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On the Impossibility of Moving IPs and V-2 Clauses and Labeling

1. Introduction

There are a number of cases where certain phrases have been noted to be unable to move for no apparent reason. One such case involves IPs not dominated by CPs. Another one concerns V-2 clauses in German. The goal of this paper is to provide a unified account of a number of such cases, including these two. In particular, it will be argued there is a larger generalization underlying all these cases which can be deduced within the labeling system (Chomsky 2013).

The point of departure in the discussion will be the ban on moving IPs, including IPs not dominated by CP (Abels 2003). It will be shown that Bošković's (2016a) labeling account of the traditional ban on movement from moved elements provides a new perspective on the ban on moving IPs. The account, however, has broad consequences, generalizing the ban on moving IPs to a number of cases involving phrases other than IPs. In particular, the ban on moving IPs will be seen as an instance of a broader ban on moving phrases with feature-sharing Specs, hence will be unified with several cases that involve phrases other than IPs, including the ban on moving V-2 clauses in German (Reis 1997, Wurmbrand 2014). The ban on moving phrases with feature-sharing Specs will be shown to follow from independent assumptions regarding phases/labeling. Although the account relies on several mechanisms from Bošković's (2016a) account of the ban on movement out of moved elements, and in fact in a sense unifies the ban on the movement of IPs and more generally, phrases with feature-sharing Specs with the ban on movement out of moved elements, it relies on different assumptions regarding the timing of labeling from those adopted in Bošković (2016a); as a result, it requires re-examination of several constructions discussed in Bošković (2016a).

The paper is organized as follows. Section 2 discusses the ban on moving IPs. Since the account of the ban will be stated within Bošković's (2016a) approach to the ban on movement from moved elements, in section 3 I discuss the ban in question. Section 4 discusses timing of labeling, departing from Bošković (2016a) here. Section 5 returns to the impossibility of moving IPs, providing an account of the ban, which is extended to movement of other phrases (like German V-2 CPs) in section 6. Section 7 discusses more general consequences of the

account for the structure and movement of other phrases. Section 8 concludes the paper.

2. The ban on moving IPs

A straightforward illustration of the impossibility of moving IPs is provided by (1).

(1)   *[$_{IP}$ His$_i$ brother likes Mary]$_j$ everyone$_i$ believes [$_{CP}$ that t$_j$]

Abels (2003) provides an account of (1) in terms of his generalization that complements of phase heads cannot move, which follows from the PIC, which requires movement from phase XP to pass through the edge of XP, and antilocality, the ban on movement that is too short (I will adopt Bošković's 2013a approach to antilocality, which requires movement to cross a phrase). CP being a phase, the PIC forces IP to move to SpecCP, which violates antilocality.

There are also other ways of ruling out (1). As Bošković (2013b) notes, we may have here a *that*-trace effect. If local subject movement across *that* leads to a locality violation, it does not seem implausible that even more local movement of IP across *that* also leads to a violation. Further, as discussed in section 3, a number of authors have argued that only phases can move. The embedded CP in (1) is a phase, but the embedded IP is not – it is a complement of a phase head. If only phases can move, the embedded IP in (1) then cannot move.

There is then no shortage of ways to rule out the illicit movement of the IP in (1). What is important here is that the IP in (1) is dominated by a CP. However, Abels (2003) shows that even IPs not dominated by CPs are immobile (see also Bošković 2013b). Consider (2).

(2) *[$_{IP}$ morgen   zu reparieren] hat ihn der Hans beschlossen
        tomorrow to repair   has it   the Hans decided
   'Hans decided to repair it tomorrow.' (Abels 2003: 151)

(3) weil   ihn der Hans [$_{IP}$ morgen   zu reparieren] beschlossen hat
    because it   the Hans   tomorrow to repair   decided   has

Following Wurmbrand (2001), Abels shows the infinitive in (2) is an IP. Briefly, the adverb indicates the presence of IP and pronominalization ensures the lack of CP since it is not allowed from CP infinitives. (3) then indicates that even IPs not dominated by a CP cannot move (for more evidence, see Bošković

2013b).[1] The mechanisms discussed regarding (1) are irrelevant to (2). The *that*-trace effect and Abels's generalization are obviously irrelevant since the moved IP is not dominated by CP. As for the assumption that only phases can move, Bošković (2014, 2015) and Wurmbrand (2013) argue that the highest clausal projection is a phase, providing a number of arguments to that effect. When the highest clausal projection is a CP, the CP is a phase; when it is an IP, then IP is a phase. In this approach, which will be adopted below, the assumption that only phases can move cannot help in accounting for (2) since the moved IP is a phase, in contrast to the IP in (1). Why is then (2) ill-formed? In section 4 I will show that a modified version of Bošković's (2106a) account of the ban on movement from moved elements can account for such cases, making them part of a more general effect not limited to IPs. Thus, I will show the account provides an explanation for the immobility of V-2 clauses in German (4), as well as a number of other cases. (The V-2 clause is moved to SpecIP in (4a) and the sentence initial position in (4b); in (4c), it stays in situ.)

(4) a. *weil [$_{CP}$ den   Peter mag niemand] allgemein bekannt ist.
        since   the$_{ACC}$ Peter likes nobody$_{NOM}$ commonly known   is
        'since nobody likes Peter is commonly known'   (Wurmbrand 2014: 155)
    b. *[Er$_i$ sei   unheimlich beliebt] möchte   jeder$_i$ gern   glauben
        he   is$_{SUBJ}$ immensely popular would.like everyone like to believe
        'Everyone would like to believe he is immensely popular.'

