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Getting really edgy: On the edge of the edge*

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Abstract: The article argues that in constructions where there is more than one phrase at a phasal edge, only the highest edge is available for movement and anaphor binding. This shows that only the outmost edge counts as the edge of a phase for the Phase-Impenetrability Condition (PIC). It is also shown that moving the element that counts as the phasal edge in multiple Spec/adjunct cases can affect the PIC status of the remaining edges. These conclusions provide a new argument for the contextuality of phasehood. A number of recent works have argued that the phasal status of a phrase can be affected by the syntactic context in which it occurs. This article goes one step further: it shows that the concept of *phasal edge*, i.e. the status of a Spec/adjunct regarding the PIC, can also be affected by the syntactic context in which the Spec/adjunct occurs. The article also discusses a number of issues regarding the syntax and semantics of adjectives, possessors, and demonstratives, including Partee's (2006) familiar usage of demonstratives, as well as anaphor binding.

Keywords: adjectives, anaphor binding, demonstratives, left-branch extraction, object shift, phases, Phase-Impenetrability Condition, possessors

0. Introduction

This article examines extraction out of phases with multiple edges in order to determine what counts as a phasal edge in such constructions. I will argue that not all edges count as phasal edges for the purpose of the Phase-Impenetrability Condition (PIC). In this respect, the concept of *phasal edge* will turn out to be contextual: in order to determine whether a Spec or an adjunct of phase XP counts as a phasal edge it is necessary to determine whether XP has other Specs/adjuncts. Furthermore, it will be shown that movement of an

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element located in the Spec/adjunct position of phase XP can affect the status of the remaining Specs/adjuncts of XP with respect to the PIC.

Chomsky's (2000, 2001) original approach to phasehood is rigid in that the phasal status of a phrase does not depend on its syntactic context; thus CP is always a phase for Chomsky. The GB predecessor of phases, *Barriers* (Chomsky 1986), was different in this respect: in this system whether or not a phrase functions as a barrier depends on its syntactic context, so CP is sometimes a barrier (e.g. when it is an adjunct), and sometimes it is not (e.g. when it is an object). A number of authors have argued that, similarly to barriers, the phasal status of a phrase can be affected by the syntactic context in which it occurs (see e.g. Bobaljik and Wurmbrand 2005, Bošković 2005, 2013b, 2014a,b, den Dikken 2007, Despić 2011, in press, Gallego and Uriagereka 2007, Takahashi 2010, 2011, Wurmbrand 2013a, Kang 2014). Thus, in a number of works that belong to this line of research CP is not always a phase; whether or not it is a phase depends on the syntactic context in which it occurs. This article goes one step further: it shows that the concept of *phasal edge*, i.e. the status of a Spec/adjunct with respect to the PIC, is also determined contextually. In other words, knowing that XP is a phase and that α is located in SpecXP is not enough to establish the status of α regarding the PIC with respect to phase XP—it is necessary to examine the syntactic context in which α occurs within XP. I will examine a number of cases from this perspective, in particular, left-branch extraction, anaphor binding, and object shift. The first two will also lead me to discuss a number of issues regarding the syntax and semantics of demonstratives, adjectives, and possessors.

1. Extraction with modifying adjectives

I will start the discussion with an extraction paradigm involving modifying adjectives in Serbo-Croatian (SC). SC presents an interesting puzzle regarding extraction from and of modifying APs. Although SC allows extraction of complements of modifying APs (1c), it disallows it when the AP where the complement originates is preceded by a possessor (1a) or a demonstrative (1b).¹

¹It is important to note that the judgments in (1), and a number of other places in the article, are comparative, not absolute (they should therefore not be considered in isolation). Thus, while some

- (1) a. **Na tebe* sam vidio [Jovanovog ponosnog oca].
 of you am seen Jovan's proud father
 'I saw Jovan's father who is proud of you'
- b. **Na tebe* sam vidio [tog ponosnog oca].
 of you am seen that proud father
- c. *Na tebe* sam vidio [ponosnog oca].
 of you am seen proud father

Furthermore, although SC allows left-branch extraction of adjectives (2b), it disallows it when a demonstrative is present (2a), and in many cases it also disallows it in the presence of another adjective (3). Possessors, on the other hand, generally do not block such extraction (4).²

- (2) a. **Ponosnog* sam vidio [tog oca].
 proud am seen that father
 'I saw that proud father.'
- b. *Ponosnog* sam vidio [oca].
 proud am seen father
- (3) a. **Mašinskog* je on otpustio [neozbiljnog inženjera].
 mechanical is he fired not-serious engineer
 'He fired a mechanical engineer who was not serious.'

speakers find (1c) somewhat degraded, even for them (1c) is better than (1a-b). The goal of the article is to explain contrasts of this type. Note also that adjectival complements in SC have to move out of the AP, see Bošković (2013a).

² One might think that what is involved here is the Specificity Condition. However, the Specificity Condition should be at work in both (1a) and (4), and should have no relevance to (3a). Furthermore, SC is rather liberal with respect to the Specificity Condition. Thus, all the examples in (i), which are unacceptable in English, are acceptable in SC (see Bošković 2012 for a suggestion regarding what is responsible for the SC/English difference with respect to the Specificity Condition). In light of this I will not pursue an analysis along the lines of the Specificity Condition.

- (i) O kojem piscu_i je kupio [svaku knjigu/sve knjige/Petrovu knjigu t_i]
 about which writer is bought every book/ all books/Peter's book
 '*About which writer did he buy every book/all books/Peter's book?'

b. *Mašinskog* je on otpustio [inžinjera].

mechanical is he fired engineer

(4) *Omiljena* je kupio [Jovanova kola].

favorite is bought Jovan's car

'He bought Jovan's favorite car.'

I will show that the data in (1)-(4) receive a uniform account if the unacceptable examples are treated as locality-of-movement violations, under a phase account of locality. Furthermore, I will show that they help us sharpen the concept of phasal edges, given that these examples involve multiple edges of the same phase. More precisely, I will show that there is a correlation between extraction possibilities and linear order in the SC NP and argue that the data and the correlation in question provide evidence for a particular contextual approach to the phasehood of phasal edges. Before giving an account of the above examples, a short digression is in order to introduce the relevant background concerning the syntax and semantics of SC NPs, which will be done in section 2.1., and the phase system adopted here, which will be done in section 2.2. Sections 3 and 4 are the main parts of the article, where a particular approach to phasal edges is developed. These sections discuss left-branch extraction as well as object shift and anaphor binding. Section 5 is the conclusion. Finally, in the appendix I discuss several issues regarding the syntax and semantics of Partee's (2006) familiar usage of demonstratives, including the structural position of such demonstratives.

