Stepanov (1998: 464) suggests that *wh*-phrases in Russian which are overtly fronted for focus reasons also need to be overtly licensed by a [+Q] C. It is hard to see how such a licensing requirement makes "focus"-movement of a *wh*-phrase really any different from *wh*-movement.

This clearly indicates that there is obligatory, regular *wh*-movement of a single *wh*-phrase in Hungarian to satisfy the *wh*-feature checking requirements of the [+Q] head position raised to, just as in English and many other languages. The observation that there are no Superiority effects when multiply fronted *wh*-phrases are ordered in different ways in Hungarian can therefore *not* be suggested to be due to any lack of real *wh*-movement in the language, and Superiority patterns consequently seem to require some other explanation which does not attribute them to the presence vs. absence of "real" *wh*-movement in a language.[4]

Given such concerns with the focus-movement approach to Superiority, a third rather different, possible "reaction" to cross-linguistic variation in Superiority is to return to the actual data reported in such cases and ask whether there may be aspects of the interpretation of these multiple *wh*-strings which have previously been overlooked and which might potentially conspire to cause the differences in acceptability reported. This is how we intend to proceed here, and the way we plan to set about generating a new perspective on Superiority patterns is to first enlarge the field of enquiry beyond European languages to consider Superiority phenomena in a multiple-*wh* fronting language from south Asia – Bengali/Bangla. In the past, the majority of ground-breaking work on Superiority has been based on English, German and Slavic languages, and the latter group of languages have provided all of the key data on Superiority in instances of multiple-*wh* fronting. Here a consideration of Superiority patterns in Bangla will be shown to give rise to certain puzzling questions about Superiority which will naturally call for a thorough re-examination of the patterns reported in English and Slavic languages, and then ultimately result in a rather different view and analysis of Superiority-type phenomena. The structure of the paper is as follows. Section 2 first introduces and examines Superiority phenomena in Bangla and shows how the situation with regard to Superiority in Bangla is rather puzzling and in part recalls unexplained data found in footnotes of papers on Superiority in other languages. Section 3 then reconsiders the pragmatic and semantic interpretation of argument *wh*-phrases cross-linguistically in multiple *wh*-questions and the notion and role of argument prominence in Superiority patterns. Establishing the importance of a general set of discourse and semantic factors at play in the determination of the acceptability

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4. Observing similar unacceptability in Serbo-Croat when all *wh*-phrases are left in situ, Bošković suggests that one *wh*-phrase has to undergo fronting to "type" the clause. As there is no indication of how *wh*-fronting for clausal-"typing" and real *wh*-movement might be different or distinguished in any way, the difficulties posed by Hungarian-type patterns cannot be side-lined by simply labelling them as instances of "typing" as opposed to real *wh*-movement (and the raising of a wh-phrase for clausal typing purposes has indeed always been assumed to be simple wh-movement, see e.g. Cheng (1997)).

of multiple-*wh* strings, Section 4 then returns to see how the patterns in Bangla can be accommodated with the various conclusions of Section 3. Finally Section 5 closes the paper with a summary of the various insights and warnings gained from the body of the paper, and returns to reflect on the question of the degree to which argument 'prominence' is reflected in restrictions on multiple-*wh* fronting.

2. *Wh* patterns in Bangla/Bengali

Although Bangla/Bengali has traditionally been thought of as a *wh*-in-situ language, Simpson and Bhattacharya (2003) provide a range of data and argumentation showing that Bangla actually is a language with obligatory overt *wh*-movement in all its question-forms. Such *wh*-movement is frequently heavily disguised by the regular positioning of other presupposed/background material in pre-Comp topic positions, but revealed in restrictions on *wh*-scope and certain apparently optional word order possibilities with complement clauses together with a variety of other evidence. Though the study in Simpson and Bhattacharya (2003) considered only *wh*-questions containing a single *wh*-phrase, multiple *wh*-questions are both possible and common in Bangla and indicate that Bangla is a multiple *wh*-fronting language in which *all wh*-phrases present in a question-form have to raise to the [+Q] licensing position in the C-domain. Example (3) first shows that a *wh*-phrase located in an embedded clause in a single *wh*-question has to undergo movement to the matrix clause [+Q] position, and that if the *wh*-phrase does not undergo overt *wh*-movement the result is ungrammaticality. Note that as explained in Simpson and Bhattacharya (2003) it is common for a presupposed subject (*Jon* in (3)) to be positioned in the topic field preceding the [+Q] licensing position.

(3) a. *Jɔn bhablo [meri bollo [su ki poɽeche]]?
         John thought Mary said Sue what read
     b. *Jɔn bhablo [meri ki bollo [su poɽeche]]?
         John thought Mary what said Sue read
     c. Jɔn ki bhablo [meri bollo [su poɽeche]]?
         John what thought Mary said Sue read
         'What did John think Mary said Sue read?'

If we now consider what happens in multiple *wh*-questions where two or more *wh*-phrases are base-generated in an embedded clause (but have matrix clause scope), it is found that all such elements regularly undergo raising to the matrix +Q position, as shown in (4a) and (4b), and it is unacceptable/marginal for a secondary *wh*-phrase to remain in its embedded clause, as indicated in (4c) and (4d). Bangla is therefore a multiple *wh*-fronting language akin to Russian, Bulgarian and

Serbo-Croat, and is not a language in which only a single *wh*-phrase is required to undergo overt *wh*-movement, as in English, German etc.:

(4) a. tumi ke_i $kothay_k$ bolle [t_i t_k thakbe]?
        you who where   said   will-live/stay
        'Who did you say will stay where?'

    b. Jon ke_i $kothay_k$ bollo [je t_i meri-ke t_k dekheche]?
        John who where   said C   Mery-ACC saw
        'Who did John say saw Mary where?'

    c. *tumi ke_i bolle [t_i kothay thakbe]?
        you who think where   will-stay

    d. *Jon ke_i bollo [je t_i meri-ke $kothay_k$ dekheche]?
        John who said C Mery-ACC   where   saw[5]

Given this multiple-*wh* fronting property of Bangla, and given the variation reported in Superiority patterns within multiple-*wh* fronting languages in the Slavic group, a natural question to ask about Bangla is whether and to what degree Superiority effects might manifest themselves in multiple *wh*-questions in the language? If we consider a wide range of patterns involving both single clause and two-clause structures, it seems that Superiority effects are fairly clearly absent from multiple *wh*-questions in Bangla. Example (5) first shows a single clause structure and indicates that the *wh*-phrases can occur in either order, $\text{subject}_{WH} > \text{object}_{WH}$ or $\text{object}_{WH} > \text{subject}_{WH}$:[6]

(5) a. **ke   kake**   dekheche?
        who whom saw

    b. **kake   ke**   dekheche?
        whom who saw
        'Who saw whom?'

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5. Note that the acceptability judgements here characterize attempts to produce regular multiple *wh*-questions which support pair-list answer-forms. If a secondary *wh*-phrase remains in an embedded clause but is intended to have scope in a higher clause, as e.g. (4c), this may be possible if only a single pair occurs as the answer-form (hence 'John, the university hostel' for (4c)). The degree to which such single-pair-answer questions are acceptable is variable, however, in complicated ways and may depend on the positioning of the secondary *wh*-phrase in the embedded clause. For example, (4d) is unacceptable even if answered with a single-pair, and only becomes acceptable (though still somewhat marginal) if the embedded *wh*-phrase occurs further forward towards the front of the embedded clause, as in (i) below, and not in the position it might generally occur in as a *wh*-phrase preceding the verb (as in (4d):

    (i) ?Jon ke bollo [je kothay meri-ke   dekheche]?
        John who said C where Mery-ACC saw
        'Who did John say Mary saw where?'   (only single-pair answer possible)

6. Note that Simpson and Bhattacharya (2003) present evidence that overt *wh*-movement also takes place in single clause structures, and not only when a *wh*-phrase with matrix clause scope originates in an embedded clause, hence overt *wh*-movement is assumed to occur also in examples such as (5).

Turning to two clause structures, Examples (6), (7) and (8) show that two *wh*-phrases raised out of the same embedded clause can occur in either order in the matrix Q-position, hence that there are no Superiority effects present in such examples:

(6) a. tumi ke_i $kothay_k$ bhabcho [t_i t_k thake]?
        you who where think   lives
        'Who do you think lives where?'

    b. tumi $kothay_k$ ke_i bhabcho [t_i t_k thake]?
        you where   who think lives
        'Who do you think lives where?'

(7) a. tumi ki_k $kokhon_i$ bhabcho [je ʃe t_i t_k kineche]?
        you what when   think   that s/he bought
        'When do you think s/he bought what?'

    b. tumi $kokhon_i$ ki_k bhabcho [je ʃe t_i t_k kineche?
        you when   what think that s/he bought?
        'When do you think s/he bought what?'

(8) a. tumi ki_i $keno_k$ bhabcho [je ʃe t_k t_i kineche]?
        you what why   think that s/he bought
        'Why do you think s/he bought what t?'

    b. tumi $keno_k$ ki   bhabcho [je ʃe t_k t_i kineche]?
        you why what think that s/he bought
        'Why do you think s/he bought what t?'

Finally, Examples (9) and (10) show that if two *wh*-phrases with the same matrix clause scope originate in different clauses, they can occur raised in either order and Superiority effects again do not seem to be present:

(9) a. ke_i $kothay_k$ t_i bollo [je ʃe conference-er ʃomoy t_k thakbe]?
        who where   said [that she conference-GEN time   stay.will
        'Who said s/he will stay where during the conference?'

    b. $kothay_k$ ke_i t_i bollo [je ʃe conference-er ʃomoy t_k thakbe]?
        where   who said [that s/he conference-GEN time   stay.will
        'Who said s/he will stay where during the conference?'