        (Wurmbrand 2014: 155)
    c. Sie sagte den   Peter mag niemand   t$_{ob}$ t$_V$
        she said   the$_{ACC}$ Peter likes nobody$_{NOM}$ (Wurmbrand 2014: 153)

I will, however, first make a digression to discuss the ban on extraction from moved elements.

3. On the ban on movement out of moved elements

Numerous works have argued that (5) holds (see the references in Bošković 2016a).

(5) Movement is not possible out of moved elements

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1   Abels (2003) gives an account of the case where IP moves to SpecCP. However, it doesn't extend to movement to other positions (Bošković 2013b) or the cases from section 6. (Bošković 2013b gives cases that he *analyzes* as involving very short IP-movement; however, they seem analyzable in terms of base-generation or PF movement).

The Subject Condition provides one illustration of (5) since under the VP Internal Subject Hypothesis extraction out of a subject in SpecIP involves extraction out of a moved element.[2]

(6)   ?*I wonder [$_{CP}$ who$_i$ [$_{DP}$ friends of t$_i$]$_j$ [$_{vP}$ t$_j$ hired Mary]]

Turning to objects, Lasnik (2001) argues that the object in pseudogapping undergoes object shift, which is followed by VP ellipsis. Crucially, such objects cannot be extracted from, as (7) shows. Particle constructions where the object precedes the particle also involve object shift (see Lasnik 2001, Johnson 1991). Again, (8a) is degraded.

(7)   ?*Who will Bill select a painting of, and who$_j$ will Susan [a photograph of t$_j$]$_i$ [$_{VP}$ ~~select t$_i$~~]

(8)   a.   ?*Who$_j$ did you call [friends of t$_j$]$_i$ up t$_i$?
       b.   cf. Who$_i$ did you call up friends of t$_i$

Torrego (1998) shows Spanish *a*-marked objects must move. They also disallow extraction.

(9)   ?*[De quién]$_j$ has   visitado   [$_{DP}$ a   muchos   amigos t$_j$]$_i$ [$_{VP}$ .. t$_i$]
       of whom   have.2sg   visited   many   friends
       'Who have you visited many friends of?'   (Gallego and Uriagereka 2007)

(5) also holds for elements undergoing A'-movement (10) and traditional rightward movement (11). P-stranding is also not possible out of moved PPs, as in (12).

(10)   ?*Vowel harmony$_i$, I think that [articles about t$_i$]$_j$ you should read t$_j$

(11)   ?*What$_i$ did you give t$_j$ to John [a movie about t$_i$]$_j$?

(12)   *Which table$_i$ did you think that [on t$_i$]$_j$ John put the book t$_j$?

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2   Extraction is allowed from subjects in SpecvP, as in Spanish (i) (it's disallowed if the subject moves to SpecIP).

   (i)   ¿De qué conferenciantes$_i$ parece que me$_z$ van   a   impresionar$_v$ [$_{vP}$[$_{DP}$ las
          of   what speakers   cl-2sg   seems that cl-1sg   go-3pl to   to-impress   the
          propuestas t$_i$][t$_z$ t$_v$]
          proposals
          'Which speakers does it seem to you that the proposals by will impress me?
                                                                              (Uriagereka 1988)

(5) thus has strong motivation.[3] Bošković (2016a) deduces (5) from the phase/labeling system. The former concerns phasehood criteria, namely (13) (see Chomsky 2000, 2001, Rackowski and Richards 2005, Cheng 2012, Matushansky 2005, Harwood 2013, Bošković 2015).

(13)   Only phases can undergo movement.

Chomsky (2013) proposes a system that allows unlabeled objects during the derivation, but not final representations. There, when a head and a phrase merge, the head labels the resulting object. When two phrases merge, there are two ways to label: through prominent feature sharing or traces, traces being ignored for labeling. (14) illustrates the former with the merger of *which book* and wh-C (CP at the relevant point). Both the wh-phrase and the CP have the Q-feature–what is projected (i.e. determines the label of the resulting object) is the Q-feature.

(14)   I wonder $[_{CP}$ which book$_i$ $[_{C'}$ C [John bought t$_i$]]]

Turning to (15), Chomsky assumes successive cyclic movement does not involve feature sharing, which follows Bošković (1997a, 2002, 2007, 2008). There is then no feature sharing between *that* and the wh-phrase passing through its edge. Since labeling via feature sharing is not an option the embedded clause cannot be labeled when *what* moves there (15b). Since traces are ignored for labeling, ? is labeled as CP only after *what* moves to the matrix clause.

(15)   a.   What$_i$ do you think $[_{CP}$ t'$_i$ $[_{C'}$ that [he bought t$_i$]]]
        b. $[_?$ what $[_{CP}$ that [John bought t$_i$]]]

Bošković (2016a) shows this treatment of successive-cyclic movement and (13) deduce (5). Consider (16a), where YP moves from moved XP. Before these movements, we have (16b).

(16)   a.   YP$_i$ $[_{XP}$ ... t$_i$ ...]$_j$ ... t$_j$
        b. $[_{XP}$ ... YP ...]

Recall only phases can move: for XP to move it must be a phase. Given the PIC, for YP to move out of XP, YP must move to the edge of XP, which must precede the movement of XP itself given the cycle. As is always the case with successive cyclic movement, the merger of YP and XP yields an unlabeled object. Now, for

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3   There have been claims that (5) doesn't hold; for relevant discussion, see Bošković (2016a). Note, however, that under Bošković's (2016a) account movement is not always expected to be disallowed from moved elements.