2. Background assumptions

2. 1. On the NP/DP analysis

A number of authors have argued that SC, a language without articles, does not have the DP layer (see for example Corver 1992, Zlatić 1997, Trenkić 2004, Bošković 2005, 2012, Marelj 2008, 2011, Despić 2011, 2013, Runić 2014, in press, Takahashi 2012, Talić 2013, 2014a). Bošković (2008, 2012) makes this claim more generally for all languages without articles based on a number of syntactic and semantic phenomena that correlate with the presence/absence of articles which he shows can be captured if DP is not present in the

Traditional NP (TNP) of article-less languages. (The term TNP is used neutrally, without commitment to functional structure that may be present above NP.) In this system, English DP elements such as demonstratives and possessives are treated as NP-adjuncts in SC, just like adjectives (see the references cited and the discussion below). In fact, as discussed in Zlatić (1997) and Bošković (2005, 2012), among others, demonstratives and possessives both morphologically and syntactically in every respect behave like adjectives in SC. Furthermore, based on the binding properties of possessors, Despić (2011, 2013) and Bošković (2012, 2014a) show that demonstratives, possessives, and adjectives are located in the same projection in SC.³ I will adopt the NP-adjunction analysis for these elements here, referring the reader to the works in question for relevant arguments.

One property of the SC TNP that will be relevant below concerns word order within the TNP, which transparently reflects semantic composition in SC. Bošković (2009) notes that word order within the TNP is generally freer in NP (i.e. article-less) languages than in DP languages (see footnote 6 for languages that rather dramatically confirm this conjecture). This is so because the richer syntactic structure of DP languages imposes restrictions on word order in DP languages that are not found in NP languages due to the

³Despić shows that, in contrast to English possessors, SC possessors bind out of their TNP, as attested by the Condition B/C violations in (ii) (Despić argues the contrast in question provides evidence for the NP analysis of SC as well as the NP-adjunction analysis of SC possessors; the possessor then c-commands out of the subject TNP in (ii)). Significantly, nothing changes in the presence of a demonstrative or an adjective, which indicates that the demonstrative and the adjective in (iii-iv) are located in the same projection as the possessor (they are all NP-adjoined).

- (i) a. His_i latest movie really disappointed Kusturica_i.
 b. Kusturica_i's latest movie really disappointed him_i.
- (ii) a. *[_{NP} Kusturicin_i [_{NP} najnoviji film]] ga_i je zaista razočarao.
 Kusturica's latest movie him is really disappointed
 'Kusturica_i's latest movie really disappointed him_i.'
 b. * [_{NP} Njegov_i [_{NP} najnoviji film]] je zaista razočarao Kusturicu_i.
 his latest movie is really disappointed Kusturica
 'His_i latest movie really disappointed Kusturica_i.' (Despić 2013: 245)
- (iii) a. *[_{NP} Ovaj [_{NP} Kusturicin_i [_{NP} najnoviji [_{NP} film]]]] ga_i je zaista razočarao.
 this Kusturica's latest movie him is really disappointed
 'This latest movie of Kusturica_i really disappointed him_i.'
 b. * [_{NP} Ovaj [_{NP} njegov_i [_{NP} najnoviji film]]] je zaista razočarao Kusturicu_i.
 this his latest movie is really disappointed Kusturica
 'This latest movie of his_i really disappointed Kusturica_i.' (Bošković 2014a:32)
- (iv) * [_{NP} Brojni [_{NP} Kusturicin_i [_{NP} filmovi]]] su ga_i zaista razočarali.
 numerous Kusturica's movies are him really disappointed
 'Numerous movies of Kusturica_i really disappointed him_i.' (Bošković 2014a:32)

lack of the syntactic structure in question. Thus, in English demonstratives and possessors must precede adjectives because they are located in DP, which is higher than the projection where adjectives are located. In an NP language like 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: the only restrictions we may find come from the semantics. The TNP-internal word order in SC in fact transparently reflects semantic composition. The TNP-internal word order is freer in SC than in English; thus, possessors and adjectives can occur in either order. Demonstratives, however, precede possessors and adjectives.⁴

- (5) Jovanova skupa slika
John's expensive picture
- (6) skupa Jovanova slika
expensive John's picture
- (7) ova skupa slika
this expensive picture
- (8) ?*skupa ova slika
expensive this picture
- (9) ova Jovanova slika
this Jovan's picture
- (10) ?*Jovanova ova slika
Jovan's this picture

Working within the no-DP analysis where the elements in question are all NP-adjoined, Bošković (2009) gives a semantic account of these ordering restrictions. When it comes to their semantics, possessives and adjectives are expected to be freely ordered. The most plausible semantics for possessives is modificational (cf. Partee and Borschev 1998: $[[\text{Mary's}]] = \lambda x. [R_i(\text{Mary})(x)], R_i \text{ is a free variable})$). 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 in which possessives and

⁴ While the possessive-adjective order is often more neutral than the adjective-possessive order, what is important is the contrast with English, where the latter is fully ungrammatical, as well as the contrast with the unacceptable examples in (8) and (10).

adjectives are composed. Demonstrative NPs pick out an individual of type e (see Kaplan 1989): demonstrative *that* is a function 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 not possible. Straightforward semantics thus allows possessives and adjectives to be composed in either order, but demonstratives must be composed after both adjectives and possessives.⁵ This perfectly matches the actual ordering of these elements in SC.⁶

What is important from the above discussion for our purposes is that SC, a language without articles, lacks the DP layer, and that demonstratives, possessors, and adjectives are located in the same projection, any ordering restrictions on these elements in SC following from semantic considerations.⁷ Having summarized the relevant assumptions

⁵As discussed in Bošković (2014a), the account can be extended to non-restrictive adjectives.

⁶ Also relevant is Chinese, an NP/article-less language where any order of adjectives/demonstratives/possessors is in principle allowed (the same holds for Japanese and Korean), which follows if they are all NP-adjoined.

(i) a. Wang-de hongse de paoche b. hongse de Wang-de paoche
 Wang's red sport-car
 c. na-bu hongse de paoche d. hongse na-bu paoche
 that-CL red sport-car
 e. na-bu Wangde paoche f. Wangde na-bu paoche
 that-CL Wang's sport-car

The source of the Chinese/SC word order difference in e.g. (id) vs (8) then must be semantics. In this spirit, assuming that *that sport car* in (ic-d) is of type e and *red* $\langle e,t\rangle$, Bošković and Hsieh (2013) argue that there is a contextual pronominal variable of type $\langle e,t\rangle$ in the denotation of demonstratives in Chinese but not in SC; this is the reason why an adjective preceding a demonstrative can be interpreted inside of its scope only in Chinese (the difference is tied to the classifier language status of Chinese).