(10) a. ke_i $kokhon_k$ t_i bollo [je   bhaʃon-ṭa t_k ʃuru hobe]?
        who when   said that lecture-CL   will   start
        'Who said that the lecture will start when?'

    b. $kokhon_k$ ke_i t_i bollo [je bhaʃon-ṭa t_k ʃuru hobe]?
        when   who said that lecture-CL will   start
        'Who said that the lecture will start when?'

The non-occurrence of Superiority effects in these cases of multiple-*wh* fronting make Bangla appear to look like Russian in the patterning of its multiple *wh*-questions. For a Bošković (2002) type approach, this should require *wh*-fronting in Bangla

to be analysed as focus-movement, as only the focus-movement of *wh*-phrases is assumed not to give rise to Superiority effects. However, as argued in Simpson and Bhattacharya (2003), *wh*-fronting and focus-movement in Bangla show significantly different properties and whereas constituents can be focus-raised in any clause in a multiple clause structure in Bangla, *wh*-phrases must be overtly raised to the clause in which their [+Q] licensing head occurs (hence in Example (3), the *wh*-phrase must be raised to the matrix clause [+Q] position and cannot be simply focus-raised to the intermediate clause focus position where a non-*wh* constituent could indeed be focused). This indicates that *wh*-fronting in Bangla is movement for the licensing of *wh*-features, i.e. *wh*-movement, and not simple focus-movement.

In addition to this, there are further theory-internal reasons for assuming instances of *wh*-fronting in Bangla to be occurrences of *wh*-movement rather than simple focus-movement. Considering certain differences between Russian and other multiple-*wh* fronting languages with regard to the occurrence of pair-list answers in multiple *wh*-questions, Bošković (2002) suggests that if there is no real *wh*-movement to Spec,CP in a language and only focus-raising of *wh*-phrases, pair-list type answers should not be forced to occur when multiple *wh*-questions are used, and it should be possible and natural for a single-pair answer to be given to a multiple *wh*-question. Russian, with only focus-movement in its multiple *wh*-questions is suggested to be a language in which single-pair answers are readily available in multiple *wh*-questions, whereas other Slavic languages such as Romanian and Serbo-Croat (in certain environments) are languages which are argued to have genuine *wh*-movement and to require/strongly favour pair-list answers when multiple *wh*-questions are used. Given such a suggested correlation between (a) real *wh*-movement and forced/strongly-favoured pair-list answers, and (b) focus-movement of *wh*-phrases and readily available single-pair answers to multiple *wh*-questions, the analysis of *wh*-fronting in Bangla as focus-movement to account for the lack of Superiority effects observed in (5–10) would lead one to expect that single-pair answers should be readily available in multiple *wh*-questions. This turns out not to be true, and pair-list answers to multiple *wh*-questions are expected/required to the same degree as they are in languages with clear *wh*-movement such as English. This should therefore indicate that Bangla does have genuine *wh*-movement and not simply focus-raising of its *wh*-phrases. However, if this is so, one might expect there to be restrictions on the ordering of multiple-*wh* sequences, i.e. Superiority effects, yet such effects are absent from the range of examples presented above in (5–10). The obvious question raised by the patterns found here is how one should reconcile the lack of Superiority effects in a language with the assumption that genuine *wh*-movement nevertheless occurs in the language? Some component of existing approaches to Superiority would seem to be in need of re-examination and revision.

A further, interesting complication to the patterning in Bangla is that although Superiority effects are not attested in configurations which might be expected to give rise to them – i.e. the question forms in (5–10) – it turns out that Superiority effects are actually *not* fully absent from Bangla and do indeed show up in two distinct sets of patterns. The first of these is simple multiple *wh*-questions which involve a subject *ke* 'who' and an object *ki* 'what'. As shown in (11), positioning of the object *wh*-phrase before the subject *wh*-phrase results in the clear decrease in acceptability typical of Superiority cases. This degraded status of $what_{object} >$ $who_{subject}$ becomes even more pronounced if the two *wh*-phrases are separated by time/location adverbials as seen in (12), though separation of the two *wh*-phrases by adverbials does not affect the sequencing $who_{subject} > what_{object}$. Example (13b) also shows that an object *wh*-phrase can precede and be separated from a subject *wh*-phrase if the object is *kake* 'whom' rather than *ki* 'what'. The degraded cases are therefore specifically where *ki* 'what$_{object}$' precedes *ke* 'who$_{subject}$':

(11) a. boi-er   dokan-e kal   ke ki   kinlo?
book-GEN shop-LOC yesterday who what bought
'Yesterday, in the bookstore, who bought what?'

b. ?boi-er   dokan-e kal   ki ke   kinlo?
book-GEN shop-LOC yesterday who what bought

(12) a. ke boi-er   dokan-e kal   ki   kinlo?
who book-GEN shop-LOC yesterday   what bought
'Yesterday, in the bookstore, who bought what?'

b. *ki boi-er   dokan-e kal   ke   kinlo?
what book-GEN shop-LOC yesterday who bought

(13) a. ke kal rate kake dekheche?
who last night whom saw
'Who saw whom last night?'

b. kake kal rate ke dekheche?
whom last night who saw
'Who saw whom last night?'

The second set of cases where Superiority effects clearly surface in Bangla is in multiple *wh-sluicing* as shown in the (b) examples of (14–16) below. Note that a full range of Superiority effects is found here and the unacceptability of certain multiple-*wh* orderings extends beyond $what_{object}/who_{subject}$ pairings.

(14) a. tumi kichu ɛk-ʈa kɔkhono bhebechile je   ʃe
you some one-CL sometime thought that s/he
kineche, kintu ami jani na ki   kɔkhon.
bought but I   know not what when
Lit. 'You thought that s/he bought something sometime, but I don't know what when.'

    b. *tumi kichu ɛk-ʈa kɔkhono bhebechile je ʃe
       you some one-CL sometime thought that s/he
       kineche, kintu ami jani na kɔkhon ki.
       bought but I know not when what

(15) a. tumi kothao kal rate kichu kinecho, kintu
       you somewhere last night something bought, but
       ami jani na kothay ki.
       I know not where what
       Lit. 'Last night you bought something somewhere,
       but I don't know where what.'

    b. ??tumi kothao kal rate kichu kinecho,
       you somewhere last night something bought,
       kintu ami jani na ki kothay.
       but I know not what where

(16) a. tumi kawke kichu bolle je bacca-ʈa curi
       you someone something told that child-CL stole,
       koreche, kintu ami jani na kake ki.
       done but I know not whom what
       Lit. 'You told someone that the child stole something, but I don't know
       who what.'

    b. *tumi kawke kichu bolle je bacca-ʈa curi
       you someone something told that child-CL stole,
       koreche, kintu ami jani na ki kake.
       done but I know not what whom

How can one make sense of these apparently contradictory patterns in Bangla and the occurrence of Superiority effects in just a subset of the configurations one might expect it to occur in? Bošković (2002) actually does discuss another language with 'mixed' Superiority patterns – Serbo-Croat – and suggests that Superiority effects occur only where an interrogative C is present, and are commonly absent from matrix clauses where the root C position need not be projected and present during the pre-Spell-Out portion of the derivation. *Wh*-fronting in clauses without an interrogative C is therefore classified as focus movement and argued not to be subject to Shortest Move and cause Superiority violations. Though such ideas transposed to Bangla might allow for a hypothetical distinction between Superiority in embedded sluiced clauses, which could be taken to contain an interrogative C/Q position triggering *wh*-movement, and *wh*-fronting to a matrix clause in cases such as (5–10) where no Superiority effects are found and it could be suggested that no C/Q position is projected, the expectation raised by such an approach is that one should also find Superiority effects in embedded clauses which are not sluices, as these would naturally be expected to contain a C/Q position due to being non-root clauses. The C/Q position should then trigger *wh*-movement as in sluices

and cause a strict ordering in multiple-*wh* fronting. This expectation is however not fulfilled, and the Superiority configurations in (5–10) are equally acceptable when occurring in embedded environments as when occurring in matrix clauses:[7]

(17) a. ami jani na [tumi ki$_k$ kɔkhon$_i$ bhabcho [je ʃe t$_i$ t$_k$ kineche]].
       I don't know you what when think that s/he bought
       'I don't know when you think s/he bought what.'

    b. ami jani na [tumi kɔkhon$_i$ ki$_k$ bhabcho [je ʃe t$_i$ t$_k$ kineche?
       I don't know you when what think that s/he bought?
       'I don't know when you think s/he bought what.'

The problem created by the occurrence of Superiority effects in sluiced clauses but not in non-sluiced counterparts is therefore one which arguably cannot be satisfactorily accounted for by a simple distinction between root and embedded clauses with the suggestion that the latter but not the former contain a [+Q]/C position. Furthermore, the idea that Superiority effects might be absent from matrix clauses in Bangla due to the optionality of inserting a Q-head in root clauses will clearly not offer any explanation of the non-sluice cases of Superiority involving root clause sequences of what$_{object}$ > who$_{subject}$.

