**From the Complex NP Constraint to everything: On deep extractions across categories**[*]

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**Abstract**: The article establishes a new generalization concerning domains from which extraction is possible. Taking as the starting point the well-known difference between NPs and VPs regarding extraction, where extraction from Complex NPs is not possible while extraction from Complex VPs is possible, the article argues that the former represents a pervasive pattern found in many contexts, the latter being highly exceptional. More precisely, extraction is impossible not only from clausal but all complements of nouns. Furthermore, it is impossible from complements of prepositions and adjectives as well as ergative verbs. A deduction of the impossibility of extraction from the complements of lexical heads (other than non-ergative verbs) is proposed based on a new approach to phases (i.e. to what counts as a phase) and the Phase-Impenetrability Condition, as well as a particular implementation of Chomsky's (2013) labeling algorithm. The analysis is extended to the Subject Condition effect and the *that*-trace effect.

**Keywords**: The Complex NP Constraint, islands, labels, phases, The Phase-Impenetrability Condition, the *that*-trace effect

## 1. Introduction: The Complex NP Constraint vs the lack of the Complex VP Constraint

Ross (1967) examined a number of contexts which disallow extraction. One of them concerns the Complex NP Constraint, where complex NP is a noun modified by a clause. (1) is illustrated by (2)-(3), which exhibit the usual argument/adjunct asymmetry in the strength of the violation.[1]

(1)    The Complex NP Constraint (CNPC): Extraction from complex NPs is disallowed.
(2) ??*What$_i$ did you hear* [$_{NP}$ *rumors* [$_{CP}$ *that* [$_{IP}$ *John bought t$_i$*]]]*?*
(3)   **How$_i$ did you hear* [$_{NP}$ *rumors* [$_{CP}$ *that* [$_{IP}$ *John bought a house t$_i$*]]]*?*

While extraction from complex NPs is disallowed, extraction from such VPs is allowed: while the Complex NP Constraint holds there is no such thing as the Complex VP Constraint.

(4)    *Who$_i$ did you* [$_{VP}$ *think* [$_{CP}$ *that* [$_{IP}$ *a dog bit t$_i$*]]]*?*
(5)    *How$_i$ did you* [$_{VP}$ *think* [$_{CP}$ *that* [$_{IP}$ *a dog bit John t$_i$*]]]*?*

Previous research has emphasized (4) as the test case for understanding the locality of movement, putting (2) aside as an exceptional case. In fact, the CNPC has received little attention since Ross's insight (in comparison to the VP case). This is particularly prominent in the minimalist framework, where the CNPC has generally been ignored, theories of successive-cyclic movement being built on the basis of extraction from complex VPs. This article argues that this move has been fundamentally misguided. It will be shown that when properly generalized, (2) represents a pervasive pattern found in many contexts, (4) being highly exceptional (in fact, in some contexts Complex VP Constraint effects can be detected). Understanding the CNPC then becomes the key to understanding the locality of movement.

I will first show that extraction is banned not only from clausal, but all complements of nouns, which will lead me to generalize the CNPC. I will then show that the generalized version of the CNPC holds in other domains, in particular with APs and PPs as well as ergative and (possibly) passive VPs, the only exception being exactly the case which has been used in the literature to build or test theories of successive-cyclic movement, namely active/transitive VPs like (5).[2]

After establishing the generalized version of the CNPC, which I will refer to as the Complex XP Constraint, I will develop a phasal approach to the locality of movement which deduces the Complex XP Constraint while still allowing extraction in the exceptional case of complex active VPs. (The analysis will be extended to the ban on extraction out of subjects and the *that*-trace effect.) By focusing on an exceptional case, the current theories have made successive-cyclic movement too easy. The theory developed here makes successive-cyclic movement in general more difficult; I then show that there is a principled reason why this general case does not hold with active VPs. The article also argues for a particular contextual approach to phases and for a reformulation of the Phase Impenetrability Condition (PIC), where the complement of phase P, but nothing within the complement, is also accessible outside of P. The approach to movement developed here also has consequences for a number of broader issues including structure building and Chomsky's (2013) labeling algorithm. It should, however, be noted that given the scale of the

account and its consequences, which go well beyond the locality of movement, the article is somewhat programmatic, with a number of cases that will be left open, the main goal simply being to establish a descriptive generalization regarding locality domains and point out a potentially promising avenue for deducing it. A number of suggestions regarding consequences of the system developed here for a variety of constructions will be made during the discussion which should also be taken as remarks indicating avenues for future research which cannot be fully explored here.

Before proceeding, it should be noted that there are cases where (1) does not hold, as in (6).

(6)  ? *the money which I am making the claim that the company squandered amounts to $400,000.*
(Ross 1967: 139)

Such cases are lexically conditioned and have been treated in terms of complex-predicate formation /N-V reanalysis/N-incorporation (Chomsky 1980, Kayne 1981, Cinque 1990, Davies and Dubinsky 2003).[3] I will not be concerned with them here, putting them aside (apart from a remark in section 3.3). There is, however, an interesting property of such cases which has not been noted before: adjunct extraction is still disallowed. Thus, *why* cannot modify the most embedded clause in (7).[4]

(7)    *the reason why I am making the claim that the company squandered the money...*

This is important in light of the fact that in some of the cases discussed below argument extraction is fine, but adjunct extraction is not. It is then possible that in those cases we are dealing with the same phenomenon as in (6)-(7) (there is often some speaker variation in the relevant cases of argument extraction, which may not be surprising given that the phenomenon is lexically conditioned).[5] At any rate, the factor noted above regarding (6)-(7) makes adjunct extraction a more reliable indicator of islandhood in Complex NP and similar configurations discussed below.

The article is organized as follows. In section 2 I generalize the CNPC within NP and then show that it extends to APs and PPs (the Complex XP Constraint). In section 3 I propose a deduction of the constraint (extending it to the Subject Condition), the goal being to make a principled distinction regarding the ease of extraction between the VP case and the NP/AP/PP cases. In the course of the discussion I also show that there are contexts where the Complex VP Constraint holds. In section 4 I turn to infinitives. The discussion in this section also provides a new perspective on the raising vs control issue. In section 5 I discuss extraposed finite clauses that co-occur with expletives, extending the proposed analysis to the *that*-trace effect. Section 6 is the conclusion.

## 2. On the Complex XP Constraint
### 2.1. *Generalizing the Complex NP Constraint in the NP domain*
The goal of this section is to generalize the CNPC. The scope of the CNPC will be extended both within the domain of NP and to other lexical categories. I will start with the former.

Before showing that the CNPC holds more broadly than previously believed, I note that there is evidence that the culprit for the CNPC is NP, not higher structure in the traditional NP (TNP) like DP.[6] Based on a number of crosslinguistic generalizations where many syntactic and semantic phenomena correlate with the presence vs absence of articles, Bošković (2012) argues that languages without articles lack DP. Thus, he shows that a number of locality problems that are

associated with DP do not arise in NP languages. This e.g. holds for Specificity effects, which are often weakened in NP languages, as well as extraction of APs and NP-adjuncts out of TNPs (see section 3), which may occur only in NP languages. Significantly, the CNPC holds even in NP languages. (8)-(9) illustrate the different behavior of Serbo-Croatian, which Bošković claims lacks DP, regarding the Specificity Condition and the CNPC. What is important here is that (8) shows that the CNPC holds also in NP languages, where DP locality problems generally do not arise.

(8)    *O    kojem piscu  je kupio* [*svaku knjigu/sve knjige/(tu)  tvoju knjigu*  $t_i$]
       about  which writer is read    every book/all books/that      your  book
       '*About which writer did he buy every book/all books/this book of yours?'

(9) ?? *Šta$_i$  si   čuo*    [$_{NP}$ *glasine* [$_{CP}$ *da   je  Ivan kupio*     $t_i$]]*?*
       what are  heard        rumors       that is  Ivan bought
       'What did you hear rumors that Ivan bought?'


   The CNPC is standardly taken to hold only for clausal complements of nouns. However, it turns out that its scope is broader. Extraction is banned not only from clausal, but all complements of Ns.
    A number of works from the 70s (e.g. Bach and Horn 1976, Chomsky 1973) noted a by now forgotten contrast between simple and deep extraction from NPs, as in (10)-(11).[7] Note that I assume a re-analysis/pruning (Hornstein & Weinberg 1981, Stepanov 2012, among others) account of dangling Ps as in (10), where there is no PP in (10) (see especially Stepanov 2012), hence (10) involves extraction of the N-complement, not out of it.[8] (In section 3.3, an account of P-stranding is given where there is a PP in (10) but its effects are voided so that for all intents and purposes *friends of* functions as a single complex head that takes the trace as its complement.) (11), on the other hand, does involve extraction from a nominal complement. Significantly, (11) is degraded.[9]

(10)    *Who$_i$ did you see* [*friends of t$_i$*]*?*
(11) ?* *Who did you see* [*enemies of friends of t$_i$*]*?*

The contrast actually also holds with pied piping; thus (12) is better than (13), which confirms that the pied-piping vs P-stranding issue is not relevant here.

(12)    *Of who(m)$_i$ did you see* [*friends t$_i$*]*?*
(13) ?? *Of who(m)$_i$ did you see* [*enemies of friends t$_i$*]*?*

The point is confirmed by Greek. Greek allows genitive DPs as well as PPs to function as nominal complements. Both cases exhibit a simple/deep extraction contrast, extraction out of a nominal complement being disallowed, as illustrated in (14)-(15) for the former and (16)-(17) for the latter (see Horrocks and Stavrou 1987; (15)-(17) and (32)-(33) below were provided by M. Stavrou).

(14)    *tu       vivliu$_i$    mu ipes     pos dhiavases* [*tin  kritiki  t$_i$*]
        the-GEN  book-GEN  me said-2SG  that read-2SG    the  review
        'You told me you read the review of the book.'

(Horrocks and Stavrou 1987)

(15) * *tu      vivliu$_i$    mu ipes    pos dhiavases tin enstasi [tis     kritikis      t$_i$]*
 the-GEN book-GEN me said-2SG that read-2SG  the objection the-GEN review-GEN
 'You told me you read the objection to the review of the book.'

(16) *Se ti$_i$   eksefrasan        [ton antilogo   t$_i$]?*
 to what expressed-3PL    the objection
 'To what did they express the objection?'

(17) * *Se ti$_i$   eksefrasan   epikrisi [tu       antilogu       t$_i$]?*
 to what expressed-3PL criticism the-GEN objection-GEN
 'To what did they express criticism of the objection?'

These facts indicate that extraction is banned not only from clausal but all nominal complements.

Another simple/deep extraction contrast is found with Hungarian possessor extraction. While simple possessor extraction in (18) is allowed, deep possessor extraction in (19) is not.[10]

(18) *Péternek$_i$ láttam  [t$_i$ a    karját].*
 Peter-DAT saw-1SG   the arm-POSS.ACC
 'Peter's arm, I saw.'

(19) ?**Péternek$_i$ láttam   [egy képet       [t$_i$ a    karjáról]].*
 Peter-DAT saw-1SG  a    picture-ACC   the arm-POSS.DEL
 'Peter's arm, I saw a picture of.'

Serbo-Croatian (SC) provides several relevant cases. In contrast to English, SC allows left-branch extraction of APs. Importantly, such extraction also displays a simple/deep extraction contrast: it is not possible when the TNP from which extraction takes places functions as a nominal complement.

(20) *Pametne$_i$ on cijeni      [t$_i$ prijatelje]*
 smart    he appreciates    friends

(21) * *Pametnih$_i$ on cijeni      [prijatelje [t$_i$ studenata]]*
 smart       he appreciates friends        students
 'He appreciates friends of smart students.'

Also in contrast to English (see (25) below), SC allows extraction of adjuncts that modify NPs (I will refer to them as NP-adjuncts), as in (22). Again, such extraction displays a simple/deep extraction contrast: it is blocked when the relevant TNP is a nominal complement, as in (23).

(22) *Iz    kojeg grada$_i$ je Petar sreo [djevojke t$_i$]*
 from which city    is Peter met   girls
 'From which city did Peter meet girls?'

(23) * *Iz    kojeg grada$_i$ je Petar kupio [slike    [djevojke t$_i$]]?*
 from which city    is Peter bought  pictures girl
 'From which city did Peter buy pictures of a girl?'

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To sum up, I have discussed a variety of extractions from nominal complements which all indicate that extraction from nominal complements is quite generally disallowed. There is then nothing special about nouns modified by clauses: extraction from nominal complements is disallowed regardless of the categorial status of the complement. I therefore generalize the CNPC as in (24).

(24)    The Generalized Complex NP Constraint (GCNPC)
        Extraction out of nominal complements is disallowed.

The difference between NPs and VPs is thus more general; while extraction from nominal complements is disallowed regardless of their categorial status, extraction from verbal complements is (in principle) allowed regardless of their categorial status ((10) shows this for DP complements of Vs).

    Having discussed the CNPC, generalizing it to a more general ban on extraction from nominal complements, I turn to other lexical heads. I will show that adjectives and prepositions pattern with nouns, not verbs: extraction is banned from their complement regardless of its categorial status.

2.2. *The Generalized Complex AP Constraint*
Before proceeding, let me emphasize that since weak islands are sometimes completely weakened with argument extraction, adjunct extraction is a more reliable diagnostic; however, in English it can be tested only with clausal complements, even (25) being disallowed (see Chomsky 1986, Culicover & Rochemont 1992; for an account of the SC/English contrast here see Bošković 2013a).

(25) ?* *From which city$_i$ did Peter meet* [*girls t$_i$*]?

That being said, consider the Complex NP configuration with respect to adjectives. Significantly, APs pattern with NPs in that extraction from their clausal complements is disallowed. While (26), involving argument extraction, is (not surprisingly) only slightly degraded, (27), involving adjunct extraction, is clearly unacceptable when the adjunct modifies the embedded clause.[11]

(26) ??*To whom$_i$ are you* [$_{AP}$ *proud* [$_{CP}$ *that John talked t$_i$*]]?
(27) * *How$_i$/Why$_i$ are you* [$_{AP}$ *proud* [$_{CP}$ *that John hired Mary t$_i$*]]?

As in the case of NPs, the pattern is not CP-specific. Extraction is also not possible from non-CP complements of adjectives. Thus, (28)-(29) replicate the simple/deep extraction contrast from (10)-(11). As with NPs (see (12)-(13)), the contrast is maintained under pied-piping (see (30)-(31)).

(28)    *Who$_i$ is he* [*proud of t$_i$*]?
(29) ?* *Who$_i$ is he proud of* [*friends of t$_i$*]?
(30)    *Of who(m)$_i$ is he* [*proud t$_i$*]?
(31) * *Of who(m)$_i$ is he proud of* [*friends t$_i$*]?

Greek provides a confirmation of this. Adjectives can take genitive or PP complements in Greek. In both cases, extraction from the complement of *responsible* is banned. ((43) is also relevant to (32).)

(32) * Tu        ktiriu$_i$        ipefthinos    [gia to  fotismo t$_i$]
      the-GEN building-GEN is-responsible  for   the   lighting
      'the building he is responsible for the lighting of'
(33) * Tu        ktiriu$_i$        ipefthinos    [tu       fotismu    t$_i$]
      the-GEN building-GEN is-responsible  the-GEN lighting-GEN


I conclude therefore that APs pattern with NPs in the relevant respect; in other words, there is the Generalized Complex NP Constraint as well as the Generalized Complex AP Constraint.


(34)   The Generalized Complex AP Constraint
       Extraction out of adjectival complements is disallowed.


2.3. *The Generalized Complex PP Constraint*
Consider now PPs.[12] PPs pattern with NPs and APs regarding (10)-(11)/(28)-(29). (Landau 2009 also makes this point with *??Who did you agree with the sister of*). (35)-(36) replicate the simple/deep extraction contrast from NPs and APs. The same holds for pied-piping ((37)-(38)).[13]


(35)   *Who$_i$ did you read about t$_i$?*
(36) *??Who$_i$ did you read about friends of t$_i$?*
(37)   *About who(m)$_i$ did you read t$_i$?*
(38) * *Of who(m)$_i$ did you read about friends t$_i$?*


Regarding the CNPC configuration, prepositions can take finite CP complements in Spanish. Significantly, extraction is disallowed from the clausal complement of Ps, as in (39b-c), due to J. Villa-García and J. Riqueros. (Some speakers can drop *de* here. Importantly, (39b-c) then improve.)


(39)   a.  *se         acordó              de   [que [Pedro preparaba        la   comida]]*
           clitic.3PL (s)he.remembered PREP that  Pedro prepared.IMPERF  the  food
           'She just remembered that Pedro used to cook the food.'
       b. ?* *¿qué$_i$ se       acordó              de   [que [Pedro preparaba       t$_i$]]*
           what  clitic  (s)he.remembered PREP that  Pedro prepared.IMPERF
       c. * *¿cómo$_i$ se      acordó             de   [que [Pedro preparaba        la   comida t$_i$]]*
           how     clitic (s)he.remembered PREP that  Pedro prepared.IMPERF the  food


Cinque (1990) observes that preposition *a* can take a finite CP complement in a formal style of Italian. Significantly, extraction from the complement is banned ((40) is due to R. Petrosino).[14]


(40) * *Carlo, con  il      quale non mi abituerò/acconsentiro    mai  [a [che tu  parli t]]*
        Carlo, with whom NEG   me  will-get-used-to/will-consent  never  a   that you speak
        'Carlo, with whom I will never get used to/consent that you speak.'


