

On the limits of across-the-board movement

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Abstract: The paper examines coordination constructions in which different elements move out of conjuncts of a single coordination. A number of properties of such coordinations are discussed, which includes showing that such constructions are also subject to the ATB requirement and establishing a restriction on such coordinations that confines them to one context. A deduction of this restriction is proposed in terms of the phase theory.

Keywords: coordination, locality of movement, phases, sideward movement

1. Introduction

It is well-known that extraction out of conjuncts is disallowed, unless the moving element moves out of each conjunct. This well-known phenomenon is illustrated by (2)-(3). The ban on extraction out of conjuncts, given in (1), is standardly referred to as the Coordinate Structure Constraint (CSC), and the rescuing effect in (3) is referred to as across-the-board-movement (ATB).

- (1) Extraction out of conjuncts is disallowed.
- (2) *Who_i did you see [enemies of t_i] and John?
- (3) Who_i did you see [friends of t_i] and [enemies of t_i]?

Both the CSC and the ATB exception were noted in Ross (1967). (4) and (5) give the original formulations of the CSC and the ATB exception.¹

- (4) In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct (Ross 1967:98-99)
- (5) There is an important class of rules to which (4) does not apply. These are rule schemata which move a constituent out of all the conjuncts of a coordinate structure (Ross 1967:107)

There is an interesting exception to this well-known pattern that has not received much attention, the most detailed discussions being smaller parts of larger works, in particular Postal (1998) and Zhang (2010). The exception concerns examples like (6).²

- (6) Which book_i and which magazine_j did [John buy t_i] and [Bill read t_j] respectively?

Postal (1998) provides strong evidence that *which book* and *which magazine* undergo separate extractions out of the conjuncts in (6), and Zhang (2010) argues that such cases involve coordination-formation that takes place after (more precisely, through) movement.³ These examples violate the CSC

¹(4) also involves a ban on extraction of conjuncts, which will not be examined in this work (the ban on extraction out of conjuncts and the ban on extraction of conjuncts have anyway been argued to be independent conditions, see e.g. Grosu (1973), Postal (1998), Stjepanović (2014), and Oda (2017)).

²There are some differences across speakers regarding the most natural prosody of such constructions. The judgments given below reflect the most natural prosody for the speakers in question.

³Zhang argues the higher ConjP is formed through sideward movement (see Nunes 2004). While this paper will also argue that such cases involve coordination formation after movement, it is beyond its scope to go into the issue of how this is to be formally implemented. Under Zhang's analysis, the relevant elements are extracted from each conjunct separately, undergoing sideward merger into the coordination structure, which is then realized in SpecCP. There are other possibilities here too. Having in mind examples like *And then Ann left,*

ban in (1). They also do not fit the ATB pattern in (3): it is not the case that the moving element is extracted out of each conjunct in (6). (6) in fact appears to involve two separate extractions, of two different elements, out of the conjuncts. One may then expect (6) to be even worse than (2).

The goal of this paper is to examine this kind of constructions, which for ease of exposition I will refer to as distributed extractions. Additional cases of distributed extractions will be discussed in the effort to examine restrictions on distributed extractions. It will be argued that distributed extractions are actually subject to the ATB requirement, which will shed light on the proper treatment of the ATB phenomenon itself. It will also be shown that there is a rather strong restriction on distributed extractions which confines such extractions to one context. A deduction of this restriction will then be proposed in terms of the phase theory.

It should, however, be noted that one of the main goals of the paper is descriptive, namely to broaden the scope of the phenomenon empirically. There has been very little discussion of the phenomenon in question outside of English (and outside of constructions like (6)). In this respect, the paper will bring in additional languages, with constructions which are quite different from (6). The restrictions on distributed coordination established below should also be looked at from this perspective: their goal is to empirically broaden the scope of the phenomenon in question—in this respect the restrictions are actually more important than their deductions proposed below. At any rate, one of the main goals of this paper is to prompt further crosslinguistic investigation of the phenomenon in question as well as several related properties of coordination and the mechanisms pertaining to them which are discussed below.

The paper is organized as follows. In section 2 I present arguments (mostly from Postal 1998, but also new arguments) that (6) involves extraction out of each conjunct. The section will also show that the ATB requirement (more precisely, a reformulated ATB requirement) is operative with such constructions. In sections 3 and 4 I present additional cases of distributed extractions and show that these additional cases are also subject to the reformulated ATB requirement. The possibility of mixing distributed extraction and traditional ATB in the same sentence is also discussed. Section 5 establishes a new generalization regarding the availability of distributed extractions, and section 6 gives a phase-based deduction of the generalization in question. Section 7 discusses the possibility of coordination formation after movement where the relevant movement does not involve extraction out of a coordination. Section 8 concludes the paper and the appendix discusses certain issues regarding ordering of elements involved in constructions where coordination is formed after movement.

2. Distributive coordinations with *wh*-movement in English

2.1. Distributive coordinations involve separate extractions

where the complement of *and* is a non-coordinated CP, one alternative to the sideward merger account is that the *Conj* head takes the whole CP as its complement. There are several ways of implementing this. E.g., assuming that the coordinated phrases have to move into *ConjP*, (6) can then be analyzed in terms of *ConjP* shells, as in [_{ConjP} which book and_i [_{ConjP} which magazine t_i[_{CP} ..]]] (if there are more than two conjuncts, the higher *ConjP* can have multiple Specs, or there can be additional *ConjP* shells). At any rate, the main options are sideward merger into *ConjP* or *ConjP* on top of CP, where each of these can be implemented in several ways (see footnote 7 for a modification of Zhang's analysis). Implementing these options would, however, raise a number of questions (and other cases where structures that are typically formed via external merge are formed via internal merge (like regeneration in Germanic, see van Riemsdijk 1989) would need to be taken into consideration), resolving which would go way beyond the scope of this paper, hence I will not attempt to do that here. What is important for us is that, as we will see below, examples like (6) involve coordination formation in the moved position of the *wh*-phrases (I will also refer to such constructions as late coordination), i.e. the coordination we see in the moved position in (6) is created through movement. Determining how such coordination formation should be exactly analyzed (which means tackling the issue of the exact derivation of examples like (6)) will be left for another occasion. The discussion in the paper will be confined to the issues noted directly below.

Postal (1998) gives strong evidence that each *wh*-phrase is separately extracted from the conjuncts in constructions like (6). A rather strong argument to this effect is provided by the possibility of binding into the individual conjuncts in (7), where *which man* binds an anaphor in the first conjunct and *which woman* binds an anaphor in the second conjunct.

(7) [Which man]_i and [which woman]_j did respectively the doctor talk to t_i about himself_i, and the lawyer talk to t_j about herself_j.
(Postal 1998:161)

Such licensing is also possible with parasitic gaps, as shown by (8), where the first *wh*-phrase licenses a parasitic gap in the first conjunct and the second *wh*-phrase licenses it in the second conjunct.

(8) [Which secretary]₁ and [which programmer]₂ did Jerome respectively fire t_1 after finding t_1 drunk and hire t_2 after finding t_2 sober?
(Postal 1998: 136)

Another argument comes from cases where the extracted elements contain an anaphor: the anaphor can be bound within the first conjunct or within the second conjunct, as in (9) (for a somewhat different reconstruction effect, see (ii) in footnote 7).⁴

(9) a. ?[Which painting] and [which book about herself]_i did John buy and Mary_i sell respectively?
b. ?[Which book about herself]_i and [which painting] did Mary_i buy and John sell respectively?

Also relevant are examples like (10). It is well-known that the indirect object in double object constructions cannot undergo *wh*-movement. This constraint is also operative with distributive coordinations, as shown by (10b).⁵

(10) a. [Which nurse]₁ and [which hostess]₂ did Ernest sell cocaine to t_1 , and George sell heroin to t_2 , respectively?
b. *[Which nurse]₁ and [which hostess]₂ did Ernest sell t_1 cocaine and George sell t_2 heroin, respectively?
(Postal 1998:135)

2.2. The ATB requirement on distributive coordinations

The evidence discussed in the previous section shows that distributive coordination constructions like (6) involve separate *wh*-movements from each conjunct. As such, they do not fit the traditional ATB-exception-to-the-CSC schema, where the CSC is voided if the moving element moves out of each conjunct. Notice, however, that examples like (6) do actually involve movement out of each conjunct, the difference between (3) and (6) being that in (3) it is the same element that moves out of each conjunct while in (6) different elements move out of the conjuncts.

Interestingly, it turns out that the ATB requirement holds for constructions like (6) as well. This is shown by the unacceptability of (11)-(12), which contrast with (13).

(11) *Which book_i and which magazine_j did [John buy t_i], [Bill read t_j] and [Mary write a novel] respectively?

⁴Some speakers do not find a difference between (9a) and (9b), while some have a slight preference for either (9a) or (9b) (hence the question mark in the examples).

⁵Consider also (i), a case of distributed extraction involving A-movement (given the predicate internal subject hypothesis).

(i) He wants you and me to respectively go out of your mind and (go) out of my mind.

(ii) cf. You and I are going out of our/*my/*your mind(s). (Postal 1998:161)

Notice that each conjunct agrees separately in (i), in contrast to (ii).

- (12) *Which book_i and which magazine_j did [Mary write a novel], [John buy t₁] and [Bill read t₂] respectively?
 (13) Which book_i, which magazine_j and which novel_k did [John buy t_i], [Bill read t_j] and [Mary borrow t_k] respectively?

These data indicate that the ATB requirement is at work in the construction under consideration: movement still must take place out of each conjunct. This means that the ATB requirement needs to be reformulated: it is not the case that the moving element must move out of each conjunct; rather, movement must take place out of each conjunct. It can be the same element moving out of each conjunct, or different elements: as long as there is a gap in each conjunct the ATB requirement is satisfied. I will refer to the cases where different elements move from the conjuncts as non-ATB ATB.

In the following sections, I will present additional cases of non-ATB ATB which are quite different from English examples like (6). We will see that the ATB requirement holds in these cases as well: although different elements are moving out of the conjuncts there must be movement out of each conjunct. The cases discussed in the following sections will also enable us to establish additional restrictions on non-ATB ATB.

