

On multiple wh-fronting*

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It is standardly assumed that there are 4 language types with respect to possibilities for wh-movement in multiple questions. English-type, where only one wh-phrase moves, Chinese-type, where they all stay in situ,¹ and French-type, where both of these options are available, are illustrated in (1)-(3).

(1) What did John give to who?

(2) John gei-le shei shenme?

John give perf. who what

‘What did John give to who?’

(3) a. Qu’ a-t-il donné à qui?

what has he given to who

b. Il a donné quoi à qui?

he has given what to who

French is often assumed to be a simple mixture of the first two types. This view is mistaken. If it were correct both the English and the Chinese strategy would always be possible in French, i.e. the set of possibilities for questions in French would be a union of the set of possibilities for questions in English and Chinese. This is not true. As shown in Bošković (1998a, 2000), the in-situ strategy has a very limited distribution in French, which indicates that its wh-in-situ is of different nature from Chinese wh-in-situ. Based on this, I assume that French is a separate type, not a simple mixture of English and Chinese. The relevant French data are given in (4). Wh-in-situ is allowed in short distance null C matrix questions (3b), but not in embedded, long-distance, and overt C questions (4). (See Bošković 1998a, 2000 for explanation for the limited distribution of wh-in-situ in French. The judgments are given for the true question reading. Note that overt C questions are possible only in some dialects.)

(4) a. *Pierre a demandé tu as embrassé qui.

Peter has asked you have kissed who

- b. cf. Pierre a demandé qui tu as embrassé.
- c. *Jean et Marie croient que Pierre a embrassé qui?
John and Mary believe that Peter has kissed who
- d. cf. Qui Jean et Marie croient-ils que Pierre a embrassé?
- e. * Que tu as vu qui?
C you have seen who
- f. Qui que tu as vu?

The fourth type, multiple wh-fronting (MWF) languages, where all wh-phrases move, is illustrated by (5) from Bulgarian, where according to Rudin (1988) all wh-phrases move to SpecCP overtly.

- (5) Na kogo kakvo dade Ivan?
to who what gave Ivan
'What did Ivan give to who?'

This paper deals with MWF. In section 1 I argue that the MWF-type should be eliminated from the above typology, languages considered to belong to this type being scattered across the first three types. In section 2 I show that there are several classes of non-MWF questions in MWF languages, a surprising fact given the discussion in section 1, which will lead me to posit a new type of in situ wh-phrases not attested in English, French, and Chinese-type languages. Section 3 is the conclusion.

1 When MWF languages have wh-movement

1.1 Superiority effects in MWF languages

One argument that MWF languages are scattered across the English, French, and Chinese-type with respect to when they have wh-movement concerns Superiority effects, reflected in the order of fronted wh-phrases.² There are three types of MWF languages with respect to Superiority. Serbo-Croatian (SC) exhibits Superiority effects in some contexts. Bulgarian exhibits them in all contexts, while Russian never exhibits them. Consider first SC. SC exhibits Superiority effects in embedded, long-distance, and overt C questions, but not in short-distance null C matrix questions:³

- (6) a. Ko koga voli?

who whom loves

‘Who loves whom?’

b. Koga ko voli?

(7) a. [Ko koga voli], taj o njemu i govori.

who whom loves that-one about him even talks

‘Everyone talks about the person they love.’

b. ?*[Koga ko voli], taj o njemu/o njemu taj i govori.

(8) a. ?Ko koga kažeš da je istukao?

who whom say that is beaten

‘Who do you say beat whom?’

b. *Koga ko kažeš da je istukao?

(9) a. (?)Ima ko šta da ti proda.

has who what part. you sells

‘There is someone who can sell you something.’

b. *Ima šta ko da ti proda.

(10) a. Ko li koga voli?

who C whom loves

‘Who on earth loves whom?’

b. *Koga li ko voli?

Notice that SC exhibits Superiority effects exactly where French must have wh-movement. Where French does not have to have wh-movement, SC does not exhibit Superiority effects.

Bulgarian exhibits Superiority effects in all contexts, including (6)-(10) (see also (41b)/(43b)).

(11) a. Koj kogo običa?

who whom loves

b.*Kogo koj običa?

c. Koj kogoto običa, toj za nego i govori.

who whom loves he about him even talks

d. *Kogoto koj običa, toj za nego/za nego toj i govori.

- e. Koj kogo kazvaš će e nabil?
 who whom say that is beaten
- f. *Kogo koj kazvaš će e nabil?
- g. (?)Ima koj kakvo da ti prodade.
 has who what part. you sells
- h. *Ima kakvo koj da ti prodade.
- i. Koj li kogo običa?
 who C whom loves
- j. *Kogo li koj običa?

Finally, as shown by Stepanov (1998), Russian has free order of fronted wh-phrases in all contexts. This is illustrated in (12) for the contexts in (6)-(9). (Notice that Russian does not allow wh-phrases in the *li*-construction and does not allow multiple questions in the wh-existential construction.)

- (12) a. Kto kogo ljubit?
 Who whom loves
- b. Kogo kto ljubit?
- c. Kto kogo uznaet, tot togo i poljubit.
 who whom knows that-one.nom that-one.acc and loves
 ‘Everyone will love the person they will know.’
- d. Kogo kto uznaet, togo tot i poljubit.
- e. Kto kogo ty xočeš, čtoby pobil?
 who whom you want that-subj. beat
 ‘Who do you want to beat whom?’
- f. Kogo kto ty xočeš, čtoby pobil?

There is a parallelism in the behavior of English, French, and Chinese with respect to wh-movement and the MWF languages with respect to Superiority: SC exhibits Superiority effects where French must have wh-movement, Bulgarian where English must have wh-movement (all contexts), and Russian where Chinese must have wh-movement (namely, never).⁴ This can be accounted for if SC,

Bulgarian, and Russian behave like French, English, and Chinese with respect to when they must have wh-movement, which I take to be movement motivated by checking the strong +wh-feature of C: SC must have it in long-distance, embedded, and overt C questions, but not in short-distance null C matrix questions; Bulgarian must have it in all contexts, and Russian does not have to have it at all (see also Stepanov 1998 and Strahov 2000 for Russian.) Wh-movement in MWF languages is then well-behaved with respect to Superiority: SC, Bulgarian, and Russian exhibit Superiority effects whenever they have wh-movement. The only difference between SC/Bulgarian/Russian and French/English/Chinese is that even wh-phrases that do not undergo wh-movement in the former group still must be fronted for independent reasons. That this movement is not driven by the strong +wh-feature of C is confirmed by the fact that all wh-phrases must move in these languages, although movement of one wh-phrase should suffice to check the strong +wh-feature of C. (I refer to this obligatory movement of wh-phrases that is independent of the strong +wh-feature of C as non-wh-fronting.)

- (13) a. Ko šta kupuje? (SC)
 who what buys
 'Who buys what?'
 b. ?*Ko kupuje šta?
- (14) a. *Koj e kupil kakvo? (Bulgarian)
 who is bought what
 'Who bought what?'
 b. Koj kakvo e kupil?
- (15) a. *Kto kupil čto? (Russian)
 who bought what
 b. Kto čto kupil?

Even echo wh-phrases must move in these languages. (13b), (14a), (15a), and (16) are unacceptable even as echo questions (see also Wachowicz 1974 and Kiss 1987 for Polish and Hungarian), which confirms that wh-phrases in MWF languages front independently of the strong +wh feature of C.⁵

- (16) a. ?*Ivan kupuje šta? (SC)

- Ivan buys what
- b. ?*Ivan e kupil kakvo? (Bulgarian)
- Ivan is bought what
- c. ?*Ivan kupil čto? (Russian)
- Ivan bought what

Stjepanović (1998, 1999b) argues the driving force of SC non-wh-fronting is focus, SC wh-phrases being inherently focused. She follows the line of work originating with Horvath (1986), where wh-fronting in a number of languages is analyzed as focus movement. This work makes a correlation between movement of wh-phrases and movement of contrastively focused non-wh-phrases,⁶ whereby a number of languages that overtly move non-wh-phrases with this type of focus are analyzed as having focus fronting of wh-phrases. (I will refer to contrastively focused non-wh-phrases simply as focused, this being the only type of focus for such phrases I am concerned with.) The analysis has been convincingly applied to, e.g., Aghem, Basque, Hungarian, and Quechua (see, e.g., Horvath 1986, Rochemont 1986, and Kiss 1995.) Stjepanović shows that SC fits into this line of research. We have already seen that SC fronts all wh-phrases. It also fronts focused non-wh-phrases, given in capitals.⁷

- (17) a. JOVANA savjetuje.
 Jovan.acc advises
 '(S)he advises Jovan.'
- b. ?*Savjetuje JOVANA.

Stjepanović provides convincing evidence that focused non-wh-phrases and wh-phrases undergo the same kind of movement in SC based on adverb placement. The focus movement analysis is applied to Bulgarian in Bošković (1998b, 1999), Izvorski (1993), and Lambova (in press), Russian in Stepanov (1998), and Romanian, also a MWF language, in Göbel (1998).⁸ I will also adopt it here. Notice, however, that my conclusions concerning when MWF languages have wh-movement are unaffected by the precise identity of the driving force of non-wh-fronting. However, I provide below three additional arguments for the focus movement analysis concerning D-linked and echo wh-

phrases (section 2.1) and the distribution of parentheticals in questions (footnote 15). Before doing that, in the next section I present evidence concerning the interpretation of multiple questions which confirms the conclusion reached above based on Superiority with respect to when various MWF languages must have wh-movement. (Another argument concerning Superiority is given in section 2.2.)