Bošković and Hsieh (in press) give an alternative account based on Chierchia (1998), where although they both lack DP, Chinese and SC differ in the semantic type of bare nouns; they are of type e in Chinese and $\langle e, t\rangle$ in SC. Since Chinese bare nouns are of type e , Chinese needs to employ type shifting when nouns are used predicatively: a type shifting operation that type-shifts type e to type $\langle e,t\rangle$ is required in Chinese or nouns could not be used predicatively. Bošković and Hsieh (in press) then propose that the type shift in question is allowed only in Chinese-type languages, not in languages where bare nouns are of type $\langle e,t\rangle$. A demonstrative-N sequence that follows an adjective can then be type-shifted to type $\langle e,t\rangle$ (and then modified by the adjective) in Chinese but not in SC (for another account that is based on Chierchia 1998 as well as Huang's 2006 proposal that bare adjectives in Chinese are of type e , see Bošković 2014a).

⁷The theoretical claims made in the article (cf. sections 3 and 4) actually do not crucially depend on adopting the no-DP analysis of SC. What is important here is that the relevant elements, e.g. adjectives, are located at the edge of the TNP in SC. The account of (1)-(4) given in section 3 as well as the account of the data discussed in this section could then be maintained under the DP analysis if the elements in question are all located at the edge of DP in SC (the phenomena discussed in section 2.2 would however remain unaccounted for), in contrast to English. SC DP would then be quite different from English DP. At any rate, it seems clear that the SC elements in

concerning the syntax and semantics of SC TNPs, I now briefly summarize the relevant assumptions regarding the phase framework.

2.2. Phases

It is often assumed that DP is a phase in English.⁸ One argument to this effect, which also provides evidence for the DP/NP analysis from section 2.1., concerns the generalization in (17), established in Bošković (2012), Corver (1992), and Uriagereka (1988).

(17) Only languages without articles may allow left-branch extraction (LBE) examples like (18).⁹

(18) *Expensive_i he loves [_{t_i} cars]

(19) Skupa_i on voli [_{t_i} kola]
expensive he loves cars (SC)

Bošković (2005) offers a phase account of (18).¹⁰ Given that DP is a phase in English, the

question behave rather differently from their counterparts in English (for a number of additional differences, see Zlatić 1997, Bošković 2012), hence cannot be treated in the same way as in English.

⁸For DP-as-a-phase analysis of English and other DP languages, see e.g. Bošković (2005), Chomsky (2000, 2001), Compton and Pittman (2007), den Dikken (2007), Despić (2011), Heck, Müller, and Trommer (2008), Gutierrez-Rexach and Mallen (2001), Hiraiwa (2005), Kramer (2009), Reintges and Liptak (2006), Riqueros (2013), Svenonius (2004), Ticio (2003).

⁹Bošković (2012) notes Bulgarian and Macedonian, the only Slavic languages with articles, are the only Slavic languages disallowing LBE. Latin, an article-less language, differs from Modern Romance, which has articles, in that it had LBE. Mohawk, Southern Tiwa, Gunwinjguan languages (see Baker 1996), and Hindi, Angika, and Magahi also allow LBE and lack articles. Particularly interesting is Finnish. Colloquial Finnish has developed a definite article. Significantly, Franks (2007) notes LBE is disallowed in colloquial Finnish, but is still allowed in literary Finnish, which does not have articles. Another language change argument comes from Greek. Ancient Greek underwent a change from an article-less to an article language: while Homeric Greek was an article-less language, Koine Greek was a full-blown article language. Significantly, while Koine Greek productively allowed LBE, Homeric Greek did not (see Bošković 2012).

Note also that the lack of DP is not the only requirement for LBE; A-N agreement is also needed (see Bošković 2013a), as a result of which LBE is disallowed in languages like Chinese and Japanese independently of (anti)locality considerations discussed below.

¹⁰See also this work, Stjepanović (2010, 2011), and Talić (2014b) for arguments that (19) involves subextraction of the adjective rather than remnant movement of the TNP, or full TNP movement with scattered deletion.

adjective must move to SpecDP in (18) before it moves out of the DP. Assuming that adjectives are generated as NP adjuncts and that there is a ban on movement that is too short (antilocality), which requires Move to cross at least one full phrasal boundary (not just a segment) (for arguments for various versions of antilocality, see Bošković 1994, 1997, Saito and Murasugi 1999, Ishii 1999, Abels 2003, Grohmann 2003, Ticio 2003, Boeckx 2005, Jeong 2006, among many others), (18) is ruled out via antilocality/PIC: direct movement out of DP (AP_i [$_{DP}$ [$_{D'}$ D [$_{NP}$ t_i [$_{NP}$]]]) is ruled out by the PIC, and movement via SpecDP ($[_{DP}$ AP_i [$_{D'}$ D [$_{NP}$ t_i [$_{NP}$]]]) is ruled out by antilocality. Moreover, the PIC/antilocality problem does not arise in SC, which lacks DP.

Bošković (2013b, 2014a) also shows that NP functions as a phase in SC. SC disallows deep LBE, i.e. LBE out of a complement of a noun (see also Corver 1992).

- (20) On cijeni [$_{NP}$ [$_{N'}$ [priateljje [$_{NP}$ pametnih [$_{NP}$ studenata]]]]
 he appreciates friends smart students
 ‘He appreciates friends of smart students.’

- (21) ?*Pametnih_i on cijeni [$_{NP}$ [$_{N'}$ [priateljje [$_{NP}$ t_i [$_{NP}$ studenata]]]]

What these data show is that an NP above an LBE-ing NP in SC has the same effect on LBE as a DP above an LBE-ing NP does in English: they both block LBE. This follows if NP is a phase in SC. (21) can then be accounted for in exactly the same way as (18): the higher NP blocks LBE for the same reason DP does it in the English example.

Abels’s (2003) generalization that complements of phasal heads are immobile confirms that NP is a phase in SC. Thus, Abels notes an IP that is dominated by a CP, a phase, cannot move (cf. **[_{IP} His_i mother left] everyone_i believes that*). This in fact follows from a PIC/ antilocality interaction, with the PIC requiring IP movement via SpecCP, and antilocality blocking it because it is too short. If NP is a phase in NP languages, an NP complement of a noun should not be able to move in SC, which is indeed the case.