3. AP ATB in SC

I now turn to a case of distributive ATB in Serbo-Croatian (SC) which has interesting additional properties. SC productively allows left-branch extraction of adjectives (see Corver 1992, Bošković 2005, 2013a, Despić 2011, Talić 2017, in press, among many others).⁶

- (14) Crvena_i se je meni [t_i suknja] dopala.
 red self is me_{DAT} skirts pleased
 ‘The red skirt pleased me.’

It also allows it in distributive coordinations. One difference from English wh-movement involving distributive coordination is that such cases involving adjectival ATB in SC do not require “respectively” (in fact, there is no clear counterpart of “respectively” in SC).

- (15) Crvene i bijele ona suknje i kapute prodaje.
 red and white she skirts and coats is-selling
 ‘She is selling red skirts and white coats.’
 (16) Crvena i bijela meni suknja i haljina smetaju.
 red and white me_{DAT} skirt and dress bother
 ‘The red skirt and the white dress bother me.’

It is also possible to have three adjectives in this type of constructions, as in (17), with the relevant traces indicated in (18).

- (17) Crvena, bijeli i šareni meni suknja, kaput i šešir smetaju.
 red white and colorful me_{DAT} skirt coat and hat bother
 (18) Crvena_i, bijeli_j i šareni_k meni [t_i suknja], [t_j kaput] i [t_k šešir] smetaju.
 red white and colorful me_{DAT} skirt coat and hat bother

⁶These authors argue that constructions like (14) involve extraction of the AP out of the NP. There are two alternative analyses: remnant movement of the NP which contains only the AP (Franks and Progovac 1994; Abels 2003) and full NP movement with scattered deletion, where the NP is deleted in the highest copy and the AP in the lower copy (Fanselow and Čavar 2002). There are a number of arguments in the literature for the left-branch extraction analysis, which is adopted here; see e.g. Bošković (2005), Stjepanović (2010, 2012); Talić (2013, 2017), and Despić (2015).

Importantly, as in the case of English non-ATB ATB examples from section 2, the ATB requirement is operative in the SC construction under consideration. Thus, (19), where ATB does not take place out of the last conjunct, is unacceptable.

- (19) *Crvena_i i bijeli_j meni [t_i suknja], [t_j kaput] i [šareni šešir] smetaju.
 red and white me_{DAT} skirt coat and colorful hat bother

One might try to argue that the ATB requirement in English examples like (11)-(12) is somehow forced by the presence of *respectively*. This, however, would not extend to SC (18), where *respectively* is not present.

It should be pointed out that ATB-violating examples like (19) improve if the first two conjuncts are pronounced as a single prosodic unit (followed by a pause), with another coordinator, as in (20). What is going on here is that *suknja i kaput* form a coordination, which is then coordinated with *šareni šešir*. In other words, we are not dealing here with a single coordination with three conjuncts, as in (18)-(19), but with two separate coordinations, each of which has two conjuncts: *suknja i kaput* forms a ConjP that is itself located in the Spec of a ConjP (the head of the second coordination takes *šareni šešir* as its complement), as shown in (21).

- (20) ?Crvena_i i bijeli_j mene (t_i suknja i t_j kaput) i [šareni šešir] iritiraju.
 red and white me skirt and coat and colorful hat irritate
 ‘The red skirt, white coat and colorful hat irritate me.’

- (21) ?Crvena_i i bijeli_j mene [_{ConjP1} ([_{ConjP2} t_i suknja i t_j kaput]) i [šareni šešir]] iritiraju.
 red and white me skirt and coat and colorful hat irritate

This kind of examples also have consequences for the domain of application of the ATB requirement. While there is extraction out of each conjunct of ConjP2, this is not the case with ConjP1 in (21). What matters here is that the first conjunct of ConjP1, which is the only conjunct from which extraction takes place, is itself a ConjP. The ATB requirement apparently does not hold across ConjPs (i.e. a configuration where a ConjP dominates a ConjP—it applies ConjP by ConjP.)

This in fact holds for regular ATB as well, as indicated by (22) (assuming the same prosody as in (21), with the first two conjuncts pronounced as a single prosodic unit (with a pause following them); *crvene* here undergoes regular ATB extraction from the first ConjP—as result, “red” modifies both “skirts” and “dresses”).

- (22)?Crvene_i mene [_{ConjP1} ([_{ConjP2} t_i suknje i t_i haljine]) i [šareni šeširi]] iritiraju.
 red me skirts and dresses and colorful hats irritate
 ‘Red skirts, red dresses and colorful hats irritate me.’

It should also be noted that there is evidence that we are dealing with actual extraction in the relevant cases. This is confirmed by their island-sensitivity. Thus, the presence of an adjunct island between the extracted APs and the remnant NPs causes ungrammaticality in (23).⁷

⁷See also de Vos and Vicente (2005) regarding islandhood of English non-ATB ATB. One of their examples, involving an inner island effect, is given in (i):

(i) *[[How loudly] and [how softly]] didn’t you say [[that John had spoken t] and [that Peter had replied t]]?

This bears on the issue of how late coordination constructions should be analyzed. In footnote 3 I noted two possibilities: ConjP above the CP and sideward movement. The former captures the islandhood effect straightforwardly; as for the latter analysis, on which ConjP is formed by sideward merger of the relevant elements into ConjP, a question arises at which point of the derivation the relevant ConjP is introduced into the structure. Zhang (2010) suggests the ConjP is introduced into the structure in the interrogative SpecCP, which is

- (23) *Crvena, bijelij i šarenik je otišao zato što mene [t_i suknja], [t_j kaput] i [t_k šešir] iritiraju.
 red white and colorful is left because me skirt coat and hat irritate
 ‘He left because the red skirt, white coat, and colorful hat irritate me.’

There is another rather interesting aspect of the SC construction under consideration. Consider (24). There are only two fronted APs in (24), with three nouns in the lower coordination. Yet, in contrast to (19), (24) is acceptable.

- (24) Crvena i bijeli meni suknja, kaput i šešir smetaju.
 red and white me_{DAT} skirt coat and hat bother

What is important here is that (24) is acceptable only on a particular meaning: ‘red skirt, white coat, and white hat’, where a traditional ATB dependency is formed between ‘white coat’ and ‘white hat’ with respect to ‘white’. What makes this possible is that both ‘coat’ and ‘hat’ are masculine: the adjective that modifies them is also masculine (note that *crvena* and *suknja* are feminine).

- (25) Crvena_i i bijelij_j meni [t_i suknja], [t_j kaput] i [t_j šešir] smetaju.
 red and white me_{DAT} skirt coat and hat bother

The ATB requirement is then still satisfied in (24): (24) is in fact acceptable only on the reading on which there is an AP-gap in the base position of each of the conjuncts in (24). What is particularly interesting about this example is that involves a mix of non-ATB ATB and regular ATB. Examples like (24) then provide evidence that non-ATB ATB can be mixed with true ATB.

Another example of this sort is given in (26), which involves regular ATB between ‘red skirt’ and ‘red shirt’ (*košulja* is feminine).

- (26) Crvena_i i bijelij_j meni [t_i suknja], [t_i košulja] i [t_j kaput] smetaju.
 red and white me_{DAT} skirt, shirt and coat bother

A question arises whether this kind of mixing of non-ATB ATB and regular ATB is also possible in English. It turns out that it is although constructions of this type are less acceptable in English than in SC possibly because of an additional processing load. (Gender agreement resolves the relevant filler gap dependencies in SC; this filler gap dependency resolution is not available in English. It is also

its final position. Under this analysis we couldn’t capture the islandhood effect unless islandhood is treated representationally (where an island boundary between a moved element and its trace would suffice for an island effect). Alternatively, the newly formed ConjP can be introduced into the structure earlier, e.g., within the same phase as the original ConjP, in which case the newly formed ConjP would be moving out of the island. (The issue in question does not seem to be that different from the well-known fact that in ATB constructions, there cannot be an island boundary between the edge of the second conjunct and the original extraction site within that conjunct, which means the relevant element needs to get to the conjunct edge, i.e. ‘close’ to the gap in the first conjunct, although, as we will see below, it does not move out of the second conjunct). That the newly formed ConjP should be introduced into the structure earlier (not in the final position) is also indicated by the possibility of intermediate reconstruction effects, as in (i), where Condition A cannot be satisfied in either the final or the original position of *which picture of himself* in the embedded clause. I will proceed below assuming the appropriate modification of Zhang’s analysis (if that analysis is to be adopted, an issue I leave open here).

- (ii) Which book and which picture of himself_i did John_i say that Mary bought and Sue sold respectively?

possible that the presence of *respectively* interferes here, leading to an expectation that there should be three antecedents for the three gaps.⁸⁾

- (27) ?How many cakes and how many letters did Mary bake, John write, and Peter mail respectively?
 (28) ?How many cakes and how many letters respectively did Mary bake, John write, and Peter mail?
 (29) ?Which magazine and which book did Peter buy, John read, and Mary borrow respectively?
 (30) ?Which magazine and which book respectively did Peter buy, John read, and Mary borrow?

Returning to SC, interestingly, in contrast to (24) and (26), (31) is unacceptable.

- (31) *Bijeli_i i crvena_j meni [t_i kaput], [t_j suknja] i [t_i šešir] smetaju.
 white and red me_{DAT} coat skirt and hat bother

Apparently, a traditional ATB dependency can only be formed between contiguous NPs here. There can be no ATB between ‘red skirt’ and ‘red hat’ given that the adjective needs to agree with the nouns and these nouns have different gender (*suknja* is feminine and *šešir* masculine). Also, there can be no ATB between ‘white coat’ and ‘white skirt’ since these nouns also have different gender (*kaput* is masculine and *suknja* feminine). Interestingly, there can apparently be no ATB between ‘white coat’ and ‘white hat’. There is no gender disagreement issue here since the nouns have the same gender.

The same effect is found in English. Thus, (32), where given the pragmatics of the example the regular ATB dependency has to hold between the first and the third conjunct, skipping the second conjunct, is worse than (28)-(30), where this is not the case. This contrast also provides evidence that English (27)-(30) should be treated on a par with SC (24) (given that both exhibit the contiguity effect)

- (32) *How many letters_i and how many cakes_j did Peter write t_i, John bake t_j, and Mary address t_i respectively?