Dutch (41) also shows that extraction from P-complements is disallowed.

(41)  a.  *Hij  kan  zich    niet* [*in* [*de  bibliografie*  [*van  dat  boek*]]]  *vinden*
          he   can  himself  not   in   the   bibliography  of     that  book       find
          'He cannot find himself in the bibliography of that book.'
      b. * [*Van dat boek*]$_i$ *kan hij zich niet* [*in de bibliografie t*$_i$] *vinden*
          (van Riemsdijk 1997)

Finally, Greek (42) confirms the ban on extraction from P-complements.

(42) * *Tinos*$_i$     *endhiaferese*        [*ya* [*ti    fili      t*$_i$]]
       who-GEN   be-interested-2SG    for   the   friend
       'Whose friend are you interested in?'
       (Horrocks and Stavrou 1987)

I conclude then that extraction from complements of prepositions is also disallowed, which means
the Generalized Complex PP Constraint holds (for more evidence for (43) see section 3.1.3.3).[15]

(43)   The Generalized Complex PP Constraint
       Extraction out of complements of prepositions is disallowed.

To sum up, when properly generalized the CNPC represents a pervasive pattern found in a number
of contexts. In particular, extraction is banned not only from clausal but all nominal complements.
Furthermore, APs and PPs pattern with NPs. This means that with the exception of Vs, extraction is
banned from complements of lexical heads. I then posit (44), which unifies (24), (34), and (43).
(We will see that the scope of (44) is even broader since in many cases (44) also holds for Vs.)

(44)   The Complex XP Constraint (where X ≠ V)
       Extraction out of complements of lexical heads is disallowed.

## 3. Deducing the Complex XP Constraint

I now turn to a deduction of (44), considering first the NP cases of (44) within Bošković's (2013a,
2014) system since it captures a number of such cases. Bošković argues that the highest phrase in
the extended projection of every lexical category functions as a phase. Let's first apply this to (45).

(45)   a. * *Expensive*$_i$ *John likes* [*t*$_i$ *cars*]
       b. * *From which city*$_i$ *did you see* [*girls t*$_i$]*?*

Bošković adopts the traditional assumption that AP and PP modifiers are NP-adjoined and assumes
antilocality, the ban on movement that is too short which (for Bošković) requires Move to cross at
least one full phrase (not just a segment) (for arguments for antilocality see e.g. Bošković 1994,
1997, Saito & Murasugi 1999, Ishii 1999, Abels 2003, Grohmann 2003, Ticio 2005, Boeckx 2005).
Since the highest phrase in the extended domain of lexical heads functions as a phase DP is a phase

as the highest phrase in the nominal domain. (45) then follows from PIC/antilocality: the PIC is violated without movement to SpecDP (46); with it, antilocality is violated (movement to SpecDP fails to cross a full phrase (47)).[16] The problem does not arise in SC (20)/(22) since SC lacks DP.

(46) * AP/adjunct$_i$ [$_{DP}$ [$_{D'}$ D [$_{NP}$ t$_i$ [$_{NP}$....
(47) * [$_{DP}$ AP/adjunct$_i$ [$_{D'}$ D [$_{NP}$ t$_i$ [$_{NP}$....

The unacceptability of (21)/(23) also follows. Due to the lack of DP, NP is the highest projection in the TNP in SC hence a phase. AP then must move to SpecNP in (48), which violates antilocality.[17]

(48) * *Pametnih$_i$  on cijeni*        [$_{NP}$ t$_i$ [$_{N'}$ [*prijatelje*    [$_{NP}$ t$_i$ [$_{NP}$ *studenata*]]]]
         smart.GEN  he appreciates            friends.ACC            students.GEN

The system thus accounts for several cases that motivated (24). However, it does not capture all of them; e.g. the simple/deep extraction contrast in (14)-(15) and the CNPC case in (2), repeated here.

(49)  *tu       vivliu$_i$      mu ipes       pos dhiavases* [$_{DP}$ t$_i$ *tin* [$_{NP1}$ *kritiki   t$_i$*]]
         the-GEN  book-GEN  me said-2SG  that read-2SG        the        review
(50) **tu       vivliu$_i$      mu ipes      pos dhiavase*[$_{DP}$ t$_i$ *tin* [$_{NP1}$ *enstasi* [$_{DP}$ t$_i$ *tis         kritikis   t$_i$*]]]
         the-GEN book-GEN me said-2SG that read-2SG        the        objection       the-GEN review-GEN
(51) **Who$_i$ did you hear* [$_{DP}$  t$_i$ [$_{NP1}$ *rumors* [$_{CP}$ t$_i$ *that* [$_{IP}$ *a dog bit t$_i$*]]]]?

To capture such cases, Bošković (in press) proposes (52), as a result of which wh-movement in (50) and (51), but crucially not (49), must target NP1. Bošković further argues that the movement in question must involve NP-adjunction, which ends up violating antilocality.

(52)    NP is a phase for elements that are not θ-marked by its head/within it.

The account raises a number of issues. Why can't successive-cyclic movement proceed via NP1-Spec? Why is there a connection between θ-marking and phases? (52) is particularly stipulative, adding another way to become a phase which is very different from other cases of phasehood.
    Still, the stipulations in question are important in that they indicate what kind of effects need to be captured. In the next section I will develop an account which will deduce the effects of (52) from independent mechanisms and which will prevent successive-cyclic movement from proceeding via traditional Specs for a principled reason. The crucial ingredients of the account will be a new approach to phases, in particular to what counts as a phase (I will refer to this as the phasal criterion) and the PIC, as well as Chomsky's (2013) labeling algorithm. I will then show that the proposed system fully deduces the Complex XP Constraint.

3.1. *A new system: Deducing (44)*
In this section I will propose a deduction of (44). The deduction will have several ingredients, which will be discussed separately.The first one will capture the relevance of θ-marking for phases.

3.1.1. *The theory of domains.* Any theory of locality needs to specify locality domains. There have been numerous approaches to this issue, the currently prevalent one being the theory of phases. The analysis proposed here will be couched within this line of research since, as shown below, the phase theory has a natural way of making a distinction between VPs and other lexical projections.

There are a number of approaches to phases. Chomsky's (2000) original approach is rigid in that certain phrases (vP and CP) are always phases, regardless of their syntactic context. However, many have argued that phasehood should be defined contextually, i.e. that the phase status of X can be affected by the syntactic context where X occurs. Thus, Bošković (2013a, 2014) argues that the highest projection in the extended domain of a lexical head/clause functions as a phase. To capture the effects of θ-marking from (52), I will argue for a combination of Bošković's (2013b, 2014) approach and a modified version of Grohmann's (2003) domains. Grohmann proposes that a clause is divided into three domains, the discourse domain, the agreement domain, and the θ-domain, and that movement must pass through each domain. Suppose now that we collapse the agreement and the discourse domain into one domain, giving us two domains: thematic and non-thematic. This in fact corresponds to Chomsky's original conception of phases if, following Bošković (2013a, 2014), we assume the highest projection in a domain functions as a phase. vP is then a phase as the highest projection in the thematic domain, and CP is a phase as the highest projection in the non-thematic domain (there is a phase even with ergatives, where VP is a phase as the highest (and only) projection in the thematic domain). This is the approach to phases that will be argued for here.

Another phasal mechanism that needs to be modified in light of the data discussed here is the PIC. As will become obvious below, the current conception of the PIC doesn't make the right cut regarding what is accessible outside of a phase. I will therefore argue for a new conception of the PIC: While for Chomsky, only the Spec/adjunct of phase HP and its head are accessible for operations outside HP I propose that the complement of H is also accessible outside HP. Nothing within the complement is, however, accessible outside HP. In other words, I adopt (53) (*immediate domain* can also be defined as: K is in the immediate domain of H if K is merged with (a projection of) H):

(53)    *The Phase-Impenetrability Condition*: In phase α with head H, only the immediate domain of H is accessible to operations outside of α, where K is in the immediate domain of H if the first node that dominates K is a projection/segment of H.

Since the first node that dominates SpecHP, HP-adjuncts, H-adjuncts, H, and the complement of H is a projection of H, these positions, but nothing else, is accessible to operations outside of HP. I assume that what is sent to spell-out is the first phrase merged with H, i.e. the lowest phrase in the immediate domain of H that is not a projection of H. The revised PIC makes sense in terms of multiple spell-out and in fact follows Uriagereka's (1999) original conception of multiple spell-out. Uriagereka (see also Nunes and Uriagereka 2000) argues that when a phrase is sent to spell-out, nothing within the phrase is available for further syntactic operations but the phrase itself is available. In Uriagereka's terms, sending A to spell-out, which results in establishing word order within A, essentially turns A into a compound/lexical item whose internal structure is inaccessible

to syntax. A itself is, however, accessible to syntax. In his conception of the PIC Chomsky departed from this aspect of Uriagereka's original proposal. The suggestion here is then to return to it.

The current conception of the PIC has another desirable side effect: it captures Hiraiwa's (2005) observation that what is located at the edge of the edge of phase HP is not at the edge of HP for the purpose of the PIC (which Chomsky's version of the PIC does not capture). Thus, Hiraiwa shows that in the configuration in (54), anything that is located in the Spec of XP or adjoined to XP is not located at the edge of HP, i.e. it is not accessible to operations outside of HP. This follows from (53) since the first node that dominates these positions is not a projection of H.[18]

(54)    [HP XP [H' H ...]]

In summary, the highest projection in the thematic domain of every lexical head as well as the highest projection in the non-thematic/functional domain function as phases. As for the PIC, what is accessible to operations outside of phase HP is what is immediately dominated by a projection of H. This conception of phases/PIC will play a crucial role in the deduction of (44) below (it will also capture the effects of (52)). Another important ingredient of the deduction concerns labelling.

3.1.2. *Labelling*. Chomsky (2013) proposes a theory of labeling where in the case where a head and a phrase merge, the head projects (i.e. provides the label for the resulting object). Regarding the case where two non-minimal projections (i.e. phrases) merge, Chomsky suggests two ways of implementing labeling, via prominent feature sharing or traces, traces essentially being ignored for the purpose of labeling. To illustrate the former, when *what* is merged with the interrogative C (actually CP) in (55), both the wh-phrase and the CP have the Q-feature; what is projected (i.e. determines the label of the resulting object) then is the Q-feature.[19] This is obviously reminiscent of Spec-Head agreement, where the shared feature is what is involved in Spec-Head agreement.

(55)    *I wonder* [CP *what$_i$* [C' C [*John bought t$_i$*]]]

(56) illustrates the case where one of the phrases that undergo merger is a trace.

(56)    *What$_i$ do you think* [CP *t'$_i$* [C' *that* [*John bought t$_i$*]]]
(57)    v [VP *think* [? *what* [CP *that* [*John bought t$_i$*]]]]

The timing of labeling in (56) has rather interesting consequences for antilocality, a <u>derivational</u> ban on movement that is too short, which I continue to assume: move must cross a phrase.Chomsky assumes there is no feature sharing between the declarative complementizer *that* and the wh-phrase that passes through its edge in (56) (which essentially follows Bošković 2002, 2007, 2008).[20] As a result, labeling through feature sharing is not an option here. The embedded clause then cannot be labeled at the point of movement of *what* to its edge, as indicated in (57) by using ?-notation. When v is merged, *what* moves away. The element merged with the CP now being a trace, it is ignored for the purpose of labelling, hence ? is labeled as CP after movement of *what*. Only at this point the status of t'$_i$ in (56) can be determined as the Spec of CP. However, at the point of movement (see

(57)), ? is not a CP, in fact it is not a phrasal projection at all, it is simply undetermined regarding that issue. To make the issue clearer, we can adopt the following definition of antilocality, adjusted to the framework that allows unlabelled objects, the intuitive idea here being that movement does not cross B if it involves merger with B. (In effect, (58) requires crossing of a labeled projection.)

(58) Movement of A targeting B must cross a projection distinct from B (where unlabeled projections are not distinct from labeled projections).

At any rate, antilocality is still satisfied in (57) because the movement that targets vP crosses VP. Were VP to be missing, movement of *what* to vP would violate antilocality.[21]

3.1.3. *Actual cases*. Now that we have all the ingredients in place I will show that the above system accounts for all the cases from section 2, fully deducing the Complex XP Constraint. Below, for ease of exposition I will refer to the first ingredient of the system, the theory of phases from section 3.1.1, as **1**, and to the second ingredient, the theory of projection/labelling from section 3.1.2, as **2**.

3.1.3.1 *The Generalized NP Constraint revisited.* I will first discuss the ban on extraction from N-complements, starting with the CNPC. The relevant phasal domains, where NP and CP are phases as the highest projections in their thematic/non-thematic domains, are marked in (59). Movement must target CP and NP, given **1**; given **2**, this can only be done through unlabelled projections (note that I only indicate what happens at the point of movement, ignoring label-resolution via traces since it does not affect anything for our purposes). Movement from t' to t'', however, violates antilocality (i.e. (58)), since it does not cross a labeled projection. The CNPC is thus accounted for.

(59) ?? *Who$_i$ did you hear* [$_{DP}$ [$_?$ *t''$_i$* [$_{NP}$ *rumors* [$_?$ *t'$_i$* [$_{CP}$ *that* [$_{IP}$ *a dog* [$_{vP}$ *bit t$_i$*]]]]]]]?

The account straightforwardly extends to non-CP complements of Ns. Movement must target NP and DP in (15)/(60) given **1**. Movement from the lower DP to the higher NP violates antilocality.[22]

(60) * *tu   vivliu$_i$      mu ipes      pos  dhiavases* [$_{DP}$ [$_?$ *t$_i$* [$_{NP}$ *enstasi*  [$_?$ *t$_i$* [$_{DP}$ *tis* [$_{NP}$ *kritikis   t$_i$*]]]]]]
       the book-GEN me said-2SG that read-2SG              objection        the       review-GEN

**1** also forces movement via the non-thematic phasal domain sandwiched between the matrix VP thematic domain and the NP thematic domain. For the current account it doesn't matter whether this domain contains only DP or other functional projections as well.[23] Movement to DP also violates antilocality in the former case, but that cannot be all there is because of NP languages. Recall NP languages also display CNPC effects. It is then crucial that the antilocality violation occurs with movement from the N-complement to the NP (i.e. from the CP to the NP phase) in SC (9)/(61).[24]

(61) ?? *Šta$_i$   si   čuo*    [$_?$ *t$_i$* [$_{NP}$ *glasine* [$_?$ *t$_i$* [$_{CP}$ *da   je Ivan kupio   t$_i$*]]]]?
         what are heard           rumors          that is Ivan bought

Recall now that in contrast to the movement out of the nominal complement, movement of the nominal complement itself is allowed, as in Greek (14)/(62).

(62)   *tu        vivliu_i     mu ipes     pos dhiavases* [$_{DP}$ *tin* [$_{NP}$ *kritiki   t_i*]]
       the-GEN book-GEN me said-2SG that read-2SG        the        review

This also follows. Under the current conception of the PIC, while nothing within the complement of a phase head is accessible outside of the phase, the complement itself is accessible. *Tu vivliu* is then accessible to D hence it can move to DP directly from the N-complement position.

   Furthermore, although I have hinted above at a reanalysis account of P-stranding it is actually not necessary to assume it to account for (10) if there is a functional projection in between NP and DP.

(63)   *Who_i did you see* [$_?$ *t_i* [$_{DP}$ [$_{XP}$ [$_?$ *t_i* [$_{NP}$ *friends* [$_{PP}$ *of  t_i*]]]]]]?

Under the PIC from (53), N (*friends*) can attract the complement of P. The next phase is DP, the highest projection in the non-thematic domain. Given the presence of XP, *who* can move to DP without violating antilocality. (We will, however, see in section 3.3 that under the reanalysis account of P-stranding, it is not necessary to posit XP in (63).)[25]
  AP/NP-adjunct extraction facts in (21)/(23) can also be captured. A note is first in order regarding adjunction. I will adopt Hornstein and Nunes's (2008) proposal that adjunction does not involve labeling (see also Hunter 2010). They argue adjunction does not require labeling for interpretation, which under Chomsky (2013) means that the result of adjunction is not labeled.[26] At any rate, **1** in (64) forces movement to the higher NP from the lower NP-adjoined position, given that the higher NP is a phase since it starts a new thematic domain. This movement violates antilocality.

(64) * *Iz      kojeg grada_i je Petar kupio*   [$_?$ *t_i* [$_{NP}$ *slike*     [$_?$ [$_{NP}$ *djevojke*] *t_i*]]]?
       from which city    is Peter bought         pictures          girl
       'From which city did Peter buy pictures of a girl?'

