

On certain violations of the Superiority Condition, AgrO, and economy of derivation¹

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(Received 21 April 1995; revised 22 April 1996)

This paper examines Superiority effects with VP internal constituents in English, Spanish and Bulgarian. It is argued in the paper that certain data concerning Superiority effects provide evidence for the existence of AgrO. In particular, they provide evidence that Accusative *wh*-phrases undergoing syntactic *wh*-movement must move to SpecAgrOP on their way to SpecCP. The data examined in the paper are also shown to provide support for the Economy account of the Superiority Condition.

1. INTRODUCTION

Chomsky (1973) examines constructions such as (1) and attributes their ill-formedness to the Superiority Condition, given in (2).

- (1) *What did who buy?
- (2) *The Superiority Condition*
 - (a) No rule can involve X, Y in the structure
...X... [...Z... WYV ...]...
where the rule applies ambiguously to Z and Y, and Z is superior to Y.
 - (b) The category A is SUPERIOR to category B if every major category dominating A dominates B as well but not conversely.

Aoun, Hornstein & Sportiche (1980) argue that the Superiority Condition should be subsumed under the Empty Category Principle (ECP). Thus, they argue that (1) is ruled out because the trace left by the LF adjunction of *who*

[1] For helpful comments and suggestions on previous versions of this paper, I thank Loren Billings, Lisa Cheng, Marcel den Dikken, Steven Franks, Masatoshi Koizumi, anonymous *JL* referees, and especially Howard Lasnik and Mamoru Saito. Thanks are also due to a number of other people, especially Tzvetelina Ganeva, Lily Grozeva, Roumyana Izvorski, Guillermo Lorenzo, Roumyana Slabakova, Ioana Stefanescu, and Maria Uribe-Echevarria, for help with judgments. This work was supported in part by NSF grant SBR-951088. Some parts of this paper were presented at the Syntax Workshop at the University of Connecticut in 1992 and the Second Annual Workshop on Formal Approaches to Slavic Linguistics (FASL) held at MIT in 1993. The paper is a revised version of some parts of my 1992 paper 'ECP, superiority, and multiple *wh*-movement in overt syntax'. The rest of that paper appeared in the Proceedings of FASL 2.

to COMP, motivated by Absorption (see Higginbotham & May 1981), is not properly governed.

- (3) *_{[CP [who_i what_i] did t_i buy t_j]}

Hendrick & Rochemont (1982) and Pesetsky (1982), however, note that the Superiority Condition is needed independently of the ECP to account for constructions such as (4), where both the trace left by the SS *wh*-movement of *what* and the trace left by the LF *wh*-movement of *who* are lexically governed by the verb.

- (4) ?*What_i did you tell who to read t_i?

Since constructions such as (4) were noticed, there have been a number of accounts of the Superiority Condition in the literature as well as attempts to reduce the Superiority Condition to independently motivated principles. Chomsky (MIT Fall Lectures 1989, MIT Fall Lectures 1990, see also Cheng (1991) and Kitahara (1993)) argues that the Superiority Condition follows from general considerations of Economy of Derivation. (For some alternative accounts, see Cheng & Demirdash (1990), Lasnik & Saito (1992) and Pesetsky (1982), among others.) Chomsky argues that every requirement must be satisfied in the most economical way. This also applies to the checking of the +*wh* feature, located under C and checked under Spec-Head agreement with a *wh*-phrase in SpecCP. Chomsky argues that, given a D-structure like (5a), since the movement from the position of *what* to SpecCP is a longer derivation in terms of nodes traversed (see Collins (1994) for relevant definitions) than the movement from the position of *whom* to SpecCP, principles of Economy require that the +*wh* feature be checked by the movement of *whom* (5b) rather than *what* (5c).

- (5) (a) [_{CP} +wh [_{IP} you told whom to read what]]
 (b) [_{CP} Whom did [_{IP} you tell t to read what]]
 (c) ?*_{[CP} What did [_{IP} you tell whom to read t]]

Although constructions such as (5c) are straightforwardly ruled out by any of the approaches to Superiority proposed in the literature, excluding the ECP account, constructions involving Superiority effects with VP internal constituents, that is, constituents contained by VP², have resisted a satisfactory account. Consider, for example, Spanish constructions in (6), a long standing problem for the Superiority Condition noted by Jaeggli (1982).

- (6) (a) Quién dijo qué?
 who said what
 ‘Who said what?’
 (b) Qué dijo quién?

[2] α contains β if a segment of α dominates β .

Given that the Superiority Condition is needed independently of the ECP, regardless of which approach to Superiority is adopted a question arises as to why both constructions in (6) are grammatical although the Superiority Condition seems to be violated in (6b), where the object *wh*-phrase moves to SpecCP before the subject *wh*-phrase, which is generally assumed to be either adjoined to VP (Jaeggli 1982, Rizzi 1982, Safir 1985, Burzio 1986, among others) or located in SpecVP (Bonet 1989, Arnaiz 1992, Uribe-Echevarria 1992, Suñer 1994, among others). (7a, b) raise a similar problem.³

- (7) (a) What did he buy where?
 (b) Where did he buy what?

Given the standard assumption that *where* is generated in a position that is higher than the complement position of V (see also fn. 11), which I assume to be the VP adjoined position, a question arises as to why *what* is allowed to undergo *wh*-movement in (7a) although it is lower than the *wh*-phrase in situ. To account for the lack of Superiority effects with VP internal constituents in (7) under the Economy account of Superiority (the analysis can be readily extended to (6)), Chomsky (MIT Fall Lectures 1989, MIT Fall Lectures 1990, and as reported in Cheng (1991)) stipulates that if α and β m-command each other, then movement from the position of α and the position of β have the same length. Chomsky (1993) states the notion of ‘same length’ in somewhat different terms but, for our purposes, the result is the same. The following definitions from Chomsky (1993) are relevant here. (Note that Chomsky (1993) does not explicitly discuss (7a, b).)

- (8) (a) The domain of a head (α) (= Dom(α)) is the set of nodes contained in the maximal projection of α that are distinct from and do not contain α .
 (b) The minimal domain of α (= Min(α)) is the smallest subset K of α , such that for any member of Min(α) some member of K reflexively dominates it.
 (c) α and β are equidistant from γ if they are in the same minimal domain.

Under the definitions in (8), the complement of X, the Spec position of XP, and the position adjoined to XP all belong to the same minimal domain and are, therefore, equidistant from any element outside the domain. Given this and assuming that adjuncts such as *where* are adjoined to VP and the postverbal subject in Spanish (6b) is either adjoined to VP or located in SpecVP at SS, all the *wh*-phrases in (6)–(7) are equidistant from SpecCP

[3] Note that given Huang’s (1982) empty P analysis of *where* and *when*, meant to account for the fact that, in contrast to *why* and *how*, *where* and *when* can be left in situ, the *wh*-phrase in situ does not c-command the object *wh*-phrase prior to *wh*-movement in (7a). See, however, Murasugi & Saito (1993) for compelling evidence against the empty P analysis of *where* and *when* and an alternative account of why *where* and *when* can be left in situ.

prior to *wh*-movement (see (9)). As a result, no matter which of the *wh*-phrases undergoes movement to SpecCP the Superiority Condition is not violated in (6)–(7).

- (9) (a) Dijo_i [_{VP} quién [_{V'} t_i qué]]?
 (b) He [_{VP} [_{VP} [_{V'} bought what]] where]?

The equidistance account, however, merely provides a technical way out of the problem noted above. It does not give us any deeper insight as to what could be going on in the constructions under consideration. Given this, if accounting for constructions such as (6)–(7) were the only motivation behind the notion of equidistance AS DEFINED IN (8a)–(8c) the analysis of the relevant constructions given above would be a mere formal restatement of the problem to be accounted for rather than a principled solution. However, if the notion of equidistance as defined in (8a)–(8c) can be motivated independently of (6)–(7), the equidistance account of (6)–(7) would come for free. Chomsky (1993) uses the notion of equidistance independently of the Superiority Condition as an escape hatch from the Minimize Chain Links Principle (MCLP), which requires that each chain link be as short as possible. The status of equidistance as an escape hatch from the MCLP is, however, not clear. Thus, Ferguson & Groat (1994) argue that there is no need to maintain the notion of equidistance as an escape hatch from the MCLP and suggest that Chomsky's mechanism of equidistance can be eliminated from the grammar. Furthermore, Takahashi (1993) argues that to the extent that we need equidistance as an escape hatch from the MCLP, the XP-adjoined position and positions dominated by XP should not belong to the same minimal domain, which is crucial for the equidistance account of (6)–(7).⁴ Given that it is not clear that equidistance as defined in (8a)–(8c) and possibly the notion of equidistance as an escape hatch from Economy principles have any empirical motivation independent of constructions such as (6)–(7), it is not clear whether the equidistance account of the constructions under consideration is anything more than a formal restatement of the problem to be accounted for. I believe that this in itself suffices to justify seeking an alternative way of accounting for the lack of Superiority effects with VP internal constituents. In addition, in the next section I will show that there

[4] Takahashi shows that if the positions in question do not belong to the same minimal domain, the comp-trace effect, that is, the contrast between **Who do you think that left?* and *Who do you think left?* can be given a principled Economy account. To achieve the desired result, Takahashi revises (8a) as follows: (The relevant part of the definition is highlighted.)