Considering the latter what$_{object}$ > who$_{subject}$ patterns, it is interesting that these stand as being deviant/degraded in Bangla, as similar examples are reported to be deviant in a number of languages which are otherwise suggested to have no Superiority effects, for example Russian (Stepanov 1998) and Hungarian (Toft 2001). Stepanov (1998: 458) notes that:

> There is one case, however, where a fixed order of *wh*-phrases is seemingly preferred for many speakers, namely, the subject and the inanimate direct object *wh*, as the following shows:
>
> (15) a. Kto čto videl?
>   who what saw
>   'Who saw what?'
>   b. ??Čto kto videl?
>
> What is really puzzling about (15) is that it seems to be the only clear instance of the fixed order of *wh*-phrases.

7. Bošković (2002) suggests that certain indirect embedded questions in Serbo-Croat might actually be considered to be root questions with a superficial root clause occurring as an 'adsentential' addition. It is not clear to us how an embedded question could syntactically be combined with such an 'adsentential addition' without the use of the C head regularly used to embed clauses. Furthermore, embedded questions in Bangla show all of the deictic shifts commonly associated with genuinely embedded reported speech/questions, and so the possibility that embedded questions are really matrix-like questions is difficult to maintain.

Toft (2001) similarly points out a single obvious exception to the generalization suggested in the paper that Hungarian does not seem to exhibit Superiority effects. This again, as in Russian, occurs in questions involving an object 'what' fronted over a subject 'who':

(18)   a.   Ki   mit   lát?
            who what-ACC sees
            'Who sees what?'
       b.   ??Mit   ki   lát?
            what-ACC who sees

The recurrence of such a patterning in different languages all of which are suggested not to show Superiority effects in other questions may start to make one a little suspicious, or at least inquisitive about what may be going on here. Is this 'exceptional' pattern something to be largely ignored and confined to footnotes or is it a patterning which is potentially revealing and indicative of something important and more central to the nature of Superiority effects? If one keeps the what/who alternation in mind and starts to think about Superiority effects as reported in other languages such as English, it is interesting to discover that the core, introductory cases of Superiority presented in very many discussions of Superiority turn out to make use of sentences involving a pairing of $what_{object}$ and $who_{subject}$, e.g. Chomsky (1973), Hornstein (1995), Pesetsky (2000). The examples in (19) are from Chomsky's (1973) original discussion of Superiority, repeated in Pesetsky (2000: 15) as initial motivating data for Superiority. (20) is from Hornstein (1995: 44).

(19)   a.   Who bought what?
       b.   *What did who buy?

(20)   *What did who say?

In treatments of Superiority in English, $what_{object} > who_{subject}$ pairings are therefore taken to be core, motivating cases of Superiority and commonly provide the critical data on which the generalizations about Superiority are first established and then built from. There is consequently quite a different perception of the status of $what_{object} > who_{subject}$ questions in work on different languages, and significantly different and opposite use appears to be made of their common degraded acceptability. In discussions of English, the striking deviance of $what_{object} > who_{subject}$ examples is taken to be a key, central patterning and is critically used to build up the theory of Superiority and its occurrence in English. In contrast to this, the deviance of similar examples in certain other languages may instead be largely sidelined and a view that Superiority effects are absent from a language may be presented. This situation highlights the fact that one of the most serious problems

facing cross-linguistic studies of Superiority is the difficulty of making (and making use of) comparative judgements about the relative acceptability of multiple wh-questions, and how one should interpret delicate data from different languages which seem to point towards different conclusions. If the literature on Superiority and wh-questions is scanned, it is furthermore found that there may also be frequent variation in judgements amongst speakers of a single language commenting on that language, and in some cases sharp disagreement over the unacceptability of multiple-wh sequences occurring in different orderings. For example, whereas Stepanov (1998) assumes Superiority effects to be absent from Russian if what/who pairs are ignored, Zavitnevich-Beaulac (2002) asserts that Superiority phenomena are in fact regularly present in the language, and whereas Superiority effects are argued to occur in a range of configurations in Serbo-Croat in Bošković (2002), this is disputed in Godjevac (2000: 199), which reports that the deviance suggested to occur in Serbo-Croat data presented in Bošković (2002) failed to be detected by other native speakers consulted with.

In an attempt to grapple with the cross-linguistic status of Superiority and gain some further insight into the issue of cross-linguistic variation in the acceptability of Superiority configurations, Section 3 of the paper now turns to reconsider cases of Superiority in a language where characterisations of the acceptability of multiple wh-questions have been assumed to be solid and informative and used as the foundation for constructing theories of Superiority – English. What will be shown is that the foundations provided by generalizations about English are not as solid as commonly assumed, and that a range of factors which are often not properly controlled for can significantly influence the type of conclusion drawn from a set of data and easily lead to generalizations which are misrepresentative of the full patterning present in a language.

3.   *What > who* patterns and Superiority in English

As noted above, the most commonly presented examples of Superiority violations in English involve $what_{object} > who_{subject}$ pairings. Because such pairings are however also found to be deviant in languages characterized as otherwise *not* exhibiting Superiority effects, it would seem that $what_{object} > who_{subject}$ pairs should *not* be so regularly used in English as prime, baseline exemplification of Superiority, as the unacceptability of such examples might turn out to be independent of the structural/syntactic properties suggested to underlie Superiority phenomena. In what follows here, we will carefully consider the reasons why questions involving $what_{object} > who_{subject}$ pairs are so commonly deviant and what this may indicate about Superiority violations in general. We will also see what happens when one

tries to control for the range of underlying factors causing the unacceptability of $what_{object} > who_{subject}$ pairs. Anticipating the conclusions a little, it will be shown that once proper controls are indeed used, the acceptability of classic Superiority configurations improves dramatically in English, and it becomes much less clear that there really is any substantial difference between languages such as English where Superiority effects are assumed to occur and languages such as Russian/ Hungarian where it is often reported that they are (largely) absent. This we take to be a welcome result, as languages once again turn out to be considerably more uniform than initial characterizations have suggested, and there is no need to assume that languages either might have different argument structures or that *wh*-fronting might occur in significantly different ways to explain the reported variation in Superiority patterns.

In Sections 3.1–3.4, four non-structural types of factors will be identified as commonly contributing to the unacceptability of multiple *wh*-questions and potentially causing "Superiority" effects, as indicated below in (21). Once these interfering factors are controlled for, it will be shown that this also eliminates the deviance of core cases of Superiority, and configurations which would be expected to give rise to ungrammaticality are in fact well-formed and acceptable. The general message to emerge from Section 2 will therefore be that data used to motivate Superiority has often significantly profited from non-structural pragmatic and semantic properties which may independently cause unacceptability in multiple *wh*-questions, and that Superiority effects are ultimately not the result of any blind, purely structural filter such as Shortest Move as is regularly suggested.

(21)   *Factors affecting the acceptability of Superiority configurations*
       (a)   animacy distinctions among *wh*-phrases: human/animate vs. inanimate
       (b)   thematic relations of *wh*-phrases: Agent vs. Patient, pragmatic centre of interest of a question and relative salience of the *wh*-phrases present
       (c)   prosodic factors: stressing and prosodic weight of *wh*-phrases, prosodic weight/length of the verb
       (d)   referential familiarity of the expected answer to a *wh*-question

3.1   Animacy distinctions among *wh*-phrases

If we try to identify the properties of $what_{object} > who_{subject}$ questions which seem to cause their general low level of acceptability, a first obvious factor is the distinction in animacy between the two *wh*-phrases. In $what_{object} > who_{subject}$ questions an inanimate *wh*-phrase is raised over an animate, [+human] *wh*-phrase. If one tries to control for this distinction in animacy, the unacceptability of Superiority configurations differs quite clearly from that in $what_{object} > who_{subject}$ questions. For example, if one deliberately selects a verb which can naturally have an inanimate

(cause) DP as its subject, and an animate, [+human] object, it is found that raising of a *wh*-object over a *wh*-subject is in fact quite acceptable, as shown in (22) and (23):

(22)   Who did what upset?

(23)   Who did what please?

Both (22) and (23) are expected to be unacceptable, as they clearly instantiate Superiority configurations and so should automatically be disallowed by Shortest Move under the assumption that Superiority effects result from economy restrictions on movement. However, both (22) and (23) are quite acceptable. This appears to be due to simple manipulation of the relative animacy of the *wh*-phrases, reversing the animacy patterns found in $what_{object} > who_{subject}$ questions. It can also be noted that the Superiority configurations in (22) and (23) would seem to be more natural than the alternative forms in (24) and (25) in which there is no violation of Shortest Move and the [+human] object *wh*-phrase is left in situ rather than raised over the *wh*-subject, and (22) and (23) are certainly no lower in acceptability than (24) and (25):

(24)   (?)What upset who?

(25)   (?) What pleased who?

If Superiority configurations with animacy distinctions that are the opposite to those in $what_{object} > who_{subject}$ questions occur in embedded questions, this is also found to be quite acceptable:

(26)   The complaints department wants to know who what upset.

Finally, if multiple *wh*-questions are manipulated so that there is equal animacy amongst the *wh*-phrases present, the unacceptability characteristic of $what_{object} > who_{subject}$ questions seems to disappear. In (27) both *wh*-phrases are [+human] and raising of the object *wh*-phrase over the subject *wh*-phrase seems to be fine and not result in any special deviance/ungrammaticality:

(27)   So, whom are you claiming that who beat up?

Animacy distinctions and the manipulation of the relative animacy of *wh*-phrases therefore make a significant contribution to the overall acceptability of a multiple *wh*-question. Once the influence of animacy is kept fairly under control, it is no longer obvious that Superiority effects continue to arise, contra the expectations of Shortest Move.