- (22) ?*Beograda sam pronašla [$_{NP}$ sliku t_i]
 Belgrade(gen) am found picture
 ‘Of Belgrade I found the/a picture’

Bošković (2013b, 2014a) further notes that it is not necessary to posit crosslinguistic variation regarding phasehood here. In particular, Bošković argues that the highest projection in the extended domain of NP counts as a phase: the highest projection in English is DP, hence DP functions as a phase, and the highest projection in SC is NP, hence NP functions as the phase.¹¹ In both English and SC, TNP (i.e. the highest projection in the TNP) functions as a phase. There is then no need to posit crosslinguistic variation regarding phasehood: the relevant differences are the result of independently motivated variation in the amount of structure TNPs have in SC and English.

At any rate, what is relevant for our purposes is that NP is a phase in SC, which accounts for the ungrammaticality of (22) and the contrast between (21) and (19) (see Bošković 2013b, 2014a for additional evidence to this effect).

3. Phasal edges

3.1. Phasal edges and movement

We are now ready to return to (1), repeated here as (23), with the relevant parts of structure indicated.

- (23) a. *Na tebe_i sam vidio [_{NP} Jovanovog [_{NP} [ponosnog t_i] [_{NP} oca]]]
 of you am seen Jovan's proud father
 b. *Na tebe_i sam vidio [_{NP} tog [_{NP} [ponosnog t_i] [_{NP} oca]]]
 of you am seen that proud father
 c. Na tebe_i sam vidio [_{NP} [ponosnog t_i] [_{NP} oca]]
 of you am seen proud father

Recall that the highest projection in a TNP is a phase in both SC and English; in SC this is NP, and in English DP. Adjectives can undergo LBE in SC because they are located at the edge of the TNP-phase: they are NP adjoined and NP is the phase. In English, they have to move to the phasal edge, SpecDP, from the NP-adjoined position, which leads to an

¹¹English *of*-genitive complements can be extracted (see for example Huang 1982, Chomsky 1986), as in *Of Belgrade I found a picture*, which is expected given that DP, not NP, is a phase in English.

antilocality violation. What is important here is that extraction is legitimate only from the TNP phase-edge position.¹²

Returning to (23), the ungrammaticality of both (23a) and (23b) can be accounted for if only the highest edge is the edge, i.e. if only the highest edge counts as the edge for the purpose of the PIC. The AP, which means the adjectival complement too, is then not located at the phasal edge in (23a-b), hence the extraction out of it is not possible due to the PIC. The problem does not arise in the acceptable (23c) (the edge is given in red in (24)). I therefore take the above data to indicate that when more than one element is located at a phasal edge, only the highest/outmost edge is the edge.

- (24) a. *Na tebe_i sam vidio **[NP Jovanovog** [NP [ponosnog t_i] [NP oca]]]
 b. *Na tebe_i sam vidio **[NP tog** [NP [ponosnog t_i] [NP oca]]]
 c. Na tebe_i sam vidio **[NP [ponosnog t_i] [NP oca]]**

A strong argument for this analysis, and a further conformation of the assumption in question, is provided by (2). The edge-of-the-edge account in fact extends to (2), repeated here as (25) with the relevant structure indicated, which can now be unified with (23).

- (25) a. *Ponosnog_i sam vidio **[NP tog** [NP t_i [NP oca]]]
 proud am seen that father
 b. Ponosnog_i sam vidio **[NP t_i [NP oca]]**.
 proud am seen father

Recall that although both demonstratives and adjectives are NP-adjoined in SC, adjectives must adjoin below demonstratives for semantic reasons. As a result, given that only the

¹² It is standardly assumed that APs are not phases, so extraction out of the AP itself does not raise any issues here. One exception is Bošković (2014a), where APs are phases (more precisely, the highest projection in the extended domain of A is a phase). However, extraction of both NPs and PPs out of APs proceeds without any problems there too, given other ingredients of that system (see footnote 16 for some relevant discussion; see also Talić 2014 for an application of this system to English—the only relevant adjustment is that an XP (which is the AP counterpart of DP) is present above AP in English, with XP rather than AP functioning as the phase as the highest phrase in the extended domain of A. Below I will ignore the possibility that adjectives may project a phase since it anyway does not affect the discussion here.

highest edge is the edge, the adjective in (25a) is not located at the edge of the NP-phase, hence is unavailable for LBE, in contrast to the adjective in (25b), which is located at the edge of the NP-phase hence can undergo LBE. (23) and (25) thus receive a uniform account under the edge-of-the edge analysis.¹³

The same in fact holds for (3). Recall that adjectives must adjoin below demonstratives for semantic reasons, both being NP-adjoined in SC. As for multiple adjectives, Bošković (2009) argues that constraints on the order of adjectives are not syntactic, but semantic/prosodic in nature. In fact, these constraints are generally stated in semantic (in terms of semantic classes) or prosodic terms (adjectival length). Bošković (2009) thus argues there's no need for a syntactic middle man where the ordering restrictions would follow from stipulations regarding the order of merger of particular elements, which would furthermore have to reflect semantic/prosodic restrictions. Rather, he lets the latter do the job themselves: syntax then allows any order of adjectives (which are NP adjoined), and semantics/prosody filter out unacceptable sequences (see Ernst 2002 for such a treatment of adverbs).

Consider (3), repeated in (26a), from this perspective. Notice first that if the order

¹³A potential alternative would be to appeal to relativized-minimality style intervention effects, where the higher element would count as an intervener for the lower element. The analysis faces several problems: first, under pretty much any definition of equidistance, the movement candidates here would count as equidistant from the target of movement, which should void any intervention effects (see e.g. Stjepanović 2011); second, in the current theoretical system relativized-minimality effects are relativized to features, where the target attracts the closest element with a particular feature—it does not look like the moved element and the element that stay in situ here share the feature that drives the movement, which is necessary for the intervention analysis to work (the good examples are most natural if the moved element undergoes focus movement (see below); the unacceptable examples do not improve if the elements that remain in the NP are not focalized). While the intervention (i.e. Attract Closest) account predicts that the effect in question should be voided if the higher Spec is not a candidate for the relevant movement, the current approach disallows movement of the lower Spec regardless of the feature make-up of the higher Spec (i.e. the effect is not feature-relativized here; for relevant discussion, see also section 4, which shows that the effect in question is operative with multiple focus-movement, which is quite generally insensitive to Attract Closest/intervention effects, as well as with certain Dutch constructions where Attract Closest is also irrelevant; also relevant is section 3.2, which discusses binding, not movement).