1.2 Interpretation of multiple questions

It is well-known that a pair-list answer is obligatory for constructions like (18). (The observation is due to Wachowicz 1974. See also Comorovski 1996:44, who explains away an exception to the observation concerning reversible predicates.) Thus, (18) cannot be felicitously asked in the following situation: John is in a store and sees somebody buying an article of clothing, but does not see who it is and does not see exactly what the person is buying. He goes to the sales clerk and asks (18).

(18) Who bought what?

Interestingly, single-pair answers are not crosslinguistically infelicitous with questions like (18). Thus, Japanese (19) can have either a single-pair or a pair-list answer, as observed by Mamoru Saito (p.c.). The example can be used in the situation described above, in contrast to (18).

(19) Dare-ga nani-o katta no?

who-nom what-acc bought Q

‘Who bought what?’

Chinese and Hindi pattern with Japanese. German, on the other hand, patterns with English. An obvious difference between English/German and Japanese/Chinese/Hindi is that the former have overt wh-movement, whereas the latter are wh-in-situ languages; i.e., interrogative SpecCPs must be filled overtly by a wh-phrase in English and German, but not in Japanese, Chinese, and Hindi. (I ignore the possibility of null operator movement, focusing on wh-phrases.) It is possible that overt movement to SpecCP forces pair-list answers. French, which can employ either the in-situ or the wh-movement strategy, confirms the conjecture. Single-pair answers are possible in French, but only

with in-situ questions. Thus, the in-situ question in (20a) can have a single-pair answer, which is not possible with (20b). (I discuss only non-subject questions in French, where it is clear when wh-movement occurs.)

- (20) a. Il a donné quoi à qui?
he has given what to who
'What did he give to who?'
b. Qu'a-t-il donné à qui?

The contrast between (20a) and (20b) strongly indicates that the availability of single-pair answers depends on the possibility of not moving any wh-phrase to SpecCP overtly.⁹

Turning to Slavic, as expected, Bulgarian, a language in which interrogative SpecCPs are obligatorily filled by a wh-phrase overtly, patterns with English in that (21) requires a pair-list answer.

- (21) Koj kakvo e kupil?
who what is bought
'Who bought what?'

Significantly, SC patterns with languages in which wh-phrases do not have to move to SpecCP overtly. Thus, SC (22) can have either a pair-list or a single-pair answer. This indicates that SC questions are well-formed even when no wh-phrase moves to interrogative SpecCP overtly.¹⁰

- (22) Ko je šta kupio?
who is what bought
'Who bought what?'

Stepanov (1998) notes that Russian questions like (23) also allow single-pair answers, as expected.

- (23) Kto čto kupil?
who what bought
'Who bought what?'

Polish and Romanian confirm the analysis. Like SC and Russian, Polish does not show Superiority effects in short-distance null C questions (see Rudin 1988), which means that it does not have to have overt wh-movement in such questions. On the other hand, Romanian shows Superiority effects (see Rudin 1988), which means that it has obligatory overt wh-movement, like Bulgarian and English.

(24) a. Kto co kupił? (Polish)

who what bought

‘Who bought what?’

b. Co kto kupił?

(25) a. Cine ce a cumpărat? (Romanian)

who what has bought

‘Who bought what?’

b. *Ce cine a cumpărat?

Significantly, Citko and Grohmann (2000) observe that a single pair answer is possible with Polish (24a), but not with Romanian (25a), a strong confirmation of the current analysis (see Bošković in press and Citko and Grohman 2000 for discussion of the interpretation of (24b).)

2 In situ wh-phrases in MWF languages

In this section I show that there are some exceptions to the obligatoriness of fronting of wh-phrases in MWF languages, a surprising fact in light of the above discussion. The exceptions can be classified into three groups: semantic, phonological, and syntactic. I start by examining semantic exceptions.

2.1 Semantic exceptions to the obligatoriness of wh-fronting in MWF languages

One semantic exception involves D-linked wh-phrases, which can remain in situ, as shown in (26).¹¹

(26) a. Ko je kupio koju knjigu? (SC)

who is bought which book

‘Who bought which book?’

b. Koj e kupil koja kniga? (Bulgarian)

who is bought which book

c. (?)Kakoj student pročital kakuju knigu? (Russian)

which student read which book

The exceptional behavior of D-linked wh-phrases is explainable under the focus analysis. With D-linked wh-phrases the range of felicitous answers is limited by a set of objects familiar to the speaker and the hearer as a result of it being referred to in the discourse or salient in the context. The range of reference of D-linked wh-phrases is thus discourse given. Due to their "discourse givenness", such wh-phrases are not inherently focused hence should not be subject to focus movement.¹² Note that some speakers prefer leaving D-linked wh-phrases in situ. Wachowicz (1974) notes this for Polish and Pesetsky (1987, 1989) for Romanian and Russian. Some speakers, however, can optionally front them. Thus, SC (27) is only slightly degraded. (Some Polish, Russian, and Romanian speakers allow (27).)¹³

(27) ?Ko je koju knjigu kupio?

who is which book bought

It is plausible that the D-linked wh-phrase in (27) undergoes scrambling rather than focus movement. If the latter were the case we would expect the movement to be obligatory, which is not the case with scrambling, scrambling being optional.¹⁴ This means that at least marginally, wh-phrases can be scrambled in SC (see Sinicyn 1982 for Russian). Notice that there is crosslinguistic variation in this respect. Thus, Japanese allows wh-scrambling, while German does not (see Müller and Sternefeld 1996). The scrambling analysis thus may make it possible to account for the variation regarding (27).

An interesting confirmation of this analysis is provided by Bulgarian, where most speakers allow optional fronting of D-linked wh-phrases under consideration (cf. (26b)).

(28) Koj koja kniga e kupil?

who which book is bought

Rudin (1988) argues that in Bulgarian constructions like (29), all wh-phrases are located in SpecCP, which in our terms means that the focus licenser for Bulgarian wh-phrases is interrogative C. One argument for Rudin's claim concerns the fact that the wh-phrases cannot be split by a parenthetical.¹⁵

(29) Koj kakvo e kupil?

who what is bought

(30) ?*Koj, spored tebe, kakvo e kupil?

who according you what is bought

'Who, according to you, bought what?'

Significantly, it is easier to split wh-phrases with a parenthetical if the second wh-phrase is D-linked.

(31) ?Koj, spored tebe, koja kniga e kupil?

who according you which book is bought

'Who, according to you, bought which book?'

(30)-(31) provide evidence that *kakvo* in (29) and *koja kniga* in (28) are not located in the same position, which follows if, in contrast to *kakvo* in (29), *koja kniga* in (28) does not undergo focus movement, remaining below CP. I conclude, therefore, that D-linked wh-phrases do not undergo non-wh-fronting, which is explained under the focus movement analysis of non-wh-fronting.

Notice now that if, as is often assumed, English does covertly what Slavic languages do overtly with respect to wh-phrases, only non-D-linked wh-phrases would have to undergo LF movement in English, as argued in Pesetsky (1987) (see also Bošković and Franks 2000). However, they would undergo focus movement, not wh-movement.

A question arises whether a D-linked wh-phrase can stay in situ in a single question. This is not completely clear in SC. (32) is degraded on the true question reading, but not fully unacceptable.

(32) ??On je kupio koju knjigu?

he is bought which book

'He bought which book?'

I suggest that the degraded status of (32) on the true question reading is a result of the failure to type the clause as a question in the sense of Cheng (1997), who argues that each clause must be typed, i.e., identified as declarative or interrogative, in overt syntax.¹⁶ Interrogative identification is done either through a question particle or by fronting a wh-phrase. Since SC does not have a question particle in the relevant constructions, one wh-phrase must front for typing purposes. I assume the typing is carried out by fronting and pronouncing a wh-phrase within the highest phonologically realized projection in overt syntax.¹⁷ In D-linking questions this can be done through either scrambling or wh-movement. (Given that SC patterns with French with respect to when it has overt wh-movement, wh-movement should be an option even in short-distance matrix questions like (6a) since in French wh-movement takes place optionally in such questions. Recall that overt wh-movement cannot have taken place in the grammatical derivation of (6b) because of Superiority.) I assume that when wh-phrases in questions like (6) (or Russian (12)) are not D-linked the typing can be carried out within the focus-licensing projection, which can be the highest projection given that, as argued in Bošković (1997c, 2000), CP does not have to be inserted until LF in (6). I argue that +wh C in questions like (6a) can be inserted either overtly or covertly. If inserted covertly, no overt wh-movement takes place. If inserted overtly, wh-movement takes place overtly. (I show that in structures where the wh-movement option is forced LF C-insertion is blocked.)¹⁸ One argument for the analysis not noted in the works cited above concerns topic constituents (TC) (see Stjepanović 1999a,b for another argument based on sluicing). With TCs, SC shows Superiority effects even in short distance null C questions.

- (33) a. Tom čoveku, ko je šta poklonio?
 that man.dat who is what bestowed
 ‘To that man, who bestowed what?’
 b. ??Tom čoveku, šta je ko poklonio?

Rudin (1993) discusses TCs in Bulgarian and argues that TCs are adjoined to CP.¹⁹ TCs can then be present in the structure only when CP is present overtly. Overt insertion of a +wh C induces a Superiority effect, which means that it forces wh-movement. It follows then that in (6a), which does not show Superiority effects hence does not involve overt wh-movement, CP is not inserted overtly.

Notice that Russian does not exhibit Superiority effects even in TC constructions. This is expected given that Russian is a Chinese-type language with respect to when it must have wh-movement. Russian never has wh-movement regardless of whether C is inserted overtly or covertly.