3.2   Thematic relations and empathetic centre of interest

A second observation which can be made about typical instances of $what_{object} > who_{subject}$ questions presented as examples of Superiority is that the *wh*-subject

frequently instantiates an Agent or an Experiencer theta role acting on/experiencing a Patient/Theme object. If verbs are selected which avoid Agent/Experiencer subjects, such as *have* for example, it appears that the typical deviance of $what_{object} > who_{subject}$ pairs may be significantly reduced and disappears in examples such as (28) and (29):

(28)   I want to know exactly what who had on him/in his pockets when the alarm went off.

(29)   I want to know exactly what who had access to when the system was broken into last night.

This manipulation of the theta role of the subject may relate to a broader, important factor at play in multiple *wh*-questions, the influence of the primary centre of interest in potential cases of Superiority. It can be suggested that there may frequently be an uneven focus of interest present in pairs of *wh*-phrases and that one *wh*-phrase in multiple *wh*-questions may be accorded a greater degree of interest and speaker/hearer empathy than other *wh*-phrases present. In Kuno (1976) it is argued that subjects are naturally more likely to be centres of speaker/hearer interest/empathy than objects and DPs in other grammatical relations, and this would seem to be syntactically encoded in the regular cross-linguistic linear positioning of subjects before objects. If one assumes that the prominence corresponding to the interpretation of an element as the primary centre of interest in a sentence is regularly maintained in the linear sequencing of *wh*-phrases, it is clearly expected that subject *wh*-phrases will regularly precede object *wh*-phrases and enforce the Superiority pattern of $subject_{wh} > object_{wh}$ either in raised sequences of *wh*-phrases or in languages with mixed raising and in situ such as English. What a relative prominence approach to multiple *wh*-questions also leads one to expect is that if the centre of interest could be instantiated by an object *wh*-phrase, it should be possible for the object *wh*-phrase to precede a subject *wh*-phrase. With careful choice of verbs, this would seem to be true, and while subjects do indeed seem to be the default, natural centre of interest as suggested in Kuno (1976), especially if [+human] and Agents, certain verbs may allow for an empathy switch to their objects if the object is negatively affected and if the object has some kind of relation to the speaker or hearer. Verbs such as *criticise* may permit this without too much difficulty or unnaturalness, and Example (30) would be quite acceptable uttered in the following context: the speaker has learned that there was criticism of his paper when it was read by the hearer at a recent conference and is (angrily) trying to find out what happened during the question period following reading of the paper:

(30)   So, tell me, what did who criticise? I real3y want to know!

A similar potential enhancement of the object's status as primary centre of interest occurs with the verb *plagiarise*, where the original author of a work that is

plagiarised is felt to be negatively affected (though this need not be the speaker or hearer), as illustrated in (31):

(31)   Context: a head teacher learns that some student essays contain material copied from other sources and questions his/her colleague:
"So, what did who plagiarise?"

Alternatively, if the regular imbalance in terms of expected centre of interest between subject and object is balanced a little more evenly via the use of generic *wh*-phrases, again it often becomes possible for the object to be interpreted as a greater potential centre of interest, as shown in (32):

(32)   So, during a trip to Paris, what is what kind of tourist most likely to buy, do you think?

Other particular contexts would also seem to allow for the natural focus of interest to fall on the object without the need for a generic subject or the object to be negatively affected, and in such cases the unacceptability of other $object_{wh} > subject_{wh}$ orders is again quite absent:

(33)   Context: a mother and a child looking at a picture-book; after reading several pages together, the mother closes the book and asks:
"So, what is who going to say next, do you think?"

(34)   Context: a policeman and an excited individual on a street in central London:
Individual: "They're going to blow it up – the ministers' place, it'll be terrible, they'll all die."
Policeman: "Stop, stop, stop, tell me slowly now, what is who going to blow up?"

(35)   Context: an investigator taking a statement about some potential criminal activity:
"Tell me again, right from the start, I'm all confused, what did who buy from you?"

What regularly causes the unacceptability of degraded $what_{object} > who_{subject}$ questions is that the initial *wh*-phrase in a multiple *wh*-question involving a subject and an object *wh*-phrase seems to be interpreted as the primary focus of attention and function in a topic-like way, and a bare *wh*-object 'what' is less likely to be a natural centre of interest than an animate Agent subject. It is therefore inappropriate to reposition an object 'what' before an animate subject 'who' in the majority of cases, unless the context allows for a natural interpretation of an object 'what' as the clear centre of interest. Examples such as (19b) and (20) repeated below seem quite ill-formed because it is difficult to interpret the fronted 'what' as the topic-like centre of interest of the question.

(19)   b.   *What did who buy?

(20)   *What did who say?

What is interesting here is that if an alternative acceptable topic is provided in a multiple *wh*-question, the pragmatic unacceptability of sequences of an inanimate 'what' preceding a [+human] 'who' are significantly found to disappear. This can be shown to occur in double object constructions and also in embedded questions. Although the positioning of (the equivalent of) inanimate bare 'what' before [+human] 'who' results in questions often being deviant when 'what' occurs as the object and 'who' as the subject in Bangla (as originally shown in (11b) and (12b)), if the [+human] 'who' instead occurs as the indirect object of a verb, it is quite possible for either order of 'what' and 'who' to occur:

(36)   a.   tumi kake   (kal rate)   ki   dile?
            you   whom   (last night) what gave
            'Who did you give what?'
       b.   tumi ki   (kal rate)   kake   dile?
            you   what   (last night) whom   gave
            'What did you give who?'

What arguably occurs in such sentences is that the non-*wh* [+human] Agent subject *tumi* 'you' allows itself to be interpreted as the topic of the sentence and this allows the linearly first *wh*-phrase to escape having to qualify as the topic/empathetic centre of interest of the sentence. This therefore makes it possible for the bare *wh*-phrase 'what' to either follow or precede the [+human] indirect object 'who' and their relative order is not regulated by the need for the linearly first *wh*-element to be construed as more of a focus of interest than the second *wh*-phrase. In simple transitive multiple *wh*-questions where both the subject and the object are *wh*-phrases there is no additional prominent argument that can substitute for the first *wh*-phrase as a natural empathetic centre and topic of the sentence and this forces the linearly first *wh*-element to regularly have to assume this role.[8]

A second example of where the addition of a potential topic-like element allows for a legitimate sequencing of what > who occurs in two-clause structures where the non-*wh*-subject of the higher clause (*tumi* 'you' in (37)) is potentially interpreted

as the empathetic centre of the sentence. This allows for the fully acceptable occurrence of $what_{object}$ > $who_{subject}$ to be present in the embedded clause, a sequencing which is otherwise regularly deviant in simple matrix clauses:

(37)   a.   tumi [ke   ki   kineche] bhable?
            you   who what bought   thought
            'Who do you think bought what?'
       b.   tumi [ki   ke   kineche] bhable?
            you   what   who bought   thought
            'Who do you think bought what?'

The central problem occurring in $what_{object}$ > $who_{subject}$ questions such as (19b), (20) and their equivalents in Bangla is consequently that there is no other argument present in the same clause which can take up the function of topic/focus of interest and this therefore defaults to the linearly first *wh*-phrase. Where this is bare *ki*/'what' there is often little contextual support for its interpretation as the primary centre of interest of the sentence deliberately promoted over the [+human], Agent *ke*/'who' and this gives rise to the common degraded status of $what_{object}$ > $who_{subject}$ questions. However, where another argument is present which can function as the empathetic focal point of the sentence as in (36) and (37), this releases *ki*/'what' from such a default interpretative duty and the sequencing of 'what'/*ki* and *ke*/'who' appears to be free. Alternatively, if the context in combination with verb choice does support the legitimate interpretation of *ki*/'what' as a focal centre as in (30–31), (33–35), this also allows for $what_{object}$ > $who_{subject}$ sequences to surface in a non-deviant way, and initial 'what' is interpreted as having the genuine pragmatic prominence its raising over 'who' requires.

Finally in this sub-section, we can mention two further, particular contexts which allow for what > who sequences to occur rather naturally – the contexts of quiz show and "immediate recall" questions. Certain aspects of these contexts allow for hearers to interpret a sentence-initial 'what' as the primary centre of interest of a multiple *wh*-question with considerable ease and so to accept what > who pairs fairly automatically. For example, (38), (39) and (40) below are all quite natural/acceptable Superiority configurations with 'what' preceding 'who':

(38)   In the third chapter of The Port au Prince Adventure, what did who see rising out of the sea?

(39)   What did which president of the USA say when he was accused of covertly supporting the nationalist movement in Fiji?

(40)   During the third act of Travels in the Dark Kingdom, what (interesting/odd thing) did who buy from a sorcerer in Vardar?

