

## On Mixed Clausal Coordinations: Coordinating Finite CPs, ECM and Control Infinitive\*

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Željko Bošković. 2018. On Mixed Clausal Coordinations: Coordinating Finite CPs, ECM and Control Infinitives. *Studies in Modern Grammar* 100, 95–118. The goal of this paper is to examine a rather interesting paradigm involving mixed clausal coordination, where different types of clauses (finite CPs, ECM, and control infinitives) are coordinated. It will be shown that the paradigm in question has consequences for several phenomena; in particular it sheds light on the controversial issue of the proper analysis of PRO as well as the issue of whether the SpecvP where the subject is base-generated is higher or lower than the SpecvP which serves as the landing site of object shift.

[Key words: ECM, control, infinitives, coordination, PRO, object shift]

### 1. Introduction

The goal of this paper is to examine a rather interesting paradigm involving mixed clausal coordination, where different types of clauses (finite CPs, ECM, and control infinitives) are coordinated, noted in Munn (1993). The relevant paradigm is given in (1)–(8). What is important here is that the verb *expect* is three ways ambiguous when it takes an infinitival complement: its infinitival complement can involve *believe*-type ECM, *want*-type null *C*<sub>for</sub>-infinitives, subject control, or object control, as discussed in Bresnan (1972), Pesetsky (1992), Bošković (1997a:181), and Wurmbrand (2014), among others.<sup>1</sup>

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\* For helpful comments and suggestions, I thank the participants of my Fall 2017 University of Connecticut seminar.

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- (1) John expects that Perot will run and that he'll win.
- (2) \*John expects that Perot will run and to vote for him.
- (3) \*John expects that Perot will run and Bill to vote for him.
- (4) Perot expects to run and that he'll win.
- (5) Perot expect to run and to win easily.
- (6) \*Perot expects to run and his wife to vote for him.
- (7) John expects Perot to run and that he'll vote for him.
- (8) \*John expects Perot to run and to vote for him.
- (9) John expects Perot to run and his wife to vote for him. (Munn 1993:69)

It will be shown that the paradigm in question has consequences for several phenomena; in particular it sheds light on the controversial issue of the proper analysis of PRO as well as the issue of whether the SpecvP where the subject is base-generated is higher or lower than the SpecvP which serves as the landing site of object shift.

Before getting into the issues in question, some preliminaries are in order

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<sup>1</sup> Munn (1993) actually does not take all these possibilities into consideration, which, as discussed below, interferes with his conclusions regarding what kind of mixed coordinations the examples in (1)–(8) instantiate. (There actually appears to be some speaker variation regarding some of the data noted by Munn 1993. I will put it aside here, focusing on the data pattern noted by Munn 1993.)

As discussed in Bošković (1997a), as a result of the ambiguity of *expect*, like *want*, *expect* allows PRO (cf. *I expected to leave*), lexical subjects with *for* (cf. *I expected for John to leave*), and VP ellipsis (cf. *They didn't expect John to win, but they expected Mary to*), which are not allowed with *believe*. However, unlike *want* and like *believe*, *expect* also allows passive raising (cf. *John is expected to know French*). Bresnan (1972) shows that *expect* is three ways ambiguous when it comes to what kind of an infinitive it can take: in its intentional reading, which describes the subject's desire, it belongs to *want*-class verbs. This reading is illustrated with *I expect for John to go there*. On the predictive reading, which describes beliefs, *expect* belongs to *believe*-class verbs. *There are expected to be soldiers in the town* illustrates this reading. Bošković (1997a) observes that ellipsis, which is not allowed with *believe*, is not allowed on this reading (cf. *\*John doesn't believe there are any soldiers in the town, but there are expected to*). On its compulsive reading, *expect* belongs to *persuade*-class verbs and takes an animate NP complement in addition to the infinitival complement (i.e. it involves object control). This reading is illustrated by *You are expected to remove the tables after the dinner*.

regarding certain underlying assumptions. The exact analysis of ECM and control constructions is somewhat controversial. Following arguments given in Bošković(1997a, 2002, 2007) I will assume here that English ECM constructions not only can but must involve overt object shift and that both control and ECM infinitives are IPs, as argued in Bošković (1997a).<sup>2</sup> It should, however, be noted that the assumptions are actually not crucial to the main conclusions reached below regarding the proper analysis of PRO and the issue of the relative height of the subject and object shift SpecvP. A note is also in order concerning the traditional Coordination-of-Likes requirement. Given that a coordination of finite and ECM/control clauses is in principle possible, as shown by (4) and (7), it cannot be the case that (2)–(3) are ruled out by the Coordination-of-Likes requirement; coordination of CP and IP clauses must be in principle possible in these cases.<sup>3</sup>

<sup>2</sup> Regarding the categorial status of control infinitives, Bošković's (1997a) main argument is that control infinitives occur in all contexts where declarative clauses without overt complementizer *that* are disallowed in English, as shown by (i–ii). Taking (ib–f) to be ruled out due to the licensing conditions on null C (the examples all become acceptable if the null C is replaced by the complementizer *that*), Bošković (1997a) concludes that the control infinitives in (ii) are not headed by a null C, i.e. they are IPs. (Notice that I will be using the traditional label IP for consistency with the earlier literature (i.e. for ease of exposition), rather than TP, as in e.g. Chomsky 2000, 2001. No deeper significance should be attached to this though.)