In English (65), the NP-adjoined PP must move to DP, given **1**, which again violates antilocality.[27]

(65) * *From which city_i did you see* [$_?$ *t_i* [$_{DP}$ [$_?$ [$_{NP}$ *girls* ] *t_i*]]]?

It should be noted that the current system deduces the effects of (52): they follow from the approach to phases argued for here, in particular, the phasal criterion and the PIC. (The relevance of θ-marking for phasehood follows from the phasal criterion, with the PIC in effect voiding phasal effects of XP for elements that are θ-marked by X.) The current system also generalizes the effect of (52) beyond the case of NP, which we will see below is also desirable empirically.

   Before proceeding a note is in order concerning the simplification of antilocality under the unlabelled projections view. While antilocality was previously assumed to require crossing a full phrase, where crossing a segment or an X' is not enough, this is not necessary under (58) and is in

fact not required by (58). Note also that with complement-to-Spec movement within XP in (66), X'
is actually XP at the point it is targeted by movement (66b). Still, movement in (66b) violates (58).

(66)  a.  $[_{XP}$ X KP]
      b.  KP $[_{XP}$ X KP]
      c.  $[_{XP}$ KP $[_{X'}$ X KP]]

Under the unlabelled-projections analysis, antilocality (cf. (58)) can thus be simplified to the effect
that movement simply must cross something (more precisely, something labeled).

*3.1.3.2 The Generalized Complex AP Constraint revisited.* The Generalized Complex AP Constraint
also follows. AP and CP are phases in (67) (their phasal domains are marked). As a result, move-
ment must proceed through the edge of CP and AP, which violates antilocality.(34) is thus deduced.

(67) * *How$_i$ are you $[_?$ $t_i$ $[_{AP}$ proud $[_?$ $t_i$ $[_{CP}$ that $[_{IP}$ John $[_{vP}$ hired Mary $t_i$]]]]]]?*

Another fact is captured. Talić (in press) discusses extraction of adverbs like *extremely* from APs
and shows it is possible only in NP languages.[28] She proposes there is a counterpart of DP (XP) in
the Traditional AP (TAP) of DP languages, and that *extremely* starts adjoined to AP. Given **1** and **2**,
*extremely* must move to XP from the AP-adjoined position in (68), which violates antilocality. The
problem does not arise in (69) since SC lacks DP as well as its adjectival counterpart (XP).

(68) * *Extremely$_i$ he is $[_?$ $t_i$ $[_{XP}$ $[_?$ $t_i$ $[_{AP}$ proud]]]] of Mary.*
(69)   *Izuzetno$_i$  je  on  $[_?$ $t_i$ $[_{AP}$ ponosan]] na Mariju.*
       extremely  is  he             proud       of Mary           (SC)

The contrast between SC (69) and English (68) within the TAP domain essentially replicates the
contrast between SC (20)/(22)  and English (45) from the TNP domain, and is in fact accounted for
in the same way under the current analysis. Recall, however, that English and SC behave in the
same way regarding the CNPC itself: both languages disallow extraction in that configuration. Not
surprisingly then, just as in English, extraction from complex APs is disallowed in SC. This is
expected under the current analysis; SC (70) is in fact treated in the same way as English (67).

(70) * *Kako$_i$/Zašto$_i$  si    $[_?$ $t_i$ $[_{AP}$ ponosan $[_?$ $t_i$ $[_{CP}$ da  je Jovan  $[_{vP}$ zaposlio Mariju $t_i$]]]]]?*
       how/why      are          proud            that is Jovan       hired    Marija

3.1.3.3.  *The Generalized Complex PP Constraint revisited.*  The Generalized Complex PP
Constraint can also be easily accounted for, as (71)-(72) show. Movement from DP/CP to PP, which
is forced by **1** (the phrases in question being phases), violates antilocality in these examples.[29]

(71) ??*Who$_i$ did you read $[_?$ $t_i$ $[_{PP}$ about $[_?$ $t_i$ $[_{DP}$ friends of $t_i$]]]]?*
(72) * *¿qué$_i$  insististe    $[_?$ $t_i$ $[_{PP}$ en   $[_?$ $t_i$ $[_{CP}$ que Felipe  coma          $t_i$]]]]?*
       what  you.insisted           PREP       that Felipe  eat.SUBJUNCTIVE

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Another fact is worth noting. Bošković (2013b) observes that left-branch extraction from under a PP is disallowed in SC, as in (73). (73) is actually another case of (44) (more precisely (43)), which shows that extraction from a complement of P is not possible. It is also easily captured by the current system: *veliku* must target PP from the NP-adjoined position, which violates antilocality.[30]

(73) * *Veliku$_i$ on uđe* [$_?$ $t_i$ [$_{PP}$ *u* [$_?$ $t_i$ [$_{NP}$ *sobu*]]]]
   big  he entered   in    room

3.1.3.4. *Intermediate adjunctions.* The above analysis was based on a particular approach to phases and Chomsky's (2013) labeling algorithm. As discussed above, for Chomsky (2013) when a head and a phrase merge the head projects/labels the resulting object. When two non-minimal projections merge labeling is accomplished either through prominent feature sharing or movement, traces basically being ignored for the purpose of labeling. We have seen the system can deduce the Complex XP Constraint, given the approach to phases and antilocality adopted here. It should, however, be noted that label-resolution via traces faces several issues. One obvious problem arises with technical implementation given that traces are not really distinct from moved elements (cf. the copy theory of movement). Takita, Goto, and Shibata (2014) point out several other problems (also arguing that labeling cannot drive successive-cyclic movement, as proposed in Chomsky 2013), and argue that label-resolution through traces should be eliminated, which would leave us with prominent feature sharing as the only way of implementing projection when two non-heads are merged. The analysis presented above is actually compatible with this system, where two non-heads can be merged and labeled without segmentation only when they agree, which essentially means a head that already has a complement can take a Spec only if it undergoes agreement with it.

 Consider e.g. (55)-(56) in that system. As before, *what* in (55), which undergoes feature sharing with the interrogative C, is located in SpecCP. Since there is no relevant feature sharing between *what* and (a projection of) *that*, labeling through feature sharing is not an option in (56). If label-resolution via traces is eliminated, there can be no projection when two non-minimal projections merge in such a case. The only option is then segmentation, i.e. adjunction. This means that while *what* is located in SpecCP in (55), t' in (56)/(74) is adjoined to CP. This situation in fact quite generally holds for successive cyclic wh- (more generally A'-) movement, which means intermediate traces of such movement are located in adjoined positions.[31] What is important for us is that if there were no VP, movement of *what* to vP in (74) would violate antilocality, just as in (57) (under the intermediate adjunction analysis we can continue to assume that Move must cross a phrase).

(74) *What$_i$ do you* [$_{VP}$ *think* [$_{CP}$ *t'$_i$* [$_{CP}$ *that* [*John bought t$_i$*]]]]?

Whether or not label-resolution via traces is eliminated, the result is thus the same for our purposes. Either way, successive-cyclic movement must cross a phrase other than the one where it originates.[32] As a result, all the analyses of the Complex XP Constraint cases from above can be maintained under the intermediate adjunction analysis, which dispenses with label-resolution via traces. I illustrate this in (75) for the basic Complex NP Constraint case. As discussed above, CP and NP are phases as the highest projections in their thematic/non-thematic domains (which are

marked in (75)). As a result, movement must pass through their edges, which under the analysis currently under consideration can only be done by adjunction to CP and NP. Movement from the CP to the NP then violates antilocality since it does not cross a phrase.

(75) ??Who$_i$ did you hear [$_{DP}$ [$_{NP}$ t$_i$ [$_{NP}$ rumors [$_{CP}$ t$_i$ [$_{CP}$ that [$_{IP}$ a dog [$_{vP}$ bit t$_i$]]]]]]]?

Consider also (76)-(77), which involve extraction from a genitive complement of a noun. Greek (76) involves extraction of an argument of the lower NP and SC (77) extraction of a PP modifier (NP-adjunct) of the lower NP. In Greek (76), extraction must proceed via the embedded DP/higher NP adjoined positions, which violates antilocality. In SC (77), the adjunct, which is base-generated adjoined to the lower NP, must adjoin to the higher NP, which again violates antilocality.

(76) *tu      vivliu$_i$     mu ipes     pos dhiavases  [$_{NP}$ t$_i$ [$_{NP}$ enstasi [$_{DP}$ t$_i$ [$_{DP}$ tis [$_{NP}$    kritikis t$_i$]]]]]
    the-GEN book-GEN me said-2SG that read-2SG            objection        the-GEN review-GEN
(77) *Iz     kojeg    grada$_i$ je Petar kupio   [$_{NP}$ t$_i$ [$_{NP}$ slike [$_{NP}$ [$_{NP}$ djevojke] t$_i$]]]?
     from which  city  is Peter bought          pictures     girl
     'From which city did Peter buy pictures of a girl?'

The reader can verify that all other cases discussed above can be captured under the intermediate adjunction analysis. The current deduction of the Complex XP Constraint is thus compatible both with Chomsky's labeling algorithm and the modified version of it which dispenses with potentially problematic label-resolution via traces.[33] To indicate this, below I will use a neutral notation, collapsing the two analyses into one structure by using a mixed ?/segment notation, as in the CNPC case in (78), where underline indicates a segment under the intermediate adjunction analysis.

(78) ??Who$_i$ did you hear [$_{?/\underline{NP}}$ t$_i$ [$_{\underline{NP}}$ rumors [$_{?/\underline{CP}}$ t$_i$ [$_{\underline{CP}}$ that [$_{IP}$ a dog [$_{vP}$ bit t$_i$]]]]]]?

The collapsed structure in (78) shows that under both the unlabelled projections analysis and the intermediate adjunction analysis, successive cyclic A'-movement does not proceed via traditional Specs, which follows from the general theory of projection adopted here (Specs either do not exist in the relevant cases or they are created too late). The current system thus deduces and generalizes the claim made to this effect in Bošković (in press), where it was simply stipulated that in some cases successive cyclic A'-movement involves adjunction.

   It should, however, be noted that the intermediate adjunction analysis does not necessarily depend on labeling. Adopting Bošković's (2007, 2008) claim that intermediate wh-movement cannot involve agreement/feature-checking since that would prevent further wh-movement due to a freezing effect (see Bošković 2008, Rizzi 2006), simply assuming that Specs must involve agreement will also lead to intermediate adjunctions for successive-cyclic A'-movement. In other words, successive-cyclic-A'-movement-as-intermediate-adjunction account can be implemented without employing labeling while still crucially sharing one assumption from Chomsky (2013), i.e. the absence of intermediate agreement, which goes back to Bošković (2002, 2007, 2008).

## 3.2. *Why are VPs different?*

Having deduced the Complex NP/AP/PP Constraints we are now ready to address the crucial question which we have started the discussion with: why are VPs different? Why is there no Complex VP Constraint, in contrast to the Complex NP Constraint, the Complex AP Constraint, and the Complex PP Constraint? An obvious answer presents itself in the current system: VPs are different due to the existence of vP. vP, where the external θ-role is assigned, is part of the thematic VP domain. Being the highest projection in this domain, only vP functions as a phase in this domain. There is then no need to move through VP in (5). To see why this is relevant, consider (79). The embedded CP and the higher vP are phases, as the highest projections within their non-thematic/thematic domains (which are marked here). Movement then must pass through the edge of CP and vP, given the PIC, which can only be done by adjoining to CP/vP or by creating unlabelled projections, given **2**. Nothing goes wrong with this movement.

(79)    *How$_i$ did you [$_{?/\underline{vP}}$ t$_i$ [$_{\underline{vP}}$ [$_{VP}$ think [$_{?/\underline{CP}}$ t$_i$ [$_{CP}$ that [$_{IP}$ a dog [$_{vP}$ bit John t$_i$]]]]]]]?*

An issue arises regarding subject raising to TP if the subject and v do not undergo feature sharing.[34] Many have argued that the TP-over-vP structure is inadequate, i.e. that there is additional structure between vP and TP. Thus, many languages have intermediate V-movement, where V is lower than the finite verb in Romance, which is located in T, but higher than in English, where it is located in v (Belletti 1990, Stjepanović 1999, Cinque 1999, Bošković 2001). Also, languages like Icelandic clearly have two distinct subject positions above its θ-position (Bobaljik and Jonas 1996). Floating quantifiers also require richer clausal structure (Bošković 2004). There must then be additional structure between vP and TP. As a result, subject raising from vP to TP complies with antilocality.

*3.2.1. Ergatives.* The above analysis ties the exceptional behavior of VP with respect to the Complex XP Constraint to the presence of vP. There is rather strong evidence that the presence of vP (and the lack of a similar projection with NPs/APs/PPs; I return to the issue below) is indeed what is responsible for the exceptional behavior of VP regarding the Complex XP Constraint.

Recall that, in contrast to nouns, verbs allow extraction from their complements. Importantly, ergative verbs behave differently from other verbs in this respect. Consider (80)-(81), which involve extraction out of a non-clausal object. Significantly, (80) is clearly better than (81), which involves an ergative verb (the adverbs are added to control for the possibility of heavy NP shift).

(80)    *Who did they see (some) friends of t$_i$ yesterday?*
(81) ?**Who$_i$ did there arrive (some) friends of t$_i$ last week?*

Only argument extraction, which yields a weaker violation, can be checked with extraction from DPs. Belletti and Rizzi (1988), however, show psych-verbs enter into ergative patterns. Since they can take CP arguments adjunct extraction can then be checked (I discuss only ditransitives here; for ergatives with a single CP argument (and for infinitives), see sections 4-5, where it is shown they also exhibit Complex VP Constraint effects). (82)-(84) involve uncontroversial ergative psych-verbs. Moreover, the clausal argument here has been argued to be located in the V-complement

position (Belletti and Rizzi 1988, Pesetsky 1995, Landau 2009). Importantly, both argument and adjunct extraction from the CP are degraded, the latter being significantly worse, as expected.[35]

(82)   a. ??*What_i did it appeal to Mary [that John fixed t_i]?*
       b. * *How_i did it appeal to Mary [that John fixed the car t_i]?*
(83)   a. ??*What_i did it depress Mary [that John sold t_i]?*
       b. * *How_i did it depress Mary [that John was fired t_i]?*
(84)   a. ??*What_i does it bother Bill [that John underestimates t_i]?*
       b. * *How_i does it bother Bill [that John fixed the car t_i]?*

There are also transitive ergatives that do not involve clausal arguments (only argument extraction, which yields weak violations, can be checked here). Importantly, Belletti and Rizzi (1988) note that extraction from the object is degraded in such cases in Italian; Roberts (1991) and Johnson (1992) show the same holds for English (see also Herschensohn 1992 for French), as in (85)-(86). (Legate 2003 uses *escape* as an example of a transitive ergative; see also Pesetsky 1995, Landau 2009.)

(85)   a. ??*Who did your behavior bother the sister of?*
       b. cf.*Who did you tease the sister of?*
           (Johnson 1992)
(86) ?**Who did John's embarrassment escape friends of?*

What we see here is the Generalized Complex VP Constraint at work: the Generalized Complex VP Constraint effects thus emerge with ergative verbs. This leads me to posit a version of the Generalized Complex NP Constraint for VPs too, modifying (44) as in (88) (see also fn 25).

(87)   The Generalized Complex Ergative VP Constraint
       Extraction out of complements of ergative verbs is disallowed.
(88)   The Complex XP Constraint (where X ≠ non-ergative V)
       Extraction out of complements of lexical heads is disallowed.

(87) follows from the current system and is exactly what is expected if the presence of the thematic vP projection is responsible for the exceptional behavior of verbs regarding the Complex XP Constraint. Recall that the highest projection in the thematic domain of a lexical head functions as a phase. With ergatives, due to the lack of vP (or a θ-marking vP, see fn 35), VP is the highest phrase in the thematic domain of V, hence a phase (for evidence for phasehood of ergatives, see Bošković 2014, Harwood 2013, Legate 2003, Wurmbrand 2013a). The difference between ergative and non-ergative constructions is then that VP is a phase in the former, but not in the latter. In light of this, consider extraction from clausal complements. Recall that with the non-ergative verb in (79), there is no need to target VP; from CP *how* moves to vP, the highest phrase in the next thematic domain hence a phase. This step does not violate antilocality. Consider now ergative (89). (I ignore V-movement.) VP is the highest (and only) projection in the relevant thematic domain, hence a phase. Movement then must target VP in (89), in contrast to (79). However, this step violates antilocality.

(89) * *How$_i$ did it* [$_{?/VP}$ $t_i$ [$_{VP}$ *appeal to Mary* [$_{?/CP}$ $t_i$ [$_{CP}$ *that* [$_{IP}$ *John* [$_{vP}$ *fixed the car $t_i$*]]]]]]?

