

From the Complex NP Constraint to Everything*

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While extraction from complex NPs (nouns modified by clauses) is disallowed, extraction from such VPs is allowed: while the Complex NP Constraint (CNPC) holds there is no such thing as the Complex VP Constraint (the CNPC cannot be reduced to the adjunct condition by treating nominal clausal complements as appositives/adjuncts, Safir 1985).

- (1) ??Who_i did you hear [_{NP} rumors [_{CP} that [_{IP} a dog bit t_i]]]?
 (2) Who_i did you [_{VP} think [_{CP} that [_{IP} a dog bit t_i]]]?

Previous research has emphasized (2) as the test case for understanding the locality of movement, putting aside (1) as an exceptional case. I show that when properly generalized, (1) represents a pervasive pattern found all over the place, (2) being highly exceptional (in fact, in some contexts Complex VP Constraint effects can be detected). Understanding the CNPC is then the key to understanding the locality of movement. The CNPC holds also in NP languages (Bošković 2012), where DP problems do not arise.

- (3) ??Koga_i si čuo [_{NP} glasine [_{CP} da je pas ujeo t_i]]?
 who are heard rumors that is dog beaten
 ‘What did you hear rumors that a dog bit?’
 (4) O kojemu 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?’ (SC)

Generalizing the Complex NP Constraint in the NP domain

Extraction is banned not only from clausal, but all complements of Ns (see Bach & Horn 1976, Chomsky 1973 on (5)-(6). I assume a re-analysis/pruning (Hornstein & Weinberg 1981, Stepanov 2012, a.o) account of dangling Ps as in (5) (in Dutch, P-stranding in NPs is restricted to a single P), where there is no PP in (5) hence (5) involves extraction of the N-complement, not out of it (an account will be given later where there is a PP in (5) but its effects are voided for a principled reason). The contrast also holds with pied piping: *Of who(m) did you see friends* is better than ??*Of who(m) did you see enemies of friends*.

- (5) Who_i did you see [friends of t_i]?
 (6) ??*Who did you see enemies of [friends of t_i]?
 Another case of a simple/deep extraction contrast: French *combien*-extraction

- (7) Combien_i a-t-il consulté [_{DP} t_i de livres]?
 ‘How many did he consult of books?’
 (8) *Combien_i a-t-il consulté [_{DP} (plusieurs/des) préfaces [_{DP} t_i de livres]]
 ‘How many did he consult several/some prefaces of books?’

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Simple/deep extraction contrast with Serbo-Croatian (SC) left-branch extraction (Bošković 2013c; Hungarian has the same contrast with possessor extraction.)

- (9) Pametne_i on cijeni [t_i prijatelje]
 smart he appreciates friends
 ‘He appreciates smart students’
 (10) *Pametnih_i on cijeni [prijatelje [t_i studenata]]
 smart he appreciates friends students

Simple/deep extraction contrast with extraction of NP adjuncts in SC (Bošković 2013c)

- (11) Iz kojeg grada_i je Petar sreo [djevojke t_i]
 from which city is Peter met girls
 ‘From which city did Peter meet girls?’
 (12) *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?’

The Generalized Complex NP Constraint (GCNPC)

- (13) Extraction out of nominal complements is disallowed.

Generalizing the GCNPC to (almost) everything: **Adjectives**

- (14) Who_i is he [proud of t_i]?
 (15) ??*Who_i is he proud of [friends of t_i]?
 (16) ??*What_i are you [_{AP} proud [_{CP} that John bought t_i]]?
 (17) *How_i are you [_{AP} proud [_{CP} that John kissed Mary t_i]]?
 (18) *Of whom_i is he proud of [friends t_i]?
Prepositions

- (19) Who_i did you read about t_i?
 (20) ??*Who_i did you read about friends of t_i?
 (21) *Of whom_i did you read about friends t_i?
 (22) a. se acordó de [que [Pedro preparaba la comida]]
 clitic.3p (s)he.remembered prep that Pedro prepared.imperfect 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.imperfect
 c. *¿cómo_i se acordó de [que [Pedro preparaba la comida t_i]]
 how clitic (s)he.remembered prep that Pedro prepared.imperfect the food
 (23) a. insistí en [que Felipe coma manzanas]
 I.insisted prep that Felipe eat.subjunctive apples
 ‘I insisted that Felipe eats apples’
 b. ?*¿qué_i insististe en [que Felipe coma t_i]?
 2