- (i) a. John believes [<sub>CP</sub>C [<sub>IP</sub>he is crazy]].
- b. \* [<sub>CP</sub>C [<sub>IP</sub>He would buy a car]] was believed at that time.
- c. \*John believed at that time [<sub>CP</sub>C [<sub>IP</sub>he was crazy]].
- d. \*What the doctors believe is [<sub>CP</sub>C [<sub>IP</sub>they will visit the hospital]].
- e. \*They suspected and we believed [<sub>CP</sub>C [<sub>IP</sub>Peter would visit the hospital]].
- f. \*Mary believed Peter finished school and Bill [<sub>CP</sub>C [<sub>IP</sub>Peter got a job]].
- (ii) a. I tried at that time [<sub>IP</sub>PRO to fail her].
- b. [<sub>IP</sub>PRO to buy a car] was desirable at that time.
- c. What the doctors tried was [<sub>IP</sub>PRO to visit the hospital].
- d. They demanded and we tried [<sub>IP</sub>PRO to visit the hospital].
- e. Mary tried to finish school and Peter [<sub>IP</sub>PRO to get a job].

<sup>3</sup> This means that we are dealing here with cases where the requirement in question

I will start the discussion with the cases involving coordination of finite CPs and control infinitives. I will then discuss coordination of control and ECM infinitives, which will be followed by a discussion of the coordination of control and ECM infinitives.

## 2. On PRO and Control Infinitives

Consider the contrast between (2) and (4), repeated in (10).

- (10) a. \*John expects that Perot will run and to vote for him.  
 b. Perot expects to run and that he'll win.

(10b) shows that a control infinitive can be in principle coordinated with a finite clause. However, the contrast between (10a) and (10b) shows that the control infinitive must be the first conjunct in such cases. The question is why that is the case.

What is of interest here is that under a particular analysis of PRO, the contrast in question parallels a contrast regarding extraction out of coordinate structures noted in Bošković (2018). Bošković (2018) shows that there is a well-defined class of exceptions to the traditional Coordinate Structure Constraint (CSC), which bans extraction out of conjuncts. In particular, Bošković (2018) shows that the CSC holds only for successive-cyclic movement out of conjuncts—elements that are base-generated at the conjunct edge or undergo otherwise obligatory feature-checking movement to the conjunct edge can extract out of a conjunct.

Examples in (11) and (12) illustrate the traditional CSC effect. In both is slightly relaxed. It may be worth noting here that the CP and the IP of the embedded clause in *John said that Mary left* are standardly assumed to have the same semantic type, which means that the categorial difference in question does not always reflect a semantic-type difference. At any rate, going into the issues raised by the Coordination-of-Likes requirement is beyond the scope of this paper; what is important for us is that the coordination of finite CPs and ECM/control infinitives is in principle possible, as shown by (4) and (7).

of these cases the moving element needs to undergo successive-cyclic movement through the conjunct edge.

- (11) \*Who<sub>i</sub> did you see [t<sub>i</sub> enemies of t<sub>i</sub>] and Mary?  
 (12) \*Who<sub>i</sub> do you think [t<sub>i</sub> that Mary likes t<sub>i</sub>] and [that Jane hates John]?

Bošković (2018) gives a number of counterexamples to the CSC: in all these cases the moving element is either base-generated at the conjunct edge or has to move there independently of successive-cyclic movement, for feature-checking reasons.

The former case can be illustrated with Serbo-Croatian (SC) possessor/left-branch extraction. Possessors in SC have been argued to be base-generated at the edge of the traditional NP (TNP) based on the fact that they undergo extraction and bind out of their TNP, as illustrated for the latter by (13) (see Bošković 2012, 2014, Despić 2011, 2013, among others).

The precise identity of the projection where the possessor is located is not important for our purposes. I use the neutral term traditional NP, which stands for whatever the highest projection in the nominal domain is here.<sup>4</sup>

- (13) [Kusturicinj                      najnoviji film]]                      ga i/\*<sub>i</sub>  
 Kusturica's<sub>NOM,MASC,SG</sub> latest      movie<sub>NOM,MASC,SG</sub> him  
 je zaista razočarao.  
 is really disappointed  
 'Kusturica's latest movie really disappointed him.' (Despić 2011, 2013)

SC normally disallows extraction out of conjuncts, as shown in (14), where the genitive complement of N is extracted. However, such extraction is allowed with possessors, which are base-generated at the TNP edge: they can undergo extraction in violation of the traditional CSC, as shown by (15).<sup>5</sup>

<sup>4</sup> The precise identity of the projection where the possessor is located is not important for our purposes. I use the neutral term traditional NP, which stands for whatever the highest projection in the nominal domain is here.