We may be dealing here with a locality effect on traditional ATB formation, where it is not possible to skip a potential ATB site.⁹⁾

Alternatively, this may be related to a general interpretive effect associated with distributed coordinations. Notice first that examples like (6) are not ambiguous: the first trace must correspond to the first wh-phrase and the second trace to the second wh-phrase. In other words, only a crossing wh-trace dependency is possible here, a nesting dependency, which would give an interpretation where the first trace corresponds to the second wh-phrase, is disallowed. This is a general property of distributed coordinations. Thus, the structure in (33) gives the only possibility for the interpretation of the extracted adjectives in this SC example, where all adjectives have the same gender.

- (33) Crveni_i, bijeli_j i šareni_k meni [t_i sako], [t_j kaput] i [t_k šešir] smetaju.
 red white and colorful me_{DAT} jacket coat and hat bother
 ‘The red jacket, white coat, and colorful hat bother me.’

⁸⁾Speakers differ regarding the preferred position for *respectively* here, hence both options are given in the examples.

⁹⁾This could also be seen as a maximize ATB effect, similar to Merchant’s (2001) Max Elide (see Citko 2003 for a Max ATB-style proposal). It may be worth noting here that a similar effect is found with parasitic gaps, which are often treated similarly to ATB (see e.g. Nunes 2004, who treats both in terms of sideward movement), as the following data from Nissenbaum (2000:547) show: it is not possible to skip a potential parasitic gap site in (i).

- (i) a. Who did you praise *e* to the sky [after criticizing *e*] [in order to surprise *e*]?
 b. Who did you praise *e* to the sky [after criticizing *e*] [in order to surprise **him**]?
 c. *Who did you praise *e* to the sky [after criticizing **him**] [in order to surprise *e*]?

Distributed coordinations apparently require crossing dependencies. Returning now to the unacceptable example in (31), which mixes non-ATB ATB and regular ATB, gender specification of the adjectives forces the dependencies shown in (34).

- (34) *Bijeli_i i crvena_j meni [t_i kaput], [t_j suknja] i [t_i šešir] smetaju.
 white and red me_{DAT} coat skirt and hat bother

(34) involves a mixture of crossing and nesting dependencies (the last trace is involved in a nesting dependency). It then seems plausible that it is ruled out due to the general crossing dependencies requirement on distributed coordinations.

As for the source of the effect of question, notice that what we are dealing with here is essentially a matching effect: the order of the conjuncts within the newly formed ConjP must match the order of the conjuncts from which extraction takes place in the original ConjP. Given that in this kind of cases, the co-ordination structure is in a sense “re-created” in a higher position, with another ConjP, it seems natural to assume that there should be some parallelism between the two coordinations where the order of the conjuncts in the higher ConjP should correspond to the order of the conjuncts (which contain the relevant gaps) in the lower ConjP, which means that the first conjunct should correspond to the first gap, the second conjunct to the second gap and so on. The result of this is strictly crossing dependencies. Under this approach the ordering effect would essentially be a parallelism effect.

Before concluding this section, one potentially interfering issue should be discussed. Consider (35). Citko and Gračanin-Yuksek (2013) show that SC examples like (35) can involve either coordinated wh-phrases or coordinated clauses, with ellipsis taking place in the first conjunct (for relevant discussion, see also section 7; Citko and Gračanin-Yuksek implement ellipsis through multidominance structures).

- (35) Ko i šta kupuje?
 who and what is-buying
 ‘Who is buying what?’

Evidence for the possibility of a clausal structure for (35) is provided by the possibility of examples like (36), where there is a clitic (*je*) following the first wh-phrase: this indicates that the first conjunct is actually a clause in (36).

- (36) Ko je i šta kupio?
 who is and what bought
 ‘Who bought what?’

A question then arises whether SC examples like (16) could be analyzed as involving coordinated clauses with ellipsis in the first conjunct instead of involving coordination formation in the moved position. Crucially, examples like (16) differ from examples like (35)/(36) regarding clitic placement. The clitics *su* must follow *crvene i bijele* in (37).¹⁰

- (37) a. Crvene i bijele su meni suknje i haljine smetale.
 red and white are me_{DAT} skirts and dresses bother
 ‘The red skirt and the white coats bothered me.’

¹⁰There is a potential prosodic issue in (37a). For some speakers, under the most natural prosody the fronted adjectives bear focus stress and are followed by a pause. This causes an issue regarding clitic placement. There is variation across speakers whether under certain conditions a clitic can follow a sentence internal pause, see Bennett (1987), Percus (1993), Browne (1975), Schütze (1994), and Bošković (2001). I ignore here speakers for whom there needs to be a pause following the fronted adjectives and who disallow clitic placement after such a pause.

- b. *Crvene su i bijele meni suknje i haljine smetale.
 red are and white me_{DAT} skirt and dresses bother

The impossibility of the clitics occurring after the first conjunct in (37), in contrast to (36), then provides evidence that in (16)/(37) we are not dealing with a larger coordination: it really is APs that are coordinated here. In other words, we have here evidence that the construction in question does not involve a larger coordination with ellipsis in the first conjunct.¹¹

It is also worth noting here that SC clitics are second position clitics (see Bošković 2001 and references therein); as such they are standardly used as a constituenthood test (since they cannot follow more than one constituent). Clitic placement in (37) then confirms that *crvene i bijele* is a single constituent, which is indeed the case under the coordination-in-the-moved position analysis.

Additional evidence that we are dealing here with a regular coordination in the moved position is provided by comparing left-branch extraction non-ATB ATB cases, which involve multiple left-branch extraction with coordination, with multiple left-branch extraction cases that do not involve coordination. Bošković (2016) discusses multiple left-branch extraction cases like (38).

- (38) Onu_i staru_j prodaje t_i t_j kuću.
 that old sells house
 ‘He is selling that old house.’
 (39) *Prodaje onu i staru kuću.
 sells that and old house
 (40) *[Onu i staru]_i prodaje [t_i kuću].
 that and old sells house

(38) shows that multiple left-branch extraction of the demonstrative and the adjective is possible (left-branch extraction of both demonstratives and adjectives is in principle possible in SC). The elements in question cannot be coordinated within a single NP in situ, as shown by (39); not surprisingly, they also cannot undergo left-branch extraction as a coordination, as shown by (40).

Turning now to non-ATB ATB left-branch extraction, such cases also involve multiple LBE. Notice, however, that (16) contrasts with (41).

- (41) *One_i i bijele_j meni [t_i suknje] i [t_j haljine] smetaju.
 those and white me_{DAT} skirts and dresses bother
 ‘Those skirts and white dresses bother me.’

What we see at work in (41) is what is at work in (38)-(39). The relevant elements, the demonstrative and the adjective, can undergo left-branch extraction; in fact they can be involved in multiple left-branch extraction, as shown by (38). However, these elements cannot be coordinated, hence they cannot undergo left-branch extraction as a coordination, as shown by (39)-(40). The ungrammaticality of (41) is not surprising from this perspective: its ungrammaticality provides evidence that the elements that undergo non-ATB ATB are indeed involved in a coordination with each other: (41) is then ruled out on a par with (39) because *one* and *bijele* cannot be coordinated. However, the demonstrative and the adjective obviously cannot be involved in a coordination in their base position in (41), in contrast to (39), where the demonstrative and the adjective are coordinated in their base position (cf. the relevant interpretation of (41)—those skirts and white dresses—the demonstrative and the adjective do not modify the same noun in (41), in contrast to (39)). The coordination in (41) can

¹¹It is also not clear how the interpretation would work on the clausal ellipsis analysis, given that ‘white’ modifies only the second conjunct (i.e. “dress”) in (16). For relevant discussion, the reader is also referred to the appendix, where it is shown that even examples like (35) cannot involve clausal coordination—that option is available only when clause-level material intervenes between the first wh-phrase and the conjunction, as in (36).

then only take place after movement, since the relevant elements are clearly not coordinated in their base-position. The individual movements themselves also must be possible in (41), given that such multiple left-branch extraction is in principle possible, as shown by (38) (see Bošković 2016). (41) is thus ruled out because it involves illicit coordination, where the coordination takes place after movement. The data in question then also provide evidence that we are indeed dealing here with late coordination formation (i.e. non-base coordination).

Notice that we also have additional evidence here that non-ATB ATB examples involving left-branch extraction do not involve a larger coordination with ellipsis in the first conjunct. Under such an analysis we would not be able to appeal to the impossibility of coordination of a demonstrative and an adjective, i.e. the ungrammaticality of (39), since this is not what would be coordinated in (41) under that analysis.¹²

Another issue that is relevant here is that a clitic (*mu*) can intervene between the demonstrative and the AP in (38), as shown by (42). Recall that this is not possible with non-ATB ATB constructions, as shown by (37).

(42) ?Onu_i mu staru_i prodaje t_i t_j kuću.
 that him_{DAT} old sells house
 ‘He is selling that old house to him.’

All this confirms the coordination in the moved position analysis of (16)/(37). Elements undergoing multiple LBE need not move to the same position, hence a clitic can intervene between them, as in (42). Elements involved in non-ATB ATB (as in (37)), on the other hand, are located in the same position, in fact non-ATB ATB involves a coordinated phrase, hence a clitic cannot intervene between the relevant elements, which are coordinated with each other.

The above data thus provide additional evidence that coordination formation should not be restricted to base-generation (i.e. lexical insertion/external merge), i.e. it should not be restricted in such a way that it can only occur pre-movement.

In summary, in this section we have seen another case of non-ATB ATB, which also involves non-base coordination formation and which is also subject to the ATB requirement. We have also seen that the ATB requirement does not apply across ConjPs. Furthermore, we have seen that non-ATB ATB can be combined with traditional ATB and that the crossing dependencies requirement on distributed coordination is maintained regardless of whether such constructions involve only non-ATB ATB or a mixture of non-ATB ATB and traditional ATB.

4. Japanese numeral constructions

Japanese floating quantifier constructions provide another case of non-ATB ATB extraction. Consider (43), which involves what I will refer to as coordinated ClassPs in Japanese.

(43) John-ga [VP [PP yaoya-kara] [mikan-o 3-ko]-to [banana-o 5-hon] kata.
 John-NOM vegetable.store-from orange-ACC 3-CL and banana-ACC 5-CL bought
 ‘John bought [3 oranges and 5 bananas] from a vegetable store.’

Importantly, it is possible to extract the NP from the conjuncts in (43), with a coordination structure recreated in a higher position (‘respectively’ is optional here).