- (34) a. A etomu čeloveku kto kogo predstavil?
and that man.dat who whom introduced
'And to that man, who introduced whom?'
- b. A etomu čeloveku kogo kto predstavil?

Notice also that, in contrast to (22), SC (33a) can only have a pair-list answer. This is expected. Recall that TCs require overt C-insertion, which in turn triggers overt wh-movement. In contrast to (22), (33a) then must involve overt movement to SpecCP, hence the obligatoriness of a pair-list answer. On the other hand, Stepanov (1998) notes that Russian (34a) can still have a single-pair answer, as expected given that Russian questions do not have to involve overt movement to SpecCP.

Returning to the typing requirement, notice that although (35a) is bad on the true question reading, it is good on the echo reading. (The judgment holds for the request for repetition reading.)

- (35) a. Ona tvrdi da ŠTA/?*šta mrzi?
she claims that what hates
'She claims that she hates WHAT?'/ 'What does she claim that she hates?'
- b. ?*Ona tvrdi da mrzi ŠTA/šta?

This is expected. The current analysis attributes the badness of (35a) on the true question reading to the failure to type the matrix clause as interrogative. Since echo questions are not subject to the typing requirement (note that English echo questions do not have to involve overt movement), the problem does not arise on the echo reading. The wh-phrase still has to front for the reason discussed above (focus), which does not apply in English and which is independent of the typing requirement in the sense that wh-phrases are subject to it in MWF languages even when the typing is not an issue.

Notice that echo questions like (36) and (35b) are significantly better (in fact acceptable) on the reading on which they express surprise than on the reading on which they ask for repetition of

what the echo questioner has not heard. (The judgment is given for the latter reading. The surprise reading generally induces even stronger stress on the echo wh-phrase than the request for repetition reading. For discussion of different types of echo questions, see Pope 1976 and Wachowicz 1974.)

(36) ?*Ona je poljubila KOGA?

she is kissed who

‘She kissed WHO?’

This can be straightforwardly accounted for under the focus movement analysis since the value of the echo wh-phrase is fully known to the speaker, as well as the hearer, on the surprise reading, but not on the request for repetition reading. (Recall that focus represents new information.)

To sum up, in contrast to non-D-linked wh-phrases, D-linked wh-phrases and certain echo wh-phrases can remain in situ in MWF languages, which can be accounted for under the focus movement analysis, a fact that should be interpreted as evidence for the analysis. (Recall that the possibility of focused material splitting fronted non-D-linked wh-phrases in Bulgarian also provides evidence for the focus movement analysis.) We have seen that there are three distinct ways of fronting wh-phrases in MWF languages: wh-movement, pure focus movement, and scrambling. The second way is the only one that is always fully acceptable for all speakers of MWF languages.²⁰

2.2 Phonological exceptions to the obligatoriness of wh-fronting in MWF languages

I turn now to phonological exceptions to the obligatoriness of fronting wh-phrases in MWF languages. One such exception is exemplified by SC (37), which contrasts with (13b) and (16a).²¹

(37) Šta uslovljava šta?

what conditions what

What is at stake here is the actual phonological form of the wh-phrases. The second wh-phrase does not front if it is homophonous with the first fronted wh-phrase.²² Apparently, SC does not allow sequences of homophonous wh-words. To avoid formation of such a sequence a wh-phrase can remain in situ. Notice that in (38) the second wh-phrase must front. Because of the adverb, fronting

of the second *šta* does not create a sequence of homophonous wh-words.

- (38) a. Šta neprestano šta uslovljava?
what constantly what conditions
'What constantly conditions what?'
b. ?*Šta neprestano uslovljava šta?

Leaving a wh-phrase in situ thus can be done only as a last resort when necessary to avoid forming a sequence of homophonous wh-words. The same holds for Bulgarian, Russian, and Romanian.

- (39) a. Kakvo obuslavlja kakvo? (Bulgarian)
what conditions what
b. *Kakvo kakvo obuslavlja?
c. Čto obuslovalo čto? (Russian)
what conditioned what
d. *Čto čto obuslovalo?
e. Ce precede ce? (Romanian)
what precedes what
f. *Ce ce precede?

We seem to be dealing here with a low level PF effect, since the information concerning the pronunciation of wh-phrases should not be accessible to the syntax. It appears that we need a PF constraint against consecutive homophonous wh-phrases in the languages in question. Billings and Rudin (1996) in fact propose such a constraint for Bulgarian to account for (40a):²³

- (40) a. *Koj na kogo kogo e pokazal?
who to whom whom is pointed-out
'Who point out whom to whom?'
b. Cf. Koj kogo na kogo e pokazal?

Notice that we cannot be dealing here with a Superiority effect. Bošković (1997b) shows that only

the highest wh-phrase is sensitive to Superiority in Bulgarian, i.e. the highest wh-phrase moves first, the order of movement of other wh-phrases being in principle free. This is shown by (41)-(44). (Recall that the order of wh-phrases corresponds to the order of movement to SpecCP.)²⁴

(41) a. Kogo kak e tselunal Ivan?

whom how is kissed Ivan

‘How did Ivan kiss whom?’

b. ?*Kak kogo e tselunal Ivan?

(42) a. Koj kogo kak e tselunal?

who whom how is kissed

‘Who kissed whom how?’

b. Koj kak kogo e tselunal?

(43) a. Kogo kakvo e pital Ivan?

whom what is asked Ivan

‘Whom did Ivan ask what?’

b. ?*Kakvo kogo e pital Ivan?

(44) a. Koj kogo kakvo e pital?

who whom what is asked

‘Who asked whom what?’

b. Koj kakvo kogo e pital?

Note now the parallelism between the wh-phrases in SC (6) and non-initial fronted wh-phrases in Bulgarian with respect to the lack of Superiority effects. The parallelism is expected under the current analysis, where movement of the first wh-phrase in Bulgarian differs from the movement of the second and the third wh-phrase, which are in turn the same as the movement of all wh-phrases in SC (6). In other words, since the second and third movement in Bulgarian (41)-(44) and both movements in SC (6) are the same (both can be pure focus movement) it is not surprising that they behave in the same way with respect to Superiority, differing in this respect from the first movement in (41)-(44). The data show that only the wh-phrase checking the strong +wh-feature of C (which means only one wh-phrase) is subject to Superiority, wh-phrases undergoing pure focus movement

being insensitive to it. Bošković (1999) gives an economy-based explanation of this fact applicable to both SC and Bulgarian that is based on certain differences in formal properties of focus and wh-movement.²⁵

Interestingly, like Bulgarian, SC exhibits selective superiority effects where it must have wh-movement, as in, e.g., embedded wh-clauses. As in Bulgarian questions, in such contexts the highest wh-phrase prior to movement is first in the linear order, the order of other wh-phrases being free.²⁶

(45) a. ?Ima kome kako da pomogne.

has whom how part. helps

‘S(he) has someone to help somehow.’

b. *Ima kako kome da pomogne.

c. ?Ima ko kako kome da pomogne.

has who how whom part. helps

‘There is someone who can somehow help somebody.’

These facts confirm the current analysis of when SC and Bulgarian must have overt wh-movement.

Returning to (40), given the above discussion, (40) cannot be accounted for by Superiority. Notice also that (40a) improves when the third wh-phrase remains in situ, which is not unexpected if the unacceptability of (40a) is indeed due to a PF constraint against homophonous sequences of wh-phrases. The third wh-phrase cannot remain in situ in (40b), which confirms that leaving a wh-phrase in situ is a last resort device for saving a question from violating the PF constraint in question.

(46) a. Koj na kogo e pokazal kogo?

who to whom is shown whom

‘Who showed whom to whom?’

b. ??Koj kogo e pokazal na kogo?

We are dealing here with a rather intricate interplay of phonology (the PF constraint in question) and syntax (the obligatoriness of fronting wh-phrases). A principled way of capturing it is provided by a recent approach to the pronunciation of non-trivial chains, based on the copy theory of movement.

It is generally assumed that on the LF side, we have some choice in deciding where deletion should take place in non-trivial chains. Thus, Chomsky (1995) argues that on the reading on which *himself* in (47) refers to *Joe*, the tail of the chain created by wh-movement of *which picture of himself* is deleted so that *himself* remains in SpecCP, where it is c-commanded by *Joe* but not *Jim*. On the other hand, on the reading on which *himself* refers to *Jim*, *himself* is deleted in the head of the chain and remains in the structure in the tail of the chain, where it is c-commanded by and local to *Jim*.²⁷

(47) Joe wonders [_{CP} [which picture of himself] [_{IP} Jim bought [which picture of himself]]]

In LF we thus have a choice in deciding where deletion should take place in non-trivial chains. It is often assumed that no choice is available in PF, the head always being the sole survivor, as in (48).

- (48) a. The student was arrested ~~the student~~.
 b. *~~The student~~ was arrested the student.
 c. *The student was arrested the student.
 d. *The ~~student~~ was arrested ~~the~~ student.