Quiz show questions would seem to be able to produce very natural sounding what > who sequences for two basic reasons. First of all, quiz show questions

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8.   Similar effects would seem to be observable in Russian. Although what > who sequences are deviant in simple transitive sentences such as (15b), if the what > who sequence is produced in a di-transitive clause where the subject can be interpreted as a natural empathetic anchor of the clause, this allows for inanimate 'what' to precede [+human] 'who' without the deviance reported in other transitive sentences (data from Stepanov 1988):

(i)   Čto   komu   dal   Ivan
      what-ACC who-DAT gave Ivan
      'What did Ivan give who?'

make the background context of a question very explicit. All questions of course require the assumption of some appropriate background context before they can be judged to be acceptable, and when single/multiple *wh*-questions are somewhat artificially asked/presented 'out of the blue' and isolated without a given context, hearers are themselves obliged to construct appropriate mental contexts and to assess whether the *wh*-questions could legitimately be used in any of these contexts. The less fixed, non-*wh* information there is in a *wh*-question, the more work a hearer will have to do to create a relevant context, and if a hearer is unable to imagine an appropriate setting for the use of a particular question-form, this can lead to the classification of the question as unacceptable. The obvious danger in the assessment of data in such an isolated way is that it relies on the efforts of a hearer to search for an appropriate context for a question, and there may frequently be cases where a hearer fails to identify a potentially legitimate context for a question and thereby misclassifies a question as unacceptable/ungrammatical. What data involving quiz show-type questions does is to lead hearers directly and very explicitly to the context in which the acceptability of a particular multiple *wh*-question should be judged, and so avoid the risk that hearers do not construct this potential context themselves.[9]

Secondly, a property of quiz show questions which is rather different to most other interrogative contexts is that the composer of the question actually knows the answer to the question, and we as hearers are also aware of this fact. The important effect this has on multiple *wh*-questions is that when a what > who sequencing is attested, as in (38–40), there is an automatic confidence/trust that such a sequencing which presents the object *wh*-phrase as more focal is carried out for a good reason – the composer of the question him/herself knowing the answers to the question is in a legitimate position to guarantee that the answer value of the object *wh*-phrase may be genuinely more interest-worthy than that of the subject. In such a situation, the composer of a question is assumed by hearers to have the 'pragmatic authority' to position an object 'what' before a subject 'who' and the resulting what > who sequence is likely to be easily acceptable to a hearer. This property of quiz show questions does not cause them to be produced by any special, different syntax, but instead highlights again that what is necessary for the licensing of what > who sequences is a pragmatic expectation on behalf of the hearer that the element 'what' legitimately corresponds to the central focus of interest in the question. Such an expectation can significantly be guaranteed

9.   Quiz show questions therefore restore to isolated questions more of the background context they would normally benefit from in actual discourse. Anyone who has tried to elicit judgements of (particularly multiple) *wh*-question data from non-linguists will know that the latter normally have to be provided with explicit contexts before being able to judge the acceptability of *wh*-question data.

to a considerable extent in the context of quiz show questions, and this allows for forms such as (38–40) to be easy for hearers to accept as fully well-formed.

A second, related kind of context/situation which allows for configurations of Superiority to be relatively easily accepted by hearers are question-forms which can be called "immediate recall questions". Such a term can be used to refer to questions posed in the experimental scenario in which a video recording is first shown to a group of viewers, and then questions about the contents of the event/story portrayed in the video are asked of the viewers to see how much of the story they are able to recall.

In such a setting, it is again quite legitimate to position an occurrence of 'what' before a subject 'who'. The reason this is allowed seems to be that both speaker and hearer are jointly aware that the answer value corresponding to the object 'what' may be of greater interest than that of the subject, as a result of the fact that both speaker and hearer viewed the video recording together. Question forms such as those in (41) and (42) posed about the contents of a film just viewed by a speaker and a hearer are therefore fully acceptable:

(41)   What did who (unexpectedly) announce to the lawyers, when he arrived very late at the meeting?

(42)   What did who hide when he was in the kitchen?

All questions are, of course, 'recall' questions, requesting the recalling of some piece of information that has been stored in our minds. In the situation outlined above, though, the recency of the input of the information and the fact that it is information which has been simultaneously absorbed by both speaker and hearer serves to provide a guarantee of the greater focal interest of a bare *wh*-object 'what'. Again, as with the range of preceding cases presented, such examples show that there is nothing *structurally* ungrammatical in what > who Superiority violations, and that what is important for the acceptance of what > who sequences is the belief that 'what' may be a greater natural centre of interest than the subject 'who'.

3.3   Prosodic factors

Prosodic factors and intonation can also be noted to clearly interact with the acceptability of $what_{object} > who_{subject}$ sequences. The discussion in Sections 3.1 and 3.2 have put forward the idea that raising of an object *wh*-phrase over a subject *wh*-phrase has the effect of signalling that the object should be interpreted as having greater pragmatic prominence than the subject, and that promotion of the object in this way has to be interpreted as naturally justified for it to be acceptable. If an object *wh*-phrase can be accepted as instantiating a potentially greater centre of interest than the subject, the positioning of object before subject will not be perceived as deviant, but if there is no contextual or lexical support for interpretation of the object as naturally more prominent than the subject, then fronting of

the object over the subject is inappropriate and ill-formed for pragmatic reasons. One relevant resource available to speakers as a means to highlight important, prominent information is the use of intonation and stress, and the addition of increased stress to an element can be used either to create salience where none would otherwise be perceived, or to increase the salience of an element already made prominent by other factors such as the position of an element in a particular syntactic structure. A first point which can be made here is that the acceptability of many legitimate $what_{object} > who_{subject}$ sequences, such as those presented above in Sections 3.1 and 3.2, can be further enhanced by the use of certain intonation contours and frequently by the addition of stress to the initial 'what'.

Increased stressing of an initial 'what' is able to serve as a further guarantee from the speaker that the positioning of an inanimate bare *wh*-object 'what' before a [+human], Agent subject 'who' is both intentional and a reflection of the prominence (of the object) which the speaker intends to convey to the hearer. Such stressing of an initial 'what', as for example might be naturally applied in Example (34), should not be confused with echo question intonation, and is effected to encode an increased level of interest associated with a particular *wh*-element rather than the mishearing of information. It indicates that the prominence accorded to an object 'what' in initial position preceding a subject 'who' is indeed justified because the object is of greater focal interest than the subject.

What adds in a potential complication to the use of stress to enhance the prominence of a fronted object *wh*-phrase is the fact that object *wh*-phrases will frequently be able to receive stress in a semi-automatic way in sentence-final position (nuclear stress), and the sentence-final position therefore allows the possibility of prominence on an object without the occurrence of any raising over the subject. This might therefore be expected to decrease the motivation for objects to be raised over subjects. Bearing this in mind, a second interesting observation which can be made about what > who sequences and intonation is that they are often naturally acceptable if some additional element occurs in sentence-final position and attracts the nuclear stress and its associated prominence as in (43a) and (44a) below. Here if the *wh*-object were to be left in situ and not raised over the subject, it would fail to attract nuclear stress as it would actually not be located in sentence-final position. This is shown in (43b) and (44b). The inability of the object *wh*-phrases to receive prominence in situ via nuclear stress may therefore make their fronting to the sentence-initial position and the prominence assigned to this position more easily acceptable. Certainly the acceptability of (43a) and (44a) is no less than that of (43b) and (44b), and (43b) is actually rather difficult to pronounce if the PP *in Arlington* is assumed to be new, focused information:

(43)   a.   I want to know what who found in Arlington.
       b.   (?)I want to know who found what in Arlington.

(44)   a.   So, what is who going to say next, do you think?
       b.   (?)So, who is going to say what next, do you think?

A further case of essentially the same phenomenon can be suggested to occur when an embedded CP in which *wh*-movement has occurred is itself raised, as in (45) below. Here it turns out to be surprisingly easy to accept the sequencing of $what_{object} > who_{subject}$ even with verbs which otherwise do not readily/naturally allow for $what_{object} > who_{subject}$ sequences. In such cases if the *wh*-object were to be left in situ (as in (46)) and if the raised CP is pronounced without any special pause between it and the remainder of the sentence (i.e. if a normal intonation pattern is given to the whole sentence), the *wh*-object will not receive sentence-final nuclear stress. For this reason, as with (43) and (44) it may make raising of what over who to increase its prominence more readily acceptable:

(45)   [$_{CP}$ What who said], I really don't know.
(46)   [$_{CP}$ Who said what], I really don't know.

Examples such as (45) also highlight another intonation-related issue relating to acceptable cases of Superiority configurations. It can be noted that (45) and other similar examples allow the contents of the fronted CP to be pronounced more slowly and deliberately than if the CP were not to be fronted, and such a measured, slow intonation pattern functions to increase the acceptability of examples of this type in a very natural way. Similar speech-rate 'speed' effects occur regularly in acceptable cases of Superiority involving $what_{object} > who_{subject}$ and a slower pronunciation of examples such as (34) and (35) repeated below clearly enhances their acceptability:

(34)   Stop, stop, stop, tell me slowly now, what is who going to blow up?
(35)   Tell me again, right from the start, I'm all confused, what did who buy from you?

Though it is difficult to be fully certain about the ameliorating effect of slow, measured speech in such instances, if increased syllable length is assumed to be a possible manifestation of stress, then lengthening of the pronunciation of *wh*-phrases in acceptable cases of Superiority configuration may be signalling stress in an alternative way to the simple increase of amplitude/loudness or pitch variation.