Chomsky, phases are CPs, vPs, and DPs (see Bošković 2013a, 2014 on APs and PPs). However, the result of the merger of YP and XP is none of these; it in fact does not have a label at all, hence it does not count as a phase (in other words, phases require label-determination, hence unlabeled objects cannot be phases).

To illustrate with the Subject Condition, consider (17a), with the structure in (17b).

(17)   a.   *I wonder who$_i$ [friends of t$_i$] left Mary
       b.   [$_{IP}$ I… [$_{vP}$ [$_?$ who [$_{DP}$ subject]]]]

Subjects being phases, what moves out of it must move to its edge. Given the cycle, this happens before the subject moves from vP. Merger of *who* and DP yields an unlabeled object, which, not having a label, is not a phase. The phrase marked with ? in (17) then cannot move.

Note the account allows remnant movement, where YP moves from XP <u>before</u> XP moves. Consider vP fronting (18a). The result of the merger of the subject and vP cannot be labeled (Chomsky 2013), as in (18b). The subject moves to SpecIP; its trace being ignored for labeling, the relevant element is labeled as vP (18b). Since vP is a phase it can move (18a).

(18)   a.   [$_{vP}$ t$_i$ kiss Mary]$_j$[$_{TP}$ she$_i$ did t$_j$]
       b.   [$_?$ She [$_{vP}$ kiss Mary]]
       c.   [$_{IP}$ She$_i$ [$_{vP}$ t$_i$ kiss Mary]]

The above provides a new perspective on (5), where the problem with movement of YP out of moved XP does not arise when YP moves out of XP; it arises already with movement of XP, i.e. XP itself cannot undergo movement here. Movement of XP then does not freeze the internal structure of XP; rather, movement of YP to the edge of XP prevents movement of XP.

All the cases from section 3 involve successive-cyclic movement via the edge of XP, hence they also involve movement of the Spec itself (it's the very nature of successive-cyclic movement that YP undergoing it cannot stay in an intermediate Spec for independent reasons), which means they also involve movement from a moved element. This has led to the 'illusion' that this later movement is responsible for the ungrammaticality of the relevant constructions.

4. On the timing of labeling

In the above cases where XP with YP at its edge couldn't move YP undergoes successive-cyclic movement through the edge of XP, which means it does not undergo feature-sharing at the XP edge. What would happen if YP does undergo

feature-sharing? With successive-cyclic movement labeling of the YP-ZP merger was not possible (due to the lack of feature-sharing); YP had to move away. However, with feature-sharing merger labeling is in principle possible at the merger itself. The issue is then whether there are other factors that would delay labeling beyond the creation of the relevant structure with feature-sharing merger. The resolution of the issue affects the answer to the question we are interested in: whether an element that moves to the edge of XP, or is base-generated at its edge, and undergoes feature-sharing at the edge of XP would freeze XP for movement. If feature-sharing labeling must be delayed, this would be the case. However, XP would not be frozen for movement if feature-sharing configurations can result in immediate labeling. The issue is then when labeling via feature sharing occurs.

Several proposals have been made regarding this issue. In Chomsky (2013), all labeling, including feature-sharing labeling, occurs when the structure is sent to the interfaces. This approach has several problems, noted in Bošković (2015, 2016b). Thus, to determine that a phasal level has been reached (which in turn determines the points of spell-out, i.e. when the structure is sent to the interfaces), some labeling is necessary. E.g., we cannot determine whether a phasal level has been reached with $[_? \text{ X Y}]$ before the labeling of this object. But if labeling is done only when a phasal level is reached, we have an obvious chicken-or-the-egg problem here. Another problem arises when both elements, e.g. both the complement and the head of a phrase, move, given that traces are ignored for labeling (see also Shlonsky 2014).

Bošković (2016b) proposes an approach to the timing of labeling that resolves these problems. In Chomsky (2013), labeling with a head-phrase merger is done rather differently from a phrase-phrase merger: with the former, labeling occurs via minimal search (MS), the same operation as Agree Closest, a syntactic mechanism falling under minimal computation. MS does not determine the label when two phrases merge. Given the difference, Bošković (2016b) argues for a timing difference in labeling, referring to it as TOL. Since the labeling of the head-complement merger is done through essentially a syntactic mechanism, it occurs when the relevant configuration is created. On the other hand, labeling with the merger of two phrases occurs when the structure is sent to the interfaces, given Chomsky's assumption that unlabeled objects are uninterpretable. Under this approach, labeling in the case of a head-complement merger in fact occurs for a strictly syntactic reason, namely, subcategorization, the underlying assumption being that satisfying subcategorization requires that the element with the requirement to take a complement projects, otherwise, there would be no head-complement relation here. This concern does not arise with feature-sharing Spec labeling.

TOL resolves the problems with Chomsky (2013) noted above. No problem arises when both the complement and the head of a phrase move although traces are ignored for labeling since the result of head-complement merger is labeled immediately: the head determines the label before it moves. The spell-out issue is also resolved. Recall phases determine spell-out points (when the structure is sent to the interfaces). If labeling occurs for interpretive reasons it should occur at this point. A chicken-or-the-egg style problem then arises. Phasehood determination requires labeling: to know whether something is a phase we need to know its label (Bošković's 2016a account of (5) in fact confirms unlabeled objects cannot be phases). Since phases determine spell-out points, without any labeling structure cannot be sent to the interfaces, which in turn is needed for labeling to occur under a purely interpretative approach to labeling. The issue doesn't arise if head-complement merger is labeled immediately since this is all we need to determine spell-out points. Moreover, Bošković (2016b) gives an account of a number of locality effects that is crucially based on TOL, in particular, the Subject Condition, the Adjunct Condition, Richards's (2001) tucking, the full range of Comp-trace effects (in declarative, relative, and extraposed clauses), and the effect wh-movement has on agreement in languages like Kinande. I will then adopt here this approach to the timing of labeling.