- what you.insisted prep that Felipe eat.subjunctive
- c. *¿dónde_i/ en dónde_i insististe en [que [Felipe coma manzanas t_i]] ?
 where/ in where you.insisted prep that Felipe eat.subjunctive apples (Spanish)
 Some speakers can drop the P in (22), (22b-c) then improve.
- (24) a. Hij kan zich niet [in [de bibliografie [van dat boek]]] vinden
 he c an himself not in the bibliography of that book find
 ‘He cannot find himself in the bibliography of that book.’
 b. *Hij kan zich er_i niet [in de bibliografie van t_i] vinden
 he can himself r-pron. not in the bibliography of find
 c. *[Van dat boek]_i kan hij zich niet [in de bibliografie t_i] vinden (Dutch, Van Riemsdijk 1997)

(25) **The Complex XP constraint** (where $X \neq V$)

Extraction from complements of lexical heads is disallowed.

Phasal account Bošković (2013c, 2014): The highest phrase in the extended projection of a lexical category is a phase. (Languages without articles lack DP, see Bošković 2012).

- (26) *Expensive_i John likes [t_i cars]
 (27) *From which city_i did you see [girls t_i]?
 The unacceptability of adjunct/LBE extraction in English vs its acceptability in SC follows from the PIC/antilocality (move must cross at least one full phrase, see Bošković 2005). Deep/simple LBE contrast with SC LBE/adjunct extraction also follows

- (28) a. *_[DP AP/adjunct] [D' D [NP t_i [NP... b. *AP/adjunct] [DP [D' D [NP t_i [NP...]]]]
 (29) *Pametnih_i on cijeni [NP t_i [N' [prijatelje [NP t_i [NP studenata]]]]
 smart_{GEN} he appreciates friends_{ACC} students_{GEN}
 (30) *Iz kojeg grada_i je Petar kupio [NP t_i [N' slike [NP [NP djevojke] t_i]]]
 from which city is Peter bought pictures girl
 ‘From which city did Peter buy pictures of a girl?’

Still left: simple/deep extraction contrast in English (5)/(6); simple/deep *combien* extraction contrast (7)/(8); the CNPC (1). Capturing these (Bošković 2013a)

- (31) NP is a phase for elements that are not theta-marked by its head/within it.
 (32) No SpecNP for successive cyclic NP movement (either not licensed or NP Spec is an A-position., i.e. N licenses a Spec only when it theta-marks the element in this position)
 (33) Who did you see friends of?
 (34) *Who_i did you see [_{DP} t_i [_{NP2} t_i [_{NP1} enemies of [_{DP} t_i [_{NP1} friends of t_i]]]]]?
 Since *who* in (33) is theta-marked by *friends*, NP1 is not a phase for *who*, hence *who* needn't adjoin to this NP (this part of (33) has the same structure as the lower NP in (34)).
 (35) *Who_i did you hear [_{DP} t_i [_{NP} t_i [_{NP} rumors [_{CP} t_i that [_{IP} a dog bit t_i]]]]]?
 (36) ?*Combien a-t-il consulté [_{DP} t_i (plusieurs/des) [_{NP} t_i [_{NP} préfaces [_{DP} t de livres]] ?
 ‘How many did he consult several/some prefaces of books?’

Redundancy: the deep/simple extraction contrasts from SC also follow from (31)-(32).

- (37) *Pametnih_i on cijeni [NP t_i [NP [prijatelje [NP t_i [NP studenata]]]]
 smart_{GEN} he appreciates friends_{ACC} students_{GEN}

Why (31)-(32)? Why is it that successive cyclic movement has to target the NP-adjoined position (not NP-Spec)? Why is there a connection between theta-marking and phasehood?

A new system: Deducing (25)

1. Theory of locality

One ingredient from the phase theory—the edgehood requirement

One ingredient from Grohmann (2003)—division of structure into domains

Still, very different from both of these (even with respect to these two aspects)

Structure is divided into two domains, thematic and non-thematic. Movement must pass through the highest phrase of each domain (there is no domain hierarchy/skipping). In other words, X moving out of domain Y must merge in the highest projection of the domain Y. Any merger, including merger as a complement, within the highest projection in Y suffices.