However, a number of authors have recently argued that in PF we also have a choice concerning which member of a non-trivial chain survives deletion (see Bobaljik 1995, Brody 1995, Groat and O’Neil 1996, Runner 1998, Hiramatsu 1997, Pesetsky 1997,1998 Richards 1997, Roberts 1997, Franks 1998, Nunes 1999, and Bošković 2001). Of particular interest to us is the proposal made in Franks (1998), who argues that, just as in LF there is a preference for deletion in the head position of non-trivial chains (at least with operator-variable chains), in PF deletion in the tail of non-trivial chains (that is, deletion of lower copies) is just a preference. More precisely, a lower member of a chain is pronounced instead of the head of the chain iff pronunciation in the head position would lead to a PF violation, provided that the violation can be avoided by pronouncing the lower member of the chain.²⁸ (By the head of a chain I mean the highest member of a sequence of copies created by movement of the same element. I disregard the fact that in some cases two different chains, an A and an A’-chain, are created by movement of the same element, as in *Who_i t_i seems t_i to t_i know it.*)

Let us see what the proposal entails for (37). The ungrammaticality of (13b) and (16a) shows that there is a syntactic requirement, namely focus, that forces all wh-phrases in SC to move in overt

syntax. This should also hold for the second *šta* in (37), which then also must undergo focus movement. As a result, (37) has the following SS. (I am ignoring the lower copy of the first *šta*.)

(49) [_{FP} Šta šta_i [uslovljava šta_i]]
 what what conditions what

I assume that there is a PF constraint against consecutive homophonous wh-words in SC. Given the constraint and the proposal that a lower member of a non-trivial chain can be pronounced if necessary to avoid a PF violation, we are allowed to pronounce the lower copy of the second *šta* in PF.²⁹

(50) [_{FP} Šta šta_i [uslovljava šta_i]]

We thus derive (37) and account for the contrast between (37) and (13b)/(16a) without violating the syntactic requirement that forces all wh-phrases to move overtly in SC (the second *šta* in (37) does undergoes focus movement), without look-ahead from the syntax to the phonology, and without any PF movement. The analysis also provides evidence for the copy theory of movement.

Consider now Bulgarian (46). (46a-b) have the SS in (51). (The order of the objects in the base position and the precise position of the subject prior to wh-movement are irrelevant. Recall that the order of wh-phrases reflects the order of movement to SpecCP. *Koj* moves first, the order of movement of the objects is free. *Pokazal* undergoes short V-movement and *e* may be moving to C.)

(51) a. Koj_i na kogo_j kogo_k e koj_i pokazal na kogo_j kogo_k?
 b. Koj_i kogo_j na kogo_k e koj_i pokazal na kogo_k kogo_j?

Consider which copies of the wh-chains will be pronounced in (51a). Since we are dealing with a PF operation, it seems natural to scan the structure linearly left-to-right. We then first examine the *koj* chain. Since nothing goes wrong if the chain is pronounced in the head position, we pronounce the initial *koj*. Next, consider the *na kogo* chain. Again, no PF violation occurs if we pronounce its head. (Nothing rules out the *koj na kogo* sequence. Note that I assume that the decision whether to pronounce the head or the tail of the chain is made without look-ahead. It cannot be affected by later decisions concerning pronunciation of other chains.) At this point, then, we have the sequence *koj*

na kogo sentence initially. Now we consider the *kogo* chain: If we pronounce *kogo* in the head position we violate the PF constraint against homophonous sequences of *wh*-words. In order not to do that we pronounce the tail of the chain, deriving (46a). Consider now (51b). It is easy to verify that if we scan the structure left to right when determining which copies to pronounce, no PF violation occurs if we pronounce the heads of all three chains. We then must pronounce the initial *wh*-phrases, which gives us (40b). Note that (46b) is underivable. The data in (40) and (46) are thus accounted for.

Romanian, a Bulgarian-type MWF language (see Rudin 1988), provides another phonological exception to the obligatoriness of fronting *wh*-phrases. (52) is an example of MWF in Romanian.

(52) Cine unde ce a adus?
 who where what has brought
 ‘Who brought what where?’

Like SC, Bulgarian, and Russian, Romanian obligatorily fronts all *wh*-phrases, including *wh*-phrases in echo questions. Thus, according to Comorovski (1996), (53) is bad even as an echo question.³⁰

(53) *Ion a adus ce?
 Ion has brought what

Interestingly, Comorovski notes that exceptionally, echo *wh*-phrases have to stay in situ in questions that require a question as an answer. ((54b) would be unacceptable as a true, non-echo question.)

(54) a. Q: Cine a uitat să deschidă parașuta?
 who has forgotten to open the-parachute
 b. Echo Q: Cine a uitat să deschidă ce (anume)?
 who has forgotten to open what exactly

Comorovski shows that we are dealing with a PF effect. She shows that it is impossible to assign a proper melodic contour to (54b) if the echo *wh*-phrase is fronted. True questions in Romanian have

a melodic peak on the wh-phrase, which is immediately followed by a falling contour. The intonation cannot start falling immediately after the true question wh-phrase if it were immediately followed by an echo wh-phrase, echo wh-phrases being pronounced with a sharp rise in pitch. Comorovski (p. 63) shows that a proper melodic contour can be assigned if the echo wh-phrase is pronounced in situ.

How can we instantiate this formally?(53) shows that, as in SC, in Romanian echo wh-phrases must front in the syntax. The same then holds for the echo wh-phrase in (54). Ignoring the copy left by fronting the first wh-phrase, (54b) has the SS in (55a). As discussed above, if the head of the chain created by the fronting of the echo wh-phrase is pronounced the construction cannot be assigned a proper melodic contour, resulting in a PF violation. However, the violation can be avoided if the tail of the chain is pronounced (55b). The construction can then be assigned a proper intonation pattern.

(55) a. true-wh echo-wh_iverb echo-wh_i

b. true-wh ~~echo-wh_i~~verb echo-wh_i

We also explain why the second wh-phrase has to be fronted on the non-echo reading. Since on this reading the second wh-phrase is not pronounced with a sharply raised pitch the PF problem that arises on the echo question reading of the second wh-phrase does not arise on the non-echo reading. PF then does not license lower pronunciation of the second wh-phrase on the non-echo reading, as it does on the echo reading. Lower pronunciation is then disallowed.

Chomsky's (1995) Move F Hypothesis provides an alternative analysis. SC (37) and Romanian (54b) can be analyzed as involving overt feature movement of the second wh-phrase (it would take place in the same cycle as the movement of the first wh-phrase), leaving phonological features of the second wh-phrase behind. The second wh-phrase then has to be pronounced in the tail of the chain.³¹

(56) [_{FP} Šta FF(šta)_i [uslovljava šta_i]]

what what conditions what

The analysis is inconsistent with Chomsky's (1995) system, where separating FF from phonological

features is assumed to lead to a PF crash. Pesetsky (2000), however, argues against this position. According to Pesetsky, there is nothing inherent to PF that would prevent feature movement prior to spell-out.³² To make the Move F analysis work in the constructions in question we have to assume that full phrasal movement is preferable to feature movement, at least prior to spell-out. This can be assumed to hold generally or only in the constructions in question. Taking the latter tack would essentially mean assuming that each movement is arbitrarily specified as either affecting or not affecting phonological features, as in Bobaljik (1995), Groat and O’Neil (1995), and Pesetsky (1997, 1998). We further need to assume that this holds only up to convergence. The specification can be overridden if necessary for PF convergence, as in the cases under consideration. Alternatively, we can assume that phrasal movement is generally preferred to feature movement at least in overt syntax. We would then be following Chomsky’s (1995). However, we cannot use Chomsky’s exact reasoning since it does not allow for the up-to-the-PF-convergence exception to the obligatoriness of full phrasal movement: it always forces full phrasal movement prior to spell-out. We need a system in which phrasal movement is only a preference. A proposal by Norvin Richards, discussed in Pesetsky (2000), achieves this. Following Richards, Pesetsky observes that taking the idea of Attract Closest seriously would make phrasal movement more economical than feature movement because the phrase is always the closest element with the relevant feature to the target (see also Fukui 1997). Suppose we are allowed to look inside the closest candidate for attraction if necessary for PF convergence. (I am departing here from Chomsky’s 1995 view of Attract Closest.) This is exactly what would happen in the cases under consideration, where full phrasal focus movement of the second wh-phrase results in a PF crash. Feature movement then takes place instead of full phrasal movement.

Consider (40) and (46) under this analysis. Recall that the order of wh-phrases reflects the order of movement to SpecCP. The highest wh-phrase *koj* moves first, the order of movement of *kogo* and *na kogo* being free. In all constructions *koj* moves first via phrasal movement. Either *na kogo* or *kogo* moves second. In (57a) *na kogo* moves second and in (57b) *kogo* does. Since at this point nothing goes wrong as a result of these movements, the movements can be, hence must be, phrasal. The first two wh-phrases are then pronounced in the raised positions.³³(I use traces here for ease of exposition)

(57) a. Koj_i na kogo_j e t_i pokazal t_j kogo?

who to whom is shown whom

b. Koj_i kogo_j e t_i pokazal na kogo t_j?

Finally, the third wh-phrase moves. In (57b) nothing goes wrong if it undergoes phrasal movement, which is then the only option. Since the movement carries phonological features, this wh-phrase is also pronounced in the raised position, giving us (40b). However, if the third wh-phrase undergoes phrasal movement in (57a) the constraint against consecutive homophonous wh-phrases is violated. To avoid this, the third wh-phrase undergoes feature movement. This wh-phrase is then pronounced in its base-generated position, giving us (46a). Neither derivation can yield (46b), a desirable result.

Let us see if we can tease apart the Move F and the pronounce a copy analysis (PCA). Note first that the PCA may be conceptually more appealing. The Move F analysis involves some globality (we sometimes do Move F instead of phrasal movement in the syntax for PF reasons), which is not the case with the PCA.³⁴ Let us, however, see if the analyses can be teased apart empirically.

