

More on the edge of the edge*

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This paper examines phases with multiple edges, arguing phasal edges are contextual: whether SpecXP is a phasal edge or not depends on whether X has other Specs. Moreover, moving a Spec affects the phasal status of the remaining Specs. The starting point will be a Serbo-Croatian (SC) paradigm from Bošković (2013d), where a correlation between linear order and left-branch extraction (LBE) is established. SC allows AP LBE and subextraction, but with demonstratives and possessors such extraction is allowed only if in the base order the AP precedes other modifiers. Since possessors but not demonstratives can follow adjectives, only possessors allow such extraction (1), and only when they follow the adjective (2). However, even demonstratives allow it when moved (3).

- (1) *Crvena* je kupio Ivanova/*ona kola.
favorite is bought Ivan's that car
'He bought Ivan's/that red car.'
- (2) *Na tebe* sam vidio ponosnog Savinog/*Savinog ponosnog oca.
of you am seen proud Savo's Savo's proud father
'I saw Savo's father who is proud of you.'
- (3) Ona *crvena* je kupio kola.

Bošković (2013d) uses this and a similar binding paradigm to argue for a contextual approach to phasal edges. In this paper I give additional data, also broadening the relevant anaphor binding paradigm, which argue for this approach and discuss several issues that have remained unresolved in

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Bošković (2013d) regarding multiple LBE cases like (3), including the reason for its acceptability (rather surprising, given (1)), which will involve providing a new implementation of the rescue by deletion mechanism, as well as pragmatic/semantic restrictions on the availability of multiple LBE. A digression is first in order to introduce the relevant background regarding SC NPs and the phase system adopted here.

1 On the NP/DP analysis and phases

Many works have argued that SC lacks DP (Bošković 2012, Corver 1992, Despić 2011, Marelj 2008, Runić 2012, Zlatić 1997, a.o.). I made this claim for all article-less languages based on a number of syntactic and semantic generalizations that correlate with articles which follow if DP is absent from TNPs of article-less languages (*TNP* is used neutrally regarding any functional structure above NP). In this system, possessors, which in every respect behave like adjectives in SC (Bošković 2005, Zlatić 1997), are treated as NP adjuncts.¹ One relevant argument, from Despić (2011), is provided by (5), which contrasts with (4). Given that the possessor is NP-adjoined and that SC lacks DP, the possessor c-commands out of the TNP in (5), which results in binding violations. Nothing changes with demonstratives (6), which are also treated as NP adjoined (they behave like adjectives in all respects). The same holds for adjectives (7). (5)-(7) thus receive a uniform account if possessors, demonstratives, and adjectives are NP adjoined and DP is missing in SC.

- (4) a. His_i latest movie really disappointed Kusturica_i.
 b. Kusturica_i's latest movie really disappointed him_i.
 (5) a. *_{[NP Kusturicin_i [_{NP} najnoviji film]]} ga_i je zaista razočarao.
 Kusturica's latest movie him is really disappointed
 b. *_{[NP Njegovi_i [_{NP} najnoviji film]]} je zaista razočarao Kusturicu_i.
 his latest movie is really disappointed Kusturica
 (6) *_{[NP Ovaj [_{NP} Kusturicin_i [_{NP} najnoviji [_{NP} film]]]]} ga_i je zaista razočarao.
 this Kusturica's latest movie him is really disappointed
 (7) *_{[NP Brojni [_{NP} Kusturicin_i [_{NP} filmovi]]]} su ga_i zaista razočarali.
 numerous Kusturica's movies are him really disappointed

¹ NP Specs are also compatible with the NP system and the account of (1)-(3) (as well as (8)-(10)) below, but in such an NP language examples like (5)-(7) should be acceptable.

Also relevant is Bošković's (2009) observation that TNP word order is freer in NP than DP languages, the reason being that the richer structure of the latter imposes restrictions on word order that are not found in NP languages due to the lack of this structure. Thus, demonstratives and possessors must precede adjectives in English because they are located in DP, which is higher than the phrase where adjectives are located. In SC, due to the lack of DP all these elements are treated as NP adjuncts. As a result, syntax does not impose any restrictions on their order. Chinese strongly confirms this approach. Any order of adjectives/demonstratives/possessors is allowed in Chinese, which follows if they are NP adjoined.

- (8) a. Wang-de hongse de paoche b. hongse de Wang-de paoche
 Wang's red sport-car
- (9) a. na-bu hongse de/Wangde paoche b. hongse de/Wangde na-bu paoche
 that-CL red/Wang's sport-car

SC and Chinese, however, differ regarding word order. In SC, adjectives and possessives are freely ordered, but demonstratives must come first.