Prosody and intonation as noted here may therefore play a significant ancillary role in the licensing of prominence to *wh*-phrases in configurations of Superiority and certain contexts and syntactic structures may naturally lend themselves to allowing this intonation where it is needed to encode special prominence on 'what' in initial position.[10]

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10.   The non-echo stressing of *ki* 'what' in Bangla also improves the acceptability of $what_{object} > who_{subject}$ sequences. It can also be noted that in addition to an increase in pitch and loudness, morphological doubling of *ki* into *ki-ki* has a similar effect in improving $what_{object} > who_{subject}$ questions. Such doubling may again perhaps be the addition of stress via an increase in the

3.4 Referential familiarity of expected answers to *wh*-questions

A fourth influential factor affecting the acceptability of what/who Superiority configurations relates to referential familiarity of the answers which a hearer expects might be given to a *wh*-question. If many of the classic examples used to illustrate the unacceptability of what > who sequences such as *What did who buy?* are considered, one can note a potentially significant difference and imbalance in the information status of the anticipated answer-values for the subject and object *wh*-phrases. If such examples are presented out of any context (as is commonly the case), a default interpretative assumption which hearers may regularly make is that the *wh*-object 'what' will correspond to a non-specific indefinite answer-value (i.e. a 'type', such as for example 'a book', 'a pen') and that 'who' will correspond to a definite value (i.e. a familiar individual represented by a name/description, e.g. 'John', 'the father' etc). Especially with verbs such as 'buy', 'give' etc., it may be less common to assume that a prototypical answer-value for a subject *wh*-phrase would be indefinite and that a prototypical answer-value for the object would be definite, e.g. *A man bought the book, A woman gave me the pen* etc. Such answer-forms are of course not excluded, but unless a hearer is directed by explicit contextual clues, it can be suggested that there is a *tendency* to mentally project and assume prototypical answers to questions (here of the type definite-subject + indefinite object), and furthermore to make use of this kind of default projected information when asked to judge the acceptability of multiple *wh*-questions.

If it is correct to assume that default expectations are made use of in this way in the absence of context, and if subject 'who' is commonly expected to correspond to a definite individual and object 'what' to a non-specific indefinite (with many verbs), it is not surprising that what$_{object}$ > who$_{subject}$ questions are indeed frequently classified as unacceptable. It is less likely that an indefinite non-specific object will be expected to be of greater focal interest than a definite, specific human subject, and therefore there should be no pragmatic justification for making the object *wh*-phrase more prominent in the sentence by raising it over the subject. This can be compared to the similar ill-formedness of fronting an indefinite non-*wh*-object over a definite subject as in (47):

(47)   ??A book, John bought.

length of the *wh*-phrase. In varieties of English which permit it, a similar effect may be present in the addition of 'all' to raised 'what' as in (i) below. This lengthening of the *wh*-phrase would seem to improve its status in the Superiority configuration:

(i)   What all did who buy?

Examples such as (47) will be regularly judged to be deviant *unless* there is heavy stress on the object and it (and its buying by John) is construed as remarkable in some way, with John not being expected to buy books.[11]

It can therefore be suggested that an unfair imbalance relating to (expected) information status is commonly hidden in many what > who pairings. When this is controlled for by using verbs which are more frequently associated with definite/specific objects, such as for example 'destroy', 'criticise', this may even up the information status imbalance and allow for what > who sequences to be more easily acceptable, with 'what' being more naturally taken to refer to a specific/definite entity. Concerning the common default interpretation of subject 'who' as corresponding to a definite individual, it is not particularly easy to construct questions in which subject 'who' will be assumed to correspond to an indefinite answer value (i.e. 'a person', 'a man'). However, certain contexts can be found which will allow for this, and clear effects on the acceptability of what > who sequences can be detected. In Example (35) repeated below, it is likely that the answer value for 'who' *will* be expected to correspond to an unfamiliar, indefinite individual, e.g. *a man about 6'2" with a moustache*, and the what > who sequencing is relatively acceptable:

(35)   Context: an investigator taking a statement about some potential criminal activity:
        "Tell me again, right from the start, I'm all confused, what did who buy from you?"

Note also that if we increase the likelihood that the object can be interpreted as the central focal interest of the question, (35) becomes quite acceptable. This can be done by instructing hearers to interpret (35) as being uttered by a concerned investigator in a store selling weapons and armaments. In such a background context, the object 'what' can clearly be expected to correspond to a potentially very significant item (a rifle, explosives etc). This, balanced against the anticipation that the reference of 'who' will be unfamiliar/indefinite, allows for highly acceptable fronting of object 'what' over subject 'who'.[12]

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11.   An explicit continuation of (47) including an element contrasted with the fronted object may therefore help to increase its acceptability:

(i)   A BOOK, John bought, not a motorcycle magazine, can you believe it?

12.   Note that it is not always necessary for an object 'what' to be interpreted as referring to a definite entity for a what > who sequence to be acceptable (though this can clearly help). In (35) the answer expected to correspond to 'what' may quite naturally be indefinite (e.g. *a rifle*). If the potential interest value of the object can be assured in some other way (by it being potentially remarkable etc), 'what' can precede 'who' also if indefinite. This is seen further in quiz show-type questions such as (38) repeated below, where the answer to 'what' might well be expected to be indefinite (e.g. 'a giant squid'):

(38)   In the third chapter of The Port au Prince Adventure, what did who see rising out of the sea?

In the general case, though, it would seem that subject 'who' is interpreted as being most likely to refer to a definite individual. The element 'who' used as an object (e.g. *Who did you meet/see?*) would in fact also seem to have this property and be construed most commonly as being likely to refer to some familiar individual rather than an indefinite open type, e.g. *a man, a woman*. There is consequently, most arguably, a significant 'unfair advantage' present in most who$_{subject}$/what$_{object}$ questions which militates against the positioning of 'what' before 'who' due to expectations relating to the familiarity of answer forms. Object 'what' will frequently be interpreted as relating to an indefinite answer value which is less likely to be the obvious, primary centre of empathy/interest of the question, whereas 'who' will generally be related to a definite individual value, and so more naturally prominent than other indefinite referents. Attempts at assessing the purely structural effects of Superiority configurations need to take into account this common imbalance in informational status, and ensure that it is evened out and controlled for in a fair way by the careful use of verbs and context.

In discussing the potential role of definiteness in affecting the acceptability of multiple *wh*-questions, it is also necessary to briefly touch on two other subjects which are often related to the syntax of multiple *wh*-questions and Superiority – the notion of D-linking and the occurrence of pair-list answer-form interpretations. If potentially deviant sequences of what > who are rendered more acceptable when the value corresponding to 'what' can more easily be assumed to be a definite, familiar entity (via the use of certain verbs), this might lead to the suggestion that the assumed definiteness of an object 'what' results in it being construed as 'D-linked', and that D-linking of the object might in some way allow for an interpretative syntax which is different from that in regular questions. Such a possibility can be fairly straightforwardly dismissed, however. The theory of D-linking put forward in Pesetsky (1987) and developed further in Pesetsky (2000) suggests that if an in situ *wh*-phrase is understood as referring to a member of a restricted set of answer values salient in the discourse it will be D-linked and escape the need to undergo raising to a [+Q] Comp in the way that non-D-linked *wh*-phrases have to. In Pesetsky (1987) it was first proposed that in situ D-linked *wh*-elements are simply bound in situ without the need for any raising to Comp, while in Pesetsky (2000) it is argued that feature-movement to Comp occurs with in situ D-linked *wh*-phrases in contrast to the full phrasal movement of non D-linked *wh*-elements. What is now important to highlight here is that the patterns reviewed in Section 3 have all indicated that it is manipulation of the referential prominence of the *wh*-phrase overtly moved to Comp which result in typical Superiority configurations becoming acceptable, and it is not the status of the *wh*-in-situ subject 'who' which is being manipulated and being made more referential. In fact the opposite effect has actually been suggested here, and if it is possible for the in situ subject 'who'

to be construed as unfamiliar and indefinite as in Example (35), this actually will increase the naturalness of fronting a focal 'what' over 'who'. A similar example in which the prominence of an animate *wh*-subject is decreased relative to the object by making it generic and not refer to a specific D-linked individual is seen in (32). The generalization which therefore characterizes the data presented here is that it is more commonly a change in the information status of the moved/raised *object* 'what' which can be shown to impact on the acceptability of Superiority configurations in a positive way, when the focal prominence of the object is increased by various means. As the D-linking hypothesis is concerned with suggesting a special licensing mechanism for *in situ* rather than raised *wh*-elements, the improved acceptability of Superiority configurations resulting from an increase in the referentiality of an overtly raised object 'what' is not something which is to be explained by D-linking. Furthermore, not only is it not necessary for an in situ 'who' subject to be D-linked in acceptable what > who sequences, it is also not necessary for the raised what to be D-linked as seen in (35) and also (48) below, where 'what' is free to refer to anything/any of the countless web-pages available on the world wide web:

(48)   I want to know exactly what who was viewing when the system crashed.

If the prominence and focality of an object 'what' can be guaranteed by its role in the action described (in (48) having a potential agent-like interpretation as possibly having caused a set of computers to have crashed), then there is no need for it to be D-linked and relate to a restricted, known set of entities assumed in the discourse (though prominent, focal occurrences of 'what' may of course quite often coincide with interpretations where they are construed as familiar and D-linked).

This brings us to consider a second and final point here. If an increase in the referential familiarity and definiteness of a raised object 'what' does in various cases increase the acceptability of what > who sequences, it might be suggested that this is related to a need for multiple pair answers in questions involving more than one *wh*-phrase in English. Rather than attributing the ameliorating effect of 'definiteness' in an initial 'what' to a general increase in its focal prominence as argued here, it might be proposed that the initial *wh*-phrase in a multiple *wh*-question must be taken to relate to a set of definite individuals/be D-linked in order that a pair-list answer form can be computed on the basis of the known membership of answer values for the first *wh*-phrase. Kuno (1982), for example, suggests that the linearly first *wh*-phrase in a multiple *wh*-question functions as a key to provide pairs (or triples) of answers. The membership of the first *wh*-phrase must therefore be known, and hence definite (see also Hornstein 1995 for related discussion).

Concerning this possibility that an initial 'what' in a multiple *wh*-question might have to be construed as referring to a set of definite entities in order to facilitate

necessary pair-list answer forms, the following can be noted. Although it is apparent that multiple pair answer forms seem to be required in many multiple *wh*-questions in English, such as (49) below, it is actually not true that multiple pairs are always required. If the choice of verb is manipulated a little, and a more explicit background context is provided, as in quiz show-type questions, it is found that single pair answer forms to multiple *wh*-questions are in fact often quite natural, as shown in (50).