- (i) The domain of a head α (= Dom(α)) is the set of nodes DOMINATED by the maximal projection of α that are distinct from and do not contain α .

It should be pointed out here that Chomsky (1994) also assumes that elements dominated by XP and elements adjoined to XP do not belong to the same domain, as argued by Takahashi (1993) and contra Chomsky (1993).

is also evidence that Chomsky's equidistance account is simply empirically inadequate. The equidistance account predicts that there can be no Superiority effects with VP internal constituents. In the next section I examine Superiority effects in Bulgarian, a multiple *wh*-fronting language, and show that Bulgarian does exhibit Superiority effects with VP internal constituents, which cannot be accounted for under the equidistance analysis. I will propose an analysis that accounts for both the Bulgarian data in question and (6)–(7) without appealing to the notion of equidistance. As a result, I will argue on both empirical and conceptual grounds that the analysis proposed in this paper is to be preferred to the equidistance analysis of Superiority effects with VP internal constituents. To the extent that it is successful, the analysis presented below will also provide evidence for the existence of AgrO in languages without overt object agreement. (In this respect I will argue against Iatridou (1990) and Pesetsky (1989), who argue that there is no AgrO node in English.) I will also provide evidence for the Economy account of Superiority.⁵

The paper is organized as follows. In section 2, I discuss Superiority effects in Bulgarian and show that they provide evidence for the existence of AgrO and the Economy account of Superiority. In section 3, I reexamine the data in (6)–(7). Section 4 examines some theoretical consequences of the analysis proposed in sections 2 and 3. In section 5, I show that Superiority effects can help us sharpen the relevant notion of Economy of Derivation. In particular, I argue that Superiority effects provide support for the local and against the global view of Economy of Derivation. Section 6 is a summary.

2. SUPERIORITY EFFECTS IN BULGARIAN

Bulgarian is a multiple *wh*-fronting language which, as shown convincingly in Rudin (1988), locates all preposed *wh*-elements in SpecCP. To give here just one of Rudin's arguments for constituency of preposed *wh*-phrases in Bulgarian, in contrast to sequences of *wh*-elements in languages such as Serbo-Croatian (SC), which locate only one of preposed *wh*-elements in SpecCP (see (10a, b)), sequences of preposed *wh*-elements in Bulgarian

[5] It should be pointed out, however, that given the proposals made below, the English and Spanish data discussed in this section can be accounted for under most alternative approaches to Superiority, including Chomsky's original (1973) account and more recent accounts such as Cheng & Demirdash (1990) and Lasnik & Saito (1992). However, some of the Bulgarian data discussed in section 2 will be shown to provide strong evidence for the Economy account since they are accountable ONLY under the Economy account. For this reason, in what follows I will adopt the Economy account of Superiority, based on the minimalist framework. Details of the minimalist framework will be discussed to the extent that they affect, or are affected by, the Economy account of Superiority and the analysis presented below. (Note, however, that for ease of exposition I will continue to use the term Superiority Condition, although I believe that the effects of the condition follow from the principles of Economy.)

cannot be interrupted with adverbs (see (10c, d)). (See Rudin (1988) for more evidence that all preposed *wh*-elements in Bulgarian are located in SpecCP.)

- (10) (a) Zavisi od toga ko koga prvi udari. (SC)
 depends on it who whom first hits
 ‘It depends on who hits whom first.’
 (b) Zavisi od toga ko prvi koga udari.
 (c) Zavisi ot tova, koj kogo prŭv e udaril. (B)
 depends on it who whom first is hit
 ‘It depends on who hit whom first.’
 (d) *Zavisi ot tova, koj prŭv kogo e udaril.

It should be pointed out that, D-linked *wh*-phrases aside (throughout the paper I ignore D-linked *wh*-phrases), all *wh*-elements in Bulgarian multiple questions must be located in SpecCP already by SS. No *wh*-phrase is allowed to remain in situ.⁶

- (11) (a) Koj kogo e vidjal?
 who whom is seen
 ‘Who saw whom?’
 (b) *Koj e vidjal kogo?

Rudin (1985, 1986, 1988) shows that sequences of *wh*-elements in Bulgarian are subject to strict ordering constraints. Thus, Rudin shows that subject *wh*-elements must precede object and adjunct *wh*-elements.

- (12) (a) [_{CP} Koj kogo [_{C'} e vidjal]]?
 who whom is seen
 ‘Who saw whom?’
 (b) *[[_{CP} Kogo koj [_{C'} e vidjal]]?
 (c) [_{CP} Koj kŭde [_{C'} e vidjal čoveka]]
 who where is seen the man
 ‘Who saw this man where?’
 (d) *[[_{CP} Kŭde koj [_{C'} e vidjal čoveka]]?
 (e) [_{CP} Koj kak [_{C'} udari Ivan]]?
 who how hits Ivan
 ‘Who hits Ivan how?’
 (f) *[[_{CP} Kak koj [_{C'} udari Ivan]]?

Rudin (1988) argues that the facts in (12) provide evidence that the *wh*-phrase that comes first in the linear order is the one that moves first to SpecCP. In

[6] I will not be concerned here with the question why all *wh*-phrases in Bulgarian multiple questions must move to SpecCP at SS. (For relevant discussion, see Cheng 1991. Cheng proposes that Bulgarian *wh*-phrases contain a null determiner and argues that a licensing requirement on the null determiner forces all *wh*-phrases in Bulgarian to move overtly to a position within the CP projection. For an alternative analysis, see Bošković (in press b).

other words, adjunction to SpecCP in Bulgarian proceeds to the right. Given Rudin's proposal, as in English, in Bulgarian subject *wh*-elements move to SpecCP before object and adjunct *wh*-elements, which is expected under any approach to Superiority.⁷ It is easy to verify that given Rudin's proposal, (12b), in which *kogo* moves to SpecCP before *koj*, is straightforwardly ruled out under Chomsky's original account of the Superiority Condition. On the other hand, no problems with respect to Superiority arise in (12a), where the subject *wh*-phrase moves to SpecCP before the object *wh*-phrase. (12c)–(12f) are also readily accounted for. Under the Economy account of Superiority effects, the facts in (12a)–(12f) are handled straightforwardly if we assume that movement to SpecCP obligatorily triggers Spec-Head agreement with C, which in turn results in the checking of the +*wh* feature, located under C. Recall that under the Economy approach to Superiority, the +*wh* feature must be checked in the most economical way. If more than one movement can result in the checking of the +*wh* feature, the shortest movement is the one that will do the job. Given this, in a configuration such as (13), principles of Economy require that XP-*wh* move to SpecCP before YP-*wh*.

(13) [_{CP} [_{C'} +*wh* [_{IP} XP-*wh* [_{VP} ... YP-*wh* ...]]]]

As far as the principles of Economy are concerned, once XP-*wh* moves to SpecCP checking the +*wh* feature, whether or not YP-*wh* will move to SpecCP and whether it will do so at SS or LF is irrelevant. Given this, although in Bulgarian all *wh*-phrases move to SpecCP at SS, the fact that, as in the corresponding constructions in English, the subject *wh*-phrase *koj* moves to SpecCP before the Accusative *wh*-phrase *kogo* (12a, b) and the adjuncts *küde* (12c, d) and *kak* (12e, f) is straightforwardly accounted for by

[7] Note that if we assume that adjunction to SpecCP in Bulgarian proceeds to the left, adjunct and direct object *wh*-phrases would have to move to SpecCP before subject *wh*-phrases in violation of the Superiority Condition. To make Bulgarian *wh*-movement consistent with the Superiority Condition, I assume, following Rudin (1988), that adjunction to SpecCP in Bulgarian proceeds to the right, contra Kayne (1994), where it is argued that rightward adjunction does not exist.

It should be pointed out here that Rudin claims on the basis of Serbo-Croatian constructions such as (i) that fronted *wh*-phrases in multiple *wh*-fronting languages such as Serbo-Croatian, which according to Rudin differs from Bulgarian in that it places only one of the fronted *wh*-phrases in SpecCP, are not subject to ordering constraints. This essentially exempts Serbo-Croatian from the Superiority Condition.