Consider now DP complements. DP being a phase, movement in (90)-(91) must pass through DP. The next step in (90) targets vP. However, since, in contrast to (90), VP is a phase in (91) as the highest projection in the relevant thematic domain, movement in (91) must pass through VP, which violates antilocality. The different behavior of ergative and non-ergative verbs regarding the Generalized Complex VP Constraint, i.e. all the contrasts in (80)-(86), is thus captured.[36]

(90)   *Who$_i$ did they* [$_{?/vP}$ $t_i$ [$_{vP}$ [$_{VP}$ *see* [$_{?/DP}$ $t_i$ [$_{DP}$ [$_{NP}$ *(some) friends of $t_i$ yesterday*]]]]]]
(91) ?**Who$_i$ did there* [$_{?/VP}$ $t_i$ [$_{VP}$ *arrive* [$_{?/DP}$ $t_i$ [$_{DP}$ [$_{NP}$ *(some) friends of $t_i$ last week*]]]]]

Recall now the crucial question which we have started the discussion with: why is it that there is no Complex VP Constraint, in contrast to the Complex NP Constraint and it turned out the Complex AP Constraint and the Complex PP Constraint. The answer should be obvious now: the clue to the answer was provided by the existence of the Complex VP Constraint effects with ergative verbs. The obvious difference between ergative and non-ergative verbs is the existence of vP (i.e. a θ-marking vP) with the latter. The above account has capitalized on that: we have seen that a particular approach to phases can provide a principled account of the different behavior of ergative and non-ergative verbs regarding locality given the presence of vP with the latter. Generalizing this, the reason for the contrast between (5), which is acceptable, and (3), (27), (39c), as well as (82b), which are unacceptable, i.e. the reason for the different behavior of VP and NP/AP/PP regarding the Complex XP Constraint, is then the presence of vP, i.e. the assignment of the external θ-role in a projection distinct from VP. There is then no such projection with NP, AP, and PP. nP/pP/aP are often posited merely for the sake of uniformity with VP. But the fact is that there is no uniformity across these domains regarding extraction.[37]

  It may be worth noting here that under the current analysis, all the unacceptable examples that instantiate the Complex XP Constraint involve a double-phase configuration, where a phasal head takes a phase as its complement. In fact, the configuration is very recalcitrant to extraction, leaving a very small window for it: only elements that are immediately dominated by a category projected by the lower phase (prior to the movement) can be extracted (see the discussion of (63) and section 4.4). We may in fact refer to this as the Phase-over-Phase theorem given that it follows from other mechanisms, namely an interaction of the theory of phases argued for here, the labeling algorithm, and antilocality. (For an alternative deduction of the Complex XP Constraint which pays special attention to the phase-over-phase configuration and which is crucially based on the proposal that a phase is completely inaccessible, with no edge/PIC exception (the PIC actually being eliminated) once a higher phase head enters the structure, see Bošković 2015a.)

*3.2.2. The Subject Condition.* The analyses presented so far are compatible with both the intermediate adjunction and the unlabelled intermediate projections approach. There is, however, a rather interesting additional consequence of the latter: it captures the ban on extraction from subjects in SpecIP (the former actually also does it under the proposal from fn 33). Consider (92).

(92) * *I wonder who$_i$* [*friends of $t_i$*] *left.*

Since subjects are phases, whatever moves out of a subject must first move to its edge. Given the cycle, this needs to happen before the subject moves from its base-position in vP. Since the moving element and D(P) are not involved in feature-sharing, as discussed, we end up with an unlabeled element, which moves and merges with IP, a non-head at this point (the subject is given in italics).

(93)    … [₂ who [DP subject]] [IP I...[vP

It is natural to assume that at this point there can be no feature sharing between IP and the subject since the latter is unlabelled. The next step involves merger with C, with C, a head, projecting. *Who* then targets CP. As should be obvious from (94), this step violates antilocality. (After the movement, ?1 is labeled DP and ?2 IP (via feature sharing), but that is too late to save the derivation.)

(94)    …C [₂ [₁ who [DP subject]] [IP  I...[vP

The Subject Condition is thus also captured, in fact in the same way as the Complex XP Constraint.[38]

3.2.4. *Passives.* I now turn to passives.[39] It should be noted at the outset that due to the wide range of proposals regarding external θ-role absorption, which can be interpreted as involving or not involving an additional phrase in the thematic domain, the current theory does not make clear predictions for extraction with passives. However, it can be used to help establish the proper treatment of external θ-role absorption, i.e. to address the issue of whether there is external θ-role assignment in SpecvP in passives. If there is, vP, not VP, will be the phase; if there isn't, VP will be the phase. Note that the issue is not the existence of an additional projection with passives, it may well be there anyway; the question concerns its thematic status, including the exact mechanism of external θ-role absorption, which can be (but does not have to be, see fn 40) interpreted as rendering the relevant phrase non-thematic for our purposes due to the blocking of regular external θ-role assignment in its Spec. In other words, only the presence of a vP where the external θ-role is actually assigned in SpecvP will clearly void the phasehood of VP in passives.

It turns out that, like ergatives, passives behave differently from active non-ergative verbs regarding (44); they do seem to show Complex XP Constraint effects. Thus, there is a rather clear contrast with adjunct extraction from the embedded CP between active (95) and passive (96). The relevant contrast is significantly weaker with objects; still all my informants, who were specifically asked to compare the relevant examples, prefer (97) to (98) (the judgments for (98) ranging from * to ?; see fn 9 for a potentially interferring factor here). PP object extraction in (99) is more clearly degraded. With subject extraction, the relevant contrast is again rather strong (100)-(101).[40][41]

(95)    *How did they believe* [*that John hired her t*]?
(96) * *How was it believed* [*that John hired her t*]?
(97)    *Who did they believe that John hired?*
(98) ?? *Who was it believed that John hired?*
(99) ?* *To whom was it believed* [*that John spoke t*]?
(100)    *Who did they believe hired Mary?*
(101) * *Who was it believed hired Mary?*

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We may again have here the Generalized Complex VP Constraint at work (for additional cases, see sections 4-5). These cases can also be captured if, in contrast to active VPs, like ergatives, passives lack the <u>thematic</u> vP layer.[42] As the highest projection in the thematic domain VP then functions as a phase, hence movement must target VP in (103), in contrast to (102),which violates antilocality.[43]

(102)    *How did they* [$_{?/vP}$ $t_i$ [$_{vP}$ [$_{VP}$ *believe* [$_{?/CP}$ $t_i$ [$_{CP}$ [*that John hired her t*]]]]]]
(103)* *How was it* [$_{?/VP}$ $t_i$ [$_{VP}$ *believed* [$_{?/CP}$ $t_i$ [$_{CP}$ [*that John hired her t*]]]]]

3.2.2. *French ergative/raising verbs.* I now turn to French, which is interesting due to V-movement. Any language with V-movement outside of vP may not be a reliable testing ground for the ergative/non-ergative extraction distinction due to the possibility of object movement (in spite of the object following the verb, see fn 43). Moreover, as discussed in Bošković (2013b) (see den Dikken 2007, Gallego and Uriagereka 2007 for another perspective), head-movement can improve some locality violations. Depending on how the effect in question is exactly implemented (the behavior of French here may actually bear on this, see section 3.3), it may or may not extend to the French counterparts of examples like (81) and (96). In other words, V-movement languages like French need not necessarily behave like English regarding extraction from ergative/passive VPs.

It turns out that French shows the same contrast as English does regarding (80)-(81), as (104)-(106), provided by A. Rocquet, show. There is a contrast here between extraction from transitive and ergative/passive contexts, which indicates that V-movement does not improve the latter.

(104)    A day after a parents-teachers meeting the English (A) and the math teacher (B) are talking:
    A: *J'ai    rencontré des   parents d'élèves  hier     soir.*
       I.have met      a.PL  parents of.pupils yesterday evening
       'I met parents of pupils yesterday evening.'
    B: *Ah oui, (et) de qui/de quels  élèves  tu   as    vu   les  parents hier     soir?*
       oh yes and of who/of which pupils  you have seen the  parents yesterday evening
       'Oh, really?! (And) who/which pupils did you see the parents of yesterday evening?'
(105)    A: *Il    est arrivé des parents d'élèves   hier     soir    dans mon bureau.*
       there is  arrived a.PL parents of.pupils  yesterday evening in    my  office
       'There arrived parents of pupils in my office yesterday evening.'
    B:??*Ah oui, (et) de qui/de quels  élèves il   est arrivé  des  parents hier    soir ?*
       oh yes and of who/of.which pupils there is arrived  a.PL  parents yesterday evening
       Oh, really?! (And) who/which pupils did there arrive parents of yesterday evening.'
(106)    Context: Some parents didn't come to the parents-teachers meeting but the teachers would have liked to talk to them, so they decide to call them in.
    A:??*Suite  à  la  réunion, il    a   été  convoqué des  parents.*
       further to the  meeting there has been called.in   a.PL  parents
       'Further to the meeting, some parents were called in.'
    B: *Ah oui, (et) de qui/de quels  élèves il    a   été  convoqué des parents?*
       oh yes and of who/of.which pupils there has  been called.in  a.PL parents
       'Oh, really?! (And) Who/which pupils did they call in parents of?'

Consider now passives involving clausal arguments. There is a passive/active contrast with *dire* in (107)-(108) (the data are due to I. Roy): while (107) is clearly acceptable with modification of either the matrix or the embedded verb, (108) is much better if *comment* modifies the matrix verb.

(107)   *Comment ont-ils dit que Jean l'avait engagée?*
        'How did they say that John hired her?'
(108)   *Comment a-t-il été dit que Jean l'avait engagée?*
        'How was it said that John hired her?'

Zaring (1994:535) gives examples of this type with *remarqué, demandé, and constaté*: extraction from the embedded clause is impossible in all the examples below.

(109) ?**Comment_i a-t-il été remarqué* [*que Suzanne traite son collègue t_i*]*?*
        'How was it noticed that Suzanne treats her colleague?'
(110) ?**Comment_i a-t-il été demandé* [*que tout le monde remplisse le formulaire t_i*]*?*
        'How was it requested that everyone fill out the form?'
(111) *  *Comment_i a-t-il été constaté* [*que les délégués évitent les reposters t_i*]*?*
        'How was it noticed that the delegates avoid the reporters?'

However, she also notes extraction is possible with *suggéré* with expletive *il*, though not with *cela*.

(112)   *Comment_i a-t-il été    suggéré    [que nous refassions le    programme t_i*]*?*
        how        has.it been suggested  that we    redo       the program
(113) *  *Comment_i est-ce que cela a  été    suggéré   [que nous refassions le    programme t_i*]*?*
        how        Q            it  has been suggested that we  redo       the program

This could be taken to indicate that not all passives should be treated in the same way. The issue is obviously too complex to resolve here (especially from a crosslinguistic perspective). I merely note that among the additional factors (independent from the current system, which, recall, does not make clear predictions regarding passives) that could be in play with passives noted in fn 40 some are more suitable than others for capturing lexical variation across different verbs of the same language (cf. also fn 64 and section 5).[44]At any rate, putting the additional complexities aside, although we are not dealing with a black-and-white issue, it seems clear that extraction from complements of passive verbs is more difficult than extraction from complements of active verbs.

3.3. *Domain collapsing*
In this section I observe a previously unreported exception to the Complex NP Constraint. In particular, Setswana does not display CNPC effects in examples like (2).[45]

(114)   *Ke  m-ang   yo    o      utlw-ile-ng   ma-gatwe  a    gore ntša  e      lom-ile?*
        it    C1-who  C1Rel 2sgSM hear-Perf-Rel C6-rumor  C6SM that C9-dog C9SM bite-Perf
        'Who did you hear rumors that a dog bit?'

Setswana is a Bantu language where the noun precedes <u>all</u> other TNP-elements, which is analyzed in terms of N-to-D movement (Carstens 2010).I suggest that what is responsible for the exceptional behavior of Setswana regarding the CNPC is in fact its N-initial word order, i.e. N-to-D movement. In particular, I suggest that in the case of a complex phase, i.e. a phasal projection headed by two phasal heads (due to the head-movement of the lower phasal head to the higher phasal head), we are dealing with phase collapsing: the two phases are collapsed into one (I assume that in the relevant configuration the raised head must be a sister to a segment of the higher head). As a result of N-to-D, the object DP in (114) is a complex phase, headed by two phasal heads, D and N. Since we are then dealing here with one phase, the NP itself is not a phase.[46] This means the wh-phrase can move directly from CP to DP, which voids the violation that arises with extraction from the complex NP in English (2)/(59). The insensitivity of Setswana to the CNPC is thus accounted for.[47]

The analysis also has consequences for P-stranding. We have seen that (10) can be accounted for if there is an XP between NP and DP (see the discussion of (63)). However, XP is unnecessary if the reanalysis account of P-stranding is adopted and implemented in terms of P-incorporation (overt or covert), following a number of authors (e.g. Baker 1988, Landau 2009). Consider (115).[48]


(115)    *Who$_i$ did you see* [$_{DP}$ $t_i$ [$_{NP}$ *friends of$_j$* [$_{PP}$ $t_j$ $t_i$]]]?


Due to phasal-head-to-phasal-head movement, we are dealing here with a phase collapsing context, where the two phases are collapsed into one. Phase collapsing should also hold for the PIC. Under the current PIC, what is visible from outside of a complex phase is then whatever is immediately dominated by a projection of either phasal head. NP in (115) is a complex phase headed by two phasal heads (*friends+of*), a phase-collapsing context. *Who* in the P-complement is then accessible to D under the current conception of the PIC, which means it need not move to the NP. There is then no locality violation in (115). Crucially, it is not necessary to posit an XP between NP and DP.

The analysis is applicable to other domains. Galician has a rather interesting phenomenon of D-incorporation which voids islandhood (see Uriagereka 1988, Bošković 2013b). Thus, Galician disallows movement from definite DPs. However, the violation is voided when D incorporates into the verb. (I assume V moves to v and D incorporates into the V+v head. Since traces do not count as interveners (see Chomsky 1995, Bošković 2011), there is no locality violation here.)


(116)   a. * *e      de quén$_i$  viche       [$_{DP}$ o  [$_{NP}$ retrato    t$_i$]]?*
             and  of who  saw(you)     the       portrait
        b.   *e      de quén$_j$  viche-lo$_i$      [$_{DP}$ [$_{D'}$ t$_i$ [$_{NP}$ retrato    t$_j$]]]?*
             and  of whom  saw(you)-the                     portrait
             'so, who have you seen the portrait of?'
             (Uriagereka 1988)


Suppose (at least some) traditional islands do not allow movement to pass through their edge, i.e. this is the source of their islandhood.[49] v then cannot attract the wh-phrase in (116a) due to the PIC. Consider (116b). Due to D-movement, vP is a complex phasal domain, which means DP is not a

phase here. As a result, v can attract the wh-phrase from its base position, given the PIC in (53). (116) is thus unified with the lack of the CNPC effect in Setswana (114) and the P-stranding issue.[50]

The analysis may be extendable to exceptional cases like (6) (i.e. *the money which I am making the claim that the company squandered amounts to $400,000*). As noted above, such cases have been treated in terms of complex-predicate formation/reanalysis/incorporation. Suppose we adopt the last option, treating them as involving covert N+D-to-V+v movement.[51] Since the phasehood of both DP and NP is then voided (N-to-D voids it for NP, as in Setswana, and D-to-v for DP, as in Galician), *which* can move from the CP directly to the vP. (6) is then expected to be acceptable.

Recall now that adjunct extraction is still impossible in this context; thus, the adjunct in (7) cannot modify the most embedded clause. Interestingly, the same holds for Galician D-incorporation: adjunct extraction remains unacceptable even under D-incorporation.

(117)  a. * *Por quen    escoitamos* [ *a    descripcion t*]?
           by   whom   listened-we   the   description
       b. * *Por quen escoitamo-la descripcion?*
       c. * *Segun          quen    escoitamos* [*o    evanxelio t*]?
           according-to   whom   listened-we   the   Gospel
       d. * *Segun quen escoitamo-lo evanxeli?*

As discussed above regarding English (cf. (25)), NP-adjunct extraction is ruled out in DP languages (regardless of the definiteness of the DP) due to a locality effect. What is important here is that D-incorporation does not rescue it. While it is still unclear why adjunct extraction cases do not improve, the fact that the Galican case in (116) and the *make-the-claim* case in (6) behave in the same way in this respect can be interpreted as indicating that a uniform analysis is in order here.[52]

There is another relevant case. Cinque (1990:38) notes argument extraction is possible in (118) and argues *on*/*to* are prepositional complementizers here (cf. Reuland 1983), just like *for* in (119).

(118)  a.   *What were you counting on him fixing?*
       b.   *What were you looking forward to fixing?*
(119)  *What did you prefer for John to send?*

Interestingly, in all these cases adjunct extraction is not possible; (120)-(121) disallow the embedded clause reading of the adjunct (they are acceptable on the matrix clause reading).