Under the most natural interpretation of the PCA we would expect successive cyclic movement to have a PF reflex in the constructions under consideration. Unless we specifically stipulate that only the head or the very tail of a chain can be pronounced (see Franks 1998 for a different proposal) it seems that the second *šta* in the SC *what what* construction and the echo wh-phrase in the Romanian construction would not have to be pronounced in their base positions. This is not the case necessarily under the Move F analysis. In fact, unless additional assumptions are adopted (for relevant discussion see Cheng 2000, who proposes that Move F can be launched in the middle of successive cyclic phrasal movement), under this analysis we would expect the relevant wh-phrases to occur in the position they occupy prior to wh-movement. The test in question cannot be run for the SC *what what* construction due to an interfering factor. As Bošković (1997a) shows, SC has more than one position for focus licensing of wh-phrases, as a result of which it is difficult to determine in more complicated constructions whether we are dealing with pronunciation of a copy of the second *what*, or the head of the focus movement chain of the second *what*. The same problem arises with Romanian echo wh-constructions since Romanian seems to have more than one position where moving echo wh-phrases can be licensed. The problem, however, does not arise in Bulgarian

and Romanian *what what* constructions since, as Rudin (1988) shows (see also (29)-(30)), in these languages only interrogative C can license non-wh-fronting of non-echo wh-phrases.³⁵ Unfortunately, the data are not clear. (Only one copy of the second *what* is pronounced. Note that (58a) and (59a) differ from (58b) and (59b), where the indicated pronunciation is the only possibility. % indicates variation in judgments.)³⁶

(58) a. Kakvo (*kakvo) misli (*kakvo) Ivan (%kakvo) će (kakvo) obuslavlja (kakvo)?

what what thinks Ivan that conditions

‘What does Ivan think conditions what?’

b. Koj kakvo misli Ivan će obuslavlja?

who what thinks Ivan that conditions

‘Who does Ivan think conditions what?’

(59) a. Ce (*ce) crede (*ce) Ion (*ce) că (%ce) a (*ce) determinat (ce)?

what what thinks Ion that has determined

‘What does Ion think determined what?’

b. Cine ce crede Ion că a determinat?

who what thinks Ion that has determined

‘Who does Ivan think determined what?’

The most plausible candidate for an intermediate landing site seems to be the embedded SpecCP. The pre-verbal copy in (58a) can be located in the Case-checking position of *what*, given that, as shown in Bošković (1997b), accusative wh-phrases pass through their Case-checking position on their way to SpecCP. So, the only unambiguous intermediate copy of wh-fronting itself is the one immediately preceding *će/că*. The judgments of my informants differ concerning the possibility of pronouncing the second *what* in this position, most of them rejecting it. However, several interfering factors prevent us from drawing a strong conclusion from this. First, something like a doubly filled Comp filter can be an interfering factor here. Notice also that at least in some cases, Bulgarian and Romanian are not sensitive to the wh-island constraint, which can be interpreted as indicating that Bulgarian and Romanian wh-phrases do not have to stop in SpecCP, another interfering factor.³⁷ Furthermore, Richards (1997) claims that movement of the second wh-phrase is not sensitive to

Subjacency. According to him, the first wh-phrase satisfies Subjacency with respect to the matrix C in the constructions in question. Given his Principle of Minimal Compliance, the gist of which is that every requirement needs to be satisfied only once, the second wh-phrase does not have to satisfy Subjacency. Its movement can then proceed in one fell swoop. In fact, if we assume that successive cyclic movement takes place to satisfy Subjacency the second wh-phrase in the above constructions cannot undergo successive cyclic movement; it has to move in one fell swoop.

I turn now to an argument for the current analysis that can also help us tease apart the PCA and the Move F analysis. Under the current analysis, the wh-phrase in situ in the constructions in question undergoes movement in overt syntax, either full phrasal movement, as in the PCA, or feature movement, as in the Move F analysis. As a result, we would expect the wh-phrase to be able to license other elements from the putative raised position. One relevant phenomenon is parasitic gap (PG) licensing. Since Bulgarian and SC do not allow PGs I focus on Romanian.³⁸ Consider (60)-(61).³⁹

(60) a. Cine a citit CE fără să claseze?

who has read what without subj.part. files

‘Who read what without filing?’

b. Ce precede ce fără să influențeze?

what precedes what without subj.part. influences

‘What precedes what without influencing?’

(61) cf. *Cine a citit cartea fără să claseze?

who has read the-book without subj.part. files

‘Who read the book without filing?’

The fact that a wh-in-situ can license a PG provides strong evidence for the current approach, on which the wh-in-situ undergoes movement in overt syntax in spite of being pronounced in situ. Notice that (60a-b) contrast in the relevant respect with their English counterparts.

(62) a. *Who read WHAT without filing?

b. *What precedes what without influencing?

This is not surprising under the current analysis, since (60) and (62) receive different analyses in spite of the superficial similarity. This is particularly clear under the PCA, where the *wh*-in-situ in (60) undergoes phrasal movement in overt syntax that does not differ syntactically in any relevant respect from *wh*-movement of *what* in (63). It is then not surprising that (60) patterns with (63) and not (62).

(63) What did John file without reading?

Under the Move F analysis of (60), we have to assume that formal features suffice for PG licensing. (Only the formal features of the *wh*-in-situ move, semantic and phonological features stay behind.) Furthermore, to account for the contrast between (60) and (62) we need to assume that the in situ *wh*-phrase in English (62) does not move in LF.⁴⁰ If it were to move in LF, in Chomsky's (1995) system it would undergo feature movement (see, however, Pesetsky 2000), like the in situ *wh*-phrase in (60) under the Move F analysis of these constructions. True, feature movements in (60) and (62) could be taking place in different components, overt syntax and LF. (This would not be the case in systems which dispense with LF.) However, this should be irrelevant as long as we do not assume that PG licensing is an SS phenomenon, which would be inconsistent with the Minimalist Program. If either of the two assumptions necessary to make the Move F analysis of (60) work cannot be maintained we have here an argument for the superiority of the PCA over the Move F analysis.

The PG data show that we are dealing here with a new type of in situ *wh*-phrases not attested in English-type, French-type, and "true" *wh*-in-situ languages. We have already seen that, in contrast to in situ *wh*-phrases in MWF languages, in situ *wh*-phrases in English multiple questions cannot license PGs. The same holds for in situ *wh*-phrases in French and Malay *wh*-in-situ questions.⁴¹

- (64) a. *Il a lu quoi sans classer? (French)
 he has read what without to-file
 'What has he read without filing?'
 b. cf. Qu'a-t-il lu sans classer?
 c. *Kamu aturkan buku yang mana tanpa baca? (Malay)
 you filed book that which without reading

‘Which book did you file without reading?’

- d. cf. Buku yang mana kamu aturkan tanpa baca?
book that which you filed without reading

This means that whatever analysis of (60) is adopted it should not be applied to (64). So, if the in situ wh-phrases in (60) undergo feature movement, the in situ wh-phrases in (64) cannot be undergoing feature movement.⁴² And if the in situ wh-phrases in (60) undergo phrasal movement with pronunciation of a lower copy, the same should not hold for the in situ wh-phrases in (64).⁴³ Either way, we are dealing here with a distinct type of in situ wh-phrases, different from in situ wh-phrases in non-MWF languages like English, Malay, and French. As a result, determining the most adequate analysis of (60) has important ramifications for analyzing in situ wh-phrases in non-MWF languages.

2.3 A syntactic exception to the obligatoriness of wh-fronting in MWF languages

Comorovski (1996) notes that echo wh-phrases in Romanian can exceptionally stay in situ within non-Relativized Minimality islands (i.e. non-wh-islands). (65) contrasts with (53) on the echo question reading. Notice that overt wh-movement out of the island is not allowed regardless of the reading.⁴⁴

(65) Ion a auzit zvonul că Petru a cumpărat CE?

Ion has heard the rumor that Peter has bought what

(66) *Ce a auzit Ion zvonul că Petru a cumpărat?

Assuming that islandhood is syntactic in nature we are dealing here with a syntactic exception to the obligatoriness of MWF in Romanian. The exception is readily accounted for under the Move F analysis, on which Romanian wh-phrases undergo Move F if phrasal movement is not possible. Ochi (1998) and Agbayani (1998) argue that phrasal movement but not feature movement is subject to non-Relativized Minimality-type islands. According to them, feature movement is subject only to Relativized Minimality islands through Attract Closest. If they are right, full phrasal movement of the echo wh-phrase in (65) is not possible. The wh-phrase can then undergo feature movement.⁴⁵ The Move F analysis enables us to account for (65) while still having the wh-phrase undergo movement

to C, which is desirable given the ungrammaticality of (53). Given that (65) is unacceptable on the true question reading a question arises why the Move F derivation is unavailable on this reading. I speculate that Cheng's (1997) clausal typing is the culprit. A whole wh-phrase, including its phonological features, must be present in SpecCP in overt syntax in Romanian to type a clause as a question. This rules out the possibility of wh-in-situ on the true question reading in Romanian.

The V-2 effect raises a potential problem for the Move F analysis. Normally, in both subject and non-subject questions verbal elements occur in the second position on both the echo and the non-echo reading of the fronted wh-phrase. As a result, they precede the subject in non-subject questions.

(67) Ce a spus Mădălina?

what has said Madalina

'What did Madalina say?'

Under the Move F analysis, (65) is a non-subject question with the verbal elements following the subject. This is not a problem if the V-2 effect is phonological in nature, as suggested in Bošković (2001), Chomsky (1995), and Rice and Svenonius (1998), among others, for various languages. Alternatively, we can assume that the subject in (65) is located in a pre-SpecCP topic position.

Turning to the PCA, under this analysis (65) involves phrasal movement of the echo wh-phrase in overt syntax. The head of the chain created by the movement is deleted and the copy is pronounced. (Deletion of the head has to be sanctioned by PF reasons, which are discussed below.)