<sup>5</sup> CSC-violating left-branch extraction is quite generally possible in SC, see

- (14) \*Fizike<sub>i</sub> je on [studenta t<sub>i</sub>] i [Ivanovu sestru] vidio.  
 physics<sub>GEN</sub> is he student<sub>ACC</sub> and Ivan's<sub>ACC</sub> sister<sub>ACC</sub> seen  
 'He saw a student of physics and Ivan's sister.'
- (15) Markovog<sub>i</sub> je on [t<sub>i</sub> prijatelja] i [Ivanovu  
 Marko's<sub>ACC,MASC,SG</sub> is he friend<sub>ACC,MASC,SG</sub> and Ivan's<sub>ACC,FEM,SG</sub>  
 sestru] vidio.  
 sister<sub>ACC,FEM,SG</sub> seen  
 'He saw Marko's friend and Ivan's sister.'

Bošković (2018) also gives a number of cases where elements that must move to the edge of a conjunct independently of successive-cyclic movement are able to undergo extraction out of a conjunct. One such case concerns PPs and *r*-pronouns in Dutch. *R*-pronouns are exceptional in that they must precede the preposition, although Dutch adpositions are otherwise always prepositional.

- (16) a. daar op/van                    b. \*op daar/\*van daar  
       there on/of
- (17) a. op/van deze tafel            b. \*deze tafel op/van  
       on/of this table

This pattern is standardly analyzed as involving obligatory movement of the *r*-pronoun to SpecPP (or a higher position in the extended projection of the preposition). The fact that *daar* must move to SpecPP (cf.(16b) and stays in SpecPP (cf.(18)) provides evidence that movement of *da* to SpecPP is independent of successive-cyclicity.

- (18) a. [<sub>PP</sub>Daar op]<sub>i</sub> heb ik boeken t<sub>i</sub> gelegd.  
       there on have I books put  
       b. Ik heb boeken [<sub>PP</sub>daar op] gelegd.

Consider now coordinated PPs. (19a) involves a regular PP, with a P DP order, while (19b) involves a PP with an *r*-pronoun, which undergoes

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Bošković (2018) and the discussion below.

movement.

- (19) a. Ik heb boeken op deze tafel gelegd.  
I have books on this table put  
b. Ik heb daar boeken op gelegd.  
I have there books on put

Turning now to the coordination of the PPs from (19), *r*-pronoun movement is possible from a coordinated structure, as shown by (20).<sup>6</sup>

- (20) a. Ik heb daar<sub>i</sub> boeken [t<sub>i</sub> op t<sub>i</sub>] en [op deze tafel] gelegd.  
I have there books on and on this table put  
b. <sup>?</sup>Daar<sub>i</sub> heb ik boeken [t<sub>i</sub> op t<sub>i</sub>] en op deze tafel gelegd.  
there have I books on and on this table put

To give here another case of this sort, consider Japanese numeral constructions:

- (21) a. John-wa [hon-o san satsu] kata.  
John-TOP book-ACC 3 CL bought  
'John bought three books.'  
b. Hon-o John-wa san-satsu kata.

Following Watanabe (2006), Bošković (2018) assumes that *hon-o* moves to the edge of the bracketed TNP in (21a) (referring to it as *ClasP*). (21b) shows that the NP can move outside of *ClasP*. Importantly, the movement is also possible from coordinations, as shown by (22).

- (22) Ringo-o<sub>i</sub> Taro-wa [t<sub>i</sub> san ko] to [banana-o ni hon] tabeta.  
apple-ACC Taro-TOP 3 CL and banana-ACC 2 CL ate  
'Taro ate three apples and two bananas.'

Bošković (2018) gives a number of additional cases of this sort. What

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<sup>6</sup> Such cases require a particular prosody, see Bošković (2018) for relevant discussion.

is important for our purposes is that in all these cases, extraction is possible only out of the first conjunct: extraction from the second conjunct is always disallowed, as shown below for the relevant cases (compare (23) with (15), (20), and (22); only the relevant traces are shown below).

- (23) a. \*Ivanov<sub>i</sub> je on [Markovog prijatelja] i  
 Ivan's<sub>ACC,FEM,SG</sub> is he Marko's<sub>ACC,MASC,SG</sub> friend<sub>ACC,MASC,SG</sub> and  
 [t<sub>i</sub> sestru] vidio.  
 friend<sub>ACC,FEM,SG</sub> seen
- b. \*Ik heb daar<sub>i</sub> boeken op deze tafel en [t<sub>i</sub> op] gelegd.  
 I have there books on this table and on put
- c. \*Daar<sub>i</sub> heb ik boeken op deze tafel en [t<sub>i</sub> op] gelegd.
- d. \*banana-o<sub>i</sub> Taro-wa [ringo-o san ko] to [t<sub>i</sub> ni hon] tabeta  
 banana-acc Taro-TOP apple-acc 3 CL and 2 CL ate

Bošković (2018) observes that (23a-d) should not be analyzed in terms of a CSC violation; if the CSC were to ban possessor-extraction from conjuncts in SC, *r*-pronoun movement from conjuncts in Dutch, and the numeral floating movement from conjuncts in Japanese, it would also rule out (15), (20), and (22). Rather, appealing to the well-established fact that the first conjunct is structurally higher than the second conjunct (see Munn 1993), Bošković (2018) argues that (23) involves an intervention effect; in particular, the first conjunct causes an intervention effect, blocking movement from the second conjunct.