(120)  a.   *How were you counting on him fixing the car?*
       b.   *How were you looking forward to fixing that car?*
       c.   *Why did you insist on sending that invitation?*
(121)  *Why did you prefer for John to send that invitation?*

The asymmetry can be interpreted as calling for a reanalysis-style account. Suppose we interpret the obvious intuition that *on* and *for* in (120)-(121) are both a complementizer and a preposition as indicating that (120)-(121) involve both a CP and a PP, with *on* and *for* moving from $C^0$ to $P^0$.[53]

(122)    … [$_{PP}$ on/for$_i$ [$_{CP}$ t$_i$ …

We are then dealing here with a Complex XP context with P taking a CP complement, just as in (39)-(40). Extraction in this context yields a locality violation as discussed above. However, the violation is voided in (118)-(119) due to the reanalysis/C-to-P movement, which voids CP phasehood, as a result of which wh-movement out of the CP need not target the CP.

(123)    *What$_j$ were you counting* [$_{?/PP}$ t$_j$ [$_{PP}$ on$_i$ [$_{CP}$ [$_{C'}$ t$_i$ [$_{IP}$ him [$_{?/vP}$ t$_j$ [$_{vP}$ *fixing* t$_j$]]]]]]]?
(124)    *What$_j$ did you prefer* [$_{?/PP}$ t$_j$ [$_{PP}$ for$_i$ [$_{CP}$ [$_{C'}$ t$_i$ [$_{IP}$ John to [$_{?/vP}$ t$_j$ [$_{vP}$ *send* t$_j$]]]]]]]?

Just as in the case of *make-the-claim* and Galician D-incorporation, the rescuing effect fails with adjunct extraction, suggesting a unified analysis may be in order. The reanalysis (i.e. phase collapsing) account thus enables us to capture the intuitition that *on/for* in this kind of examples are both complementizers and prepositions as well as the selectivity of the rescuing effect.[54]

   As noted by J. Nunes (p.c.), a similar analysis may be appropriate for factive complements, which allow argument but not adjunct extraction (compare *Who did you regret [that Mary left t]* vs *How did you regret [that Mary left t]*, if such complements involve a null nominal (see Kiparsky and Kiparsky 1970) that incorporates into the higher verb. The presence of the nominal would create a complex NP configuration, which would be voided for argument but not for adjunct extraction due to the incorporation (it is possible that the incorporation does not take place in Greek, where argument extraction out of factive complements is also unacceptable, see Roussou 1994).

   It should be noted that phase collapsing is similar to phase sliding/extension (see den Dikken 2007, Gallego and Uriagereka 2007, Wurmbrand 2013b), where head-movement extends the phase to the next projection, and can be considered to belong to the same line of research. However, phase sliding is more powerful; any movement of a phase head voids the phasehood of its phrase, also making the phrase where the movement lands a phase (even if it otherwise is not). Phase collapsing is weaker: it cannot turn a non-phase into a phase and voids the phasehood of HP under head-movement of H only if H moves to a phase head. While determining which approach is more appropriate in capturing the effect of head-movement on phasehood is beyond the scope of this work, I note that phase sliding but not phase collapsing would incorrectly void the phase effect in English (82)-(84) and the French cases from section 3.2.2 due to V-movement.

  To sum up section 3, the Complex XP Constraint also holds in ergative and passive VP contexts.[55] I have proposed a deduction of the Complex XP Constraint where the reason for the lack of its effects in other VP contexts is the presence of vP. The deduction was based on an approach where the highest projection in the thematic domain of every lexical head as well as the highest projection in the functional/non-thematic domain function as phases. As in Chomsky (2000), this makes vP and CP (and DP) a phase; however, ergative VP as well as NP, AP, and PP are also phases.[56] I have also proposed a new approach to the PIC where what is accessible outside of phase HP is what is immediately dominated by a projection of H, which means that the complement of H is also accessible outside of HP. This follows the spirit of Uriagereka's (1999) original proposal regarding multiple spell-out, where X that is sent to spell-out is still accessible for syntactic operations, but nothing within X is. Another ingredient of the proposed analysis was Chomsky's (2013) labeling

algorithm, where I considered the possibility of a modification which leads to successive-cyclic A'-movement involving intermediate adjunctions, not Specs. I have also proposed *phase collapsing*, where head-movement of a phase head to a phase head collapses two phasal domains into one.

## 4. Infinitives as non-V complements

I now turn to infinitives. It should be noted at the outset that infinitives cannot really be used to test the current approach to phases. It is well-known that they are more porous than finite clauses regarding many phenomena (e.g. (158)-(160) below). It would be rather easy to implement this porousness in such a way that movements that are disallowed with finite clauses are allowed with infinitives. As a result, instead of using infinitives to test the current approach to phases I will attempt to use the latter to test various options for the structure of infinitival constructions as well as different proposals regarding the phasal status of various infinitives. This will lead me to examine interactions between extraction and other properties of infinitives that are rarely discussed, probably because their grammaticality status has been taken for granted even in the absence of actual investigation. We will see that a close investigation of these extraction patterns leads to surprising results. It should, however, be noted that some of the data discussed in this section are rather intricate; there in fact seems to be genuine speaker variation regarding some of the patterns discussed below (as noted below, there are conflicting factual claims in the literature even regarding the basic patterns of extraction from infinitives). While an attempt will be made to make some sense out of it, it is not possible to fully capture speaker variation in the work of this scope. Rather, the goal here is more modest: to set the stage for future, more detailed examinations.

4.1. *Control infinitives as complements of non-verbal predicates*
I will start with Li's (1993) observation that in contrast to verbal control infinitival complements (126), adjunct extraction is banned from non-verbal control infinitival complements, as in (125).

(125)* *How did he witness an attempt* [*to fix the car t*]?
(126) *How did he attempt* [*to fix the car t*]?

Argument extraction from non-raising non-V infinitival complements is fine according to Li, but Chomsky (1973) considers it unacceptable based on examples like (127). My informants display variation regarding cases like (128). Most find it at least slightly degraded but some do find it acceptable. What may be an issue here is that some islands are often weakened with infinitives. Thus, for an unclear reason for most speakers wh-islands are completely voided with argument extraction from infinitives (129) (this may hold even with PPs as in Cinque's 1990:52 *To whom did you wonder what to give*), although such cases seem to involve the same structure in the relevant respect as their finite counterparts and the island effect is found with adjuncts, as in *How/why do you wonder [whether to leave t]*. Another interfering factor with arguments in at least some cases concerns the issue noted regarding (6)-(7), i.e. complex-predicate formation or more generally phase collapsing (see section 3.3);[57] as noted above, this issue does not arise with adjuncts. Given the unclear status of argument extraction from non-verbal infinitival complements (and the inter-

fering factors), I will put it aside (apart from a few remarks in footnotes), assuming that for those who find it acceptable we are dealing with the same effect as in argument extraction from wh-infinitives or other issues noted above. I will therefore focus on adjunct extraction, which is disallowed from non-V control infinitival complements. Additional examples are given in (130)-(131).

(127) *  *Who will they obey/okay any requests to kill?*
        (Chomsky 1973)
(128) (??)*What did John witness (several) attempts to topple?*
(129)    *What do you wonder whether to buy?*
(130) *  *How were you proud to learn English?*
(131)    a. * *How does Bert have a plan to fix the car?*
         b. * *How is Bert able to fix Ernie's car?*
         (Li 2003)

Such cases can be handled easily. They instantiate the general pattern of the Complex XP Constraint and can be accounted for in the same way as other instances of (44). It is standardly assumed control infinitives are phases. Then, *how* in (132) has to move to the edge of the infinitive; the next step involves movement to NP/AP, which violates antilocality. (InfP, used for ease of exposition, stands for whatever the category of the infinitive is; see Wurmbrand 2013a, 2014.)

(132)    a. * *How$_i$ does Bert have a* [$_{NP}$ $t_i$ [$_{NP}$ *plan* [$_{InfP}$ $t_i$ [$_{InfP}$ *to fix the car $t_i$*]]]]]
         b. * *How$_i$ is Bert* [$_{AP}$ $t_i$ [$_{AP}$ *able* [$_{InfP}$ $t_i$ [$_{InfP}$ *to fix Ernie's car $t_i$*]]]]]

### 4.2. *Raising infinitives*
Consider now raising infinitives, which allow adjunct extraction.

(133)    *How is John likely* [*to fix the car t*]?

This is expected in Chomsky (2000), where in contrast to control infinitives, raising infinitives are not phases (control infinitives are CPs while raising infinitives are IPs and only CPs are phases). *How* then need not target the infinitive here hence the violation from (132) does not occur in (133).

   Wurmbrand (2013a), however, argues that raising infinitives are phases (though not IPs). In fact, for Bošković (2014), the infinitive in (133) will be a phase even if it is an IP. There, the highest projection in the clausal domain functions as a phase (see also Wurmbrand 2013a). The infinitive in both (125) and (133) should then be a phase regardless of its category. Both of these approaches regarding the phase status of infinitives can be incorporated into the current phasal system, though Chomsky's would require a modification, where the highest projection in the thematic domain and CP would function as phases (DP would be the nominal counterpart of CP hence treated the same way). (133) seems to favor Chomsky's position regarding the phase status of raising infinitives. The situation is, however, not completely clear. There is some controversy regarding the lexical/ functional nature of raising predicates (see e.g. Cinque 2006, Wurmbrand 2001, Takahashi 2011) as well as their status as θ-role assigners. If they are not fully lexical, or do not assign true θ-roles

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(such an analysis could be particularly appropriate for epistemic elements like *likely*), they should not be starting a new (thematic) phasal domain. The projection headed by *likely* in (133) then would not be a phase, hence no locality violation would occur in (133) with the movement of *how*.

A closer scrutiny, however, reveals that adjunct extraction from raising infinitives is in fact not possible. Li (2003) does not discuss passive raising infinitives (i.e. contexts where the higher verb is a passive). They actually behave differently from (133). Recall that extraction is not possible from the finite complement of passive *believe*, in contrast to active *believe*.[58] Raising passive *believe* patterns here with passive *believe* that takes a finite complement (see also (157)).[59]

(134)　*How$_i$ did they believe* [*that John hired her t$_i$*]?
(135)* *How$_i$ was it believed* [*that John hired her t$_i$*]?
(136)* *How$_i$ was John believed* [*to have hired her t$_i$*]?

This follows from the current system if raising infinitives are phases (i.e. the highest projection of raising infinitives is a phase because it is the highest projection in the clausal domain). (136) is then treated in the same way as (135), discussed in section 3.2. Due to the lack of a θ-marking vP, *how* must move from the infinitive to the VP, which violates antilocality.

(137)* *How$_i$ was John* [$_{?/VP}$ $t_i$ [$_{VP}$ *believed* [$_{?/InfP}$ $t_i$ [$_{InfP}$ *to have hired her t$_i$*]]]]]?

As for other raising infinitives, although it is standardly assumed that they allow adjunct extraction the facts indicate that they do not, in spite of the lower clause reading of *how* in (133). A number of authors have argued that traditional raising infinitives are ambiguous between the raising and the control option, see e.g Lasnik and Saito (1992) and Martin (2001). As discussed there, there are several ways of disambiguating such cases. The most straightforward way of forcing the raising option is to use expletive *there*, since *there* cannot function as a controller. Surprisingly, such disambiguation affects adjunct extraction. Thus, the embedded clause reading of *how* is not available in (138)-(139) (i.e. it is much more difficult to get it in (138)-(139) than in (133)).

(138)* *How$_i$ is there likely* [*to arrive someone t$_i$ tomorrow*]?
(139)* *How$_i$ does there seem* [*to have arrived someone t$_i$*]?

This indicates adjunct extraction is disallowed from raising infinitives. (140)-(141) confirm this conclusion. Martin (2001) argues the control option for *seem* is more salient in the past than in the present tense. Significantly, the embedded clause reading is easier to obtain in (141) than in (140).

(140)??*How$_i$ does John seem* [*to have hit Bill t$_i$*]?
(141)　*How$_i$ did John seem* [*to have hit Bill t$_i$*]?

Idiom chunks behave like expletives. Caution is in order here however. Since there are verbs that disallow expletive subjects and scope ambiguities from (147) but still allow idiom chunk subjects (Zubizarreta 1983, Rochette 1988), idiom chunks should not be taken as a fully reliable diagnostic

of raising, i.e. they are less reliable than expletives and scope ambiguities (hence might be more likely to show speaker variation). Still, the embedded clause reading of *how* is unavailable in (142).

(142)   a. * *How$_i$ is the hatchet likely [to be buried t$_i$]?*
        b. * *How$_i$ is advantage likely [to be taken t$_i$ of Mary]?*

Furthermore, passive *believe* patterns with raising predicates regarding expletives and idioms.[60] Thus, there is a contrast between (143)-(144) and (145).

(143)   a. * *How$_i$ was the hatchet believed [to be buried t$_i$]?*
        b. * *How$_i$ is advantage believed [to be taken t$_i$ of Mary]?*
(144) * *How$_i$ was there believed [to have arrived someone t$_i$]?*
(145)   *How$_i$ did Peter believe [John to have kissed Mary t$_i$]?*

Also relevant is the following example noted by Troy Messick (p.c.).

(146)   *How$_i$ is someone likely [to fix the car t$_i$]?*

Subject reconstruction is the standard control/raising test, being available only with raising (see also (147)-(148)). Interestingly, the subject must have wide scope in (146) (i.e. the embedded clause reading of *how* makes the narrow scope reading of the subject more difficult to get), which confirms that adjunct extraction from the infinitive forces the control option.
   Consider also (147)-(149).

(147)   *Some senator is likely to lie to every member of his committee.*
(148)   *Some senator tried to lie to every member of his committee.*
        (Martin 2001)
(149)   *How$_i$ is some senator likely [to lie to every member of his committee t$_i$]?*

While (147) is ambiguous, the subject must take wide scope in (148). (147)-(148) illustrate the well-known raising/control asymmetry regarding scope reconstruction. Interestingly, the subject must take wide scope in (149) (more precisely, the low scope reading of the subject is more difficult to get in (149) than in (147) on the embedded clause reading of *how*), which confirms that adjunct extraction from the infinitive forces the control option.
   All this can be accounted for if the highest projection in the clausal domain functions as a phase regardless of its category. Under this approach, both control and raising infinitives are phases regardless of their categorial status. Consider traditional raising verbs like *seem* in light of this. Martin (2001) argues that on the control option, *seem* is an agentive predicate, with the subject receiving an agent θ-role (the precise θ-role does not matter for us). This means that there is a vP above VP on the control option, as in (150). As a result, no problem regarding extraction arises on this option, which is responsible for the acceptability of (141). (Only the relevant traces are shown.)

(150)   *How$_i$ did John [$_{?/vP}$ t$_i$ [$_{vP}$ [$_{VP}$ seem [$_{?/InfP}$ t$_i$ [$_{InfP}$ PRO to have hit Bill t$_i$]]]]]?*

On the raising option, *seem* does not assign the external θ-role. This means that VP is a phase in this case, hence adjunct extraction violates antilocality.

(151) * *How$_i$ does there* [$_{?/VP}$ *t$_i$* [$_{VP}$ *seem* [$_{?/InfP}$ *t$_i$* [$_{InfP}$ *to have arrived someone t$_i$*]]]]?

The dual behavior of *seem*, including the blocking effect of the raising option on adjunct extraction, can then be captured in a phasal system where the highest projection in any thematic/non-thematic domain functions as a phase. In fact, the facts in question can be interpreted as further confirmation of the existence of the Generalized Complex VP Constraint which holds only in the contexts where the verb does not assign the external θ-role, as well as the analysis of (44) presented here.

As for adjectives like *likely*, they can be straightforwardly handled on the raising option, which, as discussed above, disallows extraction. (152) is ruled out by antilocality on a par with (151).

(152) * *How$_i$ is there* [$_{?/AP}$ *t$_i$* [$_{AP}$ *likely* [$_{?/InfP}$ *t$_i$* [$_{InfP}$ *to arrive someone t$_i$ tomorrow*]]]]?

As for the control option, the obvious possibility is that *likely* is verbalized here. Li (2003) in fact suggests adjectives like *likely* are reanalyzed as verbal here. Since the external θ-role is assigned, there is then an additional thematic projection, on a par with the situation found with verbs.

4.3. *Expletive* it *with arbitrary control/*for *infinitives*
Turning now to control infinitives with expletive *it*, in contrast to control infinitives like (154), extraction is degraded with such infinitives, as shown by (153).

(153)   a. * *How$_i$ is it possible* [$_{InfP}$ *PRO to fix the car t$_i$*]
        (Uchiumi 2005)
        b. * *How$_i$ is it time* [$_{InfP}$ *PRO to fix Earnie's car t$_i$*]
        (Li 1993)
        c. * *How$_i$ is it desirable* [$_{InfP}$ *PRO to pass the exam t$_i$*]
(154)   *How did John* [$_{vP}$ [$_{VP}$ *try* [$_{InfP}$ *PRO to fix the car t$_i$*]]]]

Uchiumi (2005) observes that some speakers allow arbitrary PRO with *likely*. Interestingly, even for these speakers extraction from the infinitive is unacceptable.