What is important for our purposes is that under TOL, labeling with feature-sharing Specs is delayed – it does not take place immediately but only when the structure is sent to the interfaces. As a result, labeling at the phasal edge is quite generally delayed beyond the creation of the relevant structure. In the next section I will explore the consequences of adopting this approach to the timing of labeling, where with feature-sharing Specs labeling takes place when the structure is sent to spell-out, for the issues this paper is concerned with.[4]

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4   This differs from Bošković (2016a), who assumes all labeling may occur as soon as possible. I return to this below. A word of caution is in order. As Bošković (2016a) notes, Bošković's (2016a) treatment of the timing of feature-sharing labeling is in fact consistent with Chomsky (2013) as well as Bošković (2016b) if we interpret labeling taking place when the structure is sent to the interface as labeling taking place at the phasal level for the whole phase, as Chomsky (2013) does. However, since what is sent to the interfaces is the phasal complement, not the whole phase, if labeling is driven by interface considerations, taking place for interpretive reasons, as Chomsky (2013) suggests, labeling should take place at the phasal level but only for the phasal complement, which is what I will assume here. I will take this to determine the timing of labeling of a phrase-phrase merger.

5. Deducing the immobility of IPs

An immediate consequence of this approach to labeling is that the above account of the ban on extraction from moved elements extends to the ban on moving IPs. Recall that IPs are immobile, even IPs not dominated by a CP. As a reminder, (19) provides evidence for the immobility of IPs not dominated by CP (as discussed in section 2, the infinitive here is an IP).

(19)   *[$_{IP}$ morgen   zu   reparieren]   hat   ihn   der   Hans   beschlossen.
           tomorrow   to   repair   has   it   the   Hans   decided
                                                              (Abels 2003:151)

As discussed above, the standard accounts of the immobility of IP dominated by CP do not extend to such cases. E.g. Abels' generalization that phase head complements do not move is irrelevant here since the moved IP is not dominated by CP. ((13) is also irrelevant since, as the highest clausal projection, this IP is a phase.) However, Bošković's (2016a) account of the ban on movement out of moved elements extends to (19) under TOL. Recall that the problem with movement of YP out of moved XP does not arise when YP moves out of XP; it arises already with movement of XP – XP itself cannot move, i.e. movement of XP does not freeze XP for subextraction; rather, movement of YP to the edge of XP prevents movement of XP. It turns out that under TOL, the IP in (19) is prevented from moving for exactly the same reason.

Recall labeling with feature-sharing occurs when the structure is sent to spell-out. The relevant IP being a phase, its complement is sent to spell-out early in the derivation. However, under the standard assumption that the complement of phase α is sent to spell-out only after movement to the edge of α (the final structure is also sent to spell-out), the IP itself will not be sent to spell-out until the full structure is built in (19) (the IP will move to the edge of matrix vP before matrix VP is spelled out). The IP then moves before it is sent to spell-out. Given the standard assumption that such cases involve PRO in the Spec of the infinitive, the infinitival IP is labeled through feature sharing, which means the labeling of this IP would occur only after it moves. In other words, we are moving here an unlabeled element, which is disallowed. We then have an account of the immobility of IPs not dominated by CP. Such IPs are phases. However, they still cannot undergo movement because they are labeled through feature-sharing. Given that labeling through feature-sharing is delayed until the structure is sent to

the interfaces, the labeling of such IPs takes place too late for them to be able to move.[5]

The account extends to the distribution of embedded declarative clauses not headed by *that* in English, which, as is well-known, cannot undergo movement.

(20)   a.   *[John likes Mary]$_i$ is widely believed t$_i$.
         b.   cf. That John likes Mary is widely believed.
         c.   *[John likes Mary]$_i$ Jane believed t$_i$.
         d.   cf. That John likes Mary, Jane believed.

A number of works have argued the moved clause in (20a,c) is an IP (see Bošković 1997a and references therein). As discussed, the highest clausal projection functions as a phase, which makes this IP a phase (due to the absence of CP). In principle, the IP can then move. However, the problem is that it is labeled via feature-sharing. Under the above approach to the timing of labeling, it would be labeled too late, i.e. after movement, which means IP movement in (20) violates (13) (the moved element is in fact not an IP at the point of movement). In other words, the above account of (19) extends to (20), under the IP account of the moved clauses in (20).

Note, however, that the account is more general. It does not only ban movement of IPs in the constructions under consideration but it quite generally bans movement of phases with feature-sharing Specs. There is evidence that the effect is indeed more general. There are CP accounts of *that*-less declaratives, where they are headed by a null C. Under one such account, the above analysis of (20) can be maintained. Pesetsky and Torrego (2001) argue the clauses in question are CPs, with the subject located in SpecCP. The above account of the immobility of *that*-less clauses can then be maintained under Pesetsky and Torrego's CP analysis.

I conclude therefore that Bošković's (2016a) account of the ban on movement out of moved elements can be extended to account for the immobility of IPs not dominated by CP under the approach to the timing of labeling from Bošković (2016b). The account is more general: it rules out movement of the IPs in question because such cases involve movement of phases with feature-sharing Specs. Such movement is disallowed; as a result, the account can be maintained under Pesetsky and Torrego's CP analysis of *that*-less declarative clauses.