- (i) (a) Ko koga gleda?
 who whom watches
 'Who is watching whom?'
 (b) Koga ko gleda?

However, in Bošković (in press a) I show that Rudin's claim concerning Serbo-Croatian is factually incorrect. In particular, I show that in certain constructions not examined by Rudin Superiority effects emerge in Serbo-Croatian. I also provide a principled account of the facts in (i) and the contrast between (ib) and (12b) that does not exempt Serbo-Croatian from the Superiority Condition.

the Superiority Condition.⁸ (12a)–(12f) are thus well-behaved with respect to Superiority. An unexpected pattern, however, comes with the ordering of object *wh*-elements marked for Accusative and adjunct *wh*-elements. As (14a)–(14d) show, the direct object *wh*-element *kogo* ‘whom’ MUST move to SpecCP before VP adjuncts. (Recall that the *wh*-phrase that comes first in the linear order is the one that moves first to SpecCP.)⁹

- (14) (a) [_{CP} Kogo kak [_{C'} e tselunal Ivan]]?
 whom how is kissed Ivan
 ‘How did Ivan kiss who?’
 (b) ?*_{[CP} Kak kogo [_{C'} e tselunal Ivan]]?
 (c) [_{CP} Kogo kŭde [_{C'} e vidjal čovekŭt]]?
 whom where is seen the man
 ‘Who did the man see where?’
 (d) ???_{[CP} Kŭde kogo [_{C'} e vidjal čovekŭt]]?

Notice also that *kogo* must move to SpecCP after *kak* and *kŭde* if *kogo* is extracted from an embedded clause and *kak* and *kŭde* are extracted from the matrix clause. (The judgments in (15) hold for this reading.) This suggests that Superiority is relevant here.¹⁰

[8] In a system that adopts the ECP, the Bulgarian data under consideration should be interpreted as providing evidence that, contrary to standard assumptions, antecedent government from the SpecCP adjoined position is possible. If this were not the case, (12e) would be ruled out by the ECP because the trace of the adjunct would not be properly governed. German multiple questions involving both argument and adjunct *wh*-phrases, discussed in Haider (1986), point to the same conclusion. (German allows *wh*-adjuncts to remain in situ even when the relevant SpecCP is filled at SS.) Given that, as is generally assumed, antecedent government from the SpecIP adjoined position is possible (see, for example, the discussion of *there* constructions in Chomsky 1991), it is not surprising that antecedent government is also possible from the SpecCP adjoined position. A question that arises now is why English constructions such as *Who left why* are bad. (A *JL* reviewer, however, finds such constructions acceptable, contrary to the standard judgement.) Given the Bulgarian data discussed above and the German data discussed by Haider (1986) (the German counterpart of ‘Who left why?’ *Wer ist weshalb weggegangen* is good), the standard analysis should be given up. For alternative analyses of relevant English constructions that do not appeal to the failure of antecedent government from the SpecCP adjoined position, see Aoun et al. (1980) and Law 1991, 1993), among others.

[9] Ioana Stefanescu (personal communication) informs me that Romanian behaves like Bulgarian in all relevant respects. Note also that speakers differ in the exact degree of unacceptability of (14b,d). Thus, ?* in (14b) may be too strong for some speakers. However, although the exact status of (14b) is not quite clear, all the speakers I consulted find a difference in acceptability between (14a) and (14b). It should be pointed out here that some speakers seem to allow *kŭde* to either follow or precede *kogo*. As will become obvious during the discussion below, the ordering of *kŭde* and *kogo* for these speakers can be accounted for if for these speakers *kŭde* can be base-generated either adjoined to VP or AgrOP.

[10] Admittedly, the relevant contrasts are not as clear as one would want them to be. The reason for this is that quite generally, Bulgarian speakers do not find constructions involving *wh*-phrases extracted from different clauses fully acceptable. Thus, (15a) and (15c) are also seriously degraded. (15b, d) are, however, judged to be even worse than (15a, c) on the relevant reading.

- (15) (a) ???_{[CP} Kak kogo [_{C'} e razbral Ivan če e
how whom is found-out Ivan that is
tselunal Boris]]?
kissed Boris
'How did Ivan find out that Boris kissed who?'
- (b) *_{[CP} Kogo kak [_{C'} e razbral Ivan če e tselunal Boris]]?
- (c) ???_{[CP} Kūde kogo [_{C'} kaza Boris če šte gledame]]?
where whom said Boris that will watch
'Where did Boris say that we will watch whom?'
- (d) *_{[CP} Kogo kūde [_{C'} kaza Boris če šte gledame]]?

Notice now that Chomsky's m-command account of Superiority effects with VP internal constituents, motivated by the grammaticality of (6b) and (7a), cannot account for the Bulgarian facts under consideration. The problematic constructions are (14b) and (14d). Assuming that *kogo* and *kak* in (14b) and *kogo* and *kūde* in (14d) m-command each other prior to *wh*-movement, or, in Chomsky's (1993) terms, belong to the same minimal domain, we would expect all the constructions in (14) to be grammatical since *wh*-movement of all *wh*-phrases in (14) is equally economical. The expectation is apparently not borne out. The question is now whether we can account for the Bulgarian facts under consideration and still maintain the account of English (7a, b) and Spanish (6a, b). I will show that this can be done if the theory of clausal structure and Case-marking proposed in Chomsky (1991, 1993) is adopted.¹¹ Chomsky (1991, 1993) proposes the following clausal structure. (I indicate base-generated positions of subject, object and V.)

- (16) [_{CP} [_{AgrSP} [_{TP} [(_{NegP}) [_{AgrOP} [_{VP} Subject [_{V'} V object]]]]]]]]

Chomsky argues that all NPs are taken from the lexicon with Case features. These Case features are then checked under Spec-Head agreement with an appropriate functional head. Accusative NPs are Case-checked in Spec-AgrOP under Spec-Head agreement with AgrO. All Accusative NPs thus must move to SpecAgrOP at some point to be Case-checked. Suppose now that, as suggested by Borer (1995), Accusative Case-marked NPs whose Case is unchecked in their base-generated position pass through SpecAgrOP on

[11] I will continue to assume, following standard assumptions and contra Larson (1988), that adjuncts are generated higher in the tree than arguments. It is easy to verify that under Larson's proposal that adjuncts are generated lower than arguments, the full range of relevant Bulgarian and English facts involving multiple questions with adjunct and object *wh*-phrases cannot be accounted for. (Note, for example, that accounting for (14d) by assuming that adjunct *wh*-phrases are generated lower in the tree than direct object *wh*-phrases would rule out (7b).) For evidence against Larson's proposal, see also Branigan (1992).

their way to SpecCP.¹² I will show now that given the assumption that Accusative Case-marked NPs undergoing *wh*-movement pass through SpecAgrOP on their way to SpecCP, the Bulgarian facts under consideration can be straightforwardly accounted for. To the extent that it is successful, the analysis presented below will thus provide empirical evidence for *wh*-movement via SpecAgrOP.

Consider again (14a, b). Assuming that at DS *kak* is adjoined to VP, it seems that *kak* is higher than *kogo* before *wh*-movement takes place in (14a, b).¹³ Notice, however, that under the AgrO analysis, since both *kak* and *kogo* must move to SpecCP at SS, in order to avoid violating the principle of Strict Cyclicity *kogo* has to undergo A-movement to SpecAgrOP prior to *wh*-movement of the adjunct *kak*. Given this, *kogo* is higher than *kak* prior to *wh*-movement in (14a, b). As a result, since *wh*-movement of *kogo* is a shorter derivation than *wh*-movement of *kak*, *kogo* must move to SpecCP before *kak*, thus checking the +*wh* feature under Spec-Head agreement with C (see (17)). It is easy to verify that (14c, d) can be accounted for in the same way. (See Izvorski (1993) for arguments that the participle in (17) moves out of VP, thus crossing the subject NP, which, as Izvorski shows, remains in

[12] Borer makes this claim on the basis of weak crossover effects in Hebrew. Oka (1993) independently makes the same claim on the basis of object extraction out of *wh*-islands in French and Dutch. The reader is also referred to Branigan (1992), who examines some English constructions that he claims involve movement to SpecCP via SpecAgrOP. Branigan also argues that object shift in Icelandic/Mainland Scandinavian in fact involves adjunction to a position higher than SpecAgrOP with the element undergoing adjunction moving via SpecAgrOP. (The movement is obligatory.) Essentially following Mahajan (1990), Nemoto (1993) argues that Accusative Case-marked NPs undergoing Scrambling to a position higher than SpecAgrOP must pass through SpecAgrOP in the overt syntax. I will argue here that Superiority effects provide evidence that A'-movement of direct object elements to a position higher than SpecAgrOP must proceed via SpecAgrOP even in languages that otherwise do not have obligatory overt object shift, that is, overt movement to SpecAgrOP. One should bear in mind, however, that although I will argue below that *what* in *What did John buy?* passes through SpecAgrOP in the overt syntax, I do not assume that the direct object NP in constructions such as *John bought the house* is located in SpecAgrOP at SS. Following standard assumptions I assume that the NP in question remains within VP in the overt syntax. The same holds for the corresponding constructions in Spanish. In section 4 I will provide theoretical explanation for overt object shift with *wh*-movement.