(155)   a.(*)*When the numbers are so big, it is likely to underestimate costs out of confusion.*
        b. * *When the numbers are so big, how$_i$ is it likely* [$_{InfP}$ *PRO to underestimate costs t$_i$*]
        (Uchiumi 2005)

Li (1993) notes that extraction is also not possible from adjective+*for*-infinitives co-occurring with expletive *it* (156). Passivized infinitives with expletive *it* (not discussed by Li), also disallow adjunct extraction (157) (see section 3.3. for another factor that may be involved in *for*-infinitives).

(156) * *How is it possible/likely* [*for Bert to fix Ernie's car t*]*?*

(Li 1993)

(157) * *How$_i$ was it arranged* [*for John to leave t$_i$*]

All this is expected. In contrast to (154), the external θ-role is not assigned in the matrix clause of other examples from this section (even if the adjectives are verbalized here), the subject being an expletive.The matrix thematic layer has only one projection, which functions as a phase. Extraction proceeds from the edge of the infinitive to the edge of the phrase above it, violating antilocality.

### 4.4. *Subject raising*

A question now arises regarding the subject of ambiguous raising/control predicates. Given that *likely/seem* are ambiguous between control and raising it seems the simplest situation would be that they are always control predicates when they have a lexical subject, and raising predicates with an expletive subject; there would then be no ambiguous examples, each *likely/seem* construction being unambiguously raising or control. Most importantly, the subject would never be moving from the infinitive (see Bošković 2007 for evidence that expletive subjects do not undergo raising). This, however, will not work because of (147), where, in contrast to (148), the embedded QP can take wide scope. This indicates the raising option, which allows scopal reconstruction of the subject, is available here. Also relevant are examples like (136) where the matrix subject should be generated in the embedded clause for θ-theoretic reasons. A similar consideration holds for (142)-(143).

Why can then subjects move from raising infinitives while adjuncts can't? The labeling system in fact captures the discrepancy rather straightforwardly (the following departs from Chomsky 2013). Let us adopt the standard assumptions that raising infinitives are IPs and that there is φ-feature sharing between the subject and the infinitival head. As discussed above, movement from a raising infinitive must pass through the edge of the infinitive. However, since only subjects undergo feature-sharing with the infinitival head, only subjects can merge as SpecIPs, adjuncts cannot—they have to merge as IP-adjuncts or via an unlabelled projection. Since the next step targets VP/AP, antilocality is violated with adjunct movement, but not with subject movement.

There is also an alternative analysis that does not rely on feature-sharing between the subject and the infinitival T, which Chomsky (2013) does not adopt (see Bošković 2015a for another possibility).[61] Kayne (1981) argues that raising adjectives involve *be*-adjective reanalysis (cf. fn 11/52). As discussed above, the reanalysis would void the locality effect for subject but not adjunct extraction. Kayne's reanalysis is adjective specific but it can be extended to raising verbs. One option is a general infinitival verb+raising adjective/verb reanalysis. There is also a more interesting option. A number of authors have argued that ECM/raising infinitives are CPs (see Bošković 2007 and references therein and (158) for one relevant argument). Furthermore, Pesetsky (1992) argues that such infinitives are CPs whose C incorporates into the verb. Given the discussion from section 3.3, this will void the locality effect for subject raising but not for adjunct extraction.[62]

However, recall that infinitives are quite generally more porous for movement than finite clauses. This especially holds for A-movement, which is freer from infinitives than it should be. Thus, while A-movement is standardly assumed to be disallowed out of CPs, it is quite clearly allowed from infinitival CPs, as (158)-(160) show.[63]

(158)  a.  *Who did you expect your mother all to meet at the party?*
      b. * *Who did you arrange for your mother all to meet at the party?*
      (West Ulster English, McCloskey 2000)

(159)  *John to  Bob$_i$-o   otagai$_i$-no  titioya$_j$-ga  [$_{CP}$ PRO$_j$  t$_i$  rikaisiyoo  to]  kokoromita.*
      John and Bob-ACC  each other's fathers-NOM            understand  C  attempted
      'John and Bob, each other's fathers attempted to understand.'
      (Japanese, Nemoto 1991)

(160)  *He seems for to have left early.*

There is then something more general that makes infinitives more porous for A-movement than they should be. This may be interfering with the attempt made here to situate them within the current system and may in fact be responsible for the exceptional behavior of A-raising from infinitives.

    To summarize, this section has provided evidence that both control and raising infinitives are phases, as expected in an approach where the highest projection in the clausal domain is a phase regardless of its categorial status, as well as additional evidence for the dual raising/control analysis of traditional raising predicates. Unambiguous raising cases are more opaque for extraction than unambiguous control cases. Expletive *it*+arbitrary PRO/*for*-infinitives pattern with the former. The labeling algorithm (reanalysis being an alternative) accounts for the fact that subjects can undergo A-movement from raising infinitives (in contrast to A'-movement of adjuncts, which is disallowed).

## 5. Extraposed clauses

I now turn to finite extraposed clauses. Many such cases disallow extraction. Thus, Uchiumi (2005) observes that argument extraction is disallowed out of extraposed clauses like (161) based on (162). The same holds for adjunct extraction, as in (163).

(161)  *It is possible that John underestimates the value of his house.*
(162) ?**What is it possible that John underestimates?*
(163) * *How is it possible that John will fix the car?*

Nothing special needs to be said to account for this in the current system.

   For some speakers this pattern holds for all extraposed clauses. However, the data reported in the literature indicate that at least for some speakers not all extraposed clauses display this kind of behavior. This is e.g. the case with *likely* and *seem*.

(164)  *It is likely/seems that John bought a house.*

For some speakers, such extraposed clauses allow extraction, but not for all elements, as illustrated below for *likely*. There is a subject/object asymmetry (see Kayne 1984, Stowell 1981, Bošković and Lasnik 2003): objects can move (165), but subjects cannot (166). Adjuncts pattern with objects, as in (167) (see Bošković and Lasnik 2003. Recall that this pattern does not hold for all speakers; thus T. Messick (p.c.) finds all the examples in (165)-(167) at least somewhat degraded.)

(165)　　*What is it likely (that) John bought?*
(166)\* *Who is it likely bought a house?*
(167)　　*How is it likely* [*(that) John fixed the car t*]*?*

Such extraposed clauses display conflicting behavior from the current perspective. (From now on, I will use the term "extraposed clause" to refer only to clauses that evince this type of behavior, focusing therefore on the speakers for whom the pattern in (165)-(167) holds.) Objects/adjuncts can move out of them, which appears unexpected from the current perspective. Subjects, on the other hand, cannot, which seems to fit well with the current system. How can this pattern be captured? I will offer here some initial suggestions to this effect, starting with object/adjunct extraction.

A number of authors have argued that extraposed clauses are Specs/adjuncts (e.g. Reinhart 1980, Stowell 1981, Bošković 2002), an assumption I will also adopt for the extraposed clauses under discussion; in particular, I assume that they are AP/VP-adjoined.[64] In fact, if expletives can be generated either within or outside AP/VP (see fn 64), we can take generation of the expletive in the A/V-complement position to lead to AP/VP-adjunction of the clause. How can this help us with (165)? There is a broader issue at work here. For X to be subject to the PIC regarding phase α, X and α must be in a certain configuration. Thus, *who* in *Who$_i$ did she tell t$_i$ to leave* need not pass through the embedded vP phase. I therefore suggest that X is within phase α headed by H (hence subject to the PIC regarding α) if X is dominated by a <u>category</u> projected by H.

Consider then (165). The extraposed CP being a phase, *what* must move to its edge. *What* at the edge of CP that is adjoined to AP is not within the AP (since it is not dominated by AP) hence it is accessible outside the AP phase. Being accessible to the matrix C, *what* can move to SpecCP.

The analysis is confirmed by adverb extraction. Recall that SC allows adverb extraction (i.e. extraction of AP-adjoined elements) from predicative APs (see (69)).Consider, however, attributive APs, i.e. a configuration like (168) in a language like SC, where there is no DP above NP.

(168)　　*I saw extremely tall students*: [$_{vP}$ [$_{VP}$ [$_{?/NP}$ [$_{?/AP}$ *extremely* [$_{AP}$ *tall*]] [$_{NP}$ *students*]]]]

(168) involves the same configuration as (165) in the relevant respect. If *extremely* is accessible to operations outside of the NP phase, it can move directly to vP, in which case no antilocality violation will obtain. On other hand, if *extremely* is not accessible to operations outside of the NP phase, it must move to NP, which will violate antilocality. The fact is that *extremely*-extraction is possible here (it requires short-form adjectives for independent reasons discussed in Talić in press).

(169)? *Izuzetno$_i$　su　kupili*　[$_{?/AP}$ *t$_i$* [$_{AP}$ *skup*]]　　*automobil.*
　　　　extremely　are　bought　　　　　　expensive　car
　　　　'They bought an extremely expensive car.'

There is an interesting prediction here. This kind of extraction should be unacceptable if the NP from which the extraction takes place is a nominal complement, which is indeed the case. *Extremely* must move to the higher NP-edge in (170), which violates antilocality.

(170) * *Izuzetno$_i$   je   on   [$_{?/NP}$ $t_i$ [$_{NP}$ *ljubitelj* [$_{?/NP}$ [$_{?/AP}$ $t_i$ [$_{AP}$ *stári:h*]] [$_{NP}$ *knjiga*]]]].*
         extremely is he           fan                  old        books
         'He is a fan of extremely old books.'

Under this analysis, the *possible/likely* contrast noted above is treated essentially like (171)-(172).

(171)   *She regrets that Peter must leave.*
(172)   *She regrets it that Peter must leave.*

(171) is parallel to the *possible* case, with the CP being a complement. In (172), as with *likely*, the expletive functions as the complement, "kicking" the CP from that position. The above treatment of *possible/likely* can then be taken to be motivated by (171)-(172), where the difference of the kind proposed above for *possible/likely* is clearly present. However, (171)-(172) behave differently from *possible/likely* regarding extraction. While (171), which should pattern with *possible*, allows it (in contrast to *possible*), (172), which should pattern with *likely*, disallows it (in contrast to *likely*).[65] However, this is exactly what is expected under the current analysis due to the presence of vP in (171)-(172), as can be seen in the structures in (173)-(174). vP being a phase, movement must proceed via vP. Since CP is adjoined to VP in (174), movement from the edge of CP to the edge of vP violates antilocality here. The problem does not arise in (173), where CP is the V-complement.

(173)   *Who does she* [$_{?/vP}$ $t_i$ [$_{vP}$ [$_{VP}$ *regret* [$_{?/CP}$ $t_i$ [$_{CP}$ *that Peter must leave*]]]]]
(174) ?* *Who does she* [$_{?/vP}$ $t_i$ [$_{vP}$ [$_{?/VP}$ [$_{VP}$ *regret it*] [$_{?/CP}$ $t_i$ [$_{CP}$ *that Peter must leave*]]]]]

Although *possible/likely* are treated like (171)-(172) when it comes to the structural positions of the expletive and the clause, the current analysis thus predicts *possible/likely* to behave differently from their counterparts regarding extraction, which is indeed the case.

   There is an alternative account of (165) that does not require the above assumption regarding being within phase α or AP/VP-adjunction for the extraposed CP. I continue to assume expletives can be generated within or outside AP/VP. Following the line of research in Moro (1997), Hornstein and Witkoś (2003), Sabel (2000), I assume that expletives that are generated AP/VP-internally form a constituent with its associate clause. In particular, the two are generated within a dummy linker-like projection FP, as the Spec and the complement of that (non-phasal) projection (although it may not matter, CP could be the complement). The projection in question may also be den Dikken's (2006) RelatorP (as long as it is not a phase) under Moro's (1997) expletive/CP-constituent analysis, where the expletive and the CP are generated as a small clause involving a predication relation. The wh-phrase still needs to move to the extraposed CP before undergoing further movement. Additionally, the expletive and the wh-phrase need to move to the AP/VP phase. None of these movements violate antilocality, hence the grammaticality of (165)/(167).
  Both analyses suggested above tie the differences regarding extraction across different extraposed clauses to the different behavior of expletives in these clauses. There is evidence that such an approach is on the right track. Thus, Zaring (1994) observes that different expletives (*il* vs *cela*) can lead to different extraction possibilities from extraposed clauses in French, and Bennis (1986)

shows that the same holds for Dutch (Dutch has two overt (*het* and *er*) and possibly a covert expletive, which correlate with different extraction possibilites); it may then be that English also has two different types of expletives which correlate with extraction possibilities, they just happen to have the same morphological realization (as proposed by Zaring 1994).

I will now offer a speculation regarding subject extraction in (166). Many works have shown that subject movement to SpecCP cannot proceed via SpecIP (e.g. Bošković 2008, Erlewine in press, Holmberg & Hróarsdóttir 2003, Rizzi 1990, Rizzi & Shlonsky 2007).One way of implementing this is as follows: a subject with a wh-feature cannot undergo feature sharing with IP.[66] The only way of accomplishing labeling when a wh-subject merges with IP is then if the subject moves away, traces being ignored for labeling (under the alternative adjunction analysis, the wh-subject would adjoin to IP).If IP is dominated by CP, a phase, the subject must to move to CP, which violates antilocality.

(175)    [$_{?/CP}$ wh$_i$ [$_{CP}$ [$_{?/IP}$ t$_i$ [$_{IP}$

A CP then blocks subject wh-movement via SpecIP. No problem arises here for object/adjunct wh-phrases since they do not move via SpecIP, hence the contrast between (165)/(167) and (166).

The analysis also captures the *that*-trace effect: Movement from the IP-edge to the CP-edge in (176) also involves the context in (175), violating antilocality.[67]

(176)  *Who$_i$ did you say that t$_i$ left?*

The account also puts us in the position to understand the well-known but still mysterious improvement in (177). Browning (1996) and Watanabe (1993) argue that such cases involve CP-recursion; what is important for us is that there is a phrase between IP and CP, hence movement of the subject from IP to the highest CP, which functions as a phase, does not violate antilocality.

(177)    *Leslie is the person who I said* [$_{?/CP}$ t$_i$ *that* [$_{CP}$ *at no time* [$_{?/IP}$ t$_i$ [$_{IP}$ *considered running for public office.*
         (Browning 1996:246)

Kaqchikel provides strong evidence for the account. Erlewine (in press) shows that Kaqchikel has different morphology depending on whether or not the subject moves to SpecIP. As in many languages, a subject moving to SpecCP is not allowed to move via SpecIP (the morphology that accompanies subjects that move to SpecIP cannot be present in that case), which can be captured as discussed above (Erlewine also argues for an antilocality account). Significantly, Erlewine shows that when there is a phrase between IP and CP (evidence for which is provided by overt elements that are lower than CP but higher than IP), a wh-subject can pass through SpecIP on its way to SpecCP (the morphology that accompanies subject movement to SpecIP is then present). This is exactly what is expected. Due to the presence of this phrase, as in (177) and in contrast to (175), subject movement from IP to CP crosses a phrase here.

(178)    wh$_i$ [$_{CP}$ [$_{FP}$ [$_{?/IP}$ t$_i$ [$_{IP}$

## 6. Conclusion

This article has established a new generalization concerning domains from which extraction is possible. Taking as the starting point the well-known difference between NPs and VPs regarding extraction, where extraction from Complex NPs is not possible while extraction from Complex VPs is, I have argued that the former represents a pervasive pattern found in many contexts, the latter being highly exceptional. More precisely, extraction is impossible not only from clausal but all complements of nouns. Furthermore, it is impossible from complements of prepositions and adjectives, even ergative and passive verbs. The only context where extraction from the complement of a lexical category is possible in fact involves transitive (non-ergative/passive) verbs. Since the current theories of successive-cyclic movement are set up to account for this exceptional case, they make successive-cyclic movement too easy. The theory proposed here makes successive-cyclic movement more difficult. It also provides a principled reason why the general case, where movement from the complement of a lexical category is disallowed (see also fn 25), does not hold with transitive verbs: what is responsible for the exceptional behavior of this context is the presence of vP. The deduction of the otherwise general ban on extraction from complements of lexical heads proposed here was based on an approach to phases that combines Bošković's (2013a, 2014) approach to phases, Chomsky's original (2000) approach, and Grohmann's (2003) locality domains, which is nevertheless in its empirical effects rather different from all three of these, with the locality domains (i.e. phases) and the requirement of moving through phasal domains (i.e. the edge requirement) being formulated rather differently in the current approach. In the system argued for here, the highest projection in the thematic domain of every lexical head as well as the highest projection in the functional/non-thematic domain function as phases. As in Chomsky (2000), this makes vP and CP, as well as DP, a phase; however it also makes ergative VP a phase, as well as NP, AP, and PP. Since VP functions as a phase only in some contexts (when not dominated by vP), the current approach belongs to the contextual phasehood line of research. I have also proposed an approach to the PIC where what is accessible to operations outside of phase HP is what is immediately dominated by a projection of H, which includes the complement of H. This follows the spirit of Uriagereka's (1999) original conception of multiple spell-out, where X that is sent to spell-out is still accessible for syntactic operations, but nothing within X is. The theory argued for here thus divides structure into thematic and non-thematic domains, with the requirement that a moving element must undergo merger in the highest projection of each such domain: due to the current conception of the PIC, any merger within the highest projection of a phasal domain, including complement merger, suffices. The edge requirement thus refers to the highest projection of a phasal domain, not the edge of this projection. Two other ingredients of the proposed deduction of the ban on extraction from complements of lexical heads were antilocality (the ban on movement that is too short) and Chomsky's (2013) approach to projection/labelling. A number of proposals were also made regarding a variety of constructions and mechanisms in the course of the discussion, especially regarding clausal structure, the Subject Condition effect, raising infinitives, extraposed clauses, the *that-t* effect, and the effect of head-movement on phase-related locality mechanisms, which was argued to obtain only when a phasal head moves to a phasal head.