(49)   Who bought what?

(50)   In the final scene of the play Broken Shutter, who stole what/what did who steal from the owner of the inn?

Once the context provides a clear restriction to a particular time and place, single-pair answer forms are actually not difficult to elicit, as seen again in (51) and (34):[13]

(51)   What did Bond give to who in the hallway at 11.05?

(34)   Stop, stop, stop, tell me slowly now, what is who going to blow up?

Because an increase in the referential familiarity of answer-forms expected for 'what' in a what > who question which anticipates such a single pair answer may often have a positive effect on its acceptability, it can be suggested that the facilitation of pair list answer forms is *not* the critical factor causing raised 'what' to benefit from a 'definite' interpretation; rather it is the likelihood that definiteness (of anticipated answer-forms) will contribute to the potential focal prominence of a raised 'what' which will help in the fronting of object 'what' in multiple *wh*-questions.

Staying with the issue of pair list answer forms for just a moment longer, certain descriptions of cross-linguistic variation in multiple *wh*-questions have suggested that languages may vary in terms of whether or not their multiple *wh*-questions always require pair-list answer forms or whether they alternatively allow just single-pair answers. In Bošković (2002) such suggested variation is attributed to differences in the fronting of *wh*-phrases: if a language has genuine *wh*-movement to a [+Q]

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13.   If one is a little inventive, it is also possible to construct multiple *wh*-questions which anticipate a single pair answer in environments which are not typical quiz-show scenarios. What is necessary here is the assumption that an action of a certain type will take place pairing a single individual with an object of a certain type, such as, for example, the removal of money from an ATM machine, and that only one person can carry out the action at a particular time. The multiple *wh*-question in (i) might therefore be asked by a crime scene investigator asking about a specific ATM machine, with the expectation of a single pair answer:

(i)   Just before the deceased arrived at the ATM, at 11.05, who withdrew how much money, can you tell me?

C, it is argued it will require pair list answers in multiple *wh*-questions, whereas if a language has only *wh*-"focus" raising, it is expected to freely allow single pair answers in multiple *wh*-questions. Such a clear distinction between languages turns out to be rather questionable, however. On the one hand, English as a language with "genuine" *wh*-movement has been shown to allow for single pair answer forms in appropriate contexts, hence a language characterized as a necessary multiple pair language is actually not so on closer inspection. Conversely, if we consider languages which are described as freely allowing single pair answer forms due to not having any genuine *wh*-movement, the occurrence of single pairs is actually not so free as is perhaps suggested. For example, Russian and Japanese are two languages mentioned in Bošković (2002) as regularly allowing for single pair answers to multiple *wh*-questions. However, a closer inspection of the literature on Russian and Japanese suggests that this is not fully accurate. Concerning Russian, Stepanov (1998: 461) says that a multiple *wh*-question such as (52) can have a single pair list *if asked in an appropriate context*:

(52)   Kto čto kupil?
        who what bought
        'Who bought what?'

It is added that the context might be that the speaker is in a store, saw someone buy something but didn't see who it was nor what was bought and so asks the salesman. In such an explicit context, however, it is also possible to elicit a single pair in English, for example:

(53)   I'm a detective, so please tell me, just now, who bought what, do you know? I need to find out badly.

It is therefore far from clear that Russian is any different from English in requiring a specific context before it will allow for single pair answer forms to multiple *wh* questions. The same may be true of Japanese. Although Japanese is referred to in Bošković (2002) as a language which does not force pair list answers, Nishigauchi (1998: 150 fn6) reports that a range of informants found it difficult to accept single pair answers as natural for multiple *wh* questions, and where multiple *wh* phrases occur in the same clause in a *wh* question, these are naturally answered by listing pairs/sets of individuals (Nishigauchi 1999: 127).[14] It may well be, therefore, that

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14.   A single-pair answer-form is noted to become more natural in Japanese when multiple *wh*-phrases occur in different clauses (Nishigauchi 1999: 128 ex. 19). This would seem to be frequently true of English as well, as in examples such as (i) below, hence Japanese and English may not be so dissimilar in the way that multiple *wh*-questions may be answered with single or multiple pairs.

i.   Who did John tell that Mary wants Bill to buy what?

languages do *not* vary in whether they enforce multiple pair answers in multiple *wh* questions or alternatively freely permit single-pair answers, and once the role of context is evenly controlled for, languages may perhaps be quite similar in their tolerance of single pair vs. pair list answers.

4. Bangla sluicing revisited

Section 3 has probed and argued for the importance of a range of factors influencing the linear sequencing of *wh*-phrases in multiple *wh*-questions and the particular effects of such factors in what > who sequences. We were led to consider the latter type of *wh*-combination because of a puzzle present in Bangla and various other languages, where such sequences stand out as being quite pronounced in their unacceptability, though other combinations of *wh*-elements in Superiority configurations appear not to show obvious signs of deviance. When what > who questions were reconsidered in English, this led to the conclusion that such data in English is actually not so clear cut, even though it is often presented as central exemplification of Superiority, and it is not always the case that what > who sequences are unacceptable. In those sequences of what > who which do appear to be unacceptable, it was argued that it is possible to isolate the largely pragmatic factors which are responsible for the deviance, and when such factors are controlled for and balanced/corrected, the result is quite regularly acceptable occurrences of 'what' raised over 'who' in a Superiority configuration. This therefore suggests that 'Superiority violations', i.e. genuinely deviant occurrences of *wh*-elements in a Superiority configuration, are not ungrammatical because of any purely structural syntactic constraint such as the Shortest Move Condition/SMC, but rather due to a range of other factors relating to the relative interpreted prominence of *wh*-phrases in a particular sentence and discourse situation.

Turning back to Bangla now, the deviance of *ki* > *ke* 'what > who' patterns noted in Section 1 is now no longer really a puzzle. What initially seemed to be difficult to understand was why the occurrence of *ki* preceding *ke* appeared to be deviant, yet (a) the unacceptability was not as clearly sharp as judgements given for similar sequences of what > who in English, and (b) other instances of expected Superiority 'violations' such as *kake* > *ke* 'whom$_{object}$ > who$_{subject}$' were not felt to be deviant. Now that we have examined the patterning in English more closely, we can conclude that the key Superiority data in English is actually a lot more varied in its (un-)acceptability than commonly reported and assumed, and that the initial striking deviance of *ki* > *ke* patterns Bangla is therefore not really an isolated puzzle but rather a reflection of quite general cross-linguistic factors influencing

the acceptability of multiple-*wh* sequences. What$_{object}$ > who$_{subject}$ sequences will stand a heightened chance of being perceived as unacceptable in all languages, and considerably more so than whom$_{object}$ > who$_{subject}$ sequences, yet this unacceptability can also be reduced and eliminated by the manipulation of a number of factors, and, if not carefully controlled for, may often cause a messy blurring of grammaticality judgements.

The second puzzle arising in Bangla which was noted in Section 1 and which we have not focused on since then was the observation of apparent Superiority effects in cases of multiple *wh*-sluicing. An obvious question now is how these patterns might relate to the revised conception of Superiority phenomena developed in Section 3. In brief, what has been argued for in Section 3 is that multiple-*wh* sequences (should) encode the relative prominence of a set of *wh*-phrases and that Superiority "violations" occur when it is pragmatically difficult to accept the relative prominence encoded by the linear ordering of a set of *wh*-phrases in a particular way. The question now is whether an explanation in terms of the notion of prominence is also appropriate for the "Superiority" observed in sluices. We would like to suggest that it *is* in fact quite appropriate and natural, and that the deviance of certain sluiced multiple-*wh* sequences is indeed directly connected with relative argument prominence. What is particularly special about sluices, apart from the common deletion and removal of all non-*wh* material in the sluiced clause, is the occurrence of clear (indefinite) antecedents for the sluiced *wh*-phrases in the non-sluiced clause. For example, the *wh*-phrases *ke* 'who' and *ki* 'what' in (54) below refer back to the indefinites *keu* 'someone' and *kichu* 'something' in the matrix, non-sluiced clause:

(54) a. Mini-ke kal rate keu   kichu   diyeche,
          Mini-ACC last night someone something gave
          kintu [ke ki]/*[ki   ke] ami jani na.
          but   who what/what who I   know not
          Lit: 'Last night someone gave something to Mini, but I don't know
          who what.'

The "Superiority" effects observable in multiple *wh*-sluices can be simply attributed to the natural strong tendency to follow and copy the argument prominence relation established and present in the non-sluiced clause by the linear sequencing of the indefinite DPs anteceding the sluiced *wh*-phrases. This is an effect and patterning which has also been observed in non-sluiced *wh*-questions in Serbo-Croat when these are embedded in a discourse sequence with indefinite antecedents for the *wh*-phrases arranged in a particular order, as in (55) below:

(55) a. Neko   je udario nekog.
          somebody is hit   someone
          'Somebody hit someone.'

b. Ko   koga?
    who whom
    'Who (hit) whom?'
c. ?*Koga ko?
    whom who   (Stjepanović 1999)

Whereas sequences of whom$_{object}$ > who$_{subject}$ such as (55c) may otherwise be acceptable in Serbo-Croat, once embedded in a context where there is a clear speaker-determined sequencing of antecedents for the *wh*-phrases, it is found that the sequencing of *wh*-phrases in the question-form has to copy the linear sequencing of the antecedents in the preceding statement.