The gist of it: **Movement must pass through the highest phrase of each domain.**

2. Sometimes Specs, sometimes adjuncts.

Chomsky (2013): when a head and a phrase merge, the head projects (provides the label for the resulting object). When non-minimal projections (phrases) are merged, two ways of implementing projection/labeling: prominent feature sharing or traces (i.e. movement).

The latter is rather problematic: traces are not really distinct from moved elements (cf. the copy theory of movement); issues regarding the timing (projection within a particular phrase should occur before movement from that phrase, hence movement should not be able to affect it), as well as the cases where both relevant elements move (for other problems, see Takita, Goto, and Shibata 2014; they also show labeling cannot be the driving force of successive cyclic movement).

Prominent feature sharing is the only way of implementing projection when two phrases are merged, i.e. two non-heads can be merged and labeled without segmentation only when they undergo agreement. This essentially means that a head that already has a complement can take a specifier only if it undergoes agreement with the specifier (reminiscent of Spec-Head agreement.)

(38): the *wh*-phrase, which undergoes feature-sharing with the interrogative C, is in SpecCP, as in Chomsky (2013). Both the *wh*-phrase and the CP have the Q feature, what is projected (i.e. determines the label of the resulting object) is the Q feature.

(39): Chomsky assumes there's no relevant feature sharing between the declarative complementizer *that* and the *wh*-phrase passing through its edge (Bošković 2007). Labeling via feature sharing is not an option, so there can be no projection here, the only option is segmentation (adjunction). *What* is in SpecCP in (38), *t'*_i in (39) is adjoined to CP (with successive cyclic A'-movement, intermediate traces are located in adjoined positions).

- (38) *I wonder [_{CP} what_i [_C C [John bought t_i]]]
 (39) *What_i do you think [_{CP} t'_i [_{CP} that [John bought t_i]]]

Projection via feature sharing is not problem-free. One could argue it should be disallowed projection being allowed only when a head and a phrase merge (in other cases we could only have segmentation/adjunction). This would lead to Kayne's (1994) claim that Specs are adjuncts (it would deduce it). The analyses below are compatible with this position.

3. Antilocality (the ban on movement that is too short) defined as in Bošković (2013c, 2014): Move must cross at least one phrase (not only a segment).

Are there phases? Don't care

(25) applied to NP (**The Generalized NP Constraint**):

The CNPC case: the relevant thematic/non-thematic domains are marked in (40); only the relevant traces are shown): movement must pass through CP and NP, given 1.; this can only be done by adjoining to CP/NP, given 2., which violates antilocality.

- (40) ??Who_i did you hear [_{DP} [_{NP} t_i [_{NP} rumors [_{CP} t_i [_{CP} that [_{IP} a dog [_{VP} bit t_i]]]]]]]]?
 (41) ??Who_i did you see [_{DP} t_i [_{DP} [_{NP} t_i [_{NP} enemies of [_{DP} t_i [_{DP} [_{NP} friends of t_i]]]]]]]]?
 (42) *Combien_i a-t-il consulté [_{DP} (plusieurs/des) [_{NP} t_i [_{NP} préfaces [_{DP} t_i [_{DP/D'} de livres]]]]]]]]

There can be additional functional projections between NP and DP in (40)-(41) or not, it does not matter. (Movement to the DP edge will also lead to an anti-locality violation in the latter case, but that cannot be all there is here because of NP languages.)

- (43) ??Šta_i si čuo [_{NP} t_i [_{NP} glasine [_{CP} t_i [_{CP} da je Ivan kupio t_i]]]]]?
 what are heard rumors that is Ivan bought
 'What did you hear rumors that Ivan bought?' (SC)

Left-branch/adjunct extraction facts ((26)-(30)) can be accounted for as before (e.g. (30))
 The effects of (31) fall out from 1 and the effects of (32) fall out from 2. They are now not stipulations, ad hoc add-ons to the rest of the system, but follow naturally from the theory of locality and structure building.

(25) applied to AP (**The Generalized Complex AP Constraint**)

- (44) *How_i are you [_{AP} t_i [_{AP} proud [_{CP} t_i [_{CP} that [_{IP} John [_{VP} kissed Mary t_i]]]]]]?
 (45) ??Who_i is he [_{AP} t_i [_{AP} proud of [_{DP} t_i [_{DP} friends of t_i]]]]]?
 Additional facts: XP as the counterpart of DP in the Traditional AP, see Talić (2014).