(68) $\text{E}\epsilon \dots [_{\text{NP}} \dots \text{ce}]$

Under this analysis (66) and (65) have the same syntactic derivation. As a result, accounting for the contrast between them becomes difficult. The only way to preserve the PCA seems to be to assume islandhood is at least to some extent a PF property. Some older approaches to islandhood do assume this, e.g., Perlmutter (1972), revived in a slightly different form in Pesetsky (1997,1998). (For PF approaches to islandhood, see also Lasnik 2000 and Merchant 1999.) For Perlmutter, syntactic movement is not constrained by islands. What is constrained by islands is the obligatory deletion of the copy left by movement. The deletion fails when an island intervenes between the head of a chain and its copy. Interpreting this as a PF violation leads us to pronounce a copy instead of the head of

the chain under Franks' approach to pronunciation of chains. The PCA seems to be based on a rather unorthodox view of locality restrictions. This is actually not true. The analysis is based on the more or less standard view of the saving effect of resumptives with respect to locality of movement (but see Boeckx 2001), which implies that at least to some extent, locality is a PF phenomenon. It is well-known (see Shlonsky 1992 and Pesetsky 1997,1998 among others) that in a number of languages, e.g. Hebrew, Arabic, Irish, and English, a locality violation can be saved by phonologically realizing a copy within the island as a resumptive pronoun. Using a resumptive in these languages is a last resort strategy employed only when movement would otherwise violate locality restrictions on movement.

- (69) a. *There is one worker who the company fired the employee that had treated badly.
 b. There is one worker who the company fired the employee that treated him badly.
 c. *This is the guy who I like him. (Pesetsky 1998:364)

Apparently, phonologically realizing a copy within an island can rescue a construction from a locality violation.⁴⁶ This, I propose, is what happens in (65). Movement out of the island takes place. The construction is saved from a locality violation by phonologically realizing a copy within the island. (Note that the typing requirement is irrelevant since we are not dealing with a true question.) The only difference is that in (69b) the copy is realized as a resumptive pronoun and in (65) the full copy is pronounced. Pesetsky (1997,1998) proposes that in (69b) the tail of the chain is pronounced as a pronoun due to a constraint that requires copies that are not heads of chains to be as close to unpronounced as possible. Pronunciation of Φ -features, i.e. pronominal pronunciation, is the minimal pronunciation. The resumptive pronoun strategy cannot be employed in (65) because quite generally, echo wh-phrases cannot be associated with resumptive pronouns.⁴⁷ Since a resumptive pronoun is not an option, a full copy is pronounced. Why can't we phonologically realize both the head and the tail of the wh-chain in (65)? Nunes (1999) argues that pronouncing both the head and the tail of a chain would violate Kayne's (1994) Linear Correspondence Axiom (LCA) so that the chain could not be linearized. Nunes considers the head and the tail of a chain to be non-distinct for the purposes of the LCA. As a result, realizing both phonologically would result in a conflicting ordering. Suppose we decide to delete neither the head nor the tail of the chain created by movement

of *ce* in (65). Given the LCA, the *wh*-phrase will have to both precede (because of *ce* in SpecCP) and follow (because of *ce* in the base-generated position) other words in the sentence. Linearization therefore fails. What about the resumptive pronoun examples? Why are they not violating the LCA? It seems plausible that the *wh*-phrase and the resumptive pronoun are not non-distinct for the purposes of the LCA since they do not receive the same phonological realization. The LCA is then not violated in (69b).

Let me finally point out that Franks' and Pesetsky's approach to PF realization of chains are very similar. Forcing a copy that is not the head of a chain to be as close to unpronounced as possible entails that if there is no reason to pronounce it, it will not be pronounced. For Franks, and the same seems to hold for Pesetsky, the relevant reasons are phonological, which makes sense given that copy pronunciation is a PF phenomenon. In principle, the head of a chain can always be pronounced. Whenever copies (by copies I mean everything but the head of a chain) are all deleted the head of the chain must be pronounced to avoid violating Recoverability of Deletion. When a copy must be fully realized phonologically for independent reasons, the head must be deleted to avoid violating the LCA. With partial phonological realization of a copy, as with resumptive pronouns, the head of the chain cannot be deleted. Its deletion would violate Recoverability of Deletion - a *wh*-phrase and a pronoun obviously cannot be considered non-distinct for the purposes of Recoverability of Deletion.

To sum up, phonological and syntactic exceptions to the obligatoriness of *wh*-fronting in MWF languages can be accounted for by adopting either the PCA or the Move F analysis. (Under the PCA there are no purely syntactic exceptions.) At this point, we cannot completely conclusively choose one of the two analyses. The PG data, however, do favor the PCA.⁴⁸ Determining which analysis is more adequate has important consequences for analyzing in situ *wh*-phrases in non-MWF languages.

3 Conclusion

I showed that MWF languages do not display uniform behavior with respect to *wh*-movement, thus eliminating this type of language from the crosslinguistic typology concerning the behavior of *wh*-phrases with respect to *wh*-movement in multiple questions. This leaves us with 3 types, represented by English, French, and Chinese. MWF languages are scattered across these 3 types: Bulgarian is

a MWF counterpart of English, SC of French, and Russian of Chinese. The behavior of MWF languages with respect to wh-movement is camouflaged by the focus requirement, which forces all wh-phrases to move overtly independently of wh-movement. We have seen that there are 3 classes of exceptions to the obligatoriness of wh-fronting in MWF languages: semantic, phonological, and syntactic. The semantic exceptions are explained away by the focus nature of the additional movement of wh-phrases in MWF languages. I have considered two explanations for phonological and syntactic exceptions: one based on the Move F Hypothesis and one based on the possibility of pronunciation of lower copies of non-trivial chains sanctioned by PF considerations. The latter provides evidence for the copy theory of movement. The exceptions to the obligatoriness of wh-fronting have led me to posit a new type of in situ wh-phrases, distinct from in situ wh-phrases in non-MWF languages.

Notes

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1. Malay may be a better example of a wh-in-situ language since like Japanese (see Watanabe 1992), Chinese has been argued to involve overt null operator movement to SpecCP in questions (see Cole and Hermon 1995). Cole and Hermon show that the null operator analysis does not work for Malay.

2. See Rudin (1988), Bošković (1997b, 1998b, 1999), Richards (1997, 1998), and Pesetsky (2000). One argument that the fixed order of wh-phrases in Bulgarian (ia-b) is a result of Superiority concerns the fact that (ib) improves with D-linked and echo wh-phrases. (*Koj* in (id) is an echo wh-phrase.) The same happens with Superiority violations in English (ii). All the above authors argue that the wh-phrase that is first in the linear order in Bulgarian is the one that moves first. The second wh-phrase either right-adjoins to the first wh-phrase, located in SpecCP, as in Rudin (1988), or moves to a lower SpecCP (the first wh-phrase being located in the higher SpecCP), as in Richards (1997, 1998) and Pesetsky (2000). For another approach to Bulgarian MWF, see Grewendorf (2001) and Kim (1997).

(i) a. *Koj kakvo e kupil?*

who what is bought

‘Who bought what?’

b. **Kakvo koj e kupil?*

c. ?*Koja kniga koj čovek e kupil?*

which book which man is bought

‘Which man bought which book?’

d. ?*Kakvo KOJ e kupil?*

(ii) a. *What did who buy?

b. Which book did which man buy?

c. What did WHO buy?

3. I ignore the echo reading. I do not give indirect questions due to an interfering factor. Since they formally do not differ from root questions they can be easily analyzed as root questions with the root clause treated as an adsentential. The problem does not arise with correlatives (7) and existentials (8), which also contain embedded questions (see Izvorski 1996, 1998). In Bošković (1997c) I show

that when the interfering factor is controlled for, indirect questions also show Superiority effects.

4. There is some variation with respect to the relevant data. Ljiljana Progovac (p.c.) informs me that in her judgment, SC patterns with Bulgarian. Léa Nash (p.c.) informs me that for her, Russian patterns with SC. (This holds for both Superiority and the data concerning the interpretation of multiple questions discussed below, which provides strong evidence for the current analysis.)

5. I am considering only the reading on which the echo question asks for repetition of what the questioner has not heard (see section 2.1 for another echo question reading). SC *Šta Ivan kupuje* is thus ambiguous between the echo and the non-echo reading. Notice that one of my Bulgarian informants accepts (14a) and (16b). However, even for this speaker, echo wh-phrases in situ are better on the surprise echo question reading than on the request for repetition reading, in line with the discussion in section 2.1 below (see this section for discussion of different echo readings).

6. Contrastive focus, also referred to as identificational or narrow focus, expresses exhaustive identification and is accompanied by emphatic stress. It is important to distinguish it from simple new information focus, also referred to as wide or presentational focus.