- (10) a. Jovanova skupa slika b. skupa Jovanova slika
 John's expensive picture
- (11) a. ova skupa/Jovanova slika b. ?*skupa/Jovanova ova slika
 this expensive/Jovan's picture

Possessors and adjectives are freely ordered semantically. The most plausible semantics for possessors is modificational (Partee & Borschev 1998: [[Mary's]] = $\lambda x. [R_i(\text{Mary})(x)]$, R_i is a free variable). Under standard assumptions that adjectives are also of type $\langle e, t \rangle$ and that there is a rule of intersective predicate modification, semantics imposes no restrictions on the order of possessor/adjective composition. Demonstrative *that* is of type $\langle \langle e, t \rangle, e \rangle$. Once *that* maps a nominal to an individual, further modification by $\langle e, t \rangle$ predicates is impossible. While semantics allows possessors and adjectives to compose in any order, demonstratives then must be composed last, which perfectly matches SC word order.²

²See Bošković (in press) on non-restrictive APs; for semantic accounts of the Chinese/SC difference, see Bošković & Hsieh (2013), Bošković (in press), Bošković & Hsieh (in prep) (the first work argues for a difference in the semantics of demonstratives and the

Turning to a summary of the phase system, it is standardly assumed DP is a phase. One relevant argument concerns (12) (see Bošković 2012).

- (12) Only article-less languages may allow LBE examples like (13).
 (13) Skupa_i on voli [t_i kola] (SC)
 (14) *Expensive_i he loves [t_i cars]

Bošković (2005) gives this account of (14): DP being a phase, AP must move to SpecDP. Assuming APs are NP-adjuncts and a ban on movement that is too short (antilocality), which requires crossing a full phrase (not just a segment), (14) is ruled out: the PIC requires movement via SpecDP, which violates antilocality ($[_{DP} AP_i [_{D'} [_{NP} t_i] [_{NP}]]$). SC lacks DP, but Bošković (in press) shows NP is a phase in SC. SC disallows deep LBE.

- (15) On cijeni [_{NP1} [_{N'} [prijatelje [_{NP2} pametnih [_{NP2} studenata]]]
 he appreciates friends smart students
 'He appreciates friends of smart students.'
 (16) ?*Pametnih_i on cijeni [_{NP1} [_{N'} [prijatelje [_{NP2} t_i [_{NP2} studenata]]]

An NP above an LBE-ing NP blocks LBE just like DP does. This follows if NP is a phase in SC. NP1 then blocks LBE in (16) for the same reason DP does it in (14). Also relevant is Abels's (2003) finding that complements of phase heads are immobile. Genitive NP complements of nouns cannot move in SC, which is explained if NP is a phase in SC.³

- (17) ?*Ovog grada sam pronašla [_{NP} sliku t_i]
 this city(gen) am found picture

latter two for a difference in the semantics of modifiers). It should be noted that, as (i), provided by K. Zanon, shows, Russian allows adjectives/possessors to precede demonstratives (Zanon notes that in most such cases we may be dealing with Partee's 2006 familiar demonstratives. I leave exploring the issue and its consequences for future research.)

- (i) a. A umnuju ètu lošad' potom s"eli. b. Gosti ne zametili glupyx ètix slez.
 and smart this horse then ate guests not notices silly those tears
 'And then they ate this smart horse.' 'The guests didn't notice those silly tears.'
 c. Mašina èta znakomaja menja besit do žuti.
 Mašina this friend me irritate to awfulness
 'This friend of Maša's irritates the loving god out of me.'

³Bošković (in press) argues that the highest projection in the extended domain of N is a phase: in English this is DP, and in SC NP. TNP is then a phase in both languages.

‘Of this city I found a/the picture.’

2 Phasal edges

We are now ready to tackle examples with multiple edges. (18) shows possessors and demonstratives block adjectival complement movement.

(18) *Na tebe_i sam vidio [_{NP} Jovanovog/tog [_{NP}[ponosnog t_i][_{NP} oca]]]
of you am seen Jovan’s/that proud father

Recall the highest TNP phrase is a phase (fn. 3). AP can LBE in SC since it is located at the TNP-phase edge, NP being the phase. In English, it must move to the phasal edge, SpecDP, which violates antilocality. What is important is that extraction is allowed only from the TNP phase edge. Given this, in Bošković (2013d) I note (18) can be captured if in multiple edge configurations only the highest edge counts as the edge for the PIC; the AP, which contains the adjectival complement, is then not located at the phase edge in (18), hence the PIC blocks movement out of it.

Importantly, (18) improves if the adjective precedes the possessor. The AP is the outmost edge in (19), hence extraction out of it is possible.