It should be noted that Rackowski and Richards (2005) develop a locality system which they claim allows only the highest Spec of a phase to extract though they do not really offer any empirical evidence to this effect. Furthermore, their analysis does not completely ban such extraction and in fact would not extend to the cases considered here. E.g., in their locality system *v* would agree with the object TNP in (25a), as a result of which the TNP would be ignored by *v* for the rest of the derivation. According to their definition of Closest (p. 579), the two TNP edges, the demonstrative and the adjective, are in fact equidistant from *v*, hence either should be able to move.

of the adjectives is switched, with only the adjective that remains in situ in (26a) undergoing LBE, the example becomes acceptable, as shown in (26b).¹⁴

- (26) a. *Mašinskog_i je on otpustio [_{NP} neozbiljnog [_{NP} t_i [_{NP} inženjera]]].
 mechanical is he fired not-serious engineer
 b. ?Neozbiljnog_i je on otpustio [_{NP} t_i [_{NP} mašinskog [_{NP} inženjera]]].

What is important here is that in situ, *neozbiljnog* must precede *mašinskog*.

- (27) a. neozbiljni mašinski inženjer
 b. ?*mašinski neozbiljni inženjer

In Bošković (2009), both *neozbiljnog* and *mašinskog* are adjoined to NP—they are thus both located at the NP-edge. However, (27) indicates that *mašinskog* must adjoin below *neozbiljnog*. As a result, given that only the outmost edge counts as the edge, only *neozbiljnog* is located at the phasal edge. Consequently, *neozbiljnog* can, but *mašinskog* cannot, undergo LBE. (26a-b) are thus accounted for in the same way as (23) and (25). Below I give additional examples of this type which show that we are dealing with a more general pattern here.

- (28) Mladog su angažovali krilnog napadača.
 young are engaged wing(adj) striker
 (29) *Krilnog su angažovali mladog napadača.
 wing(adj) are engaged young striker
 (30) mladog krilnog napadača vs *krilnog mladog napadača.

Importantly, the edge-of-the edge problem that arose in (23a,b), (25a), (26a), and (29) does not arise in (4). As (31) shows, the adjective and the possessor here can occur in either

¹⁴When an adjective is extracted in the presence of another adjective it is necessary to contrastively focus the extracted adjective (the same generally holds for possessor+adjective constructions); see Bošković (2005) for an explanation of the focus requirement. (Simple LBE also often requires focalization, this is e.g. the case with (3b).)

order when there is no extraction. This means that either of them can be generated as the higher adjunct, as a result of which they are both predicted to be able to undergo LBE, which is indeed the case (see (32)). Additional examples of this type, which involve multiple adjectives, are given in (33)-(35).

- (31) a. Omiljena Jovanova kola b. Jovanova omiljena kola
 favorite Jovan's car

- (32) 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

- (33) Mladog su angažovali brzog napadača.
 young are engaged quick striker

- (34) ?Brzog su angažovali mladog napadača.
 quick are engaged young striker

- (35) mladog brzog napadača vs ?brzog mladog napadača.

Under this analysis, we would further expect that (2a) should improve if the demonstrative is extracted and the adjective remains in situ, given that the demonstrative can be base-generated as the higher adjunct. This prediction is also borne out, as shown in (36).

- (36) Tog_i sam vidio [_{NP} t_i [_{NP} ponosnog [_{NP} oca]]]
 that am seen proud father
 'I saw that proud father.'

Finally, (1a) should also improve if the adjective precedes the possessor. The AP in question is then the outmost edge, hence extraction out of it should be possible. This is indeed the case.

- (37) ?Na tebe_i sam vidio [_{NP} [ponosnog t_i] [_{NP} Jovanovog [_{NP} oca]]]
 of you am seen proud Jovan's father

A potential alternative analysis can be constructed based on Hiraiwa's (2005) claim that what is contained in the edge is not at the edge of the phase. The AP can then count as being at the NP phase edge in (23a,b). Still, nothing contained by the AP, including the adjectival complement, is at the phasal edge, hence movement out of the AP, as in (23a,b), is not possible. However, in addition to ruling out (23a,b), this analysis incorrectly rules out (23c). Furthermore, it does not rule out the unacceptable examples in (2a)/(25a) and (3a)/(26a), which then also remain unaccounted for. The same holds for the binding contrasts discussed in section 3.2—they also remain unaccounted for under this analysis.

An additional problem for this alternative is raised by the following examples (see Talić 2014 on such examples, where DP blocks such extraction in English; following Talić I assume that *extremely* starts as AP-adjoined).

- (38) Izuzetno_i su kupili [NP [AP t_i [AP skup]] [NP automobil]]
 extremely are bought expensive car
 'They bought an extremely expensive car.'
- (39) *Extremely_i they bought [DP [NP [AP t_i [AP expensive]] [NP cars]]

In contrast to English (39), which is ruled out by the PIC/antilocality (depending on whether or not *extremely* moves through SpecDP), SC (38), where antilocality is not violated, is acceptable. This is not expected under Hiraiwa's analysis, where the adverb should not count as being at the edge of the NP in (38). I conclude therefore that an analysis along the lines of Hiraiwa's (2005) proposal that what is contained in the edge is not at the edge of the phase cannot account for the full relevant paradigm.¹⁵

¹⁵ Fox and Pesetsky (2005) may provide another alternative. In their system, linear ordering is established derivationally, when a phasal level is reached. Furthermore, the linear order established at phase X cannot be contradicted by the linear order established at phase Y. Some of the examples discussed here can be accounted for in this system. This, e.g., holds for (25a), where the surface order of *ponosnog* and *tog* contradicts the order established at the NP phase level, where the order is *tog ponosnog*. It is difficult to tell whether the system could capture the full paradigm discussed here since this would depend on what kind of additional assumptions would be adopted. However, at least (53a) below and possibly (37) appear to be problematic (being ruled out by this account of (25a)). More importantly, an analysis along these lines would have nothing to say about the binding data in section 3.2, where the relevant elements do not undergo movement, hence no conflicting

Notice also that the adverb extraction paradigm shows the familiar restriction: it is possible only out of the outmost edge. The contrast in (40)-(41) can then be taken to confirm the current analysis, where only the outmost edge counts as the phasal edge.