- (46) a. *Extremely_i he is [_{XP} t_i [_{XP} [_{AP} t_i [_{AP} proud of Mary]]]]
 b. Izuzetno_i je on [_{AP} t_i [_{AP} ponosan na Mariju]]
 extremely is he proud of Mary (SC)

The SC/English contrast within TAP replicates the SC/English contrasts within TNP regarding LBE/NP-adjunct extraction. However, English and SC behave in the same way regarding the Complex NP Constraint. The same holds for the Complex AP Constraint.

- (47) *Kako_i si [_{AP} t_i [_{AP} ponosan [_{CP} t_i [_{CP} da je Jovan [_{VP} poljubio Mariju t_i]]]]]?
 how are proud that is Jovan kissed Marija
 'How are you proud that Jovan kissed Marija?'
 (25) applied to PP (**The Generalized Complex PP Constraint**)

- (48) ??Who_i did you read [_{PP} t_i [_{PP} about [_{DP} t_i [_{DP} friends of t_i]]]]]?
 (49) *¿qué_i insististe [_{PP} t_i [_{PP} en [_{CP} t_i [_{CP} que Felipe coma t_i]]]]]?
 what you.insisted prep that Felipe eat.subjunctive
 Additional facts (Bošković 2005, 2013b)
 (50) *Veliku_i on ude [_{PP} t_i [_{PP} u [_{NP} t_i [_{NP} sobu]]]]]?
 big he entered in room

Why are VPs different? (why is there no Complex VP Constraint) They are different due to the existence of vP. vP is part of the thematic domain, no need for VP adjunction in (2) (movement to v is ignored).

- (51) Who_i did you [_{VP} t_i [_{VP} think [_{CP} t_i [_{CP} [that he [_{VP} hit t_i]]]]]]?

nP/pP/aP have often been posited for the sake of uniformity with VP, but the fact is that there is no uniformity across these domains regarding extraction; if n/p/aP exist at all they are then not part of the thematic domain.

Subject movement to TP: there is additional structure between vP and TP (cf. languages with intermediate V-movement (between T and v), multiple subject positions, quantifier float patterns...); as a result, subject movement to TP does not violate antilocality.

Significantly: Passives/ergatives behave differently from other verbs regarding (25) (**The Generalized Complex VP Constraint!**). This follows: passives/ergatives lack the thematic vP layer, which means movement must proceed via VP adjunction in (53)/(61) (in contrast to (52)/(60)), which results in an antilocality violation.

- Passives
 (52) How_i did they [_{VP} t_i [_{VP} believe [_{CP} t_i [_{CP} [that John hired her t_i]]]]]]]?
 (53) *How_i was it [_{VP} t_i [_{VP} believed [_{CP} t_i [_{CP} [that John hired her t_i]]]]]]]?
 (54) Who_i did they believe that John hired t_i?
 (55) ??Who_i was it believed that John hired t_i?
 (56) Who_i did they believe t_i hired Mary?
 (57) *Who_i was it believed t_i hired Mary
 The same pattern is found with ditransitives:
 (58) a. How did you advise John [that Peter hired her t]
 b. *How was John advised [that Peter hired her t]
 (59) a. What did you advise John [that Mary bought t]
 b. ??What was John advised [that Mary bought t]

- Ergatives
 (60) Who_i did they [_{VP} t_i [_{VP} see [_{DP} t_i [_{DP} [_{NP} (some) friends of t_i last week]]]]]]]?
 (61) ??Who_i did there [_{VP} t_i [_{VP} arrive [_{DP} t_i [_{DP} [_{NP} (some) friends of t_i]]]]]] last week]]

A problem may arise at domain edges, when the higher domain is structure-poor. Thematic domains are typically like this, so the problem arises with a switch from a functional to a thematic domain. It doesn't arise with Vs (most of the time) because here, we have two phrases in the thematic domain.

The problem also arises with thematic domains above thematic domains; deep LBE in SC.

(62) *Pametnih_i on cijeni [_{NP} t_i [_{NP} prijatelj_e [_{NP} t_i [_{NP} studenata]]]]
 smart_{GEN} he appreciates friends_{ACC} students_{GEN}

(63) Pametne_i on [_{VP} t_i [_{VP} [_{VP} cijeni [_{NP} t_i [_{NP} studente]]]]

Restructuring (Wurmbrands's 2001 lexical restructuring): if restructuring is LP-over-LP, with no functional projections in between the LPs (where L is a lexical category), we predict restructuring is possible only with VPs (when VP is the higher LP). Restructuring is correlated with ease of extraction; i.e. with the possibility of complement subextraction.