(19) ?Na tebe_i sam vidio [_{NP} [ponosnog t_i] [_{NP} Jovanovog [_{NP} oca]]]

The analysis extends to simple LBE cases. Consider (20)-(21).

(20) *Ponosnog_i sam vidio [_{NP} tog [_{NP} t_i [_{NP} oca]]]
proud am seen that father

(21) Tog_i sam vidio [_{NP} t_i [_{NP} ponosnog [_{NP} oca]]]

Recall demonstratives and adjectives are both NP-adjoined in SC but adjectives adjoin below demonstratives. Since only the highest edge is the edge, *ponosnog* in (20) is not at the NP-phase edge, hence cannot LBE. However, since *tog* is generated as the higher NP adjunct it can move.

Possessors are different. The adjective and the possessor can be in either order in (23). Either can then be the higher adjunct hence they both LBE.

(22) a. Omiljena_i je kupio [_{NP} t_i [_{NP} Jovanova [_{NP} kola]]]
favorite is bought Jovan’s car

- b. Čija_i je kupio [_{NP} t_i [_{NP} omiljena [_{NP} kola]]]
 whose is bought favorite car
- (23) a. Omiljena Jovanova kola b. Jovanova omiljena kola

(24)-(28) confirm the base order/extraction correlation. When adjectives can occur in either order, either can extract (24)-(26); when one adjective must be first, only that adjective can extract (27)-(28). (LBE with another AP/possessor requires focusing the moved AP. Note Bošković 2009 argues adjective order constraints are not syntactic but semantic/prosodic; syntax allows any order and semantics/prosody filter out bad cases.)

- (24) Mladog_i su angažovali [_{NP} t_i [_{NP} brzog napadača]].
 young are engaged quick striker
- (25) ?Brzog_i su angažovali [_{NP} t_i [_{NP} mladog napadača]].
- (26) mladog brzog napadača/?brzog mladog napadača.
- (27) a. *Mašinskog_i je otpustio [_{NP} neozbiljnog [_{NP} t_i [_{NP} tehničara]]].
 mechanical is fired not-serious technician
 b. ?Neozbiljnog_i je otpustio [_{NP} t_i [_{NP} mašinskog [_{NP} tehničara]]].
- (28) neozbiljnog mašinskog tehničara/*mašinskog neozbiljnog tehničara

Mašinskog must adjoin below *neozbiljnog* (28); only *neozbiljnog* is then the phasal edge, hence only *neozbiljnog* can move. In contrast, either adjective can be the higher adjunct in (26), hence either adjective can LBE.

SC allows adverb extraction from APs. With multiple APs such extraction is somewhat degraded but clearly better from the outmost edge.

- (29) *Izuzetno_i su kupili [_{NP}[_{AP} skup] [_{NP}[_{AP} t_i ružičast][_{NP} automobil]]]
 extremely are bought expensive pink car
- (30) ??Izuzetno_i su kupili [_{NP}[_{AP} t_i skup][_{NP}[_{AP} ružičast][_{NP} automobil]]]
 'They bought an extremely expensive pink car.'

SC also allows extraction of NP adjuncts (in contrast to DP languages like English, where this is blocked by antilocality/PIC (Bošković 2013b))

- (31) *From which city_i did Peter meet [_{NP} girls t_i]?
 (32) Iz kojeg grada_i je Petar sreo [djevojke t_i]
 from which city is Peter met girls

These adjuncts and adjectives/possessors should be extractable when co-occurring, since either can be the higher NP-adjunct. But since demonstratives must be generated as the outmost adjunct, they should block their extraction. This is borne out (extraction can affect available readings).

- (33) a. Pametne je upoznao studente sa beogradskog fakulteta.
 smart is met students from Belgrade university
 'He met smart students from the University of Belgrade.'
 b. Sa kojeg fakulteta je upoznao pametne studente?
 from which university is met smart students
- (34) a. Iz kojeg tima je upoznao tvoje prijatelje?
 from which team is met your friends
 b. Čije je upoznao prijatelje iz tog tima?
 whose is met friends from that team
- (35) a. Ovog je on oborio studenta iz Beograda.
 this is he failed student from Belgrade
 'He failed this student from Belgrade.'
 b. *Iz Beograda je on oborio ovog studenta.

An issue arises here. Suppose the PP in (18) adjoins to the NP above the demonstrative/possessor, which would not violate antilocality.

- (36) *Na tebe_i sam vidio [_{NP} t_i[_{NP} Jovanovog [_{NP}[ponosnog t_i] [_{NP} oca]]]]

This is disallowed in Chomsky (2001), where the head (here N) whose edge movement targets must probe the moving element, hence must c-command it. There is also an alternative which does not require that successive cyclic movement involves probing by a higher head.