- (40) *Izuzetno_i su kupili [NP [AP skup] [NP [AP t_i brz] [NP automobil]]]
 extremely are bought expensive fast car
- (41) ??Izuzetno_i su kupili [NP [AP t_i skup] [NP [AP brz] [NP automobil]]]
 extremely are bought expensive fast car

A technical issue, however, arises. Consider the following derivation for (25a): the AP first adjoins to the NP above the demonstrative, which brings it to the outmost NP phase edge. This movement violates antilocality, hence the example is still ruled out. Consider, however, the same derivation for (23a-b): The PP in (23a-b) adjoins to the NP above the demonstrative/possessor.

- (42) *Na tebe_i sam vidio [NP t_i [NP Jovanovog [NP [ponosnog t_i] [NP oca]]]]
 of you am seen Jovan's proud father

The antilocality problem does not arise here. However, this derivation is not an option in Chomsky's (2000, 2001) system, where the head (in this case N) whose edge is targeted by movement must probe the moving element, hence must c-command it. The derivation in question is then ruled out.¹⁶

ordering arises. It is shown below that these data instantiate the same effect as those discussed in this section, and can in fact be accounted for in a unified manner under the current analysis.

¹⁶Bošković (2013b) actually argues Ns and As take only NPs as complements in SC—PPs modifying Ns/As are adjuncts. Higher NP adjunction then still violates antilocality in (42) (but see Talić 2013 for an account where (42) can be treated like (ii)). The above issue then arises only with NP complements (see (i-ii)), where adjunction to the higher NP does not violate antilocality.

- (i) lojalan generalu
 loyal general.dat (loyal to the general)
- (ii) *Generalu_i sam vidio [NP tog [NP [AP lojalnog t_i] [NP vojnika]]]
 general.dat am seen that loyal soldier

There is an alternative to the account of (ii) given in the text which is consistent with approaches where successive cyclic movement does not involve probing by a higher head (see e.g. Bošković

To summarize, we have seen that SC exhibits a rather intricate paradigm regarding the possibilities for extraction of and subextraction from NP edges. The paradigm reveals a correlation between word order and the possibilities for extraction/subextraction where only the NP-initial phrase is accessible for extraction/subextraction. This can be straightforwardly captured if only the outmost edge counts as the edge of a phase for the purpose of the PIC.

3.2. Phasal edges and binding

2007). Since adjectives assign inherent case what is relevant here is that in contrast to genitive, nominal complements with inherent (non-genitive) case allow deep LBE and can extract (iii). Bošković (2013b) argues that this is so because NPs with inherent case assigning Ns have more structure (iv): they involve a functional projection that facilitates inherent case assignment, which voids antilocality effects.

- (iii) a. ?Kakvom 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)
- b. 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)
- (iv) [NP threat [FP F [NP his [NP death

Bošković (2014a) also argues that the highest phrase in the extended domain of all lexical heads is a phase. AP is then also a phase, which means *generalu* in (ii) must move to the AP edge before adjoining to the higher NP (recall that adjectives assign inherent case, i.e. they take FP as complement). Now, Bošković (in press) argues Ns/As do not license A’-Specs, which means A’-movement through the NP/AP edge must proceed via NP/AP-adjunction. One argument to this effect regarding NP is provided by (v). The moved phrase in (v) is inherently case-marked, which means the lowest N takes FP as complement. Both NPs are phases. Now, if the moved element could move to SpecNP2, there would be no violation in (v). However, if NPs do not license A’-Specs, movement through the NP2 edge can only proceed via NP2-adjunction. Movement to the NP1 edge then violates antilocality. (v) thus follows if NPs do not license A’-Specs (see Bošković in press for additional evidence to this effect for both NPs and APs and Bošković 2014b for a deduction of this claim).

- (v) *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.’

Given the above discussion, *generalu* then first needs to adjoin to the AP in (ii), after which it adjoins to the highest NP segment; the second step violates antilocality.

- (vii) *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

There is an interesting extension of the current proposals to a binding paradigm noted by Zanon (2014) for Russian, which I apply here to SC (see also Wurmbrand 2013b for an application of the current proposals regarding multiple edges to Agree). While possessors can in principle either precede or follow adjectives in SC (see (31)), reflexive possessors must precede them.

(43) Marija je prodala svoju omiljenu knjigu.

Marija is sold her-anaphor favorite book

(44) *Marija je prodala omiljenu svoju knjigu.

The ungrammaticality of (44) can be rather straightforwardly accounted for in the current system. A number of authors have argued that the binding domain for Condition A should be stated in terms of phases (see e.g. Canac-Marquis 2005, Despić 2011, in press, Hicks 2009, Lee-Schoenfeld 2008, Quicoli 2008, Safir 2011, Zanon 2014). Suppose that, as seems natural under a phase-based approach, an anaphor can be bound outside of its own minimal phase XP only if it is located at the edge of the phase (the anaphor then does not really “belong” to phase XP, but to a higher phase). Under the current proposal that only the outmost edge counts as the phasal edge, the anaphor is located at the phasal edge in (43) but not in (44), hence the contrast between these constructions.

Also relevant is Nissenbaum’s (2000) observation that in Bulgarian multiple wh-fronting constructions, only an anaphor in the highest SpecCP is accessible for binding by an element in the higher clauses. The contrast in (45)-(46) in fact confirms the above analysis. Multiple wh-fronting in Bulgarian places fronted wh-phrases in distinct Specifiers of CP (see Koizumi 1994, Richards 2001, Nissenbaum 2000; for original discussion, see Rudin 1988). What the contrast in (45)-(46) then shows is that only the higher SpecCP is located at the phasal edge, hence accessible for higher binding. (Note that (47)-(48) show that we are not dealing here with a Superiority effect; either order of the wh-phrases is in principle possible.)^{17 18}

¹⁷ While it is not clear why (46) is marginal (Bulgarian anaphors are actually quite generally more restricted than the English ones, see Schürcks-Grozeva 2003), what is important for our purposes is

that it is better than (45). (The reader is referred to Despić in press for an account of the Bulgarian possessive reflexive discussed here that is consistent with the phasal approach to Condition A.) Nissenbaum's data contain an argument wh-phrase in the higher Spec (i-ii). To avoid the possibility that the element in the higher Spec could count as the closer potential binder I have used an adjunct wh-phrase as the higher Spec. I have also used non-D-linked wh-phrases, since inherently D-linked wh-phrases can be located below SpecCP when they are not the initial wh-phrase in multiple wh-fronting constructions (see Bošković 2002). Note also that, as expected, Bulgarian disallows anaphors within a subject to be bound outside of their clause, as in (iiia-b) ((iiib) is even worse than (iiia)). Furthermore, as noted by Roumyana Pancheva (p.c.), (iiic), where *svoi snimki* is located at the edge of its clause (it is CP-adjoined, see Rudin 1993, Bošković 2002), is better than (iiib).