¹²It is worth noting here that NP ellipsis that strands demonstratives and adjectives is also possible in SC, see Bošković (2013b). One might try to treat (16) this way. The ungrammaticality of (41), however, provides evidence not only against the clausal ellipsis analysis, but also against the NP ellipsis analysis.

- (44) John-ga [mikan-to banana]-o yaoya-kara (sorezore) [3-ko]-to [5-hon] katta.
 John-NOM orange and banana-ACC vegetable.store-from respectively 3-CL and 5-CL bought

Furthermore, the ATB requirement is also imposed in such cases, as shown by the contrast between (47), where extraction takes place from each conjunct, and (46), where this is not the case (extraction does not take place from the last conjunct).¹³

- (45) John-ga yaoya-kara [mikan-o 3-ko]-to [banana-o 5-hon]-to [budou-o 2-fusa] katta.
 John-NOM vegetablestore-from orange-ACC 3-CL and banana-ACC 5-CL and grape-ACC 2-CL bought
 ‘John bought 3 oranges, 5 bananas and 2 bunches of grapes from a vegetable store.’
- (46) ?*John-ga [mikan-to banana]-o yaoya-kara (sorezore) [3-ko] to [5-hon] to
 John-NOM orange and banana-ACC vegetable.store-from respectively 3-CL and 5-CL and
 [budou-o 2-fusa] katta.
 grape-ACC 2-CL bought
- (47) John-ga [mikan-to banana-to budou]-o yaoya-kara (sorezore) [3-ko] to [5-hon] to
 John-NOM orange and banana and grape-ACC vegetable.store-from respectively 3-CL and 5-CL and
 [2-fusa] katta.
 2-CL bought

It should also be noted that this kind of non-ATB ATB is possible without the coordinator *to* in the higher position. In such cases another coordinator, *sosite*, appears in the higher position.¹⁴

- (48) John-ga [mikan-o_i sosite banana-o_j] yaoya-kara (sorezore) [t_i 3-ko]-to [t_j 5-hon] katta.
 John-NOM orange-ACC and banana-ACC vegetablestore-from respectively 3-CL and 5-CL bought

The ATB requirement is imposed in this case too. Thus, (50), where extraction takes place from each conjunct, is better than (49), where extraction takes place from the first and the second, but not the third conjunct.

- (49) ?*John-ga [mikan-o_i sosite banana-o_j] yaoya-kara (sorezore)
 John-NOM orange-ACC and banana-ACC vegetable.store-from respectively
 [t_i 3-ko] to [t_j 5-hon] to [budou-o 2-fusa] katta.
 3-CL and 5-CL and grape-ACC 2-CL bought
- (50) John-ga [mikan-o_i sosite banana-o_j sosite budou-o_k] yaoya-kara
 John-NOM orange-ACC and banana-ACC and grape-ACC vegetable.store-from
 (sorezore) [t_i 3-ko] to [t_j 5-hon] to [t_k 2-fusa] katta.
 respectively 3-CL and 5-CL and 2-CL bought

¹³For independent reasons, it is not possible to test the possibility of mixing non-ATB ATB and regular ATB here (regular ATB is independently not possible in this case since the ATBed NP would have to be associated with two different numbers).

¹⁴Notice that such cases argue against an analysis on which the presence of two conjunctions in distributed coordinations would somehow be a result of pronunciation of two copies of the same conjunction.

It should be noted that Ishii (2015) suggests that *sosite* is a CP-level coordinator. However, my informants allow examples like (i). Notice also that the case marker is optional in the first conjunct in both (i) and (48).

(i) John-ga sosite Mary-ga tootyakusita.
 John-NOM and Mary-NOM arrived
 ‘John and Mary arrived.’

As another parallel to SC, (49) and (46) are marginally acceptable if there is a pause following the second conjunct in the lower ConjP (i.e. if the first two conjuncts in the lower ConjP form a separate intonational phase). This is the same prosody as the one discussed above with respect to SC (20). Recall that this prosodic pattern, on which the first two conjuncts in (45) are pronounced as a single prosodic unit, has a different derivation, on which ‘three oranges’ and ‘five bananas’ form a coordination (as reflected in this unit also forming a prosodic unit), which is then coordinated with “two grapes”. In other words, on this prosodic pattern we are dealing here with two separate coordinations, each of which has two conjuncts.

Notice also that both examples like (49) and examples like (46) show island sensitivity, as shown by (51) and (52) respectively, where an adjunct island intervenes between the final and the original position of the relevant elements.¹⁵

- (51) ?*mikan-o sosite banana-o Mary-wa [John-ga yaoya-kara (sorezore) 3-ko-to 2-hon
orange-ACC and banana-ACC Mary-TOP John-NOM vegetable.store-from respectively 3-CL and 2-CL
katta-kara] okotta.
bought-because got.angry
‘Mary got angry because John bought 3 oranges and 2 bananas from a vegetable store.’
- (52) ?*mikan-to banana-o Mary-wa [John-ga yaoya-kara (sorezore) 3-ko-to 2-hon
orange and banana-ACC Mary-TOP John-NOM vegetable.store-from respectively 3-CL and 2-CL
katta-kara] okotta
bought-because got.angry
‘Mary got angry because John bought 3 oranges and 2 bananas from a vegetable store.’

To sum up, the Japanese examples under consideration in this section represent another case of non-ATB ATB, where movement takes place out of each conjunct, but it is different elements that are moving out of the conjuncts. As in the case of non-ATB ATB examples from English and SC discussed above, the ATB requirement holds in this case too: although different elements are extracted, extraction must take place from each conjunct.

5. When is non-ATB ATB possible?

The above data confirm the existence of non-ATB ATB, where there is movement out of each conjunct but different elements are moving out of the conjuncts. In other words, the ATB requirement should be stated in a such a way that it does not require that the same element moves out of each conjunct but simply that there is movement out of each conjunct.

There is another interesting property of non-ATB ATB. All the cases involving non-ATB ATB discussed above involve coordination formation in the moved position. What happens when non-ATB ATB is attempted without coordination formation in the moved position? Consider in this respect (53):¹⁶

¹⁵Note also that, as in SC, nothing can be inserted between the elements undergoing non-ATB ATB in the Japanese construction under consideration.

¹⁶Distributed coordination is also possible with A-movement, as in (i) (*respectively* is not needed in (i)).

(i) The dogs and roosters barked and crowed all night (Zhang 2010:233)

It is difficult to test the possibility of non-ATB ATB without coordination formation in the moved position with A-movement given that for independent reasons A-movement is more local than A'-movement. (It may be worth noting here that Japanese does not allow constructions like (i) on the relevant reading, whereas SC patterns with English in allowing them. These differences underscore the need for more in depth crosslinguistic investigations of the distributed coordination construction, one of the main goals of this paper in fact being to spur such investigations.)

(53) *Which president do you wonder which famous writer John reads [articles about t] and [essays by t] respectively?

(53) involves extraction of different elements from a single coordination without coordination formation in the higher position. In English this requires moving wh-phrases to different +whCPs, which in turn brings in a wh-island violation. Still, (53) is clearly more degraded than typical wh-island violations. The fact that the contrast between (53) and (6) is stronger than a typical wh-island violation suggests that coordination formation in the moved position is necessary for non-ATB ATB.

Consider also (54)-(55), which also involve non-ATB ATB without coordination formation in the moved position. Both examples are unacceptable. Furthermore, (55), where the ATB requirement is not obeyed, is even worse than (54), where the ATB requirement is obeyed (in (55) there are two moved elements and two gaps, while in (54) there are two moved elements and three gaps; the example mixes non-ATB ATB and ATB).

(54) *Which president do you wonder which famous writer John reads [articles about t], [essays by t], and [tweets from t] respectively?

(55) **Which president do you wonder which famous artist John reads [articles about t], [essays by t], and [tweets from Brady] respectively?

The contrast between (54) and (55) parallels the contrast between between SC (18) and (19), indicating that the ATB requirement still holds in such cases. Both examples are, however, unacceptable. What seems to be going on here is that performing non-ATB ATB without coordination formation in the moved position leads to a violation, call it a violation of requirement X (to be discussed in more detail below): X is violated in both (53) and (54). The reason why (55) is even worse is that it violates X as well as the ATB requirement that there needs to be movement out of each conjunct of a coordination.

Notice now that in (53), the wh-phrases that are moving out of the coordination are interpreted in different SpecCPs (i.e. different clauses). It is not out of question that this is the source of the ungrammaticality of (53); i.e. it may be that for some reason wh-phrases undergoing this kind of extraction must be interpreted in the same SpecCP, in which case (53) would not necessarily show that non-ATB ATB requires coordination formation in the moved position. This potentially interfering factor cannot be controlled for in English, but it can in SC, SC being a multiple wh-fronting language. Let us then test the possibility of non-coordinated non-ATB ATB with multiple wh-fronting in SC. The relevant examples are given below. (56), involving non-ATB ATB without higher coordination, is unacceptable. (57), its counterpart involving coordination in the higher position, is clearly better than (56).¹⁷

(56) *Kome_i za kim_i su ga iznenadili [otpor t_i] i [želja t_j]?
wh_{DAT} for whom are him surprised resistance and desire

(57) ?Kome_i i za kim_j su ga iznenadili [otpor t_i] i [želja t_j]?
wh_{DAT} and for whom are him surprised resistance and desire
'Resistance to whom and desire for whom surprised him?'

The interfering factor noted above with respect to English (53) also does not arise with respect to SC non-ATB ATB constructions discussed in section 3. These constructions also require coordination

¹⁷(56) is unacceptable regardless of the placement of the clitics *su ga*. (57) gives the only possible placement of the clitics here (this also holds for (58)-(59) below, see section 3 for relevant discussion). Notice also that SC does not show the subject condition effect (see Bošković 2013b).

(i) Kome_i ga je iznenadio [otpor t_i]?
wh_{DAT} him is surprised resistance
'Resistance to whom surprised him?'

formation in the moved position, as shown by the contrast in (58), where (58a) involves coordination formation in the moved position and (58b) does not, as well as the contrast in (59), involving wh-counterparts of constructions like (58a-b), where the wh-phrases are interpreted in the same SpecCP.¹⁸

- (58) a. Crvenu_i i bijelu_j je kupio [[t_i suknju] i [t_j haljinu]].
 red and white is bought skirt and dress
 'He bought a red skirt and a white dress.'
 b. *Crvenu bijelu je kupio suknju i haljinu.
- (59) a. Kakvu_i i čiju je ukrao [[t_i suknju] i [t_j haljinu]]?
 what-kind-of and whose is stolen skirt and dress
 'He stole what kind of a dress and whose skirt.'
 b. *Kakvu čiju je ukrao suknju i haljinu?