Bošković (2013b) argues N/A take only NPs as complements in SC; PPs modifying N/A are adjuncts. Higher NP adjunction then still violates antilocality (see Talić 2013a for an alternative where (18) is treated like (38)). However, NP complements still raise the issue: adjoining to the higher NP from the A-complement in (38) does not violate antilocality.

- (37) lojalan generalu
 loyal general.dat (loyal to the general)
- (38) *Generalu_i sam vidio [_{NP} tog [_{NP} [_{AP} lojalnog t_i] [_{NP} vojnika]]]
 general.dat am seen that loyal soldier

Since As assign inherent case what is relevant is that in contrast to genitive, N-complements with inherent case allow deep LBE (39) and can move (40). In Bošković (2013b) I argue NPs with inherent case assigning Ns have more structure: they involve a functional projection that facilitates inherent case assignment (41), which voids antilocality effects.

- (39) ?Kakvom_i ga je prijetnja smrću uplašila?
 what-kind-of him is threat death scared
 ‘Of what kind of death did a threat scare him?’ (Bošković 2013b)
- (40) Čime_i ga je [(Jovanova) prijetnja t_i] uplašila?
 what.instr him is Jovan's threat scared
 ‘The threat of what (by Jovan) scared him?’ (Zlatić 1997)
- (41) [_{NP} threat [_{FP} F [_{NP} his [_{NP} death

I argue the highest phrase in the extended domain of lexical heads is a phase. AP is then also a phase. Now, in Bošković (2013a) I show N/A do not license A'-Specs. As a result, A'-movement through the NP/AP edge must proceed via NP/AP-adjunction. One argument is provided by (42) (due to A. Talić). The moved phrase is inherently case-marked, which means N2 takes FP as complement. Both NPs are phases. If the moved element could move to SpecNP2, there would be no violation in (42). However, if Ns do not license A'-Specs, movement through the NP2 edge can only proceed via NP2-adjunction. Movement to the NP1 edge then violates antilocality. (42) thus follows if NPs do not license A'-Specs (see Bošković 2013a for additional evidence for both NP and AP).

- (42) *Smrću_i je on vidio[_{NP1}t_i [_{NP1} opise [_{NP2} t_i [_{NP2} prijetnji[_{FP} [_{NP3}t_i]]]]]
 death_{INSTR} is he seen descriptions_{ACC} threats_{GEN}
 ‘He saw descriptions of threats by cruel death.’

Generalu then needs to first adjoin to the AP in (38), after which it adjoins to the highest NP segment; the second step violates antilocality.

- (43) *Generalu_i sam vidio[_{NP} t_i[_{NP} tog[_{NP}[_{AP} t_i [_{AP}lojalnog[_{FP} t_i]]][_{NP}vojnika]
 general.dat am seen that loyal soldier

The proposal that only the outmost edge counts as the edge has an interesting application in binding (noted by Zanon 2014 for Russian; see also

Wurmbrand 2013 for an application to Agree). While SC possessors can precede or follow adjectives, reflexive possessors must precede them.

- (44) Marija je prodala svoju omiljenu knjigu.
Marija is sold her-anaphor favorite book
(45) *Marija je prodala omiljenu svoju knjigu.

Condition A is currently stated in terms of phases (Despić 2011), where an anaphor can be bound outside its minimal phase only if located at its edge. Given the proposal that only the outmost edge counts as the phasal edge, the anaphor is located at the phasal edge in (44) but not in (45).⁴

To sum up, in phases with multiple edges only the outmost edge counts as the phasal edge. This argues for a contextual approach to phasehood since it indicates that the status of a Spec/adjunct regarding the PIC cannot be determined without examining its syntactic context.

3.1 Traces as non-edges: Object Shift

Movement can also affect the PIC status of Specs. Consider Dutch object shift, where DO can object shift only if IO does (the objects preceding ‘probably’ have object-shifted; see also Bošković 2013d for Icelandic).

- (46) a. ... dat Jan **waarschijnlijk** Marie het boek geeft
that Jan probably Marie the book gives
b. ... dat Jan Marie **waarschijnlijk** het boek geeft
c. ... dat Jan Marie het boek **waarschijnlijk** geeft
d. *... dat Jan het boek **waarschijnlijk** Marie geeft

Since both objects are candidates for object shift, this may be an Attract closest effect: IO being higher than DO, DO can’t be attracted for object shift across IO (46d). It is well-known traces do not count as interveners (Chomsky 1995): (47), where the experiencer intervenes, illustrates (48).