7. Not all Slavic speakers obligatorily front focused non-wh-phrases. All my informants have this option. However, a few of them can also leave focused non-wh-phrases in situ. Most Slavic speakers have at least a strong preference for fronting them, see, e.g., King 1993:105, who claims that this is a strong tendency in Russian. (Stepanov 1998:461 claims such phrases must move in Russian.) We can decide to ignore the optional fronting pattern, since it is clearly dispreferred, perhaps for all speakers. If we don't, there are two ways to account for it. (I refer to it as Variety I.) We can posit a minor difference in the lexical specification of wh-phrases and focused non-wh-phrases by assuming that wh-phrases have a strong focus feature while focused non-wh-phrases can have either a strong or a weak focus feature in Variety I (see Kidwai 1999 for a similar proposal for Hindi/Urdu and Malayalam). There is a more principled alternative. There is an interesting similarity in the behavior of different types of wh-phrases in Malay and different types of focalized elements in Variety I. Malay argumental wh-phrases can either move or stay in situ. Cole and Hermon (1995) show that Malay argumental wh-in-situ does not involve null operator movement, as argued for Japanese by Watanabe (1992). They show that no wh-movement of any kind takes place in Malay argumental wh-in-situ. On the other hand, adjunct wh-phrases must move overtly. The gist of their

analysis is that although in principle wh-movement is optional in Malay, adjuncts must move because they are uninterpretable in situ. The analysis can be applied to focus in Variety I. Suppose focus movement is in principle optional in Variety I. (The optionality can be a result of different lexical choices, as in Cole and Hermon's analysis.) Suppose furthermore that in MWF languages wh-phrases are interpretable only in the focus position. As a result, wh-phrases must undergo focus movement even in Variety I, where focus movement is in principle optional, since they would otherwise be uninterpretable.

8. Focus movement is insensitive to Superiority. Bošković (1998b, 1999), who provides an explanation of this fact, shows that this holds for Bulgarian as well as SC and Russian (see section 2.2). Slavic languages seem to differ arbitrarily regarding which elements license focus. This is not surprising since it is well-known that there is considerable crosslinguistic variation regarding where focus is licensed under movement (see, e.g., Kiss 1995, especially p. 23). Focusing on Slavic, Bošković (1997a) argues that in Bulgarian, the focus licensor is interrogative C, in SC Agr and in some cases interrogative C. Izvorski (1993) and Lambova (in press) argue for a separate focus-licensing head below C for Bulgarian. Stjepanović (1999b) gives an analysis of SC with Agrs and Pred as focus licensors. Stepanov (1998) argues that the focus licensor in Russian is Agrs and King (1993) Σ .

9. For explanation of this, see Bošković (in press). Under the analysis given in this work, which is based on Hagstrom's (1998) semantics of questions, languages that have obligatory overt movement of a wh-phrase to SpecCP cannot license single-pair answers, while languages that do not have it may, but do not have to, allow such answers. In other words, not filling SpecCP by a wh-phrase overtly is necessary but not sufficient for licensing single-pair answers.

10. Unfortunately, no definite conclusion can be drawn from examination of contexts where SC must have overt wh-movement. The relevant test either cannot be run due to interfering factors concerning the interpretation of relevant constructions (this holds for correlative, existential, and *li*-constructions) or it fails to give a clear result due to the murkiness of judgments (long-distance multiple questions, which are not very productive to start with). (The *li* counterpart of (18), *Ko li je šta kupio*, cannot be used in the situation depicted with respect to (18). However, I hesitate to draw a strong conclusion from this since the *li*-construction is not a "neutral" question semantically.) See,

however, the discussion of TC in section 2.1, which provides additional evidence for the claim made in this section.

11. This was noted in Wachowicz (1974) and Pesetsky (1987, 1989), who give Polish and Russian examples. (Pesetsky also mentions Czech and Romanian.) In (13)-(15) I have used wh-phrases that are more difficult to D-link. Pesetsky and Wachowicz observe that non-inherently D-linked wh-phrases can stay in situ when used in a context forcing a D-linked interpretation (those that in principle can be D-linked, see Pesetsky 1987:127 for an exception), which holds for all the languages considered. Throughout the paper I assume non-D-linked contexts for non-inherently D-linked wh-phrases.

12. See also Reinhart (1997:158), who says that "D-linked constituents are not particularly good foci." Pollock et al (1998) give data from Bellunese which seem to indicate that in this language, D-linked and non-D-linked wh-phrases appear in different positions. This can be accounted for if non-D-linked wh-phrases are focalized in this language and if D-linked wh-phrases cannot occur in a focus position.

13. *Je* is a second position clitic. SC second position cliticization is a murky phenomenon that may involve PF word reordering (see Bošković 2001 and Franks and King 2000), hence I ignore it here.

14. What is important for us is that the movement in question is not focus movement, which is clear given the contrast in (30)-(31). I use the word scrambling merely to distinguish the movement in question from focus and wh-movement and indicate the appearance of optionality. Whether we are dealing with true optionality (i.e. whether there is truly optional scrambling) remains to be seen.

15. For Rudin, this is an argument that the wh-phrases are a constituent. This is true under the adjunction to SpecCP analysis, but not under the multiple specifiers analysis. Under this analysis, (30) can be ruled out due to a feature clash: a [-wh, -focus] element is located in a [+wh, +focus] CP. Note that (30) improves markedly if the parenthetical is contrastively focused (see Bošković 1998c), which is not surprising under the focus movement analysis. In fact, this is an argument for the analysis.

16. Cheng leaves open how the typing is carried out with French wh-in-situ. I have nothing new to add concerning French. For relevant discussion, see Boeckx (1999) and Cheng and Rooryck (2000).

17. I am departing from Cheng in the technical aspect of the typing analysis, maintaining its spirit.

18. In Bošković (1998a, 2000) I apply the LF C-insertion analysis to French. LF C-insertion results in wh-in-situ, i.e. lack of overt wh-movement, in French. As in SC, overt C-insertion triggers overt wh-movement. (This is where French differs from Chinese. In Chinese no wh-movement needs to take place overtly even when C is inserted overtly. More formally, the +wh-feature of C is weak in Chinese and strong in French. French allows wh-in-situ because C can be in certain contexts inserted in LF, which is a possibility under Chomsky's 1995, chapter 4 definition of strength.)

19. They precede wh-phrases in SpecCP. Note that (33) can contain a wh-phrase in the highest phrase so that clausal typing is not a problem. TCs are, however, often treated as extrasentential and ignored for clause-internal requirements. Thus, Ćavar and Wilder (1999) and Schütze (1994), who adjoin TCs to CP, treat TCs as extrasentential (i.e. as not belonging to the same clause as elements dominated by CP) for the purpose of clitic placement. It is then possible that the presence of a TC, which is not dominated by CP hence can be said not to make the CP phonologically realized, does not force clausal typing within CP in (33). Wh-movement still must take place in (33) for reasons noted above. Note that even if we assume that TCs are located in the Spec of a head taking CP as complement, as in Tomić (1996), wh-movement will still be forced in (33). Under this analysis it is also natural to ignore the projection hosting TCs for clausal typing purposes. Since according to Tomić the projection hosts only elements denoting old information, wh-phrases can never move to it, i.e. they always remain below it. Under this analysis, we can assume that clausal typing takes place up to CP, i.e. that CP closes its domain. I assume that for one of the above reasons, TCs do not affect clausal typing.

20. The focus requirement can in fact be considered the defining characteristic of MWF languages.

21. The exception was pointed out to me by Wayles Browne (p.c.).

22. It can be marginally fronted if very heavily stressed. With neutral stress, **šta šta uslovljava* is bad.

23. One of my Bulgarian informants does not have the constraint. All others in all four languages do. Similar constraints are found in other languages, e.g. Italian (Napoli's 1976 constraint on clitics), Turkish (Kornfilt's 1986 constraint on consecutive sequences of compound and possessive markers), Japanese (some instances of the Case-marker drop), and Ancient Greek (the ban on homophonous sequences of articles, see Golston 1995). SC has this kind of effect in other constructions as well.

As shown in (i), the accusative feminine clitic *je* is replaced by *ju* when adjacent to the auxiliary *je* 'is'.

(i) a. Oni su je/*ju zaboravili.

they are her forgotten

'They forgot her.'

b. On ju/*je je zaboravio.

he her is forgotten

Howard Lasnik (p.c.) notes that the possessive of *boys* must be *boys'* [boyz] and not *boys's* [boyziz] though the relevant phonetic sequence is possible, as in the family name *the Boys's*. This shows that we are dealing with a morphological rather than a phonetic effect. (Note that the antihomophony effect is not universal. In fact, there are exceptions to it even in the languages cited above.)

24. As argued in Bošković (1997b), the object wh-phrase checks the strong +wh-feature of C in (41) rather than the adjunct because it moves to its Case-checking position prior to wh-movement, thus ending up higher than the adjunct prior to wh-movement. Notice also that (i) shows that (41)-(44) do not exhibit the same phenomenon as English (ii), where addition of a lower wh-phrase rescues a Superiority violation (see Pesetsky 2000 for a recent discussion of this effect.)

(i) a. *Kogo koj kak e tselunal?

b. *Kogo koj kakvo e pital?

(ii) a. *What did who buy?

b. (?)What did who buy where?

25. The explanation is too involved to repeat here. Richards (1997) gives a non-unified analysis of Superiority in Bulgarian and SC which accounts for the Bulgarian paradigm. However, it is shown in Bošković (1998c) that the analysis of SC does not work. (It does not account for the full paradigm and is based on incorrect assumptions about the syntax of SC.) Also, it cannot be extended to Russian, which has weak crossover effects with clause internal wh-fronting, a problem for Richards' analysis.

26. Whether SC has the same structure as Bulgarian when it must have wh-movement is unclear. Bošković (1997a) analyzes SC constructions of this type differently from Bulgarian. However, this may be wrong. The main argument against treating any SC question on a par with Bulgarian

concerns wh-islands. However, it is shown in Bošković (1998c, in preparation) that the wh-island test is irrelevant. It is worth noting here that wh-phrases are more difficult to split by a parenthetical in SC constructions that must involve overt wh-movement, which is a characteristic of Bulgarian questions (see (30)). (I ignore the *li* and the correlative construction, since the relevant parenthetical placement is ruled out in these constructions for independent reasons. Notice also that, like Bulgarian MWF constructions, SC (ic,e,g) improve if the parenthetical is contrastively focused.)