The data discussed in this section thus indicate that non-ATB ATB requires coordination formation in the moved position, i.e. the elements undergoing non-ATB ATB must participate in a coordination in their final position.

What examples like (53), (56), (58b), and (59b) show is that non-ATB ATB is confined to constructions involving coordination formation in the moved position. Now, it is well-known that there are parallelism requirements which concern the origin sites of ATB. Thus, there is a parallelism requirement that the gaps in ATB constructions match in the surface forms if they were to be phonologically realized (see Franks 1993, 1995)¹⁹—this requirement obviously does not hold with non-ATB ATB since here different elements are being extracted. There is also a thematic requirement (see Franks 1995 and references therein). Roughly, with single-clause ATB, both gaps must be either subjects or objects (60)-(61), a requirement which is relaxed with cross-clausal ATB, as (62) shows.²⁰

¹⁸Notice that wh left-branch extraction, as well as multiple left-branch extraction, are in principle possible in SC (see Bošković 2016, Stjepanović 2018 as well as section 3).

¹⁹Notice in this respect Polish (i).

- (i) chłopiec, którego Maria lubi *e* a Ewa nienawidzi *e*
 boy who(acc-gen) Maria(nom) likes and Ewa(nom) hates
 'the boy who Maria likes and Ewa hates' (Franks 1993)

The first gap is in an accusative position and the second gap is in a genitive position. However, in this case accusative and genitive are homophonous, so ATB is possible. When this is not the case, ATB is not possible.

- (ii) a. dziewczyna, która Janek lubi *e*
 girl who(acc) Janek(nom) likes
 b. dziewczyna, której Janek nienawidzi *e*
 girl who(gen) Janek(nom) hates
 c. dziewczyna, *która/*której Janek lubi *e* a Jerzy nienawidzi *e*
 girl who(acc)/(gen) Janek(nom) likes and Jerzy(nom) hates
 'the girl who Janek likes and Jerzy hates' (Franks 1993)

²⁰Zhang (2010:193) actually argues that the parallelism requirement in question holds for non-ATB ATB as well based on constructions like (i).

- (i) a. [[Which nurse]_i and [which hostess]_j] _i dated Fred and _j married Bob respectively?
 b. [[Which nurse]_i and [which hostess]_j] did Fred date _i and Bob marry _j, respectively?
 c. *[[Which nurse]_i and [which hostess]_j] did Fred date _i and _j marry Bob, respectively?

She, however, does not discuss cross-clausal cases, i.e. counterparts of examples like (62). My informants differ regarding non-ATB ATB in such contexts, i.e. examples like (ii).

(ii) Which writer_i and which actor_j does John adore t_i and Peter claim t_j will succeed in Hollywood respectively. One of my informants accepts (ii) and one rejects it. Importantly, the informant who accepts (ii) also accepts (62) and the informant who does not allow (ii) also does not allow (62), which indicates that non-ATB ATB and regular ATB indeed behave in the same way with respect to the parallelism requirement in question. However, more detailed investigation is obviously required here before a firm conclusion can be reached.

- (60) *I wonder who_i [_{t_i} left] and [Mary kissed _{t_i}]
 (61) *I wonder who_i [John saw _{t_i}] and [_{t_i} kissed Mary]
 (62) I wonder who_i [John saw _{t_i}] and [Peter thinks _{t_i} kissed Mary]

One could try to account for the restriction on non-ATB ATB discussed above (non-ATB ATB requires coordination formation in the moved position), which concerns the landing site of non-ATB ATB, by positing a counterpart of the parallelism requirement on the origin of ATB movement that would hold for the landing site of ATB movement. However, it does not look like that this would work since the coordination restriction regarding the landing site of non-ATB ATB discussed above seems quite different from the parallelism requirement on the origin of ATB noted above, which is essentially a thematic parallelism requirement (see Franks 1995—the requirement is actually not about subjects/objects but about the theta-roles that the relevant elements bear if they originate in a single thematic domain). Still, it is not out of question that the coordination restriction on non-ATB ATB noted in this section could follow from an appropriately formulated parallelism requirement for ATB. However, since this kind of an approach would simply restate the relevant descriptive generalization (it would basically have to require that if there is more than one element participating in ATB, the elements in question would have to be coordinated in their final position), below I would like to speculate on an alternative way of deducing the restriction on non-ATB ATB established above.

6. Deducing the coordination in the moved position restriction

The discussion above indicates that non-ATB ATB exists and that it is limited to constructions involving coordination formation in the moved position. We have seen above that this might follow from parallelism requirements, though such an approach would essentially restate the relevant facts. In this section, I will briefly show that there is an alternative way of deducing the non-ATB ATB coordination restriction from mechanisms that were all independently argued for. It is important to emphasize that it is beyond the scope of this paper to examine the mechanisms in question. The goal here is much more modest: there are independently made proposals regarding several mechanisms which when taken together end up deducing the non-ATB ATB restriction under consideration (namely, that non-ATB ATB requires coordination formation in the moved position).

6.1. The assumptions

ConjP is traditionally considered to be an island, this is in fact what the ban on extraction out of coordinations implies. In the phasal system, it is then natural to assume that ConjP is a phase, given that phases have a potential for inducing locality violations.²¹

Bošković (2015) suggests that traditional islands do not allow movement to pass through their edge, i.e. that this is the source of the islandhood effect. The suggestion is implemented more formally in Bošković (2017). Capturing most traditional islands which do not have an independent source, like intervention/relativized minimality effects, within the phase theory is far from straightforward and certainly does not simply follow from assuming that traditional islands are phases. Given that the edge of a phase is accessible from the outside (under the Phase-Impenetrability Condition (PIC)), if an island corresponds to a phase, its edge should be accessible from the outside. This, however, runs the risk of voiding islandhood. To prevent that, Bošković (2017) suggests that traditional islands are phases that cannot be given an EPP/edge feature that would make successive-cyclic movement out of

²¹This does not mean that phases in general are islands; phases have the potential to induce locality violations, which can then capture islandhood.

them possible (see Chomsky 2000, 2001 on this mechanism²²). This, e.g., bans extraction out of adjuncts, as in (64). Given the suggestion in question, although both bolded CPs in (63)-(64) are phases, the bolded CP in (64) cannot be given an EPP/edge feature that would drive movement to its edge, which would make movement out of it possible. This is in contrast to the bolded CP in (63), where this is possible.

- (63) How_i did you think [**CP** that John fixed the car t_i]?
(64) *How_i did you fall asleep [**CP** after John had fixed the car t_i]?

I will adopt below the assumption from Bošković (2017) that traditional islands are phases that cannot be given an EPP/edge feature to make successive-cyclic movement out of them possible.

Another assumption that will be relevant below concerns a proposal made in Oda (2018). Oda discusses feature-checking relations within ConjP, which includes a formalization of the standard assumption that ConjP propagates the categorial features of the conjuncts. One of the proposals Oda makes in his discussion of feature checking relations within ConjP is that conjuncts share a coordination feature, which I will also assume below. I take the coordination feature to be an interpretable feature, shared by the conjuncts and the coordination head—elements bearing that feature must be involved in a coordination.²³

Finally, for the sake of concreteness, I will assume that examples with multiple (i.e. more than two) conjuncts involve multiple ConjP shells, as argued in e.g. Kayne (1994), Zoerner (1995), Johannessen (1998), and Zhang (2010). Under the approach to phases where the highest phrase in a phasal domain functions as a phase, as in Bošković (2014), given that coordination represents a phasal domain, as discussed above, this means that the highest ConjP in structures involving multiple ConjP shells will function as a phase.

6.2. Deducing the coordination-in-the-moved-position restriction

Consider now the effect of these assumptions, which have been proposed and argued for independently of our current concerns, on distributed extraction constructions. Given that ConjP is a phase, movement out of ConjP must proceed via the ConjP edge. However, as is the case with other traditional islands, ConjP is a phase that cannot be given an EPP/edge feature to make successive-cyclic movement out of it possible. What this means is that there cannot be pure successive-cyclic movement via the ConjP edge. The only way to get to the ConjP edge is then to get there via “real” feature checking. The distinction I have in mind here is the distinction between complementizer *that* and the +wh-C in English: movement to the edge of *that* is true successive-cyclic movement, which is enabled by giving *that* the property that makes such movement possible; on the other hand, movement to the edge of +whC is very different, it involves what I refer to here as “true” feature-checking, which has semantic consequences. With ConjP, the former is not an option, for the reason discussed above. As for the latter, there is a feature that is available, namely the coordination feature. However, if an element is given a coordination feature, it must (eventually) participate in a coordination.

Bearing all this in mind consider the coordination restriction on non-ATB ATB. Let us consider it with respect to an example like (65), focusing on movement out of the second conjunct.

- (65) Which books_i and which magazines_i did he see [_{ConjP} [fans of t_i] and [readers of t_j]]?

²²As discussed in Chomsky (2000, 2001), such features can in principle only be given to phases, and only when needed for reasons of successive-cyclicality.

²³This feature obviously cannot be checked at a “distance” (since there is no coordination at a distance); it requires merger with (the projection of) the conjunction head; see here Bošković (2015).

Given that ConjP is a phase, for *which magazines* to be able to move out of ConjP it must get to the edge of ConjP.²⁴ Since pure successive-cyclic movement (of the kind discussed above, see footnote 22) via the edge of ConjP is not an option, *which magazines* has to undergo real feature checking there. This can be done if *which magazines* is given the coordination feature.²⁵ However, being interpretable, this feature has a semantic reflex, the element bearing that feature must participate in a coordination, i.e. it must be interpreted as a conjunct. This is then the reason why a coordination has to be formed in the moved position: this enables *which magazines* to function as a conjunct, i.e. to satisfy the semantic reflex of the coordination feature.