[13] Note that I use the term DS purely for expository purposes without taking a stand on the issue of whether the level of DS actually exists (see Brody 1993, Chomsky 1993, Bošković 1994b, for recent discussions of the issue). It should be also pointed out that I adopt here the traditional approach to the principle of Strict Cyclicity (see, for example, Chomsky (1973: 243) and Lasnik & Saito 1992) rather than Chomsky's (1993) extension requirement. Thus, I assume that adjunction is subject to the cycle. In fact, to the extent that it is successful, the analysis presented below will provide evidence that in multiple questions *wh*-adjuncts such as *where* are inserted into the tree before any element undergoes *wh*-movement to a position higher than *where*. The reader is also referred to Saito (1994) for arguments that adjunction is subject to the cycle. One should not, however, eliminate the possibility that adjuncts such as *where* are generated in the Spec of a functional projection. The analysis presented below is fully consistent with this possibility as long as the Spec in question is lower than AgrO.

SpecVP in (17). It is possible that the participle moves even higher than AgrO. This, however, does not affect the analysis presented here.)

(17) [_{CP} Kogo_i kak_j e [_{AgrOP} t_i tselunal_k [_{VP} [_{VP} Ivan [_{V'} t_k t_i]] t_j]]]?

I conclude, therefore, that the AgrO analysis provides a straightforward account why the Accusative *wh*-phrase *kogo* must move to SpecCP before *kak* and *küde*, thus giving (14a, c) but not (14b, d). In fact, under the AgrO analysis, *kogo* is forced to move to SpecCP before *kak* and *küde* for the same reason the Nominative *koj* is forced to move to SpecCP before *kak* and *küde*.¹⁴

Notice that under the analysis presented here, the grammaticality of (14a, c) (the structure of (14a) is given in (17)) is accounted for in the same way as the grammaticality of (18a, b), which have the same structure as (17) in all relevant respects.

- (18) (a) Who_i t_i seems to who [t_i to be crazy]?
 (b) Who_i strikes who [t_i as being crazy]?

As in (17), in (18) the *wh*-phrase that checks the +*wh* feature is generated below another *wh*-phrase, moves to an A-position higher than the other *wh*-phrase, and then undergoes *wh*-movement. Apparently, A-positions can serve as an escape hatch from the Superiority Condition. This can be readily accounted for under the Economy account of Superiority. Recall that under the Economy account Superiority effects follow from the requirement that the +*wh* feature be checked in the most economical way. Given this, it is only natural that only movement motivated exclusively by +*wh* feature checking is considered in computing the length of movement relevant to Superiority. Since A-movement of *kogo* to SpecAgrOP in (17) and A-movement of *who*

[14] Notice that if we maintain the notion of equidistance, to account for the fact that *kogo*, located in SpecAgrOP prior to *wh*-movement, must move to SpecCP before *küde* and *kak* we need a definition of equidistance that will not render SpecAgrOP and the VP-adjoined position equidistant. Neither Chomsky's nor Takahashi's definition will do the job since, according to their definitions, a phrase adjoined to the complement of X and a phrase located in the Spec of XP belong to the same minimal domain. Since, as far as I can see, there is no empirical need for such a conception of minimal domain we can close the loophole by revising the relevant definitions as in (i). (The revised part of the definitions is highlighted. Note that I am assuming Takahashi's revision of Chomsky's definitions. See fn. 4.)

- (i) (a) The domain of a head α (= Dom(α)) is the set of nodes dominated by the maximal projection of α that are distinct from and do not contain α .
 (b) The minimal domain of α (= Min(α)) is the smallest subset K of α , such that for any member of Min(α) some member of K reflexively CONTAINS it.
 (c) α and β are equidistant from γ if they are in the same minimal domain.

Given the definitions in (i), SpecAgrOP and the positions contained by VP are not equidistant from C. Notice, however, that the definitions in (i) have the effect of rendering the notion of equidistance as an escape hatch from Economy Principles irrelevant in the constructions under consideration so that the analysis presented here holds even if the notion is dispensed with.

to SpecAgrSP in (18) are motivated by Case-checking, they have no relevance to Superiority.¹⁵

So far I have considered multiple questions containing two *wh*-phrases. I have shown that given the AgrO analysis, we can account for the order of *wh*-adjuncts such as *kak* and the Accusative *wh*-phrase *kogo*. The AgrO analysis of the facts discussed so far is independent of the Economy account of Superiority. It is easy to verify that it can be straightforwardly translated to other approaches to Superiority, including Chomsky's original (1973) account and more recent accounts such as Cheng & Demirdash (1990) and Lasnik & Saito (1992).¹⁶ Constructions containing more than two fronted *wh*-phrases, however, favor the Economy account of Superiority. As (19a)–(19d) show, only the first *wh*-phrase in such constructions is subject to the Superiority Condition. The second and third *wh*-phrase are freely ordered. What we are interested in is the grammaticality status of (19b, d). The speakers that allow piling up of fronted *wh*-phrases find (19b, d) better than (14b, d).¹⁷

[15] As discussed in section 4, where it is argued that Case features can be checked only on heads of chains, if the *wh*-phrase in (17) does not pass through SpecAgrOP on its way to SpecCP, checking its Case features, its Case features will remain unchecked. Movement of *kogo* to SpecAgrOP is thus not motivated exclusively by +*wh* feature checking and, therefore, is not relevant to Superiority.

[16] To avoid positing conditions holding at SS, which, as argued by Chomsky (1993), has no independent syntactic significance, Lasnik & Saito's and Cheng & Demirdash's accounts have to be slightly modified. Lasnik & Saito's analysis can be modified by assuming that Op-marking takes place derivationally rather than at SS. To update Cheng & Demirdash's account we only need to assume that Relativized Minimality applies derivationally and not at levels, as argued by Chomsky & Lasnik (1993).

[17] For some speakers piling up of fronted *wh*-phrases leads to degradation regardless of whether the correct order is preserved. It should be noted here that in an earlier draft of this paper I suggested that the second and third *wh*-phrase are also subject to ordering constraints based on the fact that the order between *kogo* 'whom' and *na kogo* 'to whom' in (ia, b) must be preserved in (ic, d).

- (i) (a) Kogo na kogo e pokazal Ivan?
whom to whom is pointed-out Ivan
'Whom did Ivan point out to whom?'
- (b) *Na kogo kogo e pokazal Ivan?
- (c) Koj kogo na kogo e pokazal?
who whom to whom is pointed-out
'Who pointed out who to whom?'
- (d) *Koj na kogo kogo e pokazal?

However, Billings & Rudin (1996) provide convincing evidence that both (ib) and (id) are ruled out independently of the Superiority Condition by a low level constraint against consecutive homophonous *wh*-words. In fact, given the data discussed by Billings & Rudin and the fact that *na kogo* can precede *wh*-adjuncts, *na kogo* should probably be analyzed as an NP, Case-checked in the Spec of an AgrP, with *na* being a dummy Case marker rather than a true preposition (see fn. 22 for evidence that Spanish indirect object *a*-phrases are also NPs, Case-checked in the Spec of an AgrP, and Branigan (1992) and Hornstein (1994) for evidence that English indirect object *to*-phrases at least have the option of moving to SpecAgrP). It should be pointed out here that the apparent NP complement of *na* can act

- (19) (a) Koj kogo kak e tselunal?
 who whom how is kissed
 ‘Who kissed whom how?’
 (b) Koj kak kogo e tselunal?
 (c) Koj kogo kũde e vidjal?
 who whom where is seen
 (d) Koj kũde kogo e vidjal?