Returning now to control infinitives, several authors have argued that control infinitives involve movement. Hornstein (1999) proposes a movement account of control which actually eliminates PRO. Thus, he analyzes (24) as shown in (25), involving movement of *John* into the matrix clause theta-position.

- (24) John tried to leave.  
 (25) John<sub>i</sub> [<sub>v</sub>PT<sub>i</sub> tried [<sub>i</sub>PT<sub>i</sub> to [<sub>v</sub>PT<sub>i</sub> leave]]]

A different account of control is proposed in Martin (1996). Although



Martin's account is quite different from Hornstein's, it in fact assumes the traditional PRO, under Martin's account control infinitives also involve movement. Martin adopts the Case-theoretic account of the distribution of PRO, on which PRO moves to the Spec of the infinitive to receive null Case (see also Chomsky and Lasnik 1991, Bošković 1997a, Martin 2001). Importantly, under Martin's analysis PRO then undergoes cliticization into the higher clause (similarly to clitics in Romance), which Martin uses to account for the interpretation of PRO (he treats PRO on a par with reflexive clitics in this respect). A somewhat simplified structure from Martin (1996) is shown in (26).

(26) John PRO<sub>i</sub>+INFL tried [<sub>IP</sub><sub>t<sub>i</sub></sub> to [<sub>vP</sub><sub>t<sub>i</sub></sub> leave]]

At any rate, what is important for our purposes is that under both accounts control involves movement out of the infinitive (after the obligatory movement to the Spec of the infinitive).

Consider now (10) in light of the pattern regarding extraction out of coordinations noted by Bošković (2018), where extraction is possible from the first but not from the second conjunct, and the proposal that control involves movement. (10) shows that a finite clause and a control infinitive can be coordinated but only if the control infinitive is the first conjunct. Interestingly, this immediately follows from Bošković's approach to the CSC and the movement approach to control. Under the movement accounts of control, *Perot expects to run* involves movement of *Perot*/PRO from the infinitival clause. (10b) can then be treated on a par with the traditional CSC-violating movements discussed above. *Perot*/PRO moves to the edge of the infinitive to satisfy the traditional EPP (or to get null Case). As discussed above, such movement can feed movement out of coordinations, which is then what happens in (10b). A problem, however, arises in (10a): the first conjunct is an intervener for movement from the second conjunct.

Under the movement analyses of control, the contrast in (10) is then just another instantiation of the effect seen with a number of other cases above: CSC-violating movements are possible only from the first conjunct. In other words, under the movement accounts of control the paradigm in (10) can be reduced to a well-established pattern that is motivated independently of (10). The discussion in this section can then be interpreted as an argument for the movement approach to control.

### 3. Finite Clauses and ECM

I now turn to the contrast between (3) and (7), repeated below.

- (27) a. \*John expects that Perot will run and Bill to vote for him.  
 b. John expects Perot to run and that he'll vote for him.

Notice first that although, as discussed in Bresnan (1972), examples like *John expects Mary to win* are ambiguous between object control and ECM, the object control option should be blocked in mixed clausal coordination cases like (27), since such cases would then involve coordination of a clause (*that Perot will run*) and a VP ([<sub>VP</sub> *Bill* [<sub>V'</sub> *t<sub>verb</sub>* *to vote for him*]), which I assume is ruled out by the Coordination-of-Likes requirement.<sup>7</sup>

Assuming that the object control option is blocked here, (27) then appears to show that an ECM infinitive can be in principle coordinated with a finite CP, but only if the ECM infinitive is the first conjunct, compare here (27a) and (27b). Let us then see how this contrast can be

<sup>7</sup> Issues may also arise regarding V-movement, which would have to take place from the VP conjunct (see Bošković 2018 regarding V-movement and the CSC). There is another option, which would be to coordinate two VPs, as in (i). It seems plausible that the conjuncts in (i) are not sufficiently similar for their coordination to be allowed (note that Schachter 1977 argues that the Coordination-of-Likes requirement has both a syntactic and a semantic side, which both need to be satisfied).

(i) [<sub>VP</sub> [<sub>V'</sub> *t<sub>verb</sub>* *that Perot will run*] and [<sub>VP</sub> *Bill* [<sub>V'</sub> *t<sub>verb</sub>* *to vote for him*]]

accounted for. Given that ECM involves object shift, the infinitival subject must undergo object shift in both (27b) and (27a).<sup>8</sup> The movement clearly did not take place in (27a). As for (27b), we are dealing here with the configuration where the CSC can be violated, as discussed above, which means that Peter can undergo object shift into the matrix clause in (27b).

It should, however, be noted that there is another possibility here. As noted above, infinitives like *John expects Mary to win* are three ways ambiguous: they can involve object control, ECM, or *want*-style null C<sub>for</sub>-infinitives ECM (recall that *for*-infinitives are possible with *expect*, as shown by *John expects for Mary to leave*; see footnote 1). Under the last option, (27a) is ruled out because the null C must be adjacent to the verb (cf. *\*John wants very much (?\*for) Peter to leave*), which it is not in (27a). The problem does not arise in (27b), where the null C is adjacent to the verb. Under this option, then, (27b) can be treated without a CSC-violation.