To summarize, under the analysis suggested above, movement to the edge of a ConjP is possible only if the moving element has a coordination feature. Elements participating in non-ATB ATB then must have a coordination feature, which in turn forces them to participate in a coordination, i.e. forces ConjP creation in the moved position of elements participating in non-ATB ATB.²⁶

Why doesn't the same issue arise with regular ATB? I assume that with regular ATB, there is actually no movement out of both conjuncts. With non-ATB ATB constructions like (65), there obviously must be movement of the wh-phrase out of each conjunct, given that the wh-phrase that corresponds to the gap in each conjunct is phonologically realized. This is not the case with regular ATB constructions like (3), repeated here.

(66) Who_i did you see [friends of t_i] and [enemies of t_i]?

There are in fact analyses of regular ATB where movement takes place only out of the first conjunct. This is e.g. the case with the often assumed null Operator movement analysis (see e.g. Munn 1992, 1993), on which a null Op moves within non-initial conjuncts but there is no movement out of these conjuncts: movement takes place only out of the initial conjunct. The same holds for Nunes's (2004) sideward movement analysis, where XP participating in an ATB construction is merged in its theta-position in the second conjunct, then re-merged in the theta-position in the first conjunct, undergoing movement only from that conjunct.²⁷ Under both of these analysis, upward movement out of ConjP takes place only out of the initial conjunct. In (66), it takes place from SpecDP of the first conjunct,

²⁴The motivation for the movement out of ConjP is whatever feature is involved in the final landing site of wh-movement in English, hence there is independent need for the wh-phrase to move out of ConjP.

²⁵As discussed above, the conjunction head independently has the coordination feature (see also footnote 23), it is not given this feature simply to enable the movement in question.

²⁶All of this is straightforward under the ConjP-over-CP analysis of distributed coordinations. The situation is slightly more complicated under Zhang's sideward movement analysis (see footnotes 3, 7 for discussion of these analyses). Zhang extends Nunes's (2004) sideward movement account of regular ATB to distributed coordinations. Under Nunes's analysis of ATB, discussed below, α participating in an ATB structure is merged in its theta-position in the second conjunct and remerged in its theta-position in the first conjunct. However, before the remerger, α needs to move to the edge of the second conjunct, as indicated by locality effects: ATB constructions in which there is an island in between the theta position of α in the second conjunct and the edge of the second conjunct are ungrammatical. Under Nunes's analysis, there is sideward movement/remerger from one conjunct to another conjunct within the same ConjP. Under Zhang's extension of Nunes's analysis, there is sideward movement/remerger from one ConjP into another ConjP, i.e. sideward movement/remerger takes place out of the original ConjP. Then, just like there must be movement to the edge of the conjunct before sideward movement/remerger into another conjunct (under Nunes's original account), it is not surprising that there must be movement to the edge of ConjP before sideward movement/remerger into another ConjP under Zhang's extension of this analysis, as required under the above account of the coordination restriction. Alternatively, it is possible that sideward movement into another ConjP takes place only after movement out of the original ConjP, in which case there would be regular movement out of the lower ConjP, just as on the ConjP-over-CP analysis.

²⁷One issue these works were concerned with is the well-known impossibility of reconstruction into the second conjunct with regular ATB (see Munn 1992, 1993 and Nunes 2017 for relevant discussion under the null operator movement and the sideward movement analysis respectively).

where *who* is located prior to the extraction out of ConjP. Under Chomsky’s (2000, 2001) approach to the PIC, *who* at the edge of the first conjunct is actually located at the edge of ConjP.²⁸ There is then no need for this element to be given a coordination feature to move to the edge of ConjP. With regular ATB, then, movement takes place only out of the first conjunct, while with non-ATB ATB movement takes place out of each conjunct. Since for independent reasons only movement out of non-initial conjuncts requires the moving element to have a coordination feature, coordination formation in the moved position is forced only for non-ATB ATB.

The problem with examples like (53), where non-ATB ATB does not involve coordination-formation in the moved position, is then that either it involves a violation of the PIC if the moving element that is not extracted out of the first conjunct is not given the coordination feature, or, if it is, the problem is that we have here an element with a coordination feature that does not participate in a coordination.

Before concluding this section I briefly note a locality effect associated with late coordination formation. SC allows extraction of conjuncts, as in (67) (see Stjepanović 2014, in press, Bošković 2017, Oda 2017).

- (67) ?Knjige_i je Marko [t_i i filmove] kupio.
 books is Marko and movies bought
 ‘Marko bought books and movies.’

Such extraction is, however, disallowed with constructions under consideration: after formation of non-ATB ATB coordination, conjunct extraction is not possible:

- (68) *Crvene_i tvrdiš da se [t_i i bijeli_j] meni dopadaju [t_i suknje] i [t_j kaputi].
 red you-claim that self and white me_{DAT} please skirts and coats
 ‘You claim that red skirts and white coats please me.’

While it is not trivial to implement this formally, intuitively it seems clear what is going on here: ConjP that is formed after movement, i.e. ConjP not located in the base position, is an island (such ConjP would in fact be a barrier in Chomsky’s 1986 *Barriers* system).

In fact, not only conjunct extraction, but extraction out of a conjunct is also disallowed from a coordination formed by movement. This is shown by (69), involving ATB wh-movement out of a late-formed ConjP located in SpecCP, which is clearly worse than simple extraction out of interrogative SpecCP, as in (70).

- (69) *Which famous president_i do you wonder [which paintings of t_i]_j and [which books about t_i]_k did he meet [fans of t_j]_l and [readers of t_k]_m?
 (70) ?Which famous president_i do you wonder [which paintings of t_i]_j John sold t_j?

²⁸Chomsky’s approach to the PIC differs in this respect from Hiraiwa (2005) and Bošković (2015), where the edge of the edge of phase XP is not at the edge of XP. I am adopting Chomsky’s approach to the PIC in this respect. (Notice also that Bošković 2018 argues that movement to the edge of individual conjuncts is quite generally allowed).

It should be noted that it is beyond the scope of this paper to examine the nature of the ATB requirement itself. Several works have argued that the ATB requirement actually follows from the coordination-of-likes requirement (Chomsky 1957, Schachter 1977, Williams 1978, Sag et al 1985, Bowers 1993, Beavers and Sag 2004, among others), namely Sag et al (1985), Takahashi (1994), and Bošković (2018). Under the implementation of this approach in Bošković (2018), extraction out of the first conjunct is allowed in certain cases even where there are no gaps in other conjuncts (which is in part due to the accessibility of the edge of the first conjunct, see Bošković 2018 for other factors involved). Any gap in a non-initial conjunct, on the other hand, obligatorily “activates” the ATB requirement, forcing the presence of a gap in each conjunct.

Late-formed coordinations are apparently islands, disallowing any kind of extraction, even extractions that are in principle possible out of regular (i.e. base-generated) coordinations.

7. Late coordination formation without lower ConjP

Above we have seen a number of cases involving coordination formation in the moved position, i.e. after movement. All of these cases also involve coordination in the lower position, i.e. they involve extraction out of a coordination. A question then arises if late coordination formation is possible if there is no coordination in the lower position, i.e. if the movements in question do not take place out of a ConjP. It appears that such extraction should be in principle possible. More precisely, nothing that we have seen above rules it out. One could try to rule it out by considering late coordination formation to be a last resort strategy, where the additional coordination would be created only when necessary to make movement out of a coordination possible. Recall in this respect Chomsky's (2000, 2001) conception of the edge feature which is given to make successive-cyclic movement possible. Chomsky argues for a last resort treatment of the feature in question—it is not given unless it is needed to make successive-cyclic movement possible.²⁹ Under the last resort strategy suggested above, where the additional coordination would be created only when necessary to make movement out of a coordination possible, the coordination feature that is given to an element to enable it to move out of a coordination would be treated like the edge feature that enables successive-cyclic movement in the relevant respect. This means that unless an element is moving out of a coordination it would not be given the feature in question. Since the feature in question is what essentially licenses late coordination formation, there would then be no coordination formation in the moved position unless the movement in question takes place out of a ConjP, i.e. if there is no coordination in the lower position. This appears to be the most natural way of restricting late coordination formation to extraction out of a coordination. The empirical question to address is then whether this should be done.

It is not easy to answer this question since in most potentially relevant cases interfering factors in terms of a potential alternative analysis arise. Citko and Gračanin-Yuksek (2013), however, argue for the possibility of late coordination formation on the basis of cases that do not involve movement out of a coordination. They consider constructions involving coordinated wh-phrases, like (71), and argue that crosslinguistically such constructions correspond to three different structures (where languages differ regarding which structure is available), two of which involve larger (essentially clausal) coordination where only the wh-phrase is realized in the first conjunct (they argue that English (71) should be treated in terms of a clausal coordination), and one of which involves coordination of wh-phrases. They argue that Bulgarian (72) instantiates the latter.

(71) What and where did you eat?

(72) Koj and kakvo e kupil?
who and what is bought
'Who bought what?'

They furthermore argue that wh&wh coordinations like Bulgarian (72) involve coordination formation after movement (they analyze late coordination formation in terms of sideward movement, following Zhang 2010).³⁰ As one argument to this effect, they observe that in English, it is not possible to have

²⁹Thus, complementizer *that* is given the edge feature in *What_i do you think t_i that John bought t_i*, where this is necessary to make successive-cyclic movement possible, but not in **Who thinks what_i that John bought t_i*, where this is not necessary to make such movement possible hence it is not allowed.

³⁰ I will use the term (non-distributed) wh&wh coordination to refer to constructions which involve coordination of wh-phrases (not a larger constituent) and where the wh-phrases are not extracted out of a coordination. For ease of exposition, to differentiate such cases from examples like (6), where there is a lower ConjP, I will refer

obligatory arguments in the coordination in question (in fact, subjects are quite generally not possible, see Gračanin-Yuksek 2007), as shown by (73). This is expected under the clausal coordination analysis, where (71) is treated as involving coordination of two clauses, *what did you eat and where did you eat?*

(73) *What and where did you buy?

The acceptability of (72) then indicates that we are dealing here with wh&wh, rather than larger clausal coordination.³¹ Citko and Gračanin-Yuksek (2013) also observe that coordinations like (72) are not possible with wh-phrases in situ. In fact it is quite generally not possible to coordinate a subject and an object of the same clause, which means that (72) cannot involve base coordination which would then undergo movement. In other words, the coordination in question can only be formed after movement.