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5   Bare IPs with no Spec could then in principle move. However, I am not aware of any uncontroversial cases of this type, where we can be sure that there isn't even a null expletive in SpecIP (the thorny EPP issue arises here).

6. Additional cases

Above, I have interpreted the unacceptability of (19)-(20) as an indication that phrases with feature-sharing Specs cannot move, which follows from (13) if labeling is delayed with feature-sharing. This section discusses additional cases of this effect which do not involve IPs.

Consider first V-2 clauses in German. As discussed in section 2, they cannot move.

(21) *weil [$_{CP}$ den   Peter mag niemand]   allgemein bekannt ist.
       since   the$_{ACC}$ Peter likes nobody$_{NOM}$ commonly   known   is
                                                                   (Wurmbrand 2014:155)

From the current perspective the immobility of such CPs is not surprising; the system in fact provides a straightforward account of the immobility of V-2 clauses. They involve movement to SpecCP, with the moved phrase undergoing feature sharing in the moved position (this is the labeling update of the Spec-Head agreement analysis.) Movement of the V-2 CP in (21) is then another case of movement of a phrase with a feature-sharing Spec, which is disallowed.

Consider now the mysterious ban on raising the wh-clause in specificational pseudoclefts (Higgins 1973, Bošković 1997b). (22) is unambiguously specificational (suppose the relevant property for the predicational reading is that John is a doctor; John can be proud, but being a doctor can't be). Importantly, the wh-clause in such pseudoclefts cannot undergo raising (23).

(22)   [What John is] is proud.
(23)   *[What John is]$_i$ seems t$_i$ to be proud.

(23) involves movement of a CP phase with a feature-sharing Spec. Its unacceptability then provides additional evidence that such phases cannot undergo movement. The above account of the immobility of IPs not dominated by CP and V-2 CPs can thus be extended to capture the otherwise mysterious ban on raising the wh-clause of specificational pseudoclefts.[6]

Note that the corresponding element can move in predicational pseudoclefts, as in (24), which is unambiguously predicational (being a doctor can be

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6   The counterweight of reverse specificational pseudoclefts can move, as in *[Proud of his job]$_i$ seems t$_i$ to be what John is* (see Bošković 1997b). This is not surprising since the problem from (23) does not arise here.

worthwhile but John cannot be worthwhile). However, the element in question in predicational pseudoclefts is standardly analyzed as a free relative, free relatives in turn being analyzed as DPs, not as CPs with a wh-phrase in their Spec; see here Donati (2006), where the wh-phrase actually heads the DP.

(24)   [What John is]$_i$ seems t$_i$ to be worthwhile.

Indirect questions are also relevant here. The unacceptability of passivizing indirect questions can in fact be interpreted as providing additional evidence that phrases with feature sharing Specs cannot move. (I use passivization to minimize the possibility of analyzing what follows the clause as an adsentential, but Nordström 2010 notes topicalization is also disallowed here.)

(25)   *Who John hired$_i$ was asked t$_i$ (by Mary).

There is, however, an interfering factor when checking movement of this kind of clauses more broadly. Many languages do not front wh-phrases to the highest clausal projection; in fact, in many languages, for example Spanish, an overt C element can precede a fronted wh-phrase.

(26)   Julio   preguntó   que   qué$_i$ íbamos   a   Comprar t$_i$
       Julio   asked   that   what.(we)   were.going   to   buy

This effect may be more general, with additional structure present above a fronted wh-phrase in indirect questions even when it is not manifested overtly. In fact, in Rizzi's (1997) split CP, wh-phrases do not move to the highest clausal projection. Under the current analysis of (25), a language that allows (25), or more generally, movement of such clauses, would be analyzed in these terms, as involving additional structure above the wh-phrase (which may be null).

There may in fact be some variation here. French speakers generally disallow cases like (27) and more generally non-complement embedded questions (Hout 1981, Pesetsky 2008).

(27)   *Quand   Pierre   viendra   est   inconnu.
       when   Pierre   will-come   is   unknown

However, some speakers do accept such examples (Hout 1981, Pesetsky 2008). The pattern where they are disallowed can be easily explained from the current perspective, providing additional evidence that phrases with feature sharing Specs cannot move. For speakers who allow such cases, it may be that there is additional structure above the wh-phrase along the lines suggested above, or that we are dealing with some kind of nominalization here (e.g. *time*

when he will come, with a null nominal; see Huang 1982, Bresnan 1994, for such proposals).[7]

7. Some consequences of the proposed account

A number of cases thus fall into place under the approach to labeling from Bošković (2016b), given (13). However, the proposed account makes a strong prediction: phrases with feature-sharing Specs should never be allowed to move. This will call for a reanalysis, or provide evidence for particular accounts, of a number of constructions. E.g., the DP in (28) cannot be analyzed as having *John('s)* in SpecDP since (28) would then involve movement of a phase with a feature-sharing Spec. However, an account along the lines of Kayne (1994), where the possessor is located in SpecPossP, PossP being dominated by DP, is fully consistent with the above analysis: what is moved in (28) is a phase, but not a phase with a feature-sharing Spec.

(28) $[_{DP}$ John's picture$]_i$ was sold t_i

To illustrate the effects of the above system with another case, consider German (29), where a phrase containing a nominative subject not moved to SpecIP is fronted (see Wurmbrand 2006).