Why P-stranding does not matter in the contrast between (5)-(6).¹ Rescue by PF deletion
 (64) *She kissed a man who bit one of my friends, but he doesn't realize which one of my friends_i she kissed [a man [who bit t_i]].

She kissed a man who bit one of my friends, but he doesn't realize which one of my friends

Galician D-incorporation (the head of the island is *-marked, Bošković 2011)

(65) *De quén_j liches os mellores poemas de amigo t_j?
 of whom read (you) the best poems of friend

(66) (?)De quén_j liche-los_i [_{DP} [_{D'} t_i* [_{NP} mellores poemas de amigo t_j]]]
 of whom read (you)-the best poems of friend

'Who did you read the best poems of friendship by?' (Uriagereka 1996:270-271)

P-to-V incorporation (overt or covert). Wh-movement yields a locality violation. Given Bošković's (2013b) claim that locality violations (PIC, antilocality, and traditional islands) lead to *-marking phasal heads, not phases (locality domains/their heads in the current system), the locality effect can be voided under P-movement since the violation, caused by skipping a domain, can lead to the *-marking of the head of the PP which is deleted in PF (what is *-marked is the lower head).

(67) Who_i did you see [_{DP} t_i [_{NP} friends of_j [_{PP} of_i* t_j]]]]?

Alternative: With a complex domain (a domain headed by two domain heads due to head-movement of the lower domain head to the higher domain head), merger with a projection of either head suffices to satisfy the current locality requirement for the complex domain in general (for both domain heads, we can think of this in terms of domain collapsing). The highest phrase of the NP domain in (67) is a complex domain headed by two domain heads, *friends+of*. *Who* merges with *of* in its base position, which means it need not merge with the NP, hence there is no violation in (67).

No Complex NP Constraint effect in Setswana, a Bantu language where the noun precedes all other TNP elements, which is analyzed in terms of N-to-D (Carstens 2010).²

(68) 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?'

¹What follows doesn't affect Appendix 2, but can be modified to allow V-movement to have an effect if needed.

²The Setswana data were collected by I. Monich. Bulu, another Bantu language, patterns with Setswana (J. Barlew and E. Clem (p.c)).

The object DP is a complex domain, headed by two domain heads, D & N. DP adjunction satisfies the locality requirement for both domains. Clefing in (68) need not proceed via NP adjunction; after adjoining to CP the wh-phrase can adjoin to DP, no violation.

Infinitives as non-V complements

Li (1993): adjunct extraction is banned from non-verbal infinitival complements, but allowed with raising infinitives (argument extraction is fine according to Li, but Chomsky 1973 gives one degraded example; Weak islands are generally weakened with infinitives (cf. (71)), this may be the issue here; in all examples the adjunct modifies the infinitive).

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

(70) How is John likely [to fix the car t]

(71) What do you wonder whether to buy?

(72) *Who will they obey/okey any requests to kill? (Chomsky 1973)

(73) (??) What did John witness (several) attempts to topple?

(74) *How were you proud to learn English?

(75) a. *How does Bert have a plan to fix the car

b. *How is Bert able to fix Ernie's car? (Li 1993)

Non-raising infinitives can be handled easily, they instantiate the general pattern of the Complex XP Constraint. (InfP stands for whatever the infinitive is.)

(76) *How_i does Bert have a [_{NP} t_i [_{NP} plan [_{InfP} t_i [_{InfP} [to fix the car t_i]]]]

Raising infinitives

Passive raising infinitives (not discussed by Li 1993): The Complex XP Constraint actually holds ((79) may even be worse than (78)).³ This follows from the current system.

(77) How_i did they believe [that John hired her t_i]

(78) *How_i was it believed [that John hired her t_i]

(79) *How_i was John believed [to have hired her t_i]

(80) *How_i was John [_{VP} t_i [_{VP} believed [_{InfP} t_i [_{InfP} [to have hired her t_i]]]]]

Other raising infinitives are the same. Although they are standardly assumed to allow adjunct extraction the facts indicate they don't, in spite of the adjunct ambiguity in (70).

Lasnik and Saito (1992), Martin (2001), a.o.: traditional raising infinitives are ambiguous between the raising option and the control option.