The data in (19) are straightforwardly accounted for under the Economy approach to Superiority. Once *koj* moves to SpecCP, checking the +*wh* feature in the most economical way, under the Economy approach it does not matter which of the remaining two *wh*-phrases will move first to SpecCP. All that the Economy account of Superiority cares about is that the +*wh* feature is checked in the most economical way. Since, in contrast to (14b, d), the *wh*-phrase that is highest prior to *wh*-movement undergoes Spec-Head agreement with C in both (19a, c) and (19b, d), the +*wh* feature is checked in the most economical way in all the constructions under consideration. After the +*wh* feature checking takes place, the Economy account of Superiority no longer has any bearing on (19a)–(19d). In other words, it does not require that the second and third *wh*-phrase be ordered. Other approaches to Superiority cited above require all *wh*-phrases in multiple questions to be ordered. They are designed to ensure that given two *wh*-phrases in situ, the higher *wh*-phrase moves first to SpecCP regardless of whether the SpecCP is already filled. As a result, they require that *kogo* precedes *kak* and *kũde* in (19) for the same reason it has to precede them in (14), thus failing to account for the contrast between (14b) and (19b) and the contrast between (14d) and (19d).

(20a)–(20d) illustrate the same point as the data discussed above.

- (20) (a) [_{CP} Kogo kakvo [_{C'} e pital Ivan]]?
 whom what is asked Ivan
 ‘Who did Ivan ask what?’
 (b) ?* [_{CP} Kakvo kogo [_{C'} e pital Ivan]]?
 (c) [_{CP} Koj kogo kakvo [_{C'} e pital]]?
 who whom what is asked
 ‘Who asked whom what?’
 (d) [_{CP} Koj kakvo kogo [_{C'} e pital]]?

The indirect object *kogo* must move to SpecCP before the direct object *kakvo* in (20a, b). This can be readily accounted for if *kakvo* is either assigned inherent Case in its base-generated position¹⁸ or Case-checked structurally in

as a binder for elements outside the *na*-phrase, which is only expected if the whole *na*-phrase is an NP and not a PP.

[18] Rudin’s (1985) data concerning the ordering of *kakvo* with respect to other *wh*-phrases may indicate that the inanimate Accusative *wh*-word *kakvo* is in fact always assigned inherent

the Spec of an AgrP that is lower than the SpecAgrP in which *kogo* is Case-checked. (Under this analysis, there would be an AgrP for each object NP.) *Kogo* is then required to move to SpecCP before *kakvo* so that the +*wh* feature can be checked in the most economical way. Notice now that, in contrast to (20a, b), *kogo* and *kakvo* are freely ordered in (20c, d). The contrast between (20b) and (20d) is readily accounted for under the Economy approach to Superiority. After the highest *wh*-phrase moves to SpecCP checking the +*wh* feature in the most economical way, under the Economy account the order of the remaining two *wh*-phrases is not affected by Superiority. Just like the data in (19), the contrast between (20b) and (20d) raises a problem for other approaches to Superiority. I conclude, therefore, that the data in (19)–(20) provide evidence for the Economy account of Superiority, that is, they provide evidence that other approaches to Superiority should be eliminated in favor of the Economy approach.

Returning now to (14), it should be pointed out that the ungrammaticality of (14b) and (14d) provides evidence that A-movement of *kogo*, which places it in a position higher than VP, MUST take place. Consequently, the movement in question cannot be an optional Scrambling-type phenomenon. Obligatoriness of the movement is straightforwardly accounted for under the AgrOP analysis. In fact, it follows from the Case Theory. If *kogo* does not move to SpecAgrOP it will not be Case-marked, or to be more precise, its Case features will not be checked. Given this, the Bulgarian data provide evidence against Pesetsky's (1989) analysis of the node Chomsky (1991) refers to as the AgrO affix. Pesetsky argues that the node in question, let us call it X, is not an affix. According to Pesetsky, X has no syntactic content whatsoever. It is strictly an optional node, hence, as Pesetsky puts it, not Agr-anything. Movement to X is always optional. As a result, X provides evidence against Economy principles. The data presented here, however, favor Chomsky's position. Apparently, X MUST be generated in constructions such as (14). Furthermore, it is syntactically contentful. I have shown that the Accusative *wh*-phrase *kogo* must move to the Specifier position of XP. The adjuncts *kŭde* and *kak*, on the other hand, are not allowed to move to the Specifier of XP. All these facts are straightforwardly accounted for if X is AgrO or, to be more precise, an agreement element which has the ability to check Accusative Case under Spec-Head agreement.

As noted above, the analysis presented here also has consequences for the unsettled issue of when Accusative NPs undergoing syntactic *wh*-movement move to SpecAgrOP. There are two possibilities to consider here. One possibility, argued for by Borer (1995), is that object *wh*-phrases undergoing syntactic *wh*-movement pass through SpecAgrOP on their way to SpecCP. The other possibility, argued for by Chomsky (1993), is that object *wh*-

Case in its base-generated position, which is what I proposed in an earlier version of this paper.

phrases move to SpecCP without undergoing A-movement to SpecAgrOP. On this analysis, in LF *wh*-trace left by the movement moves to SpecAgrOP. If the analysis presented above is correct, the data considered in this paper provide evidence that object *wh*-phrases move to SpecAgrOP on their way to SpecCP. In fact, given the data presented here, SS movement to SpecAgrOP is not merely an option. (14b) and (14d) provide evidence that object NPs undergoing syntactic *wh*-movement MUST move to SpecAgrOP in the overt syntax even in languages such as Bulgarian that otherwise do not have obligatory overt object shift (overt movement to SpecAgrOP). If LF movement of *wh*-t to SpecAgrOP were available, we would incorrectly predict (14b, d) to be grammatical. I conclude, therefore, that direct object elements undergoing *wh*-movement must pass through SpecAgrOP in the overt syntax.

It should be pointed out here that under the AgrO analysis, the fact that the Accusative *wh*-phrase *kogo* must move to SpecCP before the adjuncts *kak* and *kŭde* is accounted for in the same way as the fact that the Nominative *wh*-phrase *koj* must move to SpecCP before *kak* and *kŭde*. Notice that under the VP Internal Subject Hypothesis, subject *wh*-phrases are generated in SpecVP, a position that is lower than the position of *kak* and *kŭde*. Note now that, as shown by Izvorski (1993) and Kraskow (1994), and as illustrated in (17) above, subjects CAN remain in SpecVP at SS in Bulgarian. The fact that *wh*-subjects MUST move to SpecCP before adjuncts such as *kak* and *kŭde* suggests that subject *wh*-phrases undergo *wh*-movement from a position higher than that of the adjuncts in question. This is straightforwardly accounted for if although subjects can remain in SpecVP at SS in Bulgarian, they must move to SpecIP, or, to be more precise, SpecAgrSP, in the overt syntax when they undergo *wh*-movement. Both subject and object *wh*-elements are thus generated in a position that is lower than that of *kak* and *kŭde*. Although both subjects and objects are allowed to stay in their base-generated positions, if they undergo *wh*-movement, they must move to their Case-checking positions, which are higher than the base-position of *kak* and *kŭde*, on their way to SpecCP. It seems plausible that whatever forces *wh*-movement of Nominative NPs to pass through SpecAgrSP also forces *wh*-movement of Accusative NPs to pass through SpecAgrOP. I will argue in section 4 that this is indeed the case. Pending the discussion in section 4, I merely note here that the facts discussed in this section provide evidence that the option of subject NPs undergoing *wh*-movement directly from the SpecVP position, with SpecIP being filled by a null expletive, is not allowed in Bulgarian, which is rather interesting, given that Bulgarian is a null subject language and allows subjects to otherwise stay in SpecVP. If the option were allowed, we would expect, for example, VP-adjuncts to be allowed to move to SpecCP before subjects, which would incorrectly rule in (12d) and (12f). The null expletive + *wh*-movement from SpecVP option may in fact be ruled out via Economy of Representation. A number of authors have recently

argued that superfluous elements are not allowed in representations (see Law 1991, Safir 1993, Radford 1994, Speas 1994, Chomsky 1995, Bošković 1996, Grimshaw in press, among others). Their presence in representations is blocked via Economy of Representation. Consider, for example, the following slightly revised version of the Minimal Structure Principle of Bošković (1996), who in turn essentially follows Law (1991).¹⁹

- (21) Provided that lexical requirements of relevant elements are satisfied, if two representations have the same lexical structure, and serve the same function, then the representation that has fewer projections and/or lexical items is to be chosen as THE syntactic representation serving that function.

Notice now that (21) rules out the representation in (22a), in which SpecIP is filled by a null expletive, in favor of (22b).

- (22) (a) [_{CP} Koj_i [_{IP} ex [_{I'} e tselunal_j [_{VP} t_i t_j Ivan]]]]]?
 who is kissed Ivan
 ‘Who kissed Ivan?’
 (b) [_{CP} Koj_i [_{IP} t_i [_{I'} e tselunal_j [_{VP} t_i t_j Ivan]]]]]?