- (47) a. *Gianni_i sembra a Maria [_{t_i} essere stanco].
Gianni seems to Maria to-be ill

⁴ Partee’s (2006) familiar demonstratives can precede *svoju*. As discussed in Bošković (2013d), such demonstratives have very different semantics from regular demonstratives and form a constituent with the possessor, hence such cases involve only one NP-edge.

- b. Gianni_i gli_j sembra t_j t_i essere stanco
 Gianni her seems to-be ill (Italian)

(48) Traces do not count as interveners for relativized minimality effects

Since relativized minimality (RM) violations get voided if the intervener moves, no problem arises in (46c), where IO object shifts and then DO object shifts, tucking in the lower Spec (Richards 2001; ...*het boek Marie waarschijnlijk...* is ill-formed since here DO moves first and IO tucks in).

IO also must object shift for DO to wh-move although a non-wh-NP in an A-position should not interfere with wh-movement via Attract closest.

- (49) a. Wat zal Jan Marie waarschijnlijk geven?
 what will Jan Marie probably give
 b. ?*Wat zal Jan waarschijnlijk Marie geven? (den Dikken 1995)

Germanic object shift has been argued to land above SpecvP. Given the Zwart (1993) account where Dutch objects must move to SpecvP (this is responsible for the SOV order), I then assume objects move to SpecvP below 'probably', object shift involving movement from there. I assume that after the first step, which places IO and DO in separate vPSpecs, IO occupies higher Spec (IO being higher before the movement; DO tucks in the lower Spec). (46)-(49) then follow. (49) shows that with multiple Specs of the same phase, only the higher Spec can move. The lower Spec can move once the higher Spec moves. This means that just like traces don't count as interveners for RM, they also don't count as phasal edges.

- (50) a. (49b): *_{[CP ... [vP IO DO]} b. (49a): _{[CP ... [vP IO DO]}

Another argument that traces do not count as edges is provided by (51).

- (51) Omiljenu_i je Marija prodala t_i svoju knjigu.
 favorite is Marija sold her-anaphor book
 (52) *Marija je prodala omiljenu svoju knjigu.

Omiljenu must be the outmost NP-adjunct in (51), or it could not LBE. Recall (52) is ruled out because *svoju* is not located at the NP phase edge, hence cannot be bound outside of it. *Svoju* then must be at the NP phase edge in (51), which confirms traces do not count as phasal edges.

Zanon (2014) notes (for Russian) that quantifiers can precede such possessors. She argues that what makes this possible is QR; after QR the anaphor is at the phasal edge in (53) given that traces do not count as phasal edges. She also notes strong quantifiers (which must undergo QR) cannot follow the anaphor. Zanon argues (54) is ruled out because, not being the outmost edge, *svaku* cannot QR (see Zanon 2014 on indefinites, which she argues can QR but can also be interpreted in situ).

- (53) Marija je prodala svaku svoju knjigu.
 Marija is sold each her-anaphor book
 (54) *Marija je prodala svoju svaku knjigu.

The adjective-*svoj* order actually improves with strong focus on the adjective, as noted by K. Zanon (p.c.), who provided the following, actually occurring example (*imantno* bears focus stress). I suggest that in such cases the adjective undergoes focus movement, either overtly (string-vacuously) or covertly, so that only a trace precedes *svoj*.

- (55) ...što paradiraju gradovima zahtijevajući neke administrativne privilegije, ističući svoje ljudske nemogućnosti kao *imantno svoje* pravo.
 leges asserting their human inabilities like immanent their right

I turn now to the implementation of the rescuing effect of traces on locality violations (for discussion, see also Wurmbrand 2013). Bošković (2011) gives a deduction of (48) in terms of rescue by PF deletion, unifying (48) with Ross's (1969) claim that ellipsis rescues island violations.

- (56) a. *Ben will be happy if Mary fires one of the students, but she didn't know which student_i Ben will be happy [if she fires t_i].
 b. Ben will be happy if Mary fires one of the students, but she didn't know which student_i; ~~Ben will be happy [if she fires t_i].~~

Under the current account, * is assigned to the adjunct when wh movement crosses it. If * remains in the final representation (56a), a violation incurs. If ellipsis deletes a phrase containing the * (56b), the derivation is rescued. Bošković (2011) treats (48) the same way. With adjuncts, what causes the problem is crossing the adjunct boundary, hence the island is

*-ed. With RM, the problem arises with crossing the intervener, hence the intervener is *-ed in (47). The *-marked intervener is deleted under copy deletion in (47b), but not in (47a). (47) then gets the same treatment as (56). Bošković (2011) also argues that with locality violations induced by phase X, the * is placed on the phase head. Consider Galician (57).