Significantly, when the raising option is forced we get the Complex XP Constraint effect.

Expletive *there*: the embedded clause reading of *how* is much more difficult to get in (81)-(82) than (70).

(81) *How_i is there likely [to arrive someone t_i tomorrow]

(82) *How_i does there seem [to have arrived someone t_i]

(83) a. There is likely to arrive someone tomorrow b. There seems to have arrived someone

Martin (2001): the control option for *seem* is more salient in the past than the present tense

³ Object extraction: (i) patterns with (55) rather than (54) (it may even be slightly worse than (55)).

(i) ??Who_i was John believed [to have hired t_i]

(84) ??How_i does John seem [to have hit Bill t_i]

(85) How_i did John seem [to have hit Bill t_i]

Idiom chunks are like expletives: the embedded clause reading of *how* not possible in (86)

(86) a. *How_i is the hatchet likely [to be buried t_i]?

b. *How_i is advantage likely [to be taken of Mary t_i]?

Passive *believe* patterns with raising predicates with respect to both expletives and idiom chunks; neither of these allow the embedded clause reading of *how*, in contrast to (89).⁴

(87) a. *How_i was the hatchet believed [to be buried t_i]?

b. *How_i is advantage believed [to be taken of Mary t_i]?

(88) a. *How_i was there believed [to have arrived someone t_i]?

b. ?There was believed to have arrived someone.

(89) How_i did Peter believe [John to have kissed Mary t_i]?

Subject reconstruction as the control/raising test: the subject must take wide scope in (90) (due to T. Messick, p.c.)

(90) How_i is someone likely [to fix the car t_i]?

While (91) is ambiguous (92) is not (raising/control asymmetry). The subject must take wide scope in (93), confirming that adjunct extraction forces the control option.

(91) Some senator is likely to lie to every member of his committee.

(92) Some senator tried to lie to every member of his committee.

(93) How_i is some senator likely [to lie to every member of his committee t_i]

Martin (2001): on the control option *seem* is an agentive verb (the exact theta-role doesn't matter), with the subject receiving an agent role. There is then a vP on the control option.

(94) How_i did John [_{VP} t_i [_{VP} seem [_{INFP} t_i [_{INFP} PRO to have hit Bill t_i]]]]?

The raising option

(95) *How_i does there [_{VP} t_i [_{VP} seem [_{INFP} t_i [_{INFP} to have arrived someone t_i]]]]?

The dual behavior of *seem* is captured, including the blocking effect of raising on adjunct extraction, confirming the existence of the Generalized Complex VP Constraint which holds only in the contexts where the verb does not assign the external theta role.

Likely can be handled in the same way (with a kind of verbalization on the control option).

(96) *How_i is there [_{AP} t_i [_{AP} likely [_{INFP} t_i [_{INFP} to arrive someone t_i tomorrow]]]]?

(97) How_i is John [_{AP} t_i [_{AP} likely [_{INFP} t_i [_{INFP} PRO to fix the car t_i]]]]?

How can the subject raise on the raising option? (more general infinitival effect, cf. (71)?)

A try: *seem/likely* are always control predicates when they have a lexical subject, raising predicates when they have an expletive subject; no ambiguous cases. The subject never moves from the infinitive (see Bošković 2007 for evidence that expletives do not raise).

⁴ There is some degradation with object extraction; (ii) is worse than (i).

(i) Advantage was believed to have been taken of her (ii) ??Who was advantage believed to have been taken of?

It won't work: (91) indicates the raising option, which allows reconstruction, is available. Also, in passive (79) and idiom chunk cases, the subject should start in the infinitive.

Conclusion: subjects can move out of raising infinitives, while adjuncts cannot (objects are less clear, but it appears they pattern with adjuncts, modulo the usual difference in the strength of the violation (fn. 3 and 4)).

Account: Raising infinitives are TPs, with the predicates taking them as complements lacking thematic vP/AP (this holds for non-control *seem/likely* as well as passive *believe*).

There is phi-feature sharing between the subject of such infinitives and the infinitival head. Movement out of a raising infinitive must pass through the edge of the infinitive, i.e. must involve merger with (a projection of) the infinitival head.

Since only subjects undergo feature-sharing with the infinitival head, only subjects can merge as SpecIPs, adjuncts and objects cannot—they merge as IP-adjuncts. Since the next step involves adjunction to VP/AP, we get an antilocality violation with adjunct and object movement, but not with subject movement.⁵

Extrapolated clauses

(98) It is likely that John bought a house.