Lexical properties of relevant lexical elements, including the EPP, which in the minimalist system follows from lexical properties of INFL, are satisfied in both (22a) and (22b). (22a) and (22b) furthermore have the same lexical structure. However, since (22a) has one more lexical item than (22b), it is ruled out by (21) in favor of (22b). (One of the effects of (21) is that for every lexical item there must be some evidence that it is present in the representation. See here Chomsky 1995.)

In addition, given the minimalist assumption that all structural Case-checking takes place under Spec-Head agreement and given that, as argued in detail in section 4, Case features can be checked only on the heads of chains (and not on traces), the *wh*-phrase would not be Case-checked in (22a) even if the null expletive fails to check off the Nominative Case feature of INFL. Under the proposals made in section 4, the only way for the *wh*-phrase in (22) to be Case-checked is to pass through SpecIP overtly (see the discussion in section 4).²⁰

[19] Lexical structure in (21) refers to the structure involving elements dominating a distinct phonological matrix.

[20] It has often been suggested, however, that to avoid the Comp-trace effect, in Romance null subject languages long-distance subject extraction proceeds from a postverbal, VP internal position, with SpecIP being filled by a null expletive. (Most of the evidence is based on Italian; see Rizzi (1982, 1990) and references therein.) The evidence offered in support of the claim is, however, based on rather ill-understood phenomena, which makes it difficult to draw any definite conclusions. Furthermore, the evidence has led to a rather strange conclusion that even in short-distance *wh*-subject extraction, *wh*-movement in Italian must proceed from the postverbal VP internal position, *wh*-movement from SpecIP never being allowed, which I believe strongly suggests that something has been missed, as expected if

To sum up the discussion of Bulgarian, I have shown that, contrary to what is predicted by Chomsky's m-command account of (6)–(7), Bulgarian exhibits Superiority effects with VP internal constituents. I have shown that the effects can be readily accounted for under the AgrO analysis. In the next section I will briefly demonstrate that the AgrO analysis of the Bulgarian data, which remain unaccounted for under the m-command analysis, can be straightforwardly extended to account for the Spanish and English data in (6)–(7).

3. SUPERIORITY EFFECTS IN SPANISH AND ENGLISH

Consider first (6b), repeated here as (23).

- (23) Qué dijo quién?
 what said who
 'Who said what?'

Recall now that the problem with (23) is that regardless of whether the postverbal subject is adjoined to VP (Jaeggli 1982, Rizzi 1982, Safir 1985, Burzio 1986, among others) or located in SpecVP (Bonet 1989, Arnaiz 1992, Uribe-Echevarria 1992, Suñer 1994, among others) at SS, it is higher than the trace of the object phrase. Yet, the construction is grammatical. Notice that if *qué* in (23) originates in an embedded clause, the construction becomes ungrammatical, which provides evidence that we are dealing here with a pure Superiority effect.

- (24) ?*Qué_i dijo quién que Juan compra t_i?
 what said who that Juan bought
 'What did who say that Juan bought?'
 (cf. Qué dijo Javier que Juan compra?)

The grammaticality of (23) can be readily accounted for under the AgrO analysis. Given that *qué* moves to SpecAgrOP on its way to SpecCP, it is

the above discussion is correct. (The null hypothesis is that Italian behaves like Bulgarian in the relevant respect.) The reader is also referred here to Koopman & Sportiche (1988), who argue that in transitive and intransitive constructions subject extraction in Italian proceeds from a preverbal position, which I assume to be SpecIP, as suggested above with respect to Bulgarian. (The strongest evidence for obligatory subject *wh*-extraction from a postverbal VP internal position in Italian in fact comes from ergative constructions, where language specific Case requirements of ergative verbs may be an interfering factor.) Comprehensive reevaluation of evidence concerning the extraction site of subject *wh*-phrases in Italian is, however, left for another occasion due to space limitations.

higher than *quién* prior to *wh*-movement. As a result, *qué* can move to SpecCP without violating the Superiority Condition.²¹

(25) $[_{CP} \text{ Qué}_i \text{ dijo}_j [_{AgrOP} t_i [_{VP} \text{ quién} [_{V'} t_j t_i]]]]?$

As for (24), even after *qué* moves to the embedded SpecAgrOP it is still lower than *quién* prior to *wh*-movement. As a result, its movement to SpecCP in (24) is straightforwardly ruled out by the Superiority Condition. Notice that under the AgrO analysis there is no need to appeal to the notion of equidistance to account for the constructions under consideration.²²

A question that arises now is why movement via SpecAgrOP cannot provide an escape hatch from the Superiority Condition in English constructions such as **What did who buy?*, which has the following structure before any relevant movements take place: (I disregard here *do*-support.)

(26) $[_{CP} [_{AgrSP} [_{TP} [_{AgrOP} [_{VP} \text{ Who} [_{V'} \text{ bought what }]]]]]]]?$

It is well-known that, in contrast to Spanish, in English subjects must move overtly to SpecIP, or, to be more precise, SpecAgrSP. Given the Principle of Strict Cyclicity, the subject *wh*-phrase in (26) must move to SpecAgrSP before any movement to SpecCP takes place. Once the subject *wh*-phrase moves to SpecAgrSP, principles of Economy prevent the direct object *wh*-phrase from checking the +*wh* feature by moving overtly to SpecCP, since the +*wh* feature can be checked in a more economical way, namely, through *wh*-movement of the subject *wh*-phrase. *Wh*-movement via SpecAgrOP does not help here. We thus get *Who bought what?* instead of **What did who buy?*²³

[21] Notice that to account for (25) (and the same holds for (27a) below), we need to assume that the number of nodes crossed by *wh*-movement in (25) is compared with the number of nodes intervening between the *wh*-phrase in situ and SpecCP. (As argued in section 5, the process actually involves local comparison rather than actual counting. What is relevant in (25) is that all the nodes crossed by *wh*-movement of *qué* intervene between *quién* and SpecCP plus at least one node more.) Given this, unless actual movement takes place, A-positions such as SpecAgrSP do not induce Superiority effects. (The same point can be made with respect to (27a)/(28) below.)

[22] The grammaticality of (i) provides evidence that indirect objects in Spanish are Case-checked in the Spec of an AgrP, which enables them to cross the *wh*-subject in situ (*a* would then be a Case marker rather than a true preposition).

(i) A *quién* envío *quién* regalos?
to whom sent who presents
'Who sent presents to whom?'

[23] It is easy to verify that *wh*-movement via SpecAgrOP cannot provide an escape hatch from the Superiority Condition in Bulgarian constructions such as (12b), where the direct object *wh*-phrase checks the +*wh* feature, essentially for the same reason it cannot do it in English **What did who buy?*, given that the subject *wh*-phrase must move through SpecAgrSP for the reasons discussed in the previous section and section 4.

Consider now (7), repeated here as (27).

- (27) (a) Where did he buy what?
(b) What did he buy where?

Given the DS in (28), there is nothing surprising about (27a), in which *where* moves to SpecCP before *what*. (see also fn. 21. Note that I disregard here movement of *he* from SpecVP to SpecIP since given the discussion below, it does not affect the phenomenon under consideration.)

- (28) He [_{VP} [_{V'} bought what] where]

Given that, prior to *wh*-movement, *what* moves to SpecAgrOP in (27b), (27b) also receives a straightforward account under the AgrOP analysis.²⁴

- (29) [_{CP} What_i did [_{IP} he [_{AgrOP} t_i [_{VP} [_{V'} buy t_i] where]]]]?

As expected, the reading on which the adjunct modifies the matrix clause in constructions such as (30) is excluded by the Superiority Condition since on this reading *what* is lower than the adjunct even after movement to the embedded SpecAgrOP.

- (30) What did John say that Peter bought where?

Note now that if movement of the Accusative *wh*-phrase to SpecAgrOP is responsible for the grammaticality of (27b) we would expect exceptionally Case-marked (ECM) subjects to pattern with objects in the relevant respect, since they are also Case-checked in SpecAgrOP (see Lasnik & Saito 1991, Chomsky 1993, Chomsky & Lasnik 1993, among others). In other words, we would expect that an ECM subject could undergo overt *wh*-extraction in constructions containing an in situ *when* or *where* modifying the higher clause. As (31) shows, the prediction is borne out.²⁵

- (31) Whom did John prove [t to be guilty] when?

The grammaticality of (31) can be accounted for in the same way as (27b) under the AgrO analysis, given that the embedded clause subject passes through the matrix SpecAgrOP on its way to SpecCP, just like the direct object in (27b). In fact, it is difficult to see how (31) can be accounted for without appealing to movement to SpecAgrOP. Note, for example, that

[24] Note that the grammaticality of *?With what did you draw pictures when?* indicates that *with* PPs are adjuncts, generated outside VP. (The slight marginality of the construction is probably a result of preposition pied piping, preposition stranding being preferred.) Hornstein (1994) provides more evidence for this conclusion on the basis of antecedent-contained deletion.