- (57) a. *De quén_j liches os mellores poemas de amigo t_j?
of whom read (you) the best poems of friend
b. De quén_j liche-los_i mellores [_{DP} [_{D'} t_i [_{NP} poemas de amigo t_j]]]
‘Who did you read the best poems of friendship by?’ (Uriagereka 1996)

(57a) shows *wh*-movement is disallowed from a DP headed by a definite article; such DPs are islands. However, when the article incorporates into the verb ((57b); see Uriagereka 1996 on D-incorporation), movement is possible. Bošković (2011) notes (57a) can be treated as another case of rescue by PF deletion if with movement out of islands, the * is placed on the head of the phrase functioning as an island, not the island itself. The * is then placed on t_i in (57b) (not on DP). Since t_i is actually a copy that is deleted in PF no * is present in the final PF representation of (57b).

- (58)*De quén **liche-los**_{[DP [_{D'} los* [mellores poemas de amigo ~~de quén~~]]]}

Bošković (2013c) argues that quite generally, PIC/anti-locality violations at phase XP lead to the *-marking of the phase, which, following the above reasoning, actually leads to the *-marking of the phasal head. Consider (59). (59a) is an instance of *extraordinary LBE*, which moves a P+A complex. Ordinary LBE is disallowed in this configuration (59b).

- (59) a. U veliku on uđe sobu. b. *Veliku on uđe [_{PP} u [_{NP} t [_{NP} sobu]]]
in big he entered room
‘He entered the big room.’

Bošković (2013c) gives an antilocality/PIC account of (59b) where PPs are phases. Depending on whether or not AP moves to SpecPP either antilocality or the PIC is violated. (59b) thus involves a locality violation

Consider now the improvement that occurs in (59a) with P-movement. Bošković (2005) (see also references therein) provides evidence for an account where extraordinary LBE involves ordinary LBE: the P adjoins

(i.e. cliticizes) to the adjective and then the LBE of the adjective carries the P.⁵ Recall (59b) involves a locality violation, which, on a par with Galician (57), leads to the *-marking of the head of the PP. Since this head is turned into a copy that is deleted in PF because of P-movement, PF deletion removes the offending *, hence the grammaticality of (59a).

Turning to (49) (the following also applies to (63)), the fact that turning an element into a trace rescues a locality violation indicates rescue by PF deletion is at work here. But there is a problem. (49b) is ruled out by the PIC: it involves movement from a lower vP edge. If this would induce *-marking on the higher edge the improvement in (49a) could be captured. As noted above, RM violations cause *-marking of the intervener. However, Bošković (2013d) argues examples like (49b) are not RM but PIC violations (see also the discussion of (68) below). Recall this should lead to the *-marking of the phasal head, i.e. *v*. Turning the outmost Spec into a trace then should not matter. There is, however, a way of unifying all the data discussed above. Suppose that with PIC violations at phase XP, * is placed on the outmost edge of the phase (other than the moving phrase itself), as suggested by A. Talić (p.c.). In multiple edge cases like (49b), * is then placed on the outmost edge. In examples like (59b) that don't involve any edges, * is placed on the head of the phase, P⁰. We can then account for all the improvements caused by turning a trouble maker for locality into a trace in a unified manner without any undesirable effects for (49b). The analysis also captures (60) assuming that (60) involves P-movement without further LBE of the *u+svoju* complex from the PP and that anaphor licensing is done via Agree, given that rescue-by-deletion applies to Agree (Bošković 2013c; the latter assumption is unnecessary under the discussion below (62), since *svoju* is then in SpecPP)

(60) On uđe u svoju sobu.
 he entered in his-anaphor room

(53), where the outmost edge is turned into a trace by LF movement (i.e. QR of *svaku*), then becomes rather interesting. (53) indicates that not only PF copy deletion but also LF copy deletion can rescue derivations with *-marked elements.

⁵There are two implementations of this analysis: P lowers to AP or AP moves to a position c-commanding P, e.g. SpecPP, after which P adjoins to it.

Consider now numeral constructions.

- (61) Vidjela je deset svojih prijateljica.
 seen is ten her-anaphor friends
 ‘She saw ten friends of hers.’

Bošković (in press) and Despić (2011) argue numerals project a phrase (QP) on top of NP. Being the highest TNP projection, QP is then a phase. Note that numerals in genitive-of-quantification contexts can LBE (*Deset je vidjela svojih prijateljica*). While the numeral is often assumed to be located in Q^0 , this indicates it should be placed in SpecQP (or it could not undergo LBE, which is a phrasal movement), with a null Q head assigning genitive to the complement, as in Bošković (2006) and Franks (1994). As Franks (1994) shows, the genitive assigned by Q is inherent. Given that inherent case comes with a functional projection (see (41)), Q then takes an FP complement, with the anaphor adjoined to NP.