- (i) *Meri_i znae koe momče_j koja svoja_i snimka kupi
 Mary knows which boy which her-anaphor picture bought
 'Mary knows which boy bought which picture of himself/*herself'
- (ii) ??Meri_i znae koja svoja_i snimka koe momče_j kupi (Nissenbaum 2000:144-145)
- (iii) a. *Maria_i znae če svoi_i snimki bjaha kupeni
 'Maria knows that pictures of herself were bought.'
 b. *Maria_i znae kāde bjaha kupeni svoi_i snimki
 Maria knows where were bought her-anaphor pictures
 'Maria knows where pictures of herself were bought.'
 c. ??Maria_i znae svoi_i snimki kāde bjaha kupeni.

¹⁸Nissenbaum (2000) shows English behaves like Bulgarian regarding cases like (45)-(46). He shows LF wh-movement can create new binding possibilities for anaphors in English based on (ia), which contrasts with (ib). He then argues that the reason why LF wh-movement does not rescue (iia) is that the LF wh-movement of the wh-phrase in situ tucks in under *which man* in the lower SpecCP, similarly to the second wh-phrase in Bulgarian (45), hence the anaphor cannot be bound from the higher CP (in contrast to (iib)).

- (i) a. Who_i thinks Mary was looking at which picture of himself_i?
 b. *John_i thinks Mary was looking at a picture of himself_i? (Nissenbaum 2000:146)
- (ii) a. *Mary_i knows which man was looking at which picture of herself_i?
 b. Mary_i knows which picture of herself_i John is looking at? (Nissenbaum 2000:144)

There is an issue however: examples like (iii) are acceptable (in contrast to Bulgarian, see footnote 17).

- (iii) a. John knows that pictures of himself are valuable.
 b. John knows why pictures of himself are valuable.

Such examples more generally raise a problem for the phasal account of Condition A. I leave the issue open here, merely noting that a number of authors, most recently Hicks (2009) within the phase approach to Condition A, have argued that we are dealing here logophors, which are not subject to the phase-binding (i.e. Condition A) requirement, the option being unavailable in (i) (though it arises in other contexts with objects, as in *Bill thought that nothing could make a picture of himself in the Times acceptable to Sandy* (Pollard and Sag 1992:272) and *Bush and Dukakis charged that General Noriega had secretly contributed to each other's campaigns* (Pollard and Sag 1992:267)). Logophoricity is quite generally an interfering factor with English *picture* anaphor nouns, which, as is well-known, do have logophoric usages (they permit split and non-commanding antecedents (e.g. *The agreement that Iran and Iraq reached guaranteed each other's trading rights in the disputed waters until the year 2010* (Pollard and Sag 1992:264) for the latter), and give rise

- (45) *Maria_i znae kǎde kolko/kakvi svoi_i snimki bjaha kupeni.
 Maria knows where how many/what-kind-of her-anaphor pictures were bought
 ‘Mary knows where how many/what kind of pictures of herself were bought.’
- (46) ??Maria_i znae kolko/kakvi svoi_i snimki kǎde bjaha kupeni.
- (47) Kǎde kolko/kakvi snimki bjaha kupeni?
- (48) Kolko/kakvi snimki kǎde bjaha kupeni?

To summarize, in constructions where more than one element is located at the edge of the same phase only the highest edge is available for movement and anaphor binding. This can be accounted for in the phase system if only the outmost edge counts as the edge of a phase. This conclusion argues for a contextual approach to phasehood, since it indicates that the status of a Spec/adjunct of phase XP with respect to the PIC cannot be determined without examining the syntactic context in which it occurs (i.e. without examining whether XP has other Specs/adjuncts).^{19 20}

to strict readings under VP ellipsis). There are ways of blocking the logophor option, as in (iv) (due to a viewpoint binding requirement, clausemate logophors must be referentially identical), where an anaphor within the subject cannot be bound outside of its phase. (Since the thorny issue of logophoricity is beyond the scope of this article I will not go into it; for discussion see e.g. Lebeaux 1984, Kuno 1987, Zribi-Hertz 1989, Pollard and Sag 1992, Hicks 2009, Charnavel and Sportiche 2013.)

(iv) *John told Mary that the photo of himself with her in Rome proved that the photo of herself with him in Naples was a fake. (Pollard and Sag 1992: 275)

¹⁹Head movement raises an issue since heads can move even in the presence of a specifier, and assuming that the edge contains the topmost spec/adjunct and the head in order to handle the issue seems rather stipulative. The issue, however, does not arise if head movement occurs in PF, as many have argued (e.g. Boeckx and Stjepanović 2001). As noted by Susi Wurmbrand (p.c), there are several options which would still allow head movement to be treated as a syntactic operation. Thus, a head is often assumed to move via its projection, where head movement of K is a result of attraction of KP (see Pesetsky and Torrego 2001) or in fact is KP movement (see e.g. Koopman and Szabolcsi 2000). Another option is to appeal to phase extension with head movement (den Dikken 2007, Gallego and Uriagereka 2007): head movement extends the phase to the next phrase, which means head movement never crosses a phasal boundary, hence any intervening Specs are not phasal edges. At any rate, due to the murky nature of head movement, I will not discuss it here.

²⁰In this context it is worth noting Müller’s (2011) discussion of melting effects. Although melting effects are superficially very different from the pattern discussed here they could also be interpreted as indicating that phasal edges are contextual. I leave for future research attempting to reconcile Müller’s conclusions and the conclusions reached here, provide a uniform account of the data behind melting effects and the data discussed here.

4. Traces as non-edges

4.1. Object shift

The above analysis has a number of consequences. Many of the predictions, however, cannot be tested due to interfering factors. I will discuss one case here, namely object shift, which should suffice to illustrate the interfering factors. The discussion will also provide another argument for the contextuality of phasal edges. In particular, I will show that movement can affect the status of a Spec regarding phasal edgehood/PIC.