[25] The adverb modifies the matrix clause on the relevant reading in (31). A possible answer to (31) on this reading is *John proved Mary to be guilty during her trial and he proved Fred to be guilty during a recess*. What is particularly important here is that (31) contrasts with (32) below on the relevant reading.

Chomsky's m-command/equidistance account of (27b) cannot be extended to (31) since the embedded clause SpecIP and the matrix VP adjoined position, where I assume the adverb is located on the matrix clause reading, do not belong to the same minimal domain. In other words, the embedded SpecIP does not m-command the matrix VP adjoined position.

Note also that subjects of embedded finite clauses cannot be extracted in constructions containing a matrix clause adverbial in situ, as shown by the ungrammaticality of (32), which contrasts with (31) on the relevant reading.

(32) ?*Who did John prove [t was guilty] when?

This is expected, since, in contrast to (31), the embedded clause subject in (32) undergoes Case-checking in the embedded SpecIP and, therefore, starts with *wh*-movement from this position, which is lower than the position of the matrix adverb.

The fact that ECM subjects behave like direct objects in the relevant respect strongly suggests that object shift, that is, movement to SpecAgrOP, is relevant here, since this is precisely what differentiates ECM subjects and direct objects from finite clause subjects, as illustrated amply in Branigan (1992) and Lasnik & Saito (1991), among others.

It should be pointed out, however, that under the analysis presented here, constructions such as (29) involve object shift in the absence of V-movement, which is not allowed under the theory of object shift presented in Chomsky (1993). However, since Chomsky (1993) appeared, it has been shown convincingly in several works that object shift is in fact possible in the absence of V-movement. Thus, Bobaljik & Carnie (1992) and Guilfoyle (1993) show that SOV nonfinite clauses in Irish are derived by object movement to SpecAgrOP with the verb remaining in its base-generated position. German and Dutch embedded clauses and aux + participle constructions also routinely allow object shift in the absence of V-movement (see Déprez 1989, Bobaljik & Jonas 1993, Bobaljik 1994). Apparently, the grammar must allow for the possibility of object shift in constructions in which V remains in its base-generated position.²⁶

More evidence independent of the Superiority Condition that *wh*-movement of Accusative NPs in English proceeds via SpecAgrOP is provided by constructions such as (33), an outstanding problem for pre-AgrOP analyses of Accusative Case-marking (see Chomsky & Lasnik 1977, Chomsky 1981, Freidin & Lasnik 1981, Kayne 1984, Epstein 1991, among others).

[26] Chomsky (1993) argues that object shift in the absence of V-movement is ruled out via the Minimize Chain Links Principle. Watanabe (1993), Bobaljik (1994) and Takahashi (1994), however, propose minor modifications of Chomsky's analysis, as a result of which overt object shift in the absence of V-movement does not violate the Minimize Chain Links Principle. (For an analysis of object shift in Icelandic, which motivated Chomsky's analysis, see Bobaljik 1994, who gives an analysis of Icelandic object shift that does not appeal to the Minimize Chain Links Principle.)

- (33) (a) Who_i do you [_{AgrOP} t_i [_{VP} believe t_j sincerely] [_{IP} t_i to have done it]_j]]
 (b) *You believe t_i sincerely [_{IP} John to have done it]_i

Given that Accusative Case-marking takes place under Spec-Head agreement with AgrO, (33b) is ruled out by the ECP because the LF A-movement of *John* to the matrix SpecAgrOP, motivated by Case-checking, crosses the extraposed IP, which is not L-marked and is, therefore, a barrier to movement. The problem does not arise in (33a), since *who* can move to SpecAgrOP prior to the embedded clause extraposition.²⁷ If, on the other hand, *who* moves directly to SpecCP with the *wh*-trace undergoing LF movement to SpecAgrOP, (33a) seems to be incorrectly ruled out on a par with (33b). The LF movement of *wh*-t to the matrix SpecAgrOP should be ruled out for the same reason the LF movement of *John* to the matrix SpecAgrOP is ruled out in (33b). (For discussion of the ungrammaticality of **You John believe sincerely to have done it*, with *John* undergoing overt object shift, see fn. 33.)²⁸

[27] Notice that in order to avoid violation of the principle of Strict Cyclicity, the extraposed clause should be located higher than VP, perhaps adjoined to AgrOP.

[28] As pointed out to me by Marcel den Dikken (personal communication), the AgrOP analysis can also be readily extended to account for Superiority effects in German. (Dutch patterns with German in all relevant respects.) The following constructions were provided by Marcel den Dikken.

- (i) (a) Wer hat was getan?
 who has what done
 'Who has done what?'
 (b) Was hat wer getan?
 (c) ?* Wen glaubt wer dass Hans gesehen hat?
 whom believes who that Hans seen has
 (d) Wer glaubt dass Hans wen gesehen hat?
 who believes that Hans whom seen has
 'Who believes that Hans has seen whom?'
 (e) Wo kaufte Hans was?
 where bought Hans what
 'Where did Hans buy what?'
 (f) Was kaufte Hans wo?

It is a standard assumption that subjects can remain in SpecVP at SS in German. As a result, given that object *wh*-phrases move to SpecAgrOP on their way to SpecCP, the object *wh*-phrase in (ib) is higher than the subject *wh*-phrase prior to *wh*-movement, hence the grammaticality of the construction. The problem with the ungrammatical (ic) is that even after movement to the embedded SpecAgrOP, the object *wh*-phrase is still lower than the subject *wh*-phrase before *wh*-movement takes place. The analysis of the English *where what* and *what where* constructions given above can be straightforwardly extended to account for the grammaticality of the German examples in (ie, f) above. Notice also that, as pointed out by Marcel den Dikken (personal communication), if the analysis given here is correct, the grammaticality of (ie) above provides evidence that SOV order in German is not a result of obligatory SS movement to SpecAgrOP. (Dutch, which Zwart (1993) argues has obligatory SS object shift, behaves like German in all relevant respects.) If movement to SpecAgrOP were obligatory in German, *was* would be higher than *wo* in (ie), as a result of which (ie) would be ruled out by the Superiority Condition.

4. MOTIVATION FOR OBJECT SHIFT WITH *WH*-MOVEMENT

In the preceding two sections I have provided empirical evidence that direct objects undergoing syntactic *wh*-movement must pass through SpecAgrOP in the overt syntax. The question is now what forces the movement. The question becomes particularly interesting in light of the fact that overt object shift in constructions such as **John the book bought* is not possible. In languages such as English, object shift thus seems to be possible only when the moved element does not remain in SpecAgrOP.²⁹ The data considered above provide empirical evidence for this conclusion. The question is now whether we can provide a theoretical explanation for the conclusion in question.

Suppose that strictly formal, uninterpretable properties of moved elements such as Case features are not present in traces. In other words, they are not copied into traces.³⁰ Given the proposal, moved elements, that is heads of chains, but not their traces would bear Case features. One of the effects of the proposal is that it enables us to eliminate the assumption that checking a Case feature on the head of the NP chain in constructions such as [_{IP} *John*_i [_{VP} *t_i left*]] also checks the Case feature of the NP-trace, which is necessary to prevent such constructions from violating the minimalist version of the Case Filter if Case features are copied into traces. Notice now that given the proposal that heads of chains but not their traces bear Case features, Accusative *wh*-phrases would have to check their Case features before moving to SpecCP, otherwise, their Case features would remain unchecked, which would cause relevant derivations to crash in the sense of Chomsky (1993). To check their Case features before moving to SpecCP, Accusative *wh*-phrases would have to move through SpecAgrOP on their way to SpecCP.³¹ To illustrate, given the above proposal, if *what* in (34) does not move to SpecAgrOP in the overt syntax, its Case features would remain unchecked.

(34) What_i did John [_{AgrOP} t_i [_{VP} buy t_i]]?

Overt movement to SpecAgrOP in (34), however, does not appear to be in accordance with the Procrastinate principle (Chomsky 1993), which states

[29] Recall that the Bulgarian facts considered in section 2 provide evidence that object shift is not only possible, but in fact obligatory for object NPs that overtly move to a position higher than SpecAgrOP.

[30] Traces could still have the semantic content of their antecedents, which is needed to handle, for example, reconstruction in the minimalist system.

[31] Note that I adopt here a strictly lexicalist approach to Case features, argued for in Bošković (1995a), on which Case features are present under AgrO to start with and simply matched against Case features of the verb and the NP in SpecAgrOP. Given this, SpecAgrOP is a Case-checking position at SS in the absence of V-movement.