Subject/object asymmetry (Kayne 1984, Stowell 1981, Bošković and Lasnik 2003). Adjuncts pattern with objects (Bošković and Lasnik 2003).

(99) What is it likely that John bought?

(100) *Who is it likely will read a book?

(101) How is it likely (that) John fixed the car?

(102) How does it seem (that) John fixed the car?

Why is it that movement from the edge of the extrapolated CP to the edge of AP/VP apparently does not violate antilocality in (99)/(101)-(102)?

Extrapolated clauses are Specs/adjuncts (Reinhart 1980, Stowell 1981, Bošković 2002, a.o).

Broader issue: when is X in the domain of Y? X is in the domain of Y if it is dominated by YP; or if X is c-commanded by the head of the domain, Y⁰, i.e. if X is not introduced into the structure after Y⁰.

(103) Who_i did John tell t_i that he should sleep?

Extremely-extraction from attributive APs in SC.

⁵ A Kayne-style alternative, where all Specs are adjuncts. There is a functional category above the TP of the infinitives in question, which may even be CP (see Bošković 2007 and references therein).

(i) [_{AP-VP} t_i [_{AP-VP} A/V [_{CP} t_i [_{CP} [_{INFP} ... t_i]]]]
Antilocality is violated in (i). This leads to the *-marking of the CP head. C moves to V/A (as in Pesetsky 1992), which means the *-marked element is deleted in PF under copy deletion, hence we get a rescue by PF deletion effect.

Adjunct-movement violations don't improve under sluicing (Lasnik & Park 2011); they are not subject to rescue by PF deletion.

(ii) *Mary met a student who solved the problem somehow, but I'm not sure exactly how ~~Mary met a student [who solved the problem]~~
Galician D-incorporation also improves argument but not adjunct locality violations (like adjunct movement out of DP)

(iii) a. *Pra quen roubastedes os garridos b. *Pra quen roubastede-los garridos
for whom stole-you guys the presents

The rescue-by-PF-deletion analysis captures the subject/adjunct contrast regarding movement from raising infinitives.

Alternative: With complex heads, merger with either head can satisfy the requirement of passing through the highest projection of a domain. Raising infinitives are CPs and involve I-to-C movement. With adjuncts, movement from the CP-adjoined to the VP/AP-adjoined position violates antilocality. Since subjects for independent reasons must move to the edge of IP, they have already merged with one of the heads of the complex C+I head that heads the infinitive. Subjects need not to move to the infinitival CP edge.

(104) I saw extremely tall students [_{VP} [_{VP} [_{NP} [_{AP} extremely [_{AP} tall]]] [_{NP} students]]]
 Since *extremely* is not in the domain of NP, it does not need to adjoin to NP.

(105) ?Izuzetno_i su kupili [_{AP} t_i skup] automobil.
 extremely are bought expensive car
 ‘They bought an extremely expensive car.’

(99)/(101)-(102) are then straightforward; no need for the wh-phrase to adjoin to AP since the CP is outside of the c-command domain of its head.

Subjects: Most assume *that*-less finite clauses are CPs with a null C, but a number of works have argued they are IPs (e.g. Bošković 1997, Grimshaw 1997, Doherty 1997, Ishii 1999, An 2007). Suppose both options are possible but null Cs can be licensed only in the complement position (of certain Vs/As). As in ECP-style accounts, wh-movement of a subject requires licensing of the original trace in SpecIP by the trace in the edge of CP, which can be implemented as licensing by C that heads the CP. While *that*-less clauses in object/adjunct extraction cases can be IPs, *that*-less clauses in subject extraction cases must be CPs. However, null C cannot be licensed in a Spec/adjunct position.⁶

Conclusion

- New generalization for locality domains: extraction is impossible not only out of clausal, but all complements of nouns. PPs, APs, and ergative/passive VPs pattern with NPs.
- Transitive VPs behave differently due to the presence of vP.
- Since the current theories of successive cyclic movement are set up to account for the exceptional case of transitive VPs, they make successive cyclic movement too easy.
- New approach: Structure is divided into two domains, thematic and non-thematic, with the requirement that a moving element must undergo merger in the highest projection of each such domain; any merger, including complement merger, suffices to satisfy the requirement in question.
- Modification of Chomsky’s (2013) labeling algorithm

Appendix 1: To phase or not? No more phases any more?