However, the following example involving *believe*, which allows only the ECM option (cf. *\*John believes for Peter to know French*), shows that ECM&Finite CP coordinations are in principle possible, which can be accounted for as discussed above.

(28) Peter believes Mary to know French and that Jane will start learning it.

#### 4. Control and ECM

I finally turn to what Munn (1993) considers to be control&ECM coordinations. In this case, the coordination is not possible, regardless of the order of the conjuncts.

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<sup>8</sup> It should be noted that Bošković (2018) assumes optional overt object shift for English ECM, following Lasnik (1999). Bošković's (2018) discussion of ECM constructions can be, however, adjusted to the obligatory object shift analysis.

- (29) \*Perot expects to run and his wife to vote for him.  
 (30) \*John expects Perot to run and to vote for him.

Munn takes these examples to indicate that ECM&control coordination is disallowed. There are, however, other possibilities here, which do not involve ECM. Consider then these possibilities, starting with (29). Given the ambiguity of *expect* discussed above (see footnote 1), one possibility is that (29) involves coordination of a subject control phrase, where only the infinitive is coordinated, and an object control phrase, where the VP containing the controller is coordinated. This possibility can be easily ruled out, hence I will not consider it in any detail.

Another option is that the second conjunct involves a *want*-class infinitive with a null  $C_{for}$ . Since null  $C_{for}$  must be V-adjacent, this option can also be rather easily ruled out. Both of these options are also possibilities for the first conjunct of (30). The mixed control option is easy to block.<sup>9</sup> However, the  $C_{for}$  option is more viable here since the null C is V-adjacent. While no issue arises here regarding the licensing of the null C, this derivation is still ruled out because the first conjunct induces an intervention effect for the control movement from the second conjunct, which is a control infinitive.

It is also worth noting the counterparts of (30)–(31) with a *for*-infinitive:

- (31) a. Perot expects to run and for his wife to vote for him.  
 b. \*John expects for Perot to run and to vote for him.

The acceptability of (31a) is not surprising since the issue of the licensing of the null C in the second conjunct, noted with respect to (30), does not arise here. The unacceptability of (31) is also not surprising since the first conjunct intervenes for the control movement from the second conjunct.

<sup>9</sup> The relevant reading here is the one where *John* is interpreted as the subject of the control infinitive.

I now turn to the ECM option. At first sight, there does not seem to be anything surprising here even on the ECM option. The problem with (29) is that the subject of the ECM infinitive did not undergo object shift, and the problem with (30) is that the control infinitive movement crosses the first conjunct, resulting in an intervention effect (as discussed above regarding (10a)).

The situation is, however, a bit more complicated regarding (30). It is well-known that traces do not function as interveners: turning an intervener into a trace voids the intervention effect (see e.g. Chomsky 1995, Bošković 2011). This is illustrated by the Italian examples in (32). Movement across an experiencer is not allowed in Italian, which is standardly analyzed as an intervention effect: (32a) involves A-movement across an A-specifier. The intervention effect is voided if the intervener is turned into a trace, as in (32b).

- (32) a. \*Gianni<sub>i</sub> sembra a Maria [t<sub>i</sub> essere stanco]  
 Gianni seems to Maria to-be ill  
 ‘Gianni seems to Maria to be ill.’  
 b. A Maria<sub>i</sub>, Gianni<sub>i</sub> sembra t<sub>i</sub> [t<sub>i</sub> essere stanco]  
 to Maria Gianni seems to-be ill  
 ‘To Maria, Gianni seems to be ill.’

In this respect, observe also the following SC example noted by Stjepanović (2017).

- (33) Koja serija<sub>i</sub> se i čiji<sub>i</sub> tebi [ConjP t<sub>i</sub> [t<sub>i</sub> film] dopadaju?  
 which series self and whose you.dat movie please  
 ‘Which series and whose movie are pleasing to you?’

Recall that left-branch extraction from the second conjunct in SC is not possible, as shown by (23a). (33) shows that such extraction is possible when the first conjunct is turned into a trace. The existence of a typical intervention voiding effect in fact provides evidence that (23a) is ruled out

due to an intervention effect. (Notice that, as discussed by Stjepanović 2014, SC conjunction *i* is a proclitic—it procliticizes to the following element and is then carried along under the movement of that element).

Importantly, Bošković (2018) shows that not only traces, but also elements that have a trace at their edge do not function as interveners. Consider the following examples.

- (34) Crvena<sub>i</sub> se meni [t<sub>i</sub> suknja] i [bijeli kaput] dopadaju.  
 red self me<sub>DAT</sub> dress and white coat pleasing  
 'I like a red dress and a white coat.'
- (35) \*(I) bijeli se meni [crvena suknja] i [t<sub>i</sub> kaput] dopadaju.  
 and white self me<sub>DAT</sub> red dress and coat pleasing
- (36) Crvena<sub>i</sub> i bijeli<sub>j</sub> su se meni [t<sub>i</sub> suknja] i [t<sub>j</sub> kaput] dopali.  
 red and white are self me<sub>DAT</sub> dress and coat pleased  
 'A red dress and a white coat pleased me.'