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7   There may be some variation in English too. Pesetsky (2008) finds (27) acceptable in English and Wurmbrand (2014) gives (i) (see also this work for German). However, Troy Messick (p.c) finds (i) unacceptable.
    (i) Which book Mary read yesterday is not known
    If there is variation here, it can be handled as suggested above regarding French, the unacceptable cases involving movement of phrases with feature sharing Specs, and the acceptable ones additional structure above the fronted wh-phrase, either within split-CP or some kind of nominalization. The issue may also be whether speakers who find (i)/(27) acceptable, find such examples acceptable only with verbs that need not take questions as complements; if so, indirect questions may be immobile even for these speakers (but note that in Spanish such verbs must have *que* 'that' (i.e. additional structure) above the wh-phrase on the question reading, see Villa-García 2012. Another possibility is that speakers who accept examples like (i) or (27) parse them as involving a relative clause (*which book that Mary read…*) or kind of a cleft (*when it is that Pierre will come…*); Pesetsky (2008) in fact suggests such cases involve *that* which is deleted in PF, which would fit such a treatment (the possibility of a free relative also needs to be quite generally controlled for when considering this type of examples).

(29) [$_{vP}$ Ein junger Hund einen Briefträger gebissen] hat hier schon   oft
        a$_{NOM}$ young dog   a$_{ACC}$ mailman   bitten   has here already often
        'It has happened here already that a young dog has bitten a mailman.'
                                                              (Wurmbrand 2006:198)

Assuming that, in contrast to English, a subject in SpecvP can undergo feature-sharing in German, hence subjects need not move in German (Chomsky 2013, Bošković 2016a), (29) cannot be analyzed as involving vP fronting, since then it would involve movement of a phrase with a feature-sharing Spec. However, Wurmbrand (2013) and Bošković (2014) argue the middle-field phase is not vP but AspectP (the highest projection in the extended domain of V being a phase). (29) is then analyzed in accordance with (13) as involving AspectP fronting.

I will not discuss here other cases where the above account has an effect on particular constructions, except to note a couple of cases from Bošković's (2016a), the reason being that Bošković's (2016a) account of these cases crucially relies on the possibility of immediate labeling with feature-sharing (see fn 4), hence cannot be maintained here. Consider (30).

(30) [Jovanovu   sliku]$_i$ on   prodade t$_i$
        Jovan's   picture he   sold   (Serbo-Croatian (SC))

(30) cannot be analyzed like English (28) for at least two reasons. There is strong evidence that the possessor is located in the highest phrase in the traditional NP (TNP) in SC.[8] One such argument concerning binding is provided by Despić (2013), based on (31). (31c–d) contrast with English (31a–b) in displaying Condition B/Condition C violations. This indicates that, in contrast to English possessors, SC possessors c-command out of their TNPs, which would not be possible if there is a phrase above the phrase where they are located in the SC TNP.

(31) a. His$_i$ latest movie really disappointed Kusturica$_i$.
       b. Kusturica's$_i$ latest movie really disappointed him$_i$.
       c. *[$_{NP}$ Kusturicin$_i$ [$_{NP}$ najnoviji film]] ga$_i$ je zaista razočarao.
                Kusturica's   latest   movie him is really disappointed
       d. *[$_{NP}$ Njegov$_i$ [$_{NP}$ najnoviji film]] je zaista razočarao   Kusturicu$_i$.
                his   latest   movie is really disappointed Kusturica

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8   The term TNP is used neutrally, for whatever the categorial status of the relevant ele-
    ment is. Note that Bošković (2013a, 2014) argues that the highest projection in the
    TNP (i.e. the extended domain of N) is a phase.

(31) indicates that SC possessors are located in the highest projection in the TNP, in fact, they are not even Specs, but adjuncts of that projection, given that they bind out. Within a more general approach where the SC TNP has less structure than the English TNP due to the lack of articles, Bošković (2013a, 2014) argues SC TNPs are NPs (though not always), with the possessor adjoined to the NP. Given the standard assumption that XP adjoined to YP c-commands everything YP does, the possessor then c-commands out of its TNP in (31c–d).[9]

The other reason why SC possessors cannot be analyzed like English possessors is that, in contrast to English possessors, SC possessors can undergo movement. Furthermore, as Bošković (2016a) shows, they can even move out of moved elements. Thus, in (32a), the possessor is extracted out of a fronted object, and in (32c) out of a fronted passive subject.

(32) a. Jovanovu$_i$ je on [$_{NP}$ t$_i$ sliku]$_j$ vidio t$_j$
         John's   is he   picture   seen
         'He saw John's picture.'

     b. cf. Jovanovu$_i$ je on vidio [$_{NP}$ t$_i$ sliku]

     c. Jovanova$_i$ je [$_{NP}$ t$_i$ slika]$_j$ ukradena t$_j$
         John's   is   picture   stolen
         'John's picture was stolen.'

If there were a phrase, say DP, above the phrase where the possessor is base-generated in (32), this phrase would be a phase as the highest projection in the TNP. The possessor would then need to move to its edge prior to movement out of it. Movement of the possessor to the edge of the phrase in question would "delabel" it, so that it could not undergo movement.

Bošković (2016a) argues movement in violation of (5) can occur if the element undergoing it is base-generated at the edge of the moved phrase, i.e., if it is a feature-sharing edge of the moved phrase, the analysis being crucially based on the assumption that labeling with feature-sharing is not delayed – it can occur when the structure is created (fn. 4). Consider how (32a) is then derived. The possessor undergoes feature sharing with its sister (the possessor agrees with the noun), which results in immediate labeling (33a). Being labeled, the relevant phrase can move (33b), which is followed by the movement of the possessor out of it (33c).

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9 Poss must be an adjunct to the highest TNP projection (whatever that is), or (31c–d) could not be accounted for.