It should be also pointed out here that given the theory of Excorporation argued for by Watanabe (1993) (see also Bošković 1995b), which bans unnecessary pied-piping under head movement, AgrO could remain in its base-generated position at SS even in languages such as French that have overt V-to-I, so that SpecAgrOP would remain a Case position in these languages at LF.

that every operation should take place as late as possible. Chomsky argues that Procrastinate is responsible for the impossibility of overt movement to SpecAgrOP in constructions such as (35). He suggests that the N-feature of AgrO, checked through object shift, is weak in English and therefore does not have to be checked before LF. Since it does not have to be checked before LF, by Procrastinate it is not allowed to be checked before LF. Hence, the ungrammaticality of (35).

(35) *John [_{AgrOP} Mary_i kissed t_i].

Note, however, that Procrastinate does not ban all overt movement. It simply requires that movement take place as late as possible. Movement is allowed to take place overtly if it is necessary to ensure convergence, that is, derivation of PF and LF that consist only of legitimate PF and LF objects. Thus, for example, as discussed by Chomsky (1993), V-to-I movement takes place overtly in French because it is necessary for convergence.³²

It is a standard assumption in the minimalist framework that all features must be checked by LF. Elements whose features remain unchecked are illegitimate LF objects. Given this and the above discussion, SS movement through SpecAgrOP is necessary in (34) for the derivation to converge. As a result, it is not ruled out via Procrastinate. (35), however, still violates Procrastinate.^{33,34} I conclude, therefore, that given the proposals made here,

[32] According to Chomsky (1993), INFL has a strong V-feature in French. Since, in contrast to weak features, strong features are illegitimate PF objects, the feature must be eliminated through checking by V prior to PF; otherwise, the relevant derivations would not converge. Since in English INFL has a weak V-feature, there is no need for overt V-to-I, which is then blocked by Procrastinate.

[33] Notice also that if we assume, following Chomsky (1993), that violations of the traditional ECP converge, **You John believe sincerely to have done it*, involving overt object shift of *John*, is also readily ruled out via Procrastinate.

[34] An alternative account with the same empirical effects which I proposed in an earlier draft of this paper is provided by the principles of Economy of Derivation. Consider the derivations represented in (i) and (ii).

- (i) SS: [_{CP} *wh-NP*_i ... [_{AgrOP} t_i [_{VP} ... t_i]]]
(ii) (a) SS: [_{CP} *wh-NP*_i ... [_{AgrOP} [_{VP} ... t_i]]]
(b) LF: [_{CP} *wh-NP*_i ... [_{AgrOP} t_i [_{VP} ... t_i]]]

In (i), *wh-NP* passes through SpecAgrOP on its way to SpecCP. In (ii), on the other hand, *wh-NP* moves directly to SpecCP with its trace undergoing object shift in LF. On both the SS and LF movement to SpecAgrOP derivation, the operation Form Chain applies twice: an A-chain is formed by movement to SpecAgrOP and a non-uniform chain, which is turned into an Op-variable chain by deletion of intermediate traces, is formed by movement to SpecCP. In contrast to the SS, that is, overt movement derivation, on the LF movement derivation the nodes V' and VP are crossed both at SS and LF; therefore, the LF derivation crosses more nodes than the SS derivation. In fact, the LF movement derivation crosses the same nodes as the SS movement derivation plus two nodes more (the second crossing of V' and VP). Given this, the SS and LF movement derivations can be abstractly represented as follows:

overt object shift can take place in English if and only if the moved element does not remain in SpecAgrOP, which is exactly the conclusion to which I was led by the data considered above.

Notice now that given the above discussion, overt object shift is not merely a possibility for Accusative NPs undergoing *wh*-movement; it is in fact obligatory. This is desirable, given the Bulgarian facts discussed in section 2, which provide evidence that Accusative NPs indeed **MUST** pass through SpecAgrOP on their way to SpecCP. Recall also that Nominative *wh*-phrases undergoing syntactic *wh*-movement obligatorily move to SpecAgrSP in Bulgarian although subjects can otherwise remain in SpecVP in Bulgarian. It is easy to verify that this is straightforwardly accounted for. In fact, subjects and objects undergoing *wh*-movement are forced to move through their respective Case-checking positions by the same mechanism.

5. GLOBAL VS. LOCAL ECONOMY OF DERIVATION

Before I conclude, I will briefly discuss the apparent violation of the Superiority Condition in constructions such as (36a) and (36c), which are better than Superiority violations and illustrate the claim that whenever there is no c-command relation between two *wh*-phrases before *wh*-movement, either *wh*-phrase can undergo *wh*-movement without violating Superiority. (See Oka (1993) and references therein. The example in (36c) is taken from Oka. The grammaticality of constructions such as (36a) was noted in Fiengo et al. (1988).)

- (36) (a) What did people from where try to buy t?
 (b) cf. *What did who try to buy t?
 (c) ?What did you persuade friends of whom to buy t?
 (d) cf. ?*What did you persuade whom to buy t?

Wh-movement of *what* in (36a, c) is longer than *wh*-movement of *where* and *whom* would be. (This is particularly clear under the Split INFL Hypothesis.) Yet, (36a, c) are apparently not ruled out by the principles of Economy of Derivation. As noted above, quite generally, whenever there is no c-command relation between the relevant *wh*-phrases, the Superiority Condition is not violated regardless of which of the *wh*-phrases undergoes *wh*-movement. Notice that recourse to AgrO cannot help us account for the grammaticality status of (36a, c). The constructions, however, do not necessarily pose a problem for the principles of Economy. In fact, they help us sharpen the relevant notion of Economy of Derivation. As noted in an

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- (iii) SS movement derivation A_____B
 LF movement derivation A_____B

The LF movement to SpecAgrOP derivation is apparently longer than the SS movement to SpecAgrOP derivation. Given this, it may in fact be ruled out by the principles of Economy of Derivation.

earlier draft of Collins (1994), there are two different views of Economy of Derivation: global and local Economy of Derivation. The global view of Economy of Derivation is crucially based on counting. If a derivation α crosses 9 nodes and a derivation β crosses 11 nodes, the derivation α is to be preferred to the derivation β under this view regardless of whether or not some of the nodes crossed by the derivations α and β are the same. The other view of Economy of Derivation involves local comparison rather than counting. Under the local view of Economy of Derivation, a derivation α is to be preferred to a derivation β if and only if the set of nodes crossed by the derivation α is a proper subset of the set of nodes crossed by the derivation β . In other words, only if the derivation α crosses all the nodes crossed by the derivation β plus a node X, the derivation β is to be preferred to the derivation α . Notice that constructions such as (4) are ruled out under both the global and local view of Economy of Derivation. (The same holds for the LF movement of *wh*-trace to SpecAgrOP, given the discussion in fn. 34.) The grammaticality status of constructions such as (36a, c), however, provides evidence that the local view of Economy of Derivation is the correct one. As noted above, (36a, c) are ruled out under the global view of Economy of Derivation. However, since the set of nodes intervening between *where* and *whom* and the matrix SpecCP is not a proper subset of the set of nodes crossed by *wh*-movement of *what*, (36a, c) are not ruled out under the local view of Economy of Derivation. I believe that this is a desirable result. As noted in the early draft of Collins (1994), given that the global view of Economy of Derivation is crucially based on counting, which does not seem to play a role in any other condition or rule, the local view of Economy of Derivation is conceptually more appealing than the global view of Economy of Derivation.³⁵

6. CONCLUSION

In this paper I have shown that several constructions involving Superiority effects with VP internal constituents which have resisted a satisfactory account in the literature can be straightforwardly accounted for under the AgrOP analysis. To the extent that the analysis presented here accounts in a principled way for the cross-linguistic data under consideration, it provides strong evidence for the existence of AgrO even in languages without overt object agreement. I have shown that the data considered here also provide evidence that Accusative *wh*-phrases undergoing syntactic *wh*-movement

[35] Collins also notes that the local view of Economy of Derivation captures the notion of Last Resort. Suppose that in order to become a legitimate LF expression, Y has to satisfy the requirement X. Y can satisfy the requirement by moving to Z. Once it moves to Z, Y is a legitimate LF expression and, therefore, cannot move any further. In order to get to Z, Y crosses the nodes $S_a \dots S_n$. Any movement from the position Z will inevitably involve crossing of at least one extra node in addition to the nodes $S_a \dots S_n$.

must move to SpecAgrOP on their way to SpecCP even in languages that otherwise do not require overt object shift. I have proposed a theoretical explanation for this. I have also provided evidence for the Economy account of Superiority and shown that Superiority effects provide evidence for local Economy of Derivation, based on local comparison, and against global Economy of Derivation, based on counting.

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