(34)–(35) illustrate an effect we have already seen. Left-branch extraction (this time AP left branch extraction<sup>10</sup> is possible out of the first conjunct but it is not possible from the second conjunct, due to the intervention effect of the first conjunct. Above we have seen that the intervention effect can be voided if the first conjunct is turned into a trace (cf. (33)). In (36), only the edge of the first conjunct is turned into a trace. Still, (36) displays the intervention-voiding trace effect. (36) then shows that not only traces, but also elements that have a trace at their edge do not function as interveners.<sup>11</sup>

<sup>10</sup> See Bošković (2012, 2013b) for evidence that the AP is base-generated at the edge of the TNP; SC-agreeing possessors like the one in (13) and (15) are in fact adjectives in SC.

<sup>11</sup> See Bošković (2018) regarding what happens with the coordinator here. As noted above, the coordinator cliticizes to the following element, and is carried along under the movement of that element. As a result of extraction of that element, the remnants of the extraction would participate in a coordination but there would be no overt coordinator there, since the coordinator would be carried along under the movement of the AP in the second conjunct. We may then be dealing here with

To clarify, in contrast to (33), where the whole first conjunct moves, in (36) only the edge of this conjunct moves. In other words, in (33), the intervener is a trace, while in (36) only the edge of the intervener is a trace (see Bošković 2012, 2013b for arguments that the adjective is located at the edge of the TNP in SC, which is actually what enables its extraction). (37) gives the relevant structure.

(37) white<sub>i</sub> [TNP t<sub>i</sub> dress] t<sub>j</sub>

It is then not just traces that do not count as interveners, but also elements that have a trace at their edge: turning the edge of an intervener into a trace also voids intervention effects.<sup>12</sup>

Another relevant case is provided by Japanese numeral constructions. As discussed above (see (22) and (23d)), extraction is possible out of the first but not the second conjunct of coordinated ClasPs in Japanese. Importantly, extraction out of the second conjunct is possible if it also takes place out of the first conjunct. In (38b), provided by Hiroaki Tada, non-clitic conjunction *sosite* can optionally occur between the fronted NPs (with each NP bearing accusative, as in (38a)).<sup>13</sup>

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pronunciation of a lower copy of the coordinator, which is needed to indicate coordination (see, however, Bošković 2018 for a more detailed discussion, which also explores the possibility that we are dealing here with a coordination created after movement; see in this respect Zhang 2010).

<sup>12</sup> Bošković (2018) actually shows that the effect is deducible from the labeling theory (Chomsky 2013). Bošković shows that in the relevant cases the trace at the edge of the intervener has a labeling effect—it turns the intervener into an unlabeled element. The actual generalization here is then that unlabeled elements do not function as interveners, which Bošković (2018) shows follows from the very nature of intervention effects, which requires the nature of the intervener to be specified—this in turn means that the intervener must be labeled.

<sup>13</sup> Also relevant is (i), which involves the obligatory enclitic coordinator *to*.

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

- (38) a. John-ga [VP [PP yaoya-kara] [mikan-o 3-ko]-to  
 John-NOM vegetable store-from orange-ACC 3-CL-and  
 banana-o 5-hon] kata.  
 banana-ACC5-CL bought  
 'John bought 3 oranges and 5 bananas from a vegetable store.'
- b. John-ga mikan-o<sub>i</sub>(sosite) banana-o<sub>j</sub> yaoya-kara  
 John-NOM orange-ACCand banana-ACC vegetable store-from  
 (sorezore) [t<sub>i</sub> 3-ko]-to [t<sub>j</sub> 5-hon] kata.  
 respectively 3-CL-and 5-CL bought

These examples also show that traces at the edge of an intervener void the intervention effect.<sup>14</sup>

The generalization that not only traces, but also elements that have a trace at their edge do not count as intervenors has ramifications for (30), repeated below.

- (39) \*John expects Perot to run and to vote for him.

It was noted above that under the movement analyses of control, (39) can be ruled out due to an intervention effect, with the first conjunct intervening for the control movement from the second conjunct. The situation is now more complicated. Given that the first conjunct is an ECM infinitive and that ECM involves overt object shift, the subject of the

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(i) is in fact a regular coordinated structure, where the case-marker occurs outside of the coordinated NPs, and may represent a case of coordination created after movement, see in this respect footnote 11 and Bošković (in preparation).