If Citko and Gračanin-Yuksek's account of Bulgarian (72) is correct, such examples provide evidence that late coordination formation is not limited to constructions involving movement out of a coordination. A question, however, then arises why the structure instantiated by Bulgarian (72) is apparently not allowed in English. Citko and Gračanin-Yuksek tie the availability of the structure in question to the availability of multiple wh-fronting: since English does not have multiple wh-fronting it cannot then have the structure in question. However, it is not clear why multiple wh-fronting should be relevant here. Under Citko and Gračanin-Yuksek's analysis, the interrogative C in (72) has only one Spec, which is filled by ConjP. Furthermore, recall that they apply Zhang's (2010) sideward movement account of constructions like (6) to (72). This may incorrectly predict (6) to be unacceptable: if the reason why the structure instantiated by Bulgarian (72) is unavailable in English is that a ConjP with wh-phrases cannot occur in the Spec of +whC in English, (6) should be ruled out for the same reason that (72) (i.e. wh&wh coordinations) is ruled out.

At any rate, it appears that we are dealing here with ill-understood points of crosslinguistic variation where the possibility of wh&wh coordinations (if Citko and Gračanin-Yuksek 2013 are right in their treatment of such coordinations) apparently should not be tied to the availability of constructions like (6). In other words, it appears that we are dealing here with crosslinguistic variation with respect to constructions/mechanisms which in principle need to be allowed, where it is not clear what is behind the variation.

I would, however, like to make a tentative suggestion here regarding how non-distributed wh&wh coordination can be ruled out in English (assuming Citko and Gračanin-Yuksek 2013 are right in their claim that such coordination is not allowed in English) without ruling out examples like (6).³²

to the latter as (Postal-style) distributed coordinations. Notice that wh&wh coordinations are also subject to the islandhood effect (see here English (i) in footnote 7, SC (23) and Japanese (51)-(52)), as shown by Bulgarian (i), involving an adjunct island (note that Bulgarian does not show Comp-trace effects).

(i) *Koj i kakvo si jadosan zaštoto e kupil?

who and what are angry because is bought

'You are angry because who bought what?'

³¹Furthermore, Gračanin-Yuksek (2007) notes that DP external material can occur within the relevant ConjP in English, as shown by (ib). Nothing of that sort is possible in Bulgarian. (Note that SC allows both obligatory arguments and DP-external material in the coordinations in question, as shown by (35)-(36), the reason for this being that SC allows both wh&wh and larger clausal coordination, see Citko and Gračanin-Yuksek 2013 (I am simplifying their discussion here) and the discussion below.)

(i) What did Peter and why did Peter eat?

(Gračanin-Yuksek 2007)

³²The reader should, however, bear in mind that something that is completely independent of our concerns could be responsible for the impossibility of non-distributed wh&wh coordination in English, and the different behavior of English and Bulgarian in this respect (which is in fact what Citko and Gračanin-Yuksek propose). It should in fact be noted that this kind of coordinations are possible only under wh-movement, as shown by SC (i) (the fronting in (ia) can in principle involve topicalization, focalization, or scrambling (see Bošković 2004), the construction is apparently ruled out regardless of which of these options is taken, in contrast to (35)).

Above, I have made a suggestion regarding how late coordination could be restricted in a way that would allow it only if the elements which are late-conjoined are extracted out of a coordination, i.e. if there is a coordination in a lower position. Under the suggestion in question, the coordination feature, which is necessary for late coordination formation, is given as last resort to make movement out of a coordination possible, on a par with the last resort nature of the edge feature that is given to make successive-cyclic movement possible. This account can then be applied to English: this will allow constructions like (6) in English but would not allow non-distributed wh&wh coordinations of the kind that are allowed in Bulgarian. In Bulgarian, then, the coordination feature would not be added only as a last resort, as a result of which late coordination formation is possible with wh&wh coordinations (i.e. without a lower ConjP).

A question that arises now is whether there are languages that allow late coordination formation only if such coordinations do not involve extraction out of a ConjP (i.e. languages that allow wh&wh coordination but not Postal-style distributed extraction). If such a pattern exists, an issue I leave open here, it could be captured if in the pattern in question coordination feature checking would have a freezing effect, i.e. if it is subject to what Rizzi (2006) refers to as criterial freezing. This would block late coordination formation out of coordinations (i.e. Postal-style distributed coordination): to be able to participate in late coordination and to move out of a ConjP the relevant element would have to have the coordination feature; however, undergoing feature checking for the coordination feature, which is needed to allow movement out of a coordination, would result in a freezing effect, preventing the relevant element from moving out of the ConjP, thus preventing late coordination formation in this case (i.e. Postal-style distributed coordination).

Admittedly, the account of the relevant crosslinguistic differences suggested above is somewhat stipulatory. This, however, seems unavoidable at present since we are dealing with ill-understood crosslinguistic variation here. Languages do differ with respect to how they behave regarding the relevant properties of coordinate constructions. The point of the above discussion was merely to outline how the relevant crosslinguistic variation could be captured, as well as to highlight the need for more extensive crosslinguistic investigations of the relevant properties of coordinations (recall that languages also differ regarding whether they allow conjunct extraction, see for example SC (67), which is unacceptable in English). Hopefully, such investigations will reveal correlations between the properties of coordination investigated in this paper and other properties, which should help determine in a more principled way the factors that are behind the phenomena (and the variation with respect to these phenomena) discussed in this paper.³³

8. Conclusion

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- (i) a. *Jovanu i knjigu daju.
 Jovan_{ACC} and book_{ACC} they-are-giving
 ‘They are giving Jovan a book.’
 b. *Jovan i kuću kupuje.
 Jovan_{NOM} and house_{ACC} is-buying
 ‘Jovan is buying a house.’

Postal-style distributed coordinations are not restricted in this way. Thus, they are possible with other A'-movements, as shown by (ii) or even with A-movement (see footnote 5).

(ii) Under the pillow and in the drawer Lulu put the diary and hid her letters, respectively (Zhang 2010:170)

Given that there clearly must be rather strong additional restrictions on non-distributed wh&wh coordinations, which are not operative with Postal-style distributed coordinations, it is certainly not out of question that the unavailability of the former in English (in contrast to the availability of the latter) is due to issues that are independent of the main concerns of this paper.

³³In fact, the goal of much of the discussion in this paper is to prompt further crosslinguistic investigations of the constructions and mechanisms discussed in this paper.

This paper has provided additional evidence that it is possible to move different elements out of conjuncts involved in the same coordination and that such constructions involve coordination formation in the moved position, i.e. after movement. It was shown that such constructions are also subject to the ATB requirement: although different elements are moving out of conjuncts movement still must take place out of each conjunct. This means that the traditional ATB requirement needs to be reformulated: it is not the case that the moving element must move out of each conjunct but simply that movement must take place out of each conjunct. It can be the same element that is moving out of each conjunct or different elements; the ATB requirement is satisfied as long as there is movement out of each conjunct (furthermore, the ATB requirement does not hold across ConjPs). Traditional ATB, where the same element moves out of more than one conjunct, and what I have referred to as non-ATB ATB, where different elements are moving out of the conjuncts, can in fact be mixed under extraction out of the same coordination, as expected if all that is needed is that there is movement out of each conjunct. Furthermore, mixed non-ATB ATB cases have the same ordering restrictions (regarding the order of the conjuncts) as pure non-ATB ATB cases. We have also seen that there is a restriction on non-ATB ATB, where different elements are moving from different conjuncts, in particular, non-ATB ATB requires coordination formation in the moved position. While it is not out of question that the restriction could be captured with an appropriate formulation of the parallelism requirement on ATB, we have also seen that the restriction can be deduced from independently made proposals regarding the relationship between phases and islands and feature-checking relations within ConjP. Finally, I have tentatively concluded that late coordination formation (i.e. coordination formation after movement) is not limited to constructions involving extraction out of a coordination, though this could be a point of crosslinguistic variation, which can be captured if in languages where late coordination would be restricted in such manner, late coordination is treated as a last resort strategy, employed to enable extraction out of coordinations.

Appendix: Superiority/ordering effects

In this appendix I discuss some issues that arise regarding the ordering of elements participating in late coordination constructions. I will start with non-distributed wh&wh coordinations, and then return to Postal-style distributed extraction coordinations.

As another argument for the wh&wh (as opposed to clausal) coordination account of Bulgarian (72), Citko and Gračanin-Yuksek (2013) observe that such constructions show Superiority effects, i.e. strict ordering of coordinated wh-phrases. They argue that this would not be expected if (74) involves coordination of two clauses, where each clause has only one wh-phrase, which undergoes movement (see the discussion in section 7).

- (74) a. Koj i kakvo e kupil?
 who and what is bought
 b. *Kakvo i koj e kupil?

Citko and Gračanin-Yuksek (2013) argue that what is relevant here is that Bulgarian is a multiple wh-fronting language. Multiple wh-fronting languages differ regarding whether they show superiority effects under multiple wh-fronting (see for example Rudin 1988, Bošković 2002). Bulgarian does show such effects (see (75)), just as it does with wh&wh coordinations (see (74)).

- (75) a. Koj kakvo e kupil?
 who what is bought
 ‘Who bought what?’
 b. *Kakvo koj e kupil?

In light of this, Citko and Gračanin-Yukseš (2013) tie the possibility of wh&wh coordinations to multiple wh-fronting. The correlation is, however, rather difficult to maintain. Even putting aside the issue noted in section 7 regarding the availability of late coordination constructions in English, under the standard account the superiority effect in (75) arises as a result of the interrogative C attracting two wh-phrases, where these wh-phrases undergo separate wh-movements, occupying separate CP Specs. This is, however, not the case with (74) under Citko and Gračanin-Yukseš's (2013) analysis, where the coordination of wh-phrases (i.e. ConjP dominating the wh-phrases) is merged into SpecCP—there are no two separate wh-movements or two CP Specs in (75).³⁴ Furthermore, Citko and Gračanin-Yukseš (2013) also observe that some speakers of Bulgarian do allow free ordering of the coordinated wh-phrases in (74). On the other hand, there is no speaker variation regarding superiority effects with multiple wh-fronting.