**Notes**

[1]Extraction is disallowed both from relative clauses and clausal complements of nouns. I will confine the discussion to the latter since the former falls under the ban on extraction out of adjuncts (for the moment I focus on finite CP complements; infinitives will be discussed in section 4). Note also that the CNPC cannot be reduced to the adjunct condition by treating nominal clausal complements as appositives/adjuncts, as demonstrated in Safir (1985).

[2]Two methodological points are in order. Any in depth study of islands is bound to involve some data idealization. For most islands there are some languages that do not obey them. Even in the rare case of an island that seems universal, like adjuncts, there are exceptions: there are adjuncts from which extraction is possible even in English (Truswell 2010). The standard practice has always been (at least initially) to put such exceptions aside, which essentially means focusing on strong tendencies. Furthermore, with some islands argument extraction yields very weak violations. The islandhood of such cases is generally established in comparison to non-island cases (i.e. by establishing a difference in the acceptability between the two), which means that comparative judgments in such cases are crucial (i.e. the relevant examples should not be considered in isolation). These standard practices will also be followed here. (Some cases discussed below do involve genuine speaker variation; where possible I will attempt to leave room to accommodate it.)

[3]Thus, Cinque (1990: 34) observes that while complementizer *that* cannot be dropped from clausal complements of Ns (in contrast to Vs), in this case it can be dropped, as in *?I'm making the claim the company squandered the money.*

[4]PP arguments can extract (see fn 9), as in Cinque's (1990: 33) *John, to whom I made the claim you would never talk.*

[5]However, the interfering factor arises only with clausal nominal complements. Thus, (i) is unacceptable.

(i)   ?\* *What did you make the claim about?*

If *make-the-claim* reanalysis cannot occur in (i), (i) can be ruled out due to a definiteness effect. As discussed below, P-stranding requires *claim-about* reanalysis. It appears then that a noun cannot be involved in two reanalysis processes at the same time (*make-the-claim* and *claim-about*), which seems natural and may even be interpreted as an argument for the reanalysis approach. Anyway, what is important for us is that reanalysis is a potentially interfering factor with argument extraction from clausal complements, but not from non-clausal complements and not with adjunct extraction.

[6]The term TNP is used to refer to NP and its extended domain (if present).

[7]We are dealing here with argument, not adjunct extraction, hence only a weak violation.

[8]Dutch may indicate we are dealing with an N-specific issue here. While Dutch productively allows P-stranding on the VP level (but see Abels 2003), within NPs P-stranding is highly lexically restricted—it is in fact restricted to one preposition, *van* (see van Riemsdijk 1997 and references therein), which is not surprising under a reanalysis-style account.

[9] Chomsky (1973) gives the following contrast (Bach and Horn 1976 also give several contrasts of this type).

(i)   a.   *Who did you see* [*a picture of t*]*?*
      b.   *Who did you hear* [*stories about t*]*?*

(ii)  \*  *Who did you hear* [[*stories* [*about pictures of t*]]]*?*

There are many factors that affect the availability of simple extraction cases like (i) that won't be discussed here. What is important is that such extraction is in principle possible (see Rodman 1977 for convincing arguments to this effect).

   G. Thoms (p.c) observes *Who did you buy lots of pictures of*, also noting that *lots of pictures* in such cases was quite convincingly argued to be a single DP in Selkirk (1977), which means it doesn't differ from (10) in the relevant respect.

   A word of caution is in order however. Cinque (1990) shows there is an interfering factor with DP extraction: what looks like extraction with DPs can often involve binding of a null resumptive (with some variation across speakers and particular constructions/DPs (see his p. 53) regarding the availability of this strategy). The interfering factor makes PP argument extraction a more reliable subjacency test than DP extraction. The reader should bear in mind that potential speaker variation with DP extraction in the examples discussed in this article could be due to this interfering factor.

[10]The judgment is given for the focal reading of the extracted possessor (on the topic reading Hungarian possessor extraction has been argued to involve a left-dislocation configuration with a null resumptive pronoun, see den Dikken 1999. (Thanks are due to J. Bacskai-Atkari and E. Jakab for help with the Hungarian data.)

[11]Some speakers accept (26) but still find (27) unacceptable. We may be dealing here (for these speakers) with the same phenomenon as the one noted above regarding (6)-(7)**,** which makes adjunct extraction a more reliable diagnostic of islandhood in Complex XP contexts (see in fact Lasnik 1995 for a proposal that *be* and the adjective in its complement form a complex predicate). I thus take (27) to be a more reliable indicator of islandhood than (26).

[12]Some languages treat (some) Ps as inherent case-markers (see Nunes 2009). Such "P"s, which have a very different effect on extraction (see Nunes 2009), are not relevant to our concerns (though this option could be the source of

potential crosslinguistic/speaker variation regarding extraction from apparent P-complements; see also Baker 2003 for a functional element treatment of Ps, which could be relevant for some languages).

[13]There is a potential issue here: whether non-stranded Ps reanalyze in this context (in which case V would be the only lexical head whose complement is targeted for extraction in (36)). These data indicate they do not but it may not be out of question that some Ps may allow such reanalysis for some speakers (my informants do not; see also fn 12).

[14]Cinque (1990:37) gives examples where adjectives (*favorevole* in (i)) take PP complements,which also fall under (34)
(i) * *Carlo, con il quale sono favorevole* [*a* [*che parlino t*]]…
       Carlo, with whom I-am in-favor    to that they-speak

[15]It should be noted that SC prepositions are involved in a rescue-by-PF-deletion mechanism (see Bošković 2013b, Talić 2013), which is a potentially interfering factor when checking (43) in SC. Still, examples like (i) are degraded (they are not as bad as violations of the P-stranding ban that holds in SC, see Abels 2003).
(i) ?* *Za šta_i Ivan zavisi* [PP *od* [NP *rješenja t_i*]].
       to what Ivan depends      on      solution

[16]Examples like *Whose did he see sister* are ruled out independently due to non-constituent movement (*who* is located in SpecDP and '*s* in D). Unsurprisingly, such examples are not ruled out for all DP languages, see Hungarian (18); note, however, that, as expected, Hungarian does disallow AP and NP-adjunct extraction, see Bošković (2012).

[17]Bošković (2013a) notes that nouns that assign inherent (i.e. non-genitive) case appear to behave differently here due to certain structural differences. Talić (2013) provides an account of such cases that is fully consistent with the current system and the generalization in (24) (see also Bošković 2015a for another such account).

[18](53) is inconsistent with Abels's (2003) account of his claim that the complement of phase head L can't move which is based on the original PIC: the PIC requires movement to SpecLP, which violates antilocality. Under the analysis given here we would expect Abels's generalization not to hold (where it appears to hold something else should be at work): since the complement of L is accessible outside LP it needn't move to SpecLP. In fact, we will see below a number of cases where complements of phase heads do move. The empirical case for Abels's generalization is actually not that strong. Thus, the case that is standardly used to illustrate it, the immobility of the IP-complement of C (i), is irrelevant, since, as Abels also notes, even IPs not dominated by CP seem immobile (Chomsky 2000 argues that only phases can in principle move, which also makes (i) and several other cases irrelevant). Thus, (ii) shows such IPs cannot move to SpecCP (the infinitive is a bare IP: *morgen* indicates the presence of IP and pronominalization ensures the lack of CP since it's disallowed from CP infinitives, see Wurmbrand 2001) and (iii) shows such IPs cannot undergo IP-adjunction.
(i)   * [IP *His_i brother likes Mary*]_j *everyone_i believes* [CP *that t_j*]
(ii) * [IP *morgen    zu    reparieren*] *hat ihn der Hans  beschlossen*.
         tomorrow to repair        has it   the Hans  decided
      'Hans decided to repair it tomorrow.'
      (German, Abels 2003)
(iii)?* *weil   ihn glücklicherweise* [IP *morgen    zu    reparieren*] *der Mechaniker ja doch beschlossen   hat*
         since  it  luckily                 tomorrow to repair        the mechanic    indeed decided         has
         (Bošković 2013b)

The argument for Abels's generalization concerning PPs where in languages that disallow it P-stranding involves phase complement movement (PP being a phase) is not particularly strong either since it rests on the stipulation that PPs are phases only in some languages (i.e. those disallowing P-stranding), while APs are problematic for the generalization if APs are phases (as argued in Bošković 2014 and below), given the grammaticality of (iv-v).
(iv)    *Na koga_i je Jovan* [AP *ponosan t_i*]?   (SC)
(v)     *Of whom_i is John* [AP *proud t_i*]?
The degraded status of SC genitive N-complement movement in (vi) (see Bošković 2014) is a remaining argument for Abels's generalization, assuming NP is a phase in SC. However, PP complements of Ns can move in SC, as in (vii) (to maintain Abels's generalization Bošković 2013a stipulates PPs cannot be complements of Ns in SC). There are also alternative accounts of (vi), see Schoorlemmer (2013); note that German patterns with SC in that it disallows extraction of genitive complements of Ns but allows extraction of PP complements of Ns, including prepositional (*von*) genitive.
(vi) ?? *Ovog    studenta_i    sam pronašla* [NP *sliku      t_i*]
         this.GEN student.GEN am found           picture.ACC
         'Of this student I found the picture.'
(vii)   *Za koji   problem_i si otkrio      * [NP *rješenja   t_i*]?
         to which problem are discovered     solutions
         'To which problem did you discover (the) solutions?'
It is thus not clear that Abels's generalization holds (its comprehensive re-evaluation is beyond the scope of this work).

[19]Like Chomsky (2013), I will continue using CP and SpecCP for such cases for ease of exposition.

[20]Bošković's (2002, 2007, 2008) argues that intermediate steps of wh-movement do not involve agreement/feature-checking, only the final step of wh-movement does (see also Boeckx 2003, Rizzi 2006; note that Bošković 2008 shows

that cases that have been assumed to involve morphological reflexes of such agreement with intermediate Cs actually do not involve successive-cyclic movement via SpecCPs).

[21]See Bošković (2015b) for independent evidence for (58). It might be more appropriate to define antilocality/crossing by using the notion *terms of,* e.g as follows: Movement must cross a labeled category where movement from X to Y crosses Z if X but not Y is a term of Z and Y is not merged with Z. Note also that I assume labeling can occur <u>as soon as</u> it can be accomplished, otherwise it would not be possible to label structures where both relevant elements move.

[22]As for (11), with *enemies-of* reanalysis it is treated on a par with (60); without it (if *enemies* takes a PP-complement; note that this *of* is not stranded), (11) also involves a Complex PP constraint violation, like (71) (see also section 3.3).

[23]Although throughout the article I have adopted the minimal structures necessary, the analyses can be maintained in systems with richer structures, as in the cartology approaches (in some cases some rather straightforward structural adjustments are needed, as noted below in a few places). In other words, the proposed analysis of the Complex XP Constraint is compatible with a variety of structures for the relevant constructions, not just those assumed here.

[24]We will see below that no violation occurs with movement outside of the complex NP. Although such crosslinguistic comparisons are difficult, it may be worth noting that CNPC violations with argument extraction seem slightly weaker in SC than in English, which could be accounted for in terms of the number of (anti-)locality violations if only DP is present above NP in (59).

[25]Strictly speaking then, extraction from complements of lexical heads is not completely banned; however, the window for it is <u>extremely</u> narrow (cf. also sections 3.3, 4.4, and fn 33 for such cases). At any rate, I will continue using the phrase "ban on extraction from complements of lexical heads" for expository reasons but the reader should bear in mind that the system does not block all such extraction. In other words, there are exceptional cases where (44) does not appear to hold; the deduction of (44) proposed here leaves room to accommodate such cases.

[26]It is also possible that there is labeling here but that it must be done late/acyclically, in the spirit of Stepanov (2001). Note that without Hornstein and Nunes's proposal, all that needs to be done is change *projection* to *category* in (58). Adopting the proposal, however, has interesting consequences. In fact, not labeling can be taken as the defining property of what is referred to as adjunction, segmentation being dispensable.

[27]Here the presence of additional structure between DP and NP does matter. If there is an additional functional projection here (in DP languages) the adjunct would be base-generated adjoined to it.

[28]See Talić (in press) for DP languages with affixal articles, which have options available to them that are not available to DP languages with non-affixal articles.

[29](i), which appears to involve extraction out of a P-complement, is expected to be acceptable, since *from* can attract the complement of *behind* under (53). However, it is possible that we are dealing here with a single complex P; note in this respect (ii), where the Ps are separated (however, the grammaticality status of (ii) is not completely clear).

(i)     *Which car$_i$ did they take a shot at him* [$_{PP}$ *from* [$_{PP}$ *behind t$_i$*]]?
        (Bošković 2014: 40)
(ii) *     *Behind which car did they take a shot at him from?*
        (Cinque 1990: 176)

[30] For so-called extraordinary LBE, where the P is also fronted in (73), see Bošković (2013b) and Talić (2013).

[31]This fits well with Bošković's claim from fn 20, especially if Specs require agreement, as suggested below.

[32]It is worth noting that Erlewine (in press) adopts a definition of antilocality where A'-movement from SpecXP must cross a phrase other than XP. This is basically the result of the above discussion, though only for successive-cyclic movement (i.e. where the Spec is not created through feature-sharing/agreement), and not confined to A'-movement in the current system. (Note however, that under Erlewine's definition of antilocality, the account presented here would be consistent with successive-cyclic movement involving traditional intermediate Specs.)

[33]Projection via the shared feature is actually not completely problem-free (e.g. with it, the complement of C is merely a set of φ-features; for relevant discussion see also Carstens, Hornstein, and Seely al 2014). Based on this, the GLOW version of the article argued that such projection should not be allowed either. Projection would then be allowed only when a head and a phrase merge. There would then be no projection when two non-minimal projections merge, only segmentation. This would essentially lead to Kayne's (1994) proposal that Specs are adjuncts; in fact, it would deduce it. The above deduction of the Complex XP Constraint is compatible with this stronger position, where all Specs are adjuncts (with one difference: the alternative analyses discussed in the text may allow extraction of the Spec of the complement of a lexical head (see section 4.4), which would now be blocked.)

[34]It is actually not out of question that there can be feature sharing here (see Chomsky's 2013 discussion of German).

[35](84a) is from Uchiumi (2005). (82)-(84) may involve short V-movement, which has been argued to exist in English by many (even independently of v, see Johnson 1991). Note, however, that the presence of vP in ergative constructions would actually make no difference. Since the external θ-role is not assigned with ergatives, VP would still be the highest thematic projection. I will then ignore below the issue of whether a non-θ-marking vP is present with ergatives.

    While (82)-(84) involve uncontroversial ergatives there is a controversy in the literature regarding ergativity of some psych-verbs. Pesetsky (1995) and Landau (2009) do not consider all Belletti and Rizzi's (1988) ergatives to be

ergative; thus, they consider *please* to be unergative, with a θ-marking vP. In principle, extraction can be used as a test to settle the debate. However, the results are not conclusive. Argument extraction (*What did it please Mary that John fixed*) is reported by my informants to be better with *please* than *appeal* (though still somewhat degraded). However, adjunct extraction (*How did it please Mary [that John fixed the car t]*) is still disallowed. (Bennis 1986:315 considers argument extraction with *please* fine, and adjunct extraction ??. Zaring 1994 reports both to be allowed with *please* in French with expletive *il*, but disallowed with *cela*). Note, however, that Landau (2009) argues that the clausal argument of *please* is generated in SpecvP, but, in contrast to clausal complements, it must undergo rightward movement given the requirement that vP-internal clausal arguments be sentence final (see his p. 103). We may then still have here an island configuration, though of a different type, which may account for the difference in the strength of the violation.

[36]*Ne*-cliticization is possible from the complement of ergative verbs, which raises no issues given the often adopted assumption that cliticization involves head-movement: head-movement always crosses a phrase. Regarding Belletti and Rizzi's (1981) observation that *ne*-cliticization is possible from ergative but not unergative contexts, we are dealing here with an issue that is independent of our concerns, namely head-movement out of Specs/adjuncts (see Baker 1988).