<sup>14</sup> These examples also show that when extraction takes place out of each conjunct in a coordination, it actually does not have to be the same element that is extracted: in SC examples like (36) and Japanese examples like (38) there is extraction out of each conjunct, but different elements are extracted out of the conjuncts. I refer the reader to Bošković (2018) for a detailed discussion of such cases (Bošković refers to them as non-ATB ATB), which are allowed in the phasal/labeling account of the CSC proposed in Bošković (2018). The account in principle allows different elements to move out of each conjunct, as long as this does not induce a higher conjunct intervention effect.



first infinitive undergoes movement into the matrix close (recall that such CSC-violating movement is possible). The first conjunct then has a trace at its edge, hence it should not count as an intervener for movement from the second conjunct.<sup>15</sup>

Consider then how (39) can be ruled out in light of this issue under Hornstein's (1999) movement analysis of control. Notice first that assuming that object shift involves movement to SpecvP and that the external theta-role is also assigned in SpecvP, in constructions involving overt object shift vP has multiple Specs. The issue that will then arise here concerns the order in which these Specs are created.<sup>16</sup> In order for the first conjunct not to intervene for the control movement of *John* from the second conjunct, the object shift movement from the first conjunct must take place before the movement of *John*, so that the latter crosses an element with a trace at its edge, which does not count as an intervener. *Perot* will then move to the matrix SpecvP before *John*. Assuming that movement to multiple Specs of the same head proceeds in a tucking in fashion, as argued in Richards (2001), *John* will then tuck in under the Spec created by the movement of *Perot*.

Now, Bošković (2013a, 2016) shows that in a configuration where a phase has multiple edges, only the highest edge is accessible from the outside. As an illustration, possessors and adjectives, which, as discussed above, are located at the edge of the TNP in SC, which means that we are dealing here with multiple edges of the same phase, can occur in either order in SC. As shown in (40), extraction from the AP is possible only when the AP is the outmost edge. The effect is confirmed by (41)–(42), which show that intensifier extraction, which is allowed in SC (see Talić 2017), is possible only from the outmost AP. Bošković (2013a, 2016)

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<sup>15</sup> It should be noted that this is the case under the ECM option. The issue does not arise under the want-style null Cfor-infinitive option.

<sup>16</sup> In the discussion below, I will take on the role of a devil's advocate, starting with assumptions that are intended to rule in (39).

shows that we are dealing here with an effect that is quite general: only the highest edge is accessible from the outside in multiple phase edge configurations (for relevant discussion, see also Rackowski and Richards 2005, Wurmbrand 2013, Zanon 2015, Park 2018, Yoo 2018).

- (40) a. \*Na tebe<sub>i</sub> sam vidio [TNP Jovanovog [TNP [ponosnog t<sub>i</sub>] [TNPOca]]]  
 of you am seen Jovan's proud father  
 'I saw Jovan's father who is proud of you.'
- b. ?Na tebe<sub>i</sub> sam vidio [TNP [ponosnog t<sub>i</sub>] [TNP Jovanovog [TNPOca]]]  
 of you am seen proud John's father
- (41) \*Izuzetno<sub>i</sub> su kupili [TNP [AP skup][TNP[AP t<sub>i</sub> brz][TNP automobil]]]  
 extremely are bought expensive fast car
- (42) ??Izuzetno<sub>i</sub> su kupili [TNP [AP t<sub>i</sub> skup] [TNP[AP brz] [TNP automobil]]]  
 extremely are bought expensive fast car

Returning now to the derivation of (39), recall that Perot first undergoes object shift to the matrix SpecvP, which is followed by the movement of John, which tucks in the lower SpecvP under Hornstein's analysis of control. This needs to be followed by movement of John to SpecIP. However, this step is impossible due to the outmost edge effect: we are dealing here with a multiple phase edge configuration, where only the outmost edge is accessible for movement outside of the phase. Not being the outmost edge, John cannot undergo movement to SpecIP, which is required under Hornstein's analysis of control. (39) can then still be accounted for even under the trace-at-the-edge voiding of intervention effects.

The account, however, has consequences for a broader issue, namely, whether the SpecvP where the subject is assigned the external theta-role is higher or lower than the SpecvP that serves as the landing site of object shift.<sup>17</sup> Given the above discussion, the subject SpecvP must be higher than object shift SpecvP, otherwise the subject could not undergo movement to SpecIP.<sup>18</sup>

<sup>17</sup> The issue was discussed in Bošković (2016), but the discussion there could not provide a conclusive answer to the issue.

In fact, the issue in question arises in English ECM constructions, given that they involve obligatory object shift, as discussed above. The example in (43) must then have the structure indicated below (only the relevant structure is shown below).<sup>19</sup>

(43) John<sub>i</sub> believes [<sub>VP</sub> t<sub>i</sub> [<sub>VP</sub> Mary<sub>j</sub> [<sub>IP</sub> t<sub>j</sub> to know French]]]

In principle, any order of the SpecvPs in question is actually possible. However, only the configuration where the subject SpecvP is base-generated above the object shift SpecvP will allow the subject to move to SpecIP. We have seen above that in (39), where under Hornstein's analysis of control *John* is not base-generated in the matrix SpecvP but moves there from the control infinitive, this derivation is blocked for independent reasons (namely, due to the interplay of trace-voiding of intervention effects and tucking in).

At any rate, the above discussion indicates that the coordination in (29)–(30) is ruled out regardless of which of the infinitival options that are allowed under expect is taken here.

Before concluding the paper, a brief remark is in order regarding constructions like (9), repeated in (44).