To phase: we can add phases into the current system. Phasal domains will still have the edge requirement, which the current domains don’t (even complement merger suffices there) Different domains for Chomsky (2001) too, strong vs weak phase. Weak phases are domains only for some phenomena (Legate 2003); they correspond to the current domains?

To phase a bit (some phases) Chomsky has CP/vP phases. Maybe now no need for the domain of V, vP, to be a phase; we get successive cyclic movement for it (movement via the vP edge) through the current analysis; the same holds for NP, AP, PP domains (Bošković 2013c, 2014). CP, which didn’t fit easily into Bošković’s 2014 system, as the only phase? (because of clausemate requirements (binding, QR as **really** phase bound now). We can still get successive cyclic movement via CP in the current system; but if we take only Grohmann’s agreement and thematic domains to correspond to the current domains, leaving the discourse domain aside, then CP would be a phase but not covered by the current domains (split CP then)

Not to phase: given the redundancies, we can eliminate phases (current domains correspond to phases). Abels’s ban on phasal complement extraction then should not hold (it’s an illusion), very little of it is actually left, e.g., IP-complement of C can’t move but there is a problem with IP movement even when there is no CP above the IP, as with German IP infinitives).

⁶ With passive verbs (*It was believed (that) John kissed Mary* and (57)), the clausal complement is a complement. Such cases should be treated differently; they exhibit a different pattern of extraction with objects and adjuncts, see (53)/(55). An alternative account of (100):

(i) a. *Who do you think that likes John?
 b. Who do you think likes John?

Uniform CP accounts of (i) that appeal to the over/null C distinction face a serious problem: syntax should not know whether the C is phonologically realized or not, i.e. this should not matter to the syntax. Accounts where the *that*-less clause in (ib) is an IP, the underlying assumption being that any C, overt or covert, blocks subject extraction. Suppose this is correct and that finite IPs can be licensed only as complements. The extraposed clause in (100) must be a CP; subject extraction yields a Comp-trace effect. Since object/adjunct extraction are not subject to the Comp-trace effect, there’s no problem in (99)/(102). Under this account the embedded clause in (57) must be a CP, which means it’s not only certain Vs that can take IP complements but only certain finite Vs (cf. *I want it to seem *(that) John left*).

(106) *[_{IP} morgen zu reparieren] hat ihn der Hans beschlossen.
 tomorrow to repair has it the Hans decided ‘Hans decided to repair it tomorrow.’ (Abels 2003)

(107) *?weil ihn glücklicherweise[_{IP} morgen zu reparieren] der Mechaniker ja doch beschlossen hat
 because it luckily tomorrow to repair the mechanic indeed decided has (Bošković 2013b)

Appendix 2: The Complex XP Constraint applied to verbs in a V-raising language (French)

(depending on the exact implementation of rescue by PF deletion/domain collapsing, such languages might be analyzable differently from English) Extraction from DPs (data provided by A. Rocquet): contrast between transitives and ergative/passives.

(108) A day after a parents-teachers meeting, the English (A) and the math teacher (B) are talking:

Speaker A: J’ai rencontré des parents d’élèves hier soir.
 I have met indef.art.pl parents of pupils yesterday evening

Speaker 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 did you see the parents of yesterday evening?’

(109) Speaker A: Il est arrivé des parents d’élèves hier soir dans mon bureau.
 there is arrived indef.art.pl parents of pupils yesterday evening in my office

Speaker 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 indef.art.pl parents yesterday evening

‘Oh, really?! (And) who did there arrive parents of yesterday evening.’

(110) Context: Some parents didn’t take to the parents-teachers meeting but the teachers would have liked to talk to them, so they decide to call them in. Speaker A: ??Suite à la réunion, il a été convoqué des parents.
 further to the meeting there has been called.in indef.art.pl parents

Speaker 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 indef.art.pl parents

‘Oh, really?! (And) whose pupils were the parents called.in?’

Extraction from CPs (I. Roy, p.c)

(111) Comment ont-ils dit que Jean l’avait engagée?
 ‘How did they say that John hired her?’ (ok with modification on the matrix or the embedded verb)

(112) Comment a-t-il été dit que Jean l’avait engagée?
 ‘How was it said that John hired her?’ (much better if *comment* modifies the matrix verb).

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