[37]It is beyond the scope of this article to evaluate arguments for or against the existence of these phrases in the literature (but see Nissenbaum 2014 for a proposal regarding how certain semantic facts for which aP was posited can be analyzed without it). The consequence of the current analysis is that if n/p/aP exist at all, they are not part of the θ-domain (i.e. they could still exist, but they would not be assigning a θ-role. Note that assigning some θ-roles in SpecNP/AP/PP instead of the N/A/P-complement would not change anything for our purposes.) Another way of looking at this is that there is vP, nP, pP, and aP (see Marantz 1997), but the VP domain also has VoiceP, where the external θ-role is assigned (i.e. it is not then assigned in v/n/a/pP). The proposal in the text is thus compatible with a variety of structures though the main insight remains the same. It is, however, worth noting here that Riqueros (2013) shows that deverbal and non-deverbal nouns in Spanish do not differ regarding extraction from their DPs (as well as a number of other phenomena). He also argues that a verbal element is merged at the $N^0$-level (because most verbal properties are suppressed with deverbal nouns) but only with some, not all deverbal nouns in Spanish (since they do not all allow passivization). This kind of head merger would not affect the points made in this article.

[38] Extraction from subjects that remain at the vP-edge is still allowed (see Stepanov 2007 for relevant evidence).

[39] I will avoid verbs like *say* that seem significantly bleached semantically if the external θ-role is not expressed.

[40]The informants, all linguists who included American, Brittish, and Canadian speakers, were specifically asked to compare the relevant examples. It is possible, however, that there is speaker variation here, i.e. that there are speakers without an active/passive contrast with extraction. Thus, Zaring (1994) gives *How$_i$ was it recommended [that we word the letter t$_i$]* as acceptable (but without explicit comparison with its active counterpart) while T. Messick (p.c.) finds it unacceptable on the relevant reading, much worse than its active counterpart. Having speaker variation here would not be surprising. As noted above, the existing proposals regarding θ-role absorption in passives can be interpreted as involving or not an additional phrase in the θ-domain. In fact, even particular proposals, e.g. Baker et al (1989), can be implemented either way while keeping the structure itself constant, depending on how the details are understood. This could be what is behind potential (if it exists) speaker variation. (Another source of variation could be phase collapsing (which can be implemented as C-to-V movement, see Pesetsky 1992) from section 3.3, or exceptional placement of CP complements from section 5 (as noted in fn 64, there is clearly speaker/language variation across CP complements of different predicates regarding the factors involved in this issue), which would void the locality effect. Since the current discussion applies only to objects within VP, another issue concerns Lasnik's 1995 claim that objects in passives undergo short A-movement outside VP (cf. *There was a man arrested t yesterday*; the sentence-final requirement on CP arguments (Landau 2009) may make word order an unreliable test for CPs). Anyway, it is clear that for many speakers actives and passives differ regarding extraction in (95)-(101). Since this pattern, which is more difficult to capture, needs to be accounted for, in what follows I will focus on it, leaving determining whether there is speaker variation here for future research.

[41]With passive ditransitives the predictions are not clear even in the absence of a θ-marking vP. While the analysis where the objects are VP constituents predicts a locality effect in its absence, some of the analyses from the small clause family, where the objects are generated in a small clause excluding the verb, leave room for the absence of locality effects (especially given section 3.3). Anyway, passive ditransitives do seem to exhibit a locality effect. Adjunct extraction is unacceptable (i). The status of object extraction is not completely clear, with some, although rather weak, degradation (ii). (As Bošković and Lasnik 2003 and Stowell 1981 note, ditransitives generally resist subject extraction even in active forms, hence I focus on object/adjunct extraction. These authors also note that clausal ditransitives do not all behave the same way regarding extraction even in active forms, another interfering factor which indicates they should not all receive the same treatment. Consequently, I will not discuss them further here.)

(i)    a.    *How did you tell John* [*that Peter hired her t*]
       b. * *How was John told* [*that Peter hired her t*]
(ii)    a.    *What did you tell John* [*that Mary bought t*]
       b. ? *What was John told* [*that Mary bought t*]

c. ???*To whom was John told* [*that Mary should speak t*]

There are also some passive/active differences with non-clausal ditransitives, where only argument extraction can be checked.

(iii) a. * *Who was that car given to friends of ?*
   b. ?? *Who did you give that car to friends of ?*
   c. ? *Who was John given pictures of ?*
   d. *Who did you give John pictures of ?*

[42]It is worth noting that Müller (2014) observes the binding contrasts in German (i-ii), which can be interpreted as indicating that there is no usual argumental SpecvP in passives (the *by*-phrase could be a VP-adjunct).

(i) a. * *Kein Student$_1$ glaubt* [$_{CP}$ *dass* ~~DP$_{ext1}$~~ *gut gearbeitet wird*]
      no   student   believes   that        well  worked   is
   b. *Kein Student$_1$ glaubt* [$_{CP}$ *dass* ~~DP$_{ext1}$~~ [$_{PP}$ *von ihm$_1$*] *gut gearbeitet wird*]
      no   student   believes   that              by.him  well worked   is

(ii) a. * *Er hat den meisten Lehren$_1$ erzählt* [$_{CP}$ *dass* ~~DP$_{ext1}$~~ *der Maria*
      he has the most   teachers.DAT told        that         the Maria.DAT
      *Bücher   geschenkt warden sollen*]
      books.NOM given     are      should
   b. *Er hat den moisten Lehren$_1$ erzählt* [$_{CP}$ *dass* [$_{PP}$ *von ihnen$_1$*] ~~DP$_{ext}$~~ *der Maria*
      he has the most   teachers.DAT told        that   by    themselves       the Maria.DAT
      *Bücher   geschenkt warden sollen*]
      books.NOM given     are      should

[43] Regarding LBE with ergative/passive verbs in SC, such LBE is possible in (ia), which however contrasts with (ib).

(i) a. *Visok je čovjek došao/uhapšen juče.*
      tall   is man    arrived/arrested yesterday
      'A tall man arrived yesterday/A tall man was arrested yesterday.'
   b. ?? *Visok je došao/uhapšen čovjek juče.*

There is an interfering factor here. Since SC does not have overt expletives and given its extreme freedom of word order (both finite and non-finite verbs move, and NPs are extremely free regarding movement (Stjepanović 1999 argues they all move out of VP)), I do not know how to ensure that extraction occurs while the affected element is in its base position (only then the extraction may be expected to be degraded, i.e. only then (87) is relevant). The best that can be done is to add an adverb, as in (ib) (see Belletti 1988). Anyway, there is a clear difference between (ia) and (ib). Also, *visok je došao/uhapšen čovjek* is better than (ib), which can be interpreted as a contrast involving extraction from a base and a rightward-movement position.

[44]Another relevant work is Roberts (2014), who argues that there are two different types of implicit arguments in passives, which could be correlated with the presence/absence of a θ-marking vP.

[45]I thank I. Monich for collecting the Setswana data. Bulu and Swahili, also Bantu languages, pattern with Setswana.

[46]I assume that there is a feature on the N and the D which drives the movement in question; this feature indicates that the phasehood of the NP will be voided hence its complement is not sent to spell-out when N is merged (the issue actually would not even arise under Chomsky's 2001 assumption that only merger of a higher phasal head triggers spellout for the lower phase or under the rescue-by-PF-deletion account from fn 54).

[47]The analysis does not have any undesirable consequences for French (104)-(106) or English (82)-(84) although they involve V-movement. However, we are not dealing with phase-collapsing contexts there since the verb doesn't move to a phasal head. Also, while it seems that the analysis has consequences for a hotly debated issue regarding affixal articles in Balkan and Scandinavian languages, namely whether they result from N-to-D or Prosodic Inversion in PF, this is actually not the case since without D-to-V+v movement (see the discussion below), the definiteness effect will still not be voided (at any rate, affixal definite article constructions in Bulgarian and Icelandic do show CNPC effects).

[48] Note that only stranded Ps may reanalyze.

[49] I will not be concerned here with why this is the case; for relevant discussion see Takahashi (1994), Stepanov (2001).

[50]The CNPC effect is present even under D-incorporation (all the Galician data were provided by J. Uriagereka), as expected given that D-incorporation does not affect the phasehood of NP, which is responsible for the CNPC effect. (However, the presence of *de* is an interfering factor here).

(i) ?? *A quen escoitastede-lo conto de que trabou un can?*
      who   hear(you)-the rumor of that bit   a  dog

[51]I assume involving *the* in this process voids the definiteness effect, as in Galician (116). In fact, the lack of a definiteness effect can be taken as evidence that not only the noun, but also the article, is involved in the reanalysis process.

[52]It is impossible to check whether head-movement improves adjunct extraction from complex NPs in Setswana since adjuncts in Setswana do not cleft (which is the strategy used in wh-movement).

Recall I have suggested above (fn 11) treating (26)-(27) on a par with (6)-(7) for those who accept (26) but not (27). The discussion of (6)-(7) can be applied to (26)-(27) for these speakers. If we follow Talić (in press) in assuming parallel structure for APs and NPs (where $X_A$ is the adjectival counterpart of D), (26) will involve A+$X_A$-to-*is* movement.

[53]An alternative would be to adopt Pesetsky's (1992) C-to-V incorporation and assume that only prepositional Cs incorporate into V+v.This analysis would not require a PP above CP but would still void the phasehood of the infinitive

[54]The adjunct effect may suggest a unification with the well-known rescuing effect of ellipsis on locality violations (but see Abels 2011 and Barros, Eliot, and Thoms 2014), as in *Mary met a student who solved some problem, but I'm not sure exactly which problem* ~~Mary met a student [who solved t]~~. Working within the system where locality violations induce \*-marking which can be rescued under deletion of the \*-marked element, Bošković (2013b) argues PIC/antilocality violations involve \*-marking of the relevant phasal head. If the head undergoes movement, the \*-marked element (copy in the base position of the phasal head) is deleted in PF under copy deletion, hence we get a rescue-by-PF-deletion effect. The phase-collapsing effect can be stated in these terms. Interestingly, adjunct movement has been claimed not to be subject to rescue-by-PF-deletion. Thus, Lasnik and Park (2011) give *\*Mary met a student who solved the problem somehow, but I'm not sure exactly how* ~~Mary met a student [who solved the problem t]~~, where sluicing does not improve the violation which adjunct movement induces.

[55]Under the current analysis, object movement is still not expected to target the passive/ergative VP phase. A number of arguments for passive/ergative phasehood from the literature involve PF phenomena such as ellipsis and stress (see e.g. Bošković 2014, Legate 2003), which need not involve such movement, hence can be easily accommodated. Legate does, however, give arguments involving movement through the passive/ergative VP edge. While several of them rely on rather specific assumptions that may not be necessary, the one concerning (i) is more general. She argues that (i) indicates that there is movement through the passive edge (marked with __); in that position, the QP can bind the variable in (ia) without violating Condition C.

(i)     a.     [*At which of the parties that he$_i$ invited Mary$_j$ to*] *was every man$_i$ __ introduced to her$_j$*
        b. \*  [*At which of the parties that he$_i$ invited Mary$_j$ to*] *was she$_j$ __ introduced to every man$_i$*

However, recall there is more than one projection in the inflectional domain. Intermediate quantifier float (Sportiche 1988, Bošković 2004) indicates A-movement can target these projections. The same may hold for A'-movement. This is actually not necessary for (ia). We may simply be dealing here with the QR of the subject, which is responsible for its wide scope in *What did everyone buy* (i.e. the well-known fact that subject QPs can scope over QPs in SpecCP).

[56]This is the case when N/A/P assign a θ-role. The approach could be easily adjusted to have NP/PP/AP function as phases even when no θ-role is assigned within these phrases (by using a lexical/functional, not a thematic/non-thematic distinction). Since the issue is not relevant for our concerns (movement requires richer structures), I put it aside here.

[57]Note here Pesetsky's (1992) account of *He is believed to know it*, where the infinitive is a CP with C-to-V movement (see also fn 62). Phase collapsing may actually be applicable to infinitival wh-islands. It could be that there is a phrase above the wh-CP (which clearly exists in many languages) whose head moves to V, or that the C itself moves to V. This would void the wh-island effect due to phase collapsing, but only for argument extraction.

[58]I will be focusing here on the speakers with a contrast between (134) and (135), see fn 40 (note that, in contrast to the current work, Wurmbrand 2013a treats traditional raising and ECM infinitives differently regarding phasehood).

[59] The same seems to hold for object extraction. (I will discuss subject A-movement below.)

(i)   ?? *To whom$_i$ was John believed* [*to have spoken t$_i$*]*?*

[60] There is also some degradation (though, not surprisingly, much weaker than with adjuncts) with argument extraction.

(i)   ?? *Of whom was advantage believed to have been taken?*

[61]The feature-sharing analysis also requires confining the IP/wh-feature interaction from section 5 to finite IP.

[62]As discussed in Bošković (2007), under the CP analysis subject movement may proceed through the CP, not the TP edge (i.e. raising infinitives need not have the traditional EPP property under this analysis). This opens up another option where raising/ECM infinitives are CPs headed by a null prepositional C. They can then be treated like other such infinitives from section 3.3 (see (123)-(124)), namely as involving a PP above CP with C-to-P movement. Under phase collapsing, V/A can then attract the CP-edge element without violating the PIC (see the discussion of (115)).

(i)       [$_{?/AP/VP}$ t$_i$ [$_{AP/VP}$ A/V [$_{PP}$ C$_j$ [$_{?/CP}$ t$_i$ [$_{CP}$ [$_{C'}$ t$_j$ ...

The labeling and the reanalysis account may make different predictions for object wh-movement; we may expect to find an effect under the former but not the latter (the general infinitival island-weakening effect could interfere though). The status of object extraction is not completely clear though there could be a locality effect in this case (see fn 59-60).

[63]In (158) *all* is floated under wh-movement. McCloskey (2000) notes that since *your mother* is in the infinitival SpecTP and *to* in T, wh-movement cannot float *all* in (158)b. *Your mother* then cannot be in the infinitival SpecTP in (158)a. McCloskey argues that *your mother* undergoes object shift in (158)a, with *all* floated in the infinitival SpecCP. This means (158)a involves A-movement from an infinitival CP. This also holds for (159), where an NP moved out of an infinitive with an overt C binds an anaphor. Belfast English (160) involves an overt C raising infinitive. Messick (2012) shows that *tough*-infinitives also involve A-movement out of CP.

[64]It is possible that the expletive here is generated in the complement position and then moves. (This may make any ergativity tests irrelevant to the structural status of the clause.) Zaring (1994) actually argues that different expletives can differ regarding this possibility (even within a single language; she suggests French and English have both types of expletives though in English *it* always surfaces), which may account for the fact that not all "extraposed" clauses behave in the same way regarding extraction (as well as speaker variation and conflicting claims in the literature about extraction from the same extraposed clause). Another issue that could result in different extraction patterns even if all extraposed clauses (including (161)) are AP/VP-adjuncts (see Zaring 1994) is whether the CP is base-generated in its surface position or moved there (with the latter, an additional projection is needed, since AP/VP-adjunction from the A/V-complement position is disallowed). At any rate, it is clear that extraposed clauses do not behave in the same way regarding extraction both within a single language/across speakers of the same language and across different languages (thus, there are English/Romance contrasts with extraction from the same extraposed clauses, compare Bošković and Lasnik 2003, Cinque 1990, Li 1993, Stowell 1981, Zaring 1994). It would be way beyond the scope of this article to examine the issue comprehensively. I focus here on one pattern that appears to be problematic for any approach.

[65]Only argument extraction can be checked here since factive CPs quite generally disallow adjunct extraction. Note that I am putting aside here the possibility of null nominal incorporation hinted at above (which may not be there with *it*).

[66]The following is about contexts where the subject targets non-interrogative IP-CP field. For interrogative contexts like *who left* see Bošković (2015b), who also deduces the restriction on feature sharing between wh-subjects and IP.

[67]See also Bošković (2015b), Brillman and Hirsch (in press), and Erlewine (in press) for antilocality accounts of the *that*-trace effect and (177) (the antilocality account of the *that*-trace effect goes back to Bošković 1997 and Ishii 1999). As shown in Bošković (2015b), the antilocality account of the *that*-trace effect can be extended to Lasnik and Saito's (1992) ban on short subject topicalization (*I think that he$_i$, t$_i$ likes Mary), the anti-*that*-trace effect in subject relatives, where *that* is obligatory (*John picked up the stone *(that) broke the window*), and the French *que-qui* alternation. As discussed in Bošković (2015b), *Who$_i$ did you say t$_i$ left* can be treated as in Rizzi (2006), with truncation of the CP+IP structure (confined to clauses with non-overt subjects (IP-internally) in the V-complement position, hence not (166)), the alternative being that we are dealing here with a bare IP as in Bošković (1997), with obvious restrictions regarding its distribution (as discussed in Bošković 2015b, Pesetsky's 1992 C-to-V movement provides another alternative).

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