(44) John expects Perot to run and his wife to vote for him. (Munn 1993:69)

As noted above, expect-infinitives are three ways ambiguous. One of the options is object control. While, as discussed above, the object control option is ruled out in examples like (27) under the plausible assumption that it is not possible to coordinate a VP and a CP (see also footnote 7),

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<sup>18</sup> This is reminiscent of Koizumi's (1995) analysis which adopted SpecAgroP as the landing site of object shift, but placed AgroP below the VP where the subject is base-generated.

<sup>19</sup> The overt object shift analysis assumes short V-movement in English, see Johnson (1991), Lasnik (1999), Bošković (1997a,b), among many others.

the VP coordination option seems to be a viable option in (44), which can then be analyzed as involving VP&VP coordination.<sup>20</sup>

However, as discussed in Bošković (1997a,b), such coordinations are also possible with unambiguous ECM infinitives like (45), which means that ECM&ECM coordinations are in principle possible.

(45) John believes Mary to be smart and Peter to be crazy.

Such constructions were discussed in Bošković (1997a,b), where their grammaticality was in fact used as an argument for overt object shift with English ECM (more precisely, it is argued in Bošković 1997a,b that such constructions cannot be accounted for without overt object shift). As discussed in Bošković (1997a,b), under the overt object shift analysis, such examples must involve coordination of two matrix vPs (Bošković 1997a,b states this in terms of coordination of matrix AgroPs, working under the assumption that object shift involves movement to SpecAgroP). Both *Mary* and *John* then undergo object shift into the matrix clause in (45), with the subject and the verb undergoing across-the-board movement (see footnote 19 regarding V-movement), which is in fact the analysis that was proposed in Bošković (1997a,b).

(46) John<sub>i</sub> believes<sub>k</sub> [<sub>ConjP</sub> [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> Mary<sub>j</sub> t<sub>k</sub> [<sub>IP</sub> t<sub>j</sub> to be smart]]] and [<sub>vP</sub> t<sub>i</sub> [<sub>vP</sub> Peter<sub>l</sub> t<sub>k</sub> [<sub>IP</sub> t<sub>l</sub> to know French]]]

An issue, however, does arise here. It must be the case that an object-shifting vP cannot be coordinated with a non-object shifting vP (it is in fact possible that we are dealing here with distinct vs), otherwise even

<sup>20</sup> Whether or not the null C<sub>for</sub> option is allowed here depends on whether the null C<sub>for</sub> can take a coordinated IP complement (this option is somewhat degraded with *for*, compare *John expects for Perot to run and for Mary to vote for Gore* with <sup>?(?)</sup>*John expects for Perot to run and Mary to vote for Gore*): if it can this option is also viable in (44). Coordination of null C<sub>for</sub> CPs is not an option since the second conjunct null C<sub>for</sub> would not be V-adjacent.

constructions like (27a) could be analyzed as involving coordination of two matrix vPs, with object shift taking place only in the second conjunct vP, which involves ECM, not in the first conjunct vP, where the object is a finite clause, as in \**John expects* [<sub>ConjP</sub> [<sub>VP</sub> [<sub>VP</sub> [<sub>CP</sub> *that Perot will run*]]] and [<sub>VP</sub> *Bill<sub>i</sub>* [<sub>VP</sub> [<sub>IP</sub> *t<sub>i</sub> to be voting for him*]]]] (only the relevant structure is indicated). I will assume that this is indeed the case.

Finally, a note is in order regarding traditional ATB constructions like (47).

(47) Perot expects to run and to win easily.

A question arises whether the first conjunct would intervene for the movement out of the second conjunct here. The issue is in fact discussed in Bošković (2018), as a general issue that arises with traditional ATB constructions. As discussed there, the intervention issue actually does not arise under Nunes's (2004) sideward movement analysis of ATB: regarding (47), under Hornstein's analysis of control this means that *Perot* is merged into the theta position in the second conjunct, it then undergoes movement to the edge of this conjunct (for reasons discussed in Bošković 2018), after which it is merged into the theta position of the first conjunct, undergoing movement only from the first conjunct. The intervention issue then does not arise with ATB dependencies under Nunes's (2004) analysis of ATB.<sup>21</sup>

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<sup>21</sup> There actually would be no intervention effect in (47) even if we do not adopt Nunes's analysis and assume that *Perot* moves out of both conjuncts here. *Perot* could move out of the second conjunct, crossing the first conjunct, without an intervention effect since the first conjunct would have a trace at its edge (a trace of *Perot*, which would also move from the first conjunct). Either way, (47) does not raise an intervention issue.

## 5. Conclusion

In conclusion, the paper has examined the possibility of mixed clausal coordination, where different types of clauses are coordinated (focusing on finite CPs, control infinitives, and ECM infinitives). While the discussion in the paper has provided evidence for several issues, two in particular should be noted. We have seen that the allowed/disallowed patterns of mixed clausal coordination provide a suggestive argument for the movement approach to control infinitives. They also provide evidence that the subject SpecvP is higher than the object shift SpecvP.

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Received: November 15, 2018

Revised version: December 12, 2018

Accepted: December 12, 2018

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