(33) a. vidio [$_{NP}$ Jovanovu sliku]
      b. [$_{NP}$ Jovanovu sliku]$_j$ vidio t$_j$
      c. Jovanovu$_i$ je [$_{NP}$ t$_i$ sliku]$_j$ vidio t$_j$

The account cannot be maintained here. There is, however, a way of accommodating such cases. As discussed, the possessor is actually adjoined to NP. Strictly speaking, when it enters the structure, there is then no projection, only segmentation. In other words, a new category is not created, all that is happening is the segmentation of an existing category. The labeling algorithm is then not relevant here, since nothing is actually happening here from the point of view of the labeling algorithm in the sense that no new category is projected. The label here is the segmented NP. What is important for our purposes is that the TNP in (33) is still labeled. It can then undergo movement in accordance with (13), which is followed by poss-extraction.

There is also an alternative that relies on the standard assumption that adjuncts can be merged acyclically. Given this possibility, the possessor in (32a) can be merged acyclically after the object TNP moves. No labeling problem then arises with the object TNP movement.

Now, adopting an approach where labeling with feature-sharing edges can take place immediately, Bošković (2016a) argues that extraction from moved elements is quite generally allowed with feature-sharing edges, providing several cases of this sort. From the current perspective, the window for such extraction is much smaller: it is allowed for base-generated adjuncts.[10] The relevant cases from Bošković (2016a) should then be re-analyzed from this perspective, or a different account would be needed. Some cases can in fact be quite easily handled from the current perspective. This e.g. holds for left-branch extraction of adjectives.

(34) Skupe$_i$ oni   kupuju   [t$_i$ automobile].
      expensive   they   are.buying   cars

Bošković (2013a) argues APs are NP-adjoined; this is in fact crucial to his account of the SC/ English contrast regarding (34), which is disallowed in English. DP being a phase in languages like English where it is present, AP must move to SpecDP. The movement violates antilocality since it crosses only a segment, not a full phrase. Note also that as Bošković (2013a, 2014) argues, adjectives project

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10 I assume phrasal successive-cyclic movement doesn't involve intermediate adjunctions, as standardly assumed.

phases. More precisely, Bošković argues the highest projection in the extended domain of A is a phase (I use traditional AP (TAP) for AP and any functional projections in its extended domain.) What's important here is that AP extraction is also allowed from moved elements. (35) can be handled in the same way as possessor cases like (33a).

(35) Lijepu$_i$ je   on   [$_{NP}$ t$_i$ [$_{NP}$ sliku]$_j$ vidio t$_j$
      beautiful   is   he   picture   seen

Another relevant case involves extraction of intensifiers out of attributive APs.

(36) ?Izuzetno$_i$ su   kupili   [t$_i$ skup]   automobil
      extremely   are   bought   expensive   car
      'They bought an extremely expensive car.'

Talić (2015) gives an account of the SC/English contrast regarding such extraction where it is crucial that the intensifier is adjoined to AP. Talić argues the intensifier is generated as AP-adjoined in both English and SC, but there is a functional projection above the base position of the intensifier in the TAP in English, but not SC. More generally, Talić argues that just like the structure of the TNP is richer in English than in SC, the structure of the TAP is richer in English than in SC, the same factor being responsible for both differences. Talić then gives a unified account of the SC/English contrast regarding (36) and AP extraction cases like (34) (see the above account of (34), which extends to (36)). What is important is that Talić (2015) analyzes (36) as the intensifier being adjoined to the edge of the TAP phase prior to extraction.

Crucially, intensifier extraction is possible from moved APs.

(37) ?Izuzetno$_i$ su   [t$_i$ skup]$_j$ kupili   [t$_j$ automobil].
      extremely   are   expensive   bought   car
      'They bought an extremely expensive car.'

This is then another acceptable case of movement out of a moved element that is captured under the current analysis, which allows movement from moved XP for XP-adjuncts.

8. Conclusion

Adopting the approach to labeling where labeling with feature-sharing Specs occurs when the structure is sent to the interfaces, I have shown that Bošković's (2016a) account of the ban on movement out of moved elements can be extended to the immobility of IPs not dominated by CP. Under this approach to movement

out of moved elements, the problem with movement of YP from moved XP doesn't arise when YP moves out of XP; it arises already with movement of XP since XP itself cannot move: movement of XP does not freeze XP for subextraction, rather, movement of YP to the edge of XP prevents movement of XP. Under Bošković's (2016b) approach to the timing of labeling, IPs not dominated by CP are prevented from moving for the same reason. The immobility of such IPs was seen as an instance of a more general effect where movement of phrases with feature sharing Specs is disallowed. It was extended to other cases, like the ban of moving V-2 CPs in German and the wh-clause of specificational pseudoclefts. The impossibility of movement of phrases with feature-sharing Specs was shown to follow from independent assumptions regarding labeling and phases.

References

Abels, Klaus. 2003. Successive cyclicity, anti-locality, and adposition stranding. PhD thesis, University of Connecticut.

Bošković, Željko. 1997a. *The syntax of nonfinite complementation*. Cambridge: MIT Press.

Bošković, Željko. 1997b. "Pseudoclefts." *Studia Linguistica* 51: 235–277.

Bošković, Željko. 2002. "A-movement and the EPP." *Syntax* 5: 167–218.

Bošković, Željko. 2007. "On the locality and motivation of Move and Agree." *Linguistic Inquiry* 38: 589–644.

Bošković, Željko. 2013a. "Phases beyond clauses." In *The nominal structure in Slavic and beyond*, Lilia Schürcks, Anastasia Giannakidou and Urtzi Etxeberria (eds.), Berlin: de Gruyter, 75–128.