Also relevant here is SC, which does not show matching in the ordering of wh-phrases in simple MWF constructions and wh&wh coordinations. As noted above, multiple wh-fronting languages differ regarding whether or not they show superiority effects in examples like (75). Thus, as discussed in Rudin (1988) and Bošković (2002), SC does not show Superiority effects in simple MWF constructions like (76).

- (76) a. Ko šta kupuje?
 who what is-buying
 ‘Who is buying what?’
 b. Šta ko kupuje?

However, SC does show ordering effects with wh-coordinations.³⁵

- (77) a. Ko i šta kupuje?
 who and what is-buying
 b. *Šta i ko kupuje?

Now, as discussed above, SC also allows larger coordinations involving wh-phrases, as indicated by the fact that additional material can be present within what appear to be wh&wh conjuncts.

- (78) Ko je i šta kupio?
 who is and what bought
 ‘Who bought what?’

The presence of the auxiliary clitic in (78) indicates that the first conjunct is actually a clause. Interestingly, such constructions, which unambiguously involve coordination that is larger than wh&wh, do not show superiority effects.³⁶

³⁴It appears that treating superiority effects with wh&wh coordinations and multiple wh-fronting in the same way could in principle work under the ConjP-above-CP analysis (see footnote 3), since on this analysis the wh-phrases would be first moving to the interrogative CP, just as in regular multiple wh-fronting. We will, however, see below that there is actually no correlation between superiority effects with multiple wh-fronting and wh&wh coordinations.

³⁵(77b) improves if there is a pause following the first wh-phrase, which is not necessary in (76b). For the relevance of this prosodic pattern, which I put aside in the text, see footnote 38.

³⁶There may be a null subject in the first conjunct and a null object in the second conjunct here. SC is a pro-drop language so the former is not surprising. On null objects in similar constructions, see Zanon (2015) and references therein (for other perspectives on these issues, see Citko and Gračanin-Yukseš 2013, Gračanin-Yukseš 2007).

(79) Šta je i ko kupio?
what is and who bought

When there is nothing following the first wh-phrase there is a superiority effect, as shown by (77).³⁷ On the other hand, when the clitic follows the first wh-phrase, which clearly shows that in such cases the first conjunct is larger than the wh-phrase itself, there is no superiority effect (see (78)-(79)). These data indicate that when there is no additional material following the first wh-phrase we are indeed dealing with a wh&wh coordination.³⁸ These facts also indicate that there is no parallelism between Superiority effects in simple multiple wh-fronting constructions and wh&wh constructions, given the contrast between (76) and (77) (more precisely, (76b) and (77b)), i.e. the parallelism shown by Bulgarian (75) and (74) is accidental.

In fact, there is reason to believe that whatever is going on with the ordering of wh-phrases in wh&wh coordinations is different from superiority effects with multiple wh-fronting. As discussed in Bošković (2002), quite generally when the superiority effect is found with multiple wh-fronting it holds only for the first and the second wh-phrase; beyond that the ordering of the wh-phrases is free. This is shown by Bulgarian (80): when only two objects undergo wh-movement, the indirect object must precede the direct object, a superiority effect given that the former is higher than the latter prior to wh-movement. However, when a higher wh-phrase is present, the ordering of the indirect and direct object is free (the nominative must be first in (80c-d) as well as (81c) and (82) below). The same point is illustrated by SC (81), where the superiority effect also holds only for the first and the second wh-phrase (see Bošković 2002 for discussion of the superiority effect in (81a-b)).³⁹

(80) a. Kogo kakvo e pital Ivan?
whom what is asked Ivan
'Who did Ivan ask what?'

³⁷The same holds if the clitic follows the coordinated wh-phrases.

(i) a. Ko i šta je kupio? b. *Šta i ko je kupio?
who and what is bought

³⁸This in itself is rather interesting. We may be dealing here with an economy of representation effect (see Bošković 2011 and references therein): when both a smaller and a larger structure are in principle available for X, if there is no evidence for the larger structure X is analyzed in terms of the smaller structure. (We would not necessarily expect to find this effect in all languages of this sort since the effect would hold only in an all-else-being-equal scenario, which is not always the case; e.g. lexical properties of elements that are elided on the larger structure option could block the effect—see Bošković 1997.) There may, however, be another factor at work here. Recall that, as noted in footnote 35, (77b) improves if there is a pause following the first wh-phrase. It may then be that wh&wh and clausal coordination are associated with two distinct prosodic patterns in the cases where nothing intervenes between the coordinated wh-phrases, the prosodic pattern with a pause following the first wh-phrase reflecting clausal coordination structure. This prosodic pattern is forced by a superiority violation, which is not allowed under the wh&wh derivation. It should be noted that according to Citko and Gračanin-Yuksek, there is no superiority effect in wh&wh coordinations in Croatian. The speakers I have consulted, all of which come from Bosnia, do show a superiority effect here (in fact all the data discussed above come from the Bosnian variety of what I have referred to as SC). It is not out of question that there is no real variation here, and that Citko and Gračanin-Yuksek were checking the prosodic pattern associated with clausal coordination (this may also be behind what they report as speaker variation regarding the ordering effect in Bulgarian; while Citko and Gračanin-Yuksek do not give relevant Croatian data they do give superiority-violating examples from Russian. However, it turns out superiority violations in Russian are possible only under the prosodic pattern associated with clausal coordination). At any rate, while the issue under consideration is quite interesting, it clearly goes beyond the scope of this paper, whose focus is on distributed coordinations, not on wh&wh coordinations, hence I put it aside here for future research that will focus on wh&wh coordinations.

³⁹As discussed in Bošković (2002), SC shows superiority effects in certain contexts; one such context is the context given in (81).

b. ?*Kakvo kogo e pital Ivan?

c. Koj kogo kakvo e pital?
who whom what is asked
'Who asked whom what?'

d. Koj kakvo kogo e pital?

(Bošković 2002:366)

(81) 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.' (Bošković 2002:367)

Recall now that SC shows an ordering effect with wh&wh coordinations involving two wh-phrases. The ordering effect, however, extends to all wh-phrases: when there are more than two wh-phrases there is strict ordering between all of them, as shown by (82).

(82) a. Ko kome i šta daje?

who whom and what is-giving
'Who is giving what to whom

b. *Ko šta i kome daje?

who what and whom is-giving

The data discussed above indicate that the ordering effect found with wh&wh coordinations is independent of Superiority (more precisely, what is considered to be superiority effects associated with multiple wh-fronting).

The data discussed above are important for another reason. As noted above, Citko and Gračanin-Yukseš (2013) take the superiority parallelism between Bulgarian (75) and (74) to indicate that the availability of multiple wh-fronting underlines the availability of wh&wh coordinations. Given that they treat the latter in terms of late coordination formation, this may incorrectly predict that late coordination formation in general should not be available in English. The fact that wh&wh coordinations do not track multiple wh-fronting with respect to Superiority suggests that the two should be divorced. There should then be no connection between multiple wh-fronting and the possibility of late coordination formation (which underlines the possibility of Postal-style distributed coordination), which is desirable given the possibility of the latter in English.

I now turn to late coordination constructions involving Postal-style distributed extraction. As briefly noted above, there is an ordering effect concerning elements involved in late coordination formation here as well: the order of the conjuncts within the newly formed ConjP must match the order of the conjuncts from which extraction takes place in the original ConjP. Thus, (83) gives the only possibility for the interpretation of the extracted adjectives in this example (it is not possible for "red" to modify "dress" and "colorful" to modify "haljina"; note that in the examples given below all the conjuncts have the same gender so that no interpretation is ruled out due to gender-agreement issues).

(83) Crvena_i i šarena_j meni [t_i suknja] i [t_j haljina] smetaju.

red and colorful me_{DAT} skirt and dress bother

'The red skirt and the colorful dress bother me.'

Recall that Superiority with multiple wh-fronting is essentially an ordering constraint/effect. Bošković (2013a) and Despić (2011) show that SC adjectives c-command out of the NP that they modify (due to the lack of the DP layer in SC). As a result, each AP trace asymmetrically c-commands the lower AP

trace(s) in (18). The ordering effect in this kind of constructions could in principle then be a regular Superiority effect given the standard assumption that superiority effects arise only when one element asymmetrically c-commands the other element. This is, however, not the case with English examples like (6) or (65) (there is no asymmetric c-command relation here), where the ordering effect is also operative. This indicates that the ordering effect found in distributed coordinations is independent of Superiority (i.e. the kind of superiority effect that is found with multiple wh-fronting constructions).

This is confirmed by constructions involving three conjuncts. Recall that with multiple wh-fronting, superiority holds only for the highest element: after the first fronted element the ordering of the other fronted elements is free (see (80)-(81)). This is, however, not the case with distributed coordination constructions, where there is a strict ordering effect for all conjuncts, as shown by SC (84), which gives the only possibility for the interpretation of the extracted adjectives.

(84) Crveni_i, bijeli_j i šareni_k meni [t_i sako], [t_j kaput] i [t_k šešir] smetaju.
 red white and colorful_{ME DAT} jacket coat and hat bother
 ‘The red jacket, white coat, and colorful hat bother me.’

As noted above, all this also holds for English distributed coordination constructions, as shown by (85), where the indices indicate the only possibility for the interpretation of the conjuncts.

(85) Which book_i, which magazine_j, and which painting_k respectively did [John buy t_i], [Bill read t_j], and [Mary sell t_k]?

That the same effect is found in the SC construction under consideration and the English construction under consideration confirms that the two should be treated in the same way, as argued above. Recall, however, that the same effect is found with non-distributed wh&wh coordinations. Non-distributed wh&wh coordinations pattern with Postal-style distributed coordination constructions rather than with multiple wh-fronting constructions regarding the ordering effect. This can be interpreted as indicating that Postal-style distributed coordination constructions and wh&wh coordination constructions should be treated in the same way (and dissociated from multiple wh-fronting). The former is indeed the case under the analysis argued for above, which treats both Postal-style distributed coordination constructions and wh&wh coordination constructions in terms of late coordination formation.⁴⁰

At any rate, the issues discussed in this appendix merit a much more extensive scrutiny than they could be given in this appendix, whose scope is rather limited (especially regarding wh&wh coordinations).

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⁴⁰Recall that Zhang (2010) argued for this treatment of the former and Citko and Gračanin-Yuksek (2013) of the latter (though they tie it to the availability of multiple wh-fronting, a correlation which prevented them from unifying the former and the latter and which is argued against here).

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