- (62) Vidjela je [_{QP} deset [_Q Q [_{FP} [_{NP} svojih [_{NP} prijateljica]]]]]

QR isn't enough to save (62) from violating the PIC. Suppose the need to undergo Agree without violating locality can drive movement (Franks & Lavine 2006, Bobaljik & Wurmbrand 2005). Assuming anaphors need to undergo Agree, there is a need for *svojih* to move to the QP phase edge (alternatively, we may be dealing here with anaphor-movement). Once *svojih* tucks in under *10*, the only higher edge will be a trace left by QR.⁶

3.2. Multiple LBE

Multiple LBE is possible: both *onu* and *staru* LBE in (63). As in Dutch, with multiple LBE a lower Spec, which is otherwise immobile, can move

⁶ Consider also (i).

- (i) a. *Ona je kupila [_{QP} deset [_Q Q [_{FP} [_{NP} omiljenih [_{NP} svojih [_{NP} knjiga]]]]]
 she is bought ten favorite her-anaphor books
 b. Ona je kupila [_{QP} deset [_Q svojih [_Q Q [_{FP} [_{NP} omiljenih [_{NP} knjiga]]]]]

There is no need for *omiljenih* to move so *svojih* must be NP-adjoined in (ia). Rescue by copy deletion then cannot help in (ia) given Despić's (2011) claim that anaphors must be licensed before being spelled out; *svojih* in (ia) is spelled out before it Agrees with its antecedent (SpecvP). There is no issue in (ib), where *svojih* can be at the QP phase edge.

if the higher Spec moves. Since traces do not count as phasal edges, t_i in (63) doesn't count as being at the NP phase edge; the AP can then move.

- (63) Onu_i staru_i prodaje t_i t_j kuću.
 that old sells house
 'He is selling that old house.'

Such cases must involve LBE to the same head, as shown by (64), where the LBE-ing phrases land in different phrases. Why is this? Bošković (2005) shows LBE with multiple NP adjuncts involves focus movement (65). *Onu* then cannot move away in (66) due to the freezing effect of op(erator) movement (Bošković 2008): once *x* undergoes op movement, it is frozen for further op-movement. *Staru* also can't move higher (67); this violates locality if FocP occupied by *onu* is skipped (failure to undergo focus-movement to the closest focus position); if it isn't (if *staru* moves to the lower FocP (65)), there is the freezing effect and the PIC.

- (64) *Onu (tvrđi da) Ivan staru prodaje kuću.
 that claims that Ivan old sells house
 '(He/she claims that) Ivan is selling that old house.'
- (65) [_{FocP} Onu_i staru_j prodaje [_{NP} t_i t_j kuću]]
- (66) *_{[FocP} Onu_i tvrđi da [_{FocP} t_i staru [prodaje kuću]]]
- (67) *Staru (tvrđi da) Ivan onu prodaje kuću.
 old claims that Ivan that sells house

There is an ordering restriction on multiple LBE: the Spec that is higher prior to LBE must be the first, i.e. the higher, Spec in the result of LBE.

- (68) a. Onu_i staru_i prodaje t_i t_j kuću. b. *Staru onu prodaje kuću.
 that old sells house

This can't be a simple superiority/attract closest effect since we are dealing with focus-movement, which, in contrast to multiple wh-fronting, is insensitive to superiority (Bošković 2002). In the current system, the ordering effect follows independently: the higher Spec before movement (*onu*) must move first or the PIC will be violated (only this Spec is at the phasal edge, hence only this Spec can move; lower Spec (*staru*) cannot move independently of attract closest). After the higher Spec is

vacated, the lower Spec is at the phasal edge, hence accessible to movement. This Spec then moves, tucking in lower SpecFocP, yielding (68a).

There is one issue here. Focalized and wh-phrases undergo focus movement in SC (Bošković 2002). However, while multiple focus movement is possible with wh-phrases, it is normally disallowed for non-wh-phrases (the judgment in (69b) holds for the multiple-focus reading).