Such an assumption about the causes of "Superiority effects" in sluices in Bangla also leads to a further clear prediction which can be tested to determine whether the account is essentially on the right track or not. If it is the ordering of elements in the antedecent clause which is responsible for determining the sequencing of *wh*-elements in a sluice, and this occurs through a natural copying of the pragmatic salience assigned to the indefinite antecedents (in their linear ordering) onto the ordering of the *wh*-elements in the sluice, one might expect that a change in the relative order of the indefinite antecedents would allow for a natural change in the order of *wh*-elements. In (54), the legitimate ordering of the *wh*-phrases subject *ke* > object *ki* in the (raised) sluiced CP mirrors the ordering of subject *keu* > object *kichu* indefinite antecedents in the preceding clause, and when the opposite ordering is attempted (*ki > *ke*) this is unacceptable. If we now attempt to change the order of *keu* and *kichu* in the input, however, it might be expected that the illicit *ki > *ke* order of the *wh*-elements in (54) would become acceptable. This prediction is indeed borne out, as shown in (56) below. Example (56b) furthermore shows that once the ordering of the indefinite antecedents is reversed and becomes *kichu* > *keu*, the original legitimate ordering of the *wh*-elements in the sluice *ki* > *ke* automatically becomes *unacceptable*. As such an ordering should not violate Superiority conceived of in terms of the Shortest Move Constraint (and (56a) arguably *should*, yet is well-formed), the reversed acceptability of (56a,b) vs. (54) strongly indicates an approach to Superiority which does not attempt to reduce it to a purely structural, and pragmatically blind Attract Closest-type filter:

(56) a. Mini-ke kichu   kal rate keu   diyeche,
          Mini-ACC something last night someone gave
          kintu [ki   ke] ami jani na.
          but   what who I   know not
          Lit: 'Last night someone gave something to Mini, but I don't know who what.'
      b. *Mini-ke kichu   kal rate keu   diyeche,
          Mini-ACC something last night someone gave
          kintu [ke ki]   ami jani na.
          but   who what I   know not

The conclusion for Bangla resulting from these patterns is therefore that the occurrence of "Superiority effects" in sluices does not really exhibit any radically different syntactic or pragmatic constraints from those at work in non-sluiced multiple *wh*-questions. Cases of "Superiority" in sluices and other related constructions where there is an explicit input (such as the Serbo-Croat sequence in (55)) are simply instances where the sequencing of multiple *wh*-elements is highly constrained to copy an argument prominence relation established elsewhere in the sentence/adjacent discourse either by strict syntactic rules or by variation in common pragmatic factors such as centre of interest and empathy. The particular salience of the unacceptability of illicit *wh*-sequences in sluiced environments compared to that in (most) other non-sluiced environments is stronger simply because the relative pragmatic prominence of the *wh*-phrases in the former is overtly established by the speaker via the positioning of the indefinite antecedents for the *wh*-phrases in the (non-sluiced) input. Such an explicit sequencing of antecedents has the significant restraining effect that it does not allow for the easy construction of other, alternative background contexts (by a speaker/hearer) as a means to license a different sequencing of the *wh*-elements (via a different assumed relative prominence of the *wh*-phrases).

5. The status of Superiority, and argument prominence

Having considered how the two sets of cases of "Superiority" in Bangla link up with restrictions on multiple-*wh* sequencing more broadly, we are now in a position to reflect back on the progress made in the paper as a whole and assemble some general conclusions about Superiority phenomena and its connection with argument prominence.

The original stated aim of the paper was to consider the potential instantiation of argument structure in sequences of *wh*-elements, both when there are multiple fronted sequences of *wh*-phrases and when one of a set of *wh*-phrases present in a sentence is selected for fronting. The relevant problem which was outlined in the introduction to the paper was how to analyze the cross-linguistic variation which has been reported in restrictions on *wh*-sequencing in multiple *wh*-questions, and what to make of claims that Superiority effects are present in some languages but not in others. It was noted that two possible reactions to such variation may be either to attempt to relate it to fundamental differences in underlying argument structure, or to assume that there are significant differences in the mechanism of *wh*-fronting across languages. However, as both such approaches require the assumption of rather drastic cross-linguistic variation and a number of associated problems, we decided instead to reconsider the data and patterns involved in Superiority phenomena to see if any alternative conclusions might be drawn. This

then led us to consider first the patterns in Bangla in Section 1 and then in English in Section 3. What the combination of this and in particular a reconsideration of key Superiority patterns in English has now indicated is the following.

First of all, there are strong indications that (suggestions of) cross-linguistic variation in multiple-wh sequencing in both multiple wh-fronting and English-type single wh-fronting languages is actually not present and is an artifact of data which is not very carefully controlled for. The linear sequencing of wh-elements in single wh-fronting and multiple wh-fronting languages is therefore quite possibly much more uniform than is sometimes portrayed.

Secondly, a range of factors relating to the pragmatic prominence associated with a wh-element and its anticipated answer, as well as prosodic factors, are responsible for constraints on wh-sequencing. In prior investigations of Superiority it has been suggested that what critically regulates the raising of wh-elements to a [+Q] C is the structural distance of a wh-phrase from Comp. As subjects are regularly closer to C than objects, this has been assumed to account for the common linear positioning of wh-subjects before wh-objects both in multiple wh-fronting languages and in English-type languages. However, here it was shown that the data frequently invoked to support such generalizations is often unbalanced and accords a significant pragmatic advantage to wh-subjects. Once this inequality is factored out, it appears that the simple distance of a wh-element from Comp is actually not important, and any wh-element which can be legitimately interpreted as a significant focal centre can also appear as the linearly first raised wh-element in a multiple wh-question.

Unlike in the mapping of arguments from their theta positions to higher case and agreement positions, it can therefore be concluded that the purely structural condition Shortest Move does *not* seem to play a decisive role in dictating which wh-element will occur raised as the first wh-phrase in a sentence, and the strength of and confidence in judgements relating to Superiority is consequently quite different to that in other cases which have been suggested to violate Shortest Move, e.g. when an object is attracted to Spec,TP rather than a subject (*The book has the man bought the book.).

Finally, if it is indeed correct that there is greater uniformity in multiple-wh sequencing than sometimes portrayed and there are no fundamental differences in Superiority across languages, there will clearly be no need to posit significant differences in underlying argument structure to account for the 'lack' of Superiority in certain languages. Instead, there is rather an important need to recognize that it is the general focal prominence of arguments which plays the pivotal role in regulating the distribution of wh-elements in multiple wh-questions and that in both multiple wh-fronting languages and English-type languages the linear sequencing of wh-phrases may be exclusively determined by pragmatic, semantic and prosodic factors rather than any blind structural constraint such as the SMC.

References

Bošković, Z. 2002. Multiple wh-fronting. *Linguistic Inquiry* 33(3): 351–384.

Cheng, L. 1997. *On the Typology of Wh-Questions*. New York NY: Garland.

Chomsky, N. 1973. Conditions on transformations. In *A Festschrift for Morris Halle*, S. Anderson & P. Kiparsky (eds), 232–286. New York NY: Holt, Rinehart and Winston.

Chomsky, N. 1995. *The Minimalist Program*. Cambridge MA: The MIT Press.

É. Kiss, K. 2002. *The Syntax of Hungarian*. Cambridge MA: Cambridge University Press.

Godjevac, S. 2000. Intonation, Word Order, and Focus Projection in Serbo-Croatian. PhD Dissertation, Ohio State University.

Hornstein, N. 1995. *Logical Form*. Oxford: Blackwell.

Kuno, S. 1976. Subject, theme, and the speaker's empathy – a re-examination of relativization phenomena. In *Subject and Topic*, C. Li (ed.), 417–444. New York NY: Academic Press.

Kuno, S. 1982. The focus of the question and the focus of the answer. *Papers from the Parasession on Nondeclaratives*. Chicago IL: CLS.

Nishigauchi, T. 1998. Multiple sluicing in Japanese and the functional nature of wh-phrases. In *Journal of East Asian Linguistics* 7(2): 121–152.

Pesetsky, D. 1987. Wh-in-situ: Movement and unselective binding. *The Representation of (in-) definiteness*, E.J. Reuland & A. ter Meulen (eds), 98–129. Cambridge MA: The MIT Press.

Pesetsky, D. 2000. *Phrasal Movement and its Kin*. Cambridge MA: The MIT Press.

Richards, N. 2001. *Movement in Languages: Interactions and architectures*. Oxford: Oxford University Press.

Rudin, C. 1988. On multiple questions and multiple wh-fronting. *Natural Language and Linguistic Theory* 6: 445–501.

Simpson, A. & Bhattacharya, T. 2003. Obligatory overt wh-movement in a wh in situ language. *Linguistic Inquiry* 34(1): 127–142.

Stepanov, A. 1998. On wh-fronting. In *NELS 28*, P.N. Tamanji & K. Kusumoto (eds), 453–467. Amherst MA: GLSA.

Stjepanović, S. 1999. Multiple sluicing and superiority in serbo-croation. In NELS 29, P.N. Tamanji, M. Hirotani & N. Hall (eds), 145–159. Amherst MA: GLSA.

Toft, Z. 2001. Is there ever multiple wh-movement? Evidence from Hungarian. In *Durham Working Papers in Linguistics, Vol. 7*, M. Whong-Barr (ed.), 126–144. Durham: Durham University.

Zavitnevich-Beaulac, O. 2002. Wh-Movement: The minimalist approach. PhD Dissertation, University of Cambridge.