Bošković, Željko. 2013b. "Traces do not head islands: What can PF deletion rescue?" In *Deep insights, broad perspectives*, Yoichi Miyamoto, Daiko Takahashi, Hideki Maki, Masao Ochi, Koji Sugisaki and Asako Uchibori (eds.). Tokyo: Kaitakusha, 56–93.

Bošković, Željko. 2014. "Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis." *Linguistic Inquiry* 45: 27–89.

Bošković, Željko. 2015. "From the complex NP constraint to everything: On deep extractions across categories." *The Linguistic Review* 32: 603–669.

Bošković, Željko. 2016a. "The ban on movement out of moved elements in the phasal/labeling system." Ms., University of Connecticut. http://ling.auf.net/lingbuzz/002851.

Bošković, Željko. 2016b. "On the timing of labeling: Deducing comp-trace effects, the subject condition, the adjunct condition, and tucking in from labeling." *Linguistic Review* 33:17–66.

Bresnan, Joan. 1994. "Locative inversion and the architecture of UG." *Language* 70: 72–131.

Cheng, Hsu-Te. 2012. "Ellipsis: its correlates with phases and movement." Presented at GLOW 35.

Chomsky, Noam. 2000. "Minimalist inquiries." In *Step by step*, Roger Martin, David Michaels and Juan Uriagereka (eds.). Cambridge MIT Press, 89–155.

Chomsky, Noam. 2001. "Derivation by phase." In *Ken Hale: A life in Language*, Michael Kenstowicz (ed.). Cambridge: MIT Press, 1–52.

Chomsky, Noam. 2013. "Problems of projection." *Lingua* 130: 33–49.

Despić, Miloje. 2013. "Binding and the structure of NP in Serbo-Croatian." *Linguistic Inquiry* 44: 239–270.

Donati, Caterina. 2006. "On Wh-head movement." In *Wh-movement: Moving on*, Lisa Cheng and Norbert Corver (eds.). Cambridge: MIT Press, 21–46.

Gallego, Ángel and Juan Uriagereka. 2007. "Conditions on subextraction." In *Coreference, modality, and focus*, Luis Eguren and Olga Fernández-Soriano. Amsterdam: John Benjamins, 45–70.

Harwood, Will. 2013. Being progressive is just a phase. PhD thesis, University of Gent.

Higgins, Roger. 1973. The pseudocleft construction in English. PhD thesis, MIT.

Hout, Hélène. 1981. *Constructions infinitives du français*. Geneva: Librarie Droz.

Huang, C-T James. 1982. Logical relations in Chinese and the theory of grammar. PhD thesis, MIT.

Johnson, Kyle. 1991. "Object positions." *Natural Language and Linguistic Theory* 9: 577–636.

Kayne, Richard. 1994. *The antisymmetry of syntax*. Cambridge: MIT Press.

Lasnik, Howard. 2001. "Derivation and representation in modern transformational syntax." In *The handbook of contemporary syntactic theory*. Oxford: Blackwell, 62–88.

Matushansky, Ora. 2005. "Going through a phase." *MIT Working Papers in Linguistics* 49:157–181.

Nordström, Jackie. 2010. *Modality and subordinators*. Amsterdam: John Benjamins.

Pesetsky, David. 1998. "Some optimality principles of sentence pronunciation." In *Is the Best Good Enough*, Pilar Barbosa, Danny Fox, Paul Hagstrom, Martha McGinnis and David Pesetsky (eds.). Cambridge: MIT Press and MITWPL, 337–383.

Pesetsky, David and Esther Torrego. 2001. "T-to-C movement." In *Ken Hale: A life in language*, Michael Kenstowicz (ed.). Cambridge: MIT Press, 355–426.

Rackowski, Andrea and Norvin Richards. 2005. "Phase edge and extraction." *Linguistic Inquiry* 36: 565–99.

Reis, Marga. 1997. "Zum syntaktischen Status unselbständiger Verbzweit-Sätze." *Sprache im Fokus*, Christa Dürscheid, Karl Heinz Rahmers, Monika Schwarz (eds.). Tübingen: Niemeyer, 121–144.

Richards, Norvin. 2001. *Movement in language*. Oxford: Oxford University Press.

Rizzi, Luigi. 1997. "The fine structure of the left periphery." In *Elements of Grammar*, Liliane Haegeman (ed.). Dordrecht: Kluwer, 281–337.

Shlonsky, Ur. 2014. "A note on labeling, Berber states and VSO order." *The form of structure, the structure of form*, Sabrina Bendjaballah (ed.). Amsterdam: John Benjamins, 349–360.

Talić, Aida. 2015. "Adverb extraction, specificity, and structural parallelism." *Canadian Journal of Linguistics* 60: 417–454.

Torrego, Esther. 1998. *The dependencies of objects*. Cambridge: MIT Press.

Uriagereka, Juan. 1988. On government. PhD thesis, University of Connecticut.

Villa-García, Julio. 2012. The Spanish Comp system. PhD thesis, University of Connecticut.

Wurmbrand, Susi. 2001. *Infinitives: Restructuring and clause structure*. Berlin: de Gruyter.

Wurmbrand, Susi. 2006. "Licensing Case." *Journal of Germanic Linguistics* 18: 75–234.

Wurmbrand, Susi. 2013. "QR and selection." *Proceedings of NELS* 42: 277–290.

Wurmbrand, Susi. 2014. "The Merge Condition." In *Minimalism and beyond*, Peter Kosta, Lilia Schürcks, Steven Franks, Teodora Radeva-Bork (eds). Amsterdam: Benjamins, 139–177.