- (i) a. Ko, po tebi, koga tuče?
 who according you whom beats
 ‘Who, according to you, is beating whom?’
- b. ?Ko koga, po tebi, tuče?
- c. *Ko, po tebi, koga vjeruju da tuče?
 who according you whom believe that beat
 ‘Who, according to you, they believe is beating whom?’
- d. ?Ko koga, po tebi, vjeruju da tuče?
- e. ??Tom čovjeku, ko, po tebi, šta poklanja?
 that man.dat who according you what bestows
 ‘To that man, who, according to you, bestows what?’
- f. Tom čovjeku, ko šta, po tebi, poklanja?
- g. *Ima ko, po tebi, šta da mu proda.
 has who according you what part. him sells
 ‘There is someone who, according to you, can sell him something.’
- h. ?Ima ko šta, po tebi, da mu proda.

(ic-h) indicate that the SC constructions in question should be treated on a par with Bulgarian MWF. 27. Chomsky’s analysis is slightly more complicated. He also argues there is a preference for deletion in the head of operator-variable chains, motivated by **John wondered which picture of Tom_i he_i liked.*

28. Pesetsky’s (1997, 1998) system, which antecedes Franks’, is very similar to it (see also Bobaljik 1995, Hiramatsu 1997, and Bošković 2001). However, Pesetsky does not explicitly make the claim that *only PF considerations* can license lower pronunciation, a position I wish to maintain.

29. Although SC is a free word order language, when the subject and the object cannot be disambiguated through case inflection there is a strong tendency to interpret the first NP as the subject and the second NP as the object. The same tendency exists in (49).

30. Some of my informants do not share Comorovski's judgment. I am focusing here on the dialect in which (53) is unacceptable as an echo question.

31. The Move F analysis seems restatable in terms of Chomsky's (1999) Agree.

32. Note that phonological features remain together after the movement. And if PF needs formal features, their copy is present in the same position with phonological features even after Move F.

33. I assume later movements cannot affect the locally made decision to do phrasal movement here.

34. Similar globality is quite generally present in Chomsky's (1995) view of Move F, where we always do phrasal movement in overt syntax for PF reasons, as well as Chomsky's (1995, chapter 3) view of strength as an illegitimate PF object.

35. This does not hold for echo wh-phrases. This does not provide evidence that non-wh-fronting of non-echo and echo wh-phrases in these languages are different phenomena. It is possible that though there is more than one potential licensor for non-wh-fronting in these languages, interrogative C must be the licensor whenever present. In Bošković (2001) I suggest that, in contrast to SC, in Bulgarian interrogative C is always inserted overtly. The reason for this is that, in contrast to SC, interrogative C in Bulgarian is lexically specified as a PF verbal affix. The requirement cannot be satisfied if the C is not inserted overtly. Evidence for the difference between Bulgarian and SC is provided by the fact that in Bulgarian but not in SC, the C must be V-adjacent. (Romanian patterns with Bulgarian.)

(i) a. *Kakvo toj dade na Petko? (Bulgarian)

what he gave to Petko

'What did he give to Petko?'

b. Kakvo dade toj na Petko?

c. Šta on dade Ivanu? (SC)

what he gave Ivan.dat

Since in true questions interrogative C must be inserted overtly, non-echo wh-phrases must move to interrogative CP in Romanian and Bulgarian. In pure echo questions it appears that interrogative

C does not have to be inserted at all. Hence, echo *wh*-phrases can be licensed in other positions.

36. Among my informants who have the *what what* constraint, both Bulgarian informants can realize the second *what* before the verb and one can realize it before *če*. Only one of my Romanian informants allows the indicated intermediate pronunciation. However, there is an interfering factor with realizing *ce* before the main verb in (59a). Only certain clitic-like adverbs can intervene between the auxiliary and the participle, which suggests that the auxiliary is a verbal clitic (see Dobrovie-Sorin 1994:10-11).

37. For some authors (see Rudin 1988, Koizumi 1999, and Richards 1997), Bulgarian *wh*-phrases move through SpecCP even in *wh*-island configurations, which would eliminate the interfering factor. The analysis relates the resistance of Bulgarian to the *wh*-island constraint to the possibility of MWF. See, however, Bošković (1998c, in preparation) for criticism of this analysis. (For one thing, I show that in all relevant respects Bulgarian behaves like Swedish, a non-MWF language.)

38. Russian allows them but interfering factors prevent us from running the PG test. (According to Arthur Stepanov (p.c.), PGs are not natural in Russian MWF constructions.) Bulgarian and SC have the counterparts of (60b), but I believe that in these languages such constructions should be analyzed as involving Across-the-Board movement (ATB). (Other PG constructions from English are unacceptable in these languages. For what it is worth, (i) gives the relevant examples from Bulgarian.)

(i) a. *?(?)Kakvo opredelja kakvo bez da očakva?*

what determines what without part. anticipates

‘What determines what without anticipating?’

b. **Koj opredelja kakvo bez da očakva?*

who determines what without part. anticipates

39. (60) involve the PF exceptions to the obligatoriness of MWF. (Capitals indicate an echo *wh*-phrase.) All my informants accept (60a). The judgments are divided for (60b), with the majority accepting it. Note that there are potentially interfering factors in the PG test. PF information may also be involved in PG licensing (see Franks 1993). This may help us account for the judgment of speakers who do not accept (60b), given that under both the PCA and the Move F analysis the PG licenser is not phonologically realized in the raised position. (Note that there are analyses, e.g.,

Nunes 2001, on which we would not necessarily expect PGs to be licensed in the constructions in question under the current analysis. A Nunes-style analysis might be appropriate for the speakers who do not accept (60b) as well as the ATB construction from footnote 38. (Nunes extends his analysis of PGs to ATB.)

40. This is so even if the *in situ* *wh*-phrase is not D-linked, contra Pesetsky (1987). Note that the PCA is consistent with Pesetsky's claim that non-D-linked *in situ* *wh*-phrases move in LF in English.

41. The term *in situ wh*-phrase refers to any *wh*-phrase that is not pronounced in an operator position. The terms *wh-in-situ questions* and *wh-in-situ languages* are used in the same sense. Notice that I avoid using as illustration *wh-in-situ* languages that allow null objects, such as Chinese and Japanese. It is difficult to tease apart PGs and null objects in these languages.

42. The Move F analysis of (60) is thus inconsistent with my (1998a, 2000) analysis of French *wh-in-situ* constructions, which I argue involve feature movement based on their locality restrictions. (Incidentally, at least some of these locality restrictions do not hold in the Romanian constructions in question. Compare, e.g., (59a) with my observation that French disallows long-distance *in-situ* questions.) Thus, to the extent that it is successful, my (1998a, 2000) analysis favors the PCA treatment of (60) over the Move F treatment. Needless to say, if the latter turns out to be correct, it would invalidate the Move F analysis of French *wh-in-situ*. Notice also that in Bošković (2000) (see also Cheng and Rooryck 2000), I provide evidence that French *wh-in-situ* and *wh-in-situ* in traditional *wh-in-situ* languages like Chinese and Japanese should not be analyzed in the same way.

43. The PCA is thus inconsistent with analyzing *wh-in-situ* in French and Malay as involving phrasal movement of the *in situ* *wh*-phrase that takes place prior to spell-out, with subsequent pronunciation of a lower copy. (For analyses along these lines for *wh-in-situ* languages where the PG test cannot be run (see footnote 41), see Groat and O'Neil 1996:131 and Bobaljik 1995:360. Pesetsky 2000 suggests this analysis for Chinese, and a Move F analysis for Japanese.)

44. I again focus on the dialect in which echo *wh*-phrases must move, where (i) contrasts with (65).

(i) *Ion crede că Petru a cumpărat CE?

Ion believes that Peter has bought what

Recall also that, as discussed above, there is more than one possibility for the landing site of echo *wh*-phrases. E.g., the echo *wh*-phrase in (i) can either stay within the embedded clause or move to

the matrix clause, as illustrated in (ii). (*Ion* in (ia) can be a topic located outside of CP.)

(ii) a. Ion CE crede că Petru a cumpărat?

b. Ion crede că CE a cumpărat Petru?

I assume that the same options are in principle available for the echo wh-phrase in (65). As will become clear during the discussion below, only the derivation on which the echo wh-phrase moves syntactically into the matrix clause can yield (65), where the echo wh-phrase is pronounced in situ.

45. With wh-islands, full phrasal movement is allowed. As expected, feature movement is degraded.

(i) a. CE se întreabă Ion cine a cumpărat?

what refl wondered Ion who has bought

‘What did Ion wonder who bought?’

b. (?) Ion se întreabă cine a cumpărat CE?

46. For PCA treatments of resumptives, see Fox (1994) and Pesetsky (1997, 1998). We can implement the PF effect on locality by assuming that PF realization removes the star assigned to copies due to locality violations (see Chomsky and Lasnik 1993). Note that resumptives in English cannot occur in intermediate positions, as shown by **the worker who you recently heard the rumor him that they had treated badly*. This may be a result of more general constraints on pronoun placement in English - resumptives can occur only in positions in which pronouns in general can occur in the language.

47. Resumptive pronouns sound best with relative clauses. Speakers who do accept them in true questions seem to accept them only with heavily D-linked wh-phrases (see Boeckx 2001). Thus, English **Who did the company fire the employee that treated him badly* is judged unacceptable.

48. Recall that the Move F analysis is restatable in terms of Chomsky’s (1999) Agree. The PG data seem particularly problematic for the Agree version of this analysis.

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