- (69) a. [_{FocP} Kome koga/koga kome [_{Foc} on predstavlja]]?
 who.dat who.acc he is-introducing
 ‘Who is he introducing to whom?’
 b. * [_{FocP} Petru Mariju/Mariju Petru [_{Foc} on predstavlja]].
 Peter-dat Marija-acc he is-introducing

Under the above analysis (63) involves multiple focus movement of non-wh-phrases. (69a) shows FocP can in principle host multiple phrases in SC, suggesting there is nothing wrong with it syntactically. Why then the contrast in (63)/(69b)? It seems we are dealing with a semantic effect, where the focalized elements must have a single referent. This is the case in (63), but not (69b). Deicticity also matters: (71) is better than (70).

- (70) ?*Malu plavu mu pokazuje kuću.
 small blue him.dat is-showing house
 ‘She is showing him a small blue house.’
 (71) Onu malu plavu mu pokazuje kuću.
 that small blue him.dat is-showing house

Furthermore, (70) improves with pointing, which confirms the relevance of deicticity here. Further confirmation is provided by the fact that (70) is also clearly better than (72), taken as a general statement.

- (72) *Male plave ga ne zanimaju kuće.
 small blue him.acc not interest house
 ‘Small blue houses don’t interest him.’

There are additional discourse constraints. A slight preference for a particular order of adjectives becomes even stronger with multiple LBE. The dispreferred order in (73) requires some focusing on the first adjec-

tive. Multiple LBE, which itself involves focusing, apparently requires neutral order of the fronted elements, without any additional focusing.

(73) a. Prodaje malu žutu. kuću b. ?Prodaje žutu malu kuću.
is-selling small yellow house

(74) Onu_i malu žutu prodaje kuću vs ?*Onu_i žutu malu prodaje kuću
that small yellow is-selling house
'He is selling that small yellow house.'

(75) may also be ruled out by the ban on additional focusing, given that in this case adverbial modification focuses the AP.

(75) ?*Onu izuzetno staru prodaje kuću.
that extremely old sells house

Such cases become acceptable in a context which does not involve additional focusing on the AP: (76) is acceptable in a context where there is a man who is smart a little, a man who is very smart, and a stupid man.

(76) Onog puno pametnog mu pokazuje čovjeka.
that very smart him is-showing man

Adverb subextraction is disallowed in such cases. (77)-(78) could be ruled out by the ban on additional focusing; it is rather difficult to come up with an appropriate context here given the focusing requirements.

(77) *Onaj_i izuzetno_j kupuje t_i [_{AP} t_j stari] automobile.
he extremely is-buying old car

(78) *Skup_i izuzetno_j kupuje t_i [_{AP} t_j ružičast] automobile.
expensive extremely is-buying pink car

(77) is actually ruled out independently of discourse requirements. Talić (2013b) notes long forms of SC adjectives disallow adverb extraction. However, the co-occurrence with a demonstrative requires the long form.

Extraordinary LBE is also possible with multiple LBE.

(79) U onu malu je ušao sobu.
in that small is entered room

(79) can be analyzed like basic extraordinary LBE. Adjunction of *u* to the demonstrative turns the PP head into a trace, which voids locality problems the PP induces for movement of *onu*. Not only the demonstrative, but also the adjective can move out of the PP without a violation.

A slightly more complicated example is (80), involving a QP.

- (80) U pet velikih je ušao kuća.
 in five big is entered houses
 'He entered five big houses.'

If the numeral is located in SpecQP (see above) the preposition adjoins to the numeral; (80) can then be derived with multiple applications of LBE, just like (79). (If the numeral can be located in Q^0 , (80) can involve multiple extraordinary LBE: the adjective moves to SpecQP and the numeral adjoins to the adjective. The AP, carrying the numeral along, then moves to SpecPP, with the preposition adjoining to it.)

Also worth noting is a contrast in the placement of the LBE remnant. With single LBE there is a preference to place the remnant in front of the verb; the reason for this is a preference to focalize the remnant, which is accomplished by placing it in front of the verb, typical focus placement in SC (the focalized phrase needn't be V-adjacent. Some focalization can also be accomplished in the final position, this is why *today* is added.)

- (81) Žutu mu kuću pokazuje. vs ?Žutu mu pokazuje kuću danas.
 yellow him house is-showing today

With multiple LBE, on the other hand, there is a preference to leave the remnant following the verb.

- (82) ??Onu žutu mu kuću pokazuje. vs Onu žutu mu pokazuje kuću.
 that yellow him house is-showing

I suggest the reason for this is that the remnant with multiple LBE must be backgrounded; this is why it has to follow the verb. This is also the reason why it is difficult to leave adverbs like *extremely* in the remnant.

- (83) *Onu tamnu prodaje (*izuzetno) plavu kuću.
 that dark is-selling extremely blue house

Multiple LBE thus differs from single LBE in that with the latter there is a preference for the remnant to be focalized while with the former the remnant needs to be backgrounded.

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