Let us assume that object shift targets SpecvP and that subjects are generated in SpecvP. In fact, given that many authors have argued that English objects at least may undergo object shift (e.g. Boeckx and Hornstein 2005, Bošković 1997, Epstein and Seely 2006, Johnson 1991, Koizumi 1995, Lasnik 1999), English may be the relevant case here. Given that subjects must move to SpecTP in English and the proposals made above, it appears that object shift must tuck in under the subject, in Richards's (2001) fashion.²¹ If the object were to move above the subject, the subject would not be located in the outmost edge, hence should not be able to extract (I only indicate subject movement in (49)-(50)).

(49) [TP John_i kissed [vP t_i [vP Mary]]]

(50) [TP John_i kissed [vP Mary [vP t_i]]

However, Chomsky (2001) argues that PIC effects kick in only when the higher phase head enters the structure. Since this is not the case in (49)-(50), T can attract the subject even in violation of the PIC (in fact, even VP is accessible to T), which means that the subject could still start in the lower SpecvP.

Furthermore, Bošković (2011, 2013c) argues that any type of locality violation, including PIC and antilocality violations (see also Riqueros 2003), caused by X can be voided if X moves away, leaving a trace/copy that is deleted in PF.²² Given this, any example where both relevant elements undergo movement may be irrelevant.

²¹See Bošković (2014d) for a deduction of the tucking in effect within Chomsky's (2013) labeling system.

²²The effect of copy deletion is unified there with Ross's (1969) claim that ellipsis (taken as PF deletion) can rescue locality violations, see footnote 23.

(51) [TP Who_i did [TP John_j kiss [vP t_{i/j} [vP t_{j/i}]]]]

In fact, in Icelandic even the counterpart of (49)-(50) would be one such case, given that, as argued in Holmberg and Platzack (1995), Chomsky (2001), Hiraiwa (2001), Svenonius (2001), and Bošković (2004), shifted objects in Icelandic actually undergo further movement from SpecvP.

From this perspective, consider Dutch object shift. In Dutch ditransitives, the DO can object shift only if the IO object shifts too (see e.g. den Dikken 1995), as shown by (52), where the objects preceding the adverb have undergone object shift.

- (52) 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
 e. *... dat Jan het boek Marie **waarschijnlijk** geeft

Given that both objects are candidates for object shift, we may be dealing here with a simple Attract Closest effect: since IO is higher than DO, the DO cannot be attracted for object shift across the IO (cf. (52d)). It is well-known that traces do not count as interveners: relativized minimality violations get voided if the intervener undergoes movement, i.e. if it is turned into a trace (see Chomsky 1995).²³ As a result, the problem in

²³As an illustration of (i), Italian disallows movement across an experiencer, as in (iia). However, when the intervening experiencer undergoes movement, which turns the intervener into a trace, the intervention effect is voided, as in (iib).

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

(ii) a. *Gianni_i sembra a Maria [t_i essere stanco].

 Gianni seems to Maria to be ill

 b. A Maria_j, Gianni_i sembra t_j [t_i essere stanco].

(Boeckx 2009)

By appealing to PF copy deletion, Bošković (2011) unifies this effect with Ross's (1969) rescuing effect of ellipsis on locality violations, implementing this through the *-marking mechanism that

question does not arise in (52c), where the IO object shifts and then the DO undergoes object shift by tucking-in in the lower Spec (cf. Richards 2001); (52e) is then ungrammatical because the word order indicates that the DO has moved first.

Importantly, the IO must also object shift for the DO to move to SpecCP (see den Dikken 1995, Richards 2001; the observation was originally made by Haegeman 1991 regarding West Flemish) although a non wh-NP in an A-position should not interfere with wh-movement via Attract Closest.

- (53) a. Wat zal Jan Marie waarschijnlijk geven?
 what will Jan Marie probably give
 b. ?*Wat zal Jan waarschijnlijk Marie geven? (den Dikken 1995:198)

As noted above, Icelandic and Germanic object shift in general have been argued to involve movement above SpecvP. Given this and the SVO analysis of Dutch in Zwart (1993), where Dutch objects obligatorily move to SpecvP (this movement is responsible for the SOV order of Dutch), I will then assume that objects undergo movement to SpecvP below *waarschijnlijk*, with object shift involving movement to a higher position from there. I also assume that after the first step of movement, which places IO and DO in separate Specs of vP, the IO is located in the higher SpecvP (essentially a superiority effect, given that IO is higher than DO prior to the movement; the DO tucks in into the lower SpecvP, as in Richards 2001). The above facts, including the surprising (53), then receive a straightforward account; in fact, (53) represents the pattern noted above (cf. the discussion of (51)): with multiple Specs of the same phase, only the higher Spec can undergo movement ((53b) represents the pattern in (54)). However, the lower Spec can also move once the higher Spec moves ((53a) represents the pattern in (55)). This means that just like traces do not count as interveners for relativized minimality effects, they also do not count as phasal edges.²⁴

goes back to Chomsky (1972) (for recent applications, see e.g. Hornstein, Lasnik, and Uriagereka 2003, Lasnik, 2001, Merchant 2008), where t_j in (iib) is a *-marked element that is deleted in PF.

²⁴ See Wurmbrand (2013b) and Bošković (2014c) for different implementations of this in terms of *-marking. The latter unifies the rescuing effect of traces on PIC violations with Bošković's (2013c) observation that movement of phase heads rescues locality violations, illustrated by

(54) * [CP ... [vP IO DO [v' ...]]

(55) [CP ... [vP ~~IO~~ DO [v' ...]]

Interestingly, Icelandic allows examples like (53b), though it behaves like Dutch regarding (52) (see Rackowski and Richards 2005; I give only the crucial examples here).

(56) *Ég skilaði bókinni ekki bókasafninu.
I returned book.the not library.the

(57) Hverju skilaðirðu bókasafninu ekki?
what returned-you library.the not
'What did you not return to the library?'

(58) Hverju skilaðirðu ekki bókasafninu?
what returned-you not library.the (Rackowski and Richards 2005:589)

This is not surprising given the above discussion. Recall that what is responsible for (52) is simply Attract Closest, which should work in the same way in Dutch and Icelandic. However, what is responsible for (53b), where Attract Closest is irrelevant (there is only one wh-phrase), is the Zwart-style movement found in surface SOV languages (which "turns" Dutch from an SVO into an SOV language). This movement is not present (or at

Galician (i) (see Uriagereka 1996, Bošković 2013c for Galician D-incorporation and Bošković 2014b for a PIC account of the definiteness effect where definite DPs disallow movement via SpecDP), by proposing (following a suggestion by Aida Talić, p.c.) that with PIC violations at phase XP, the * is not placed on the phase itself but the outmost element of the phase (other than the moving element itself; the * is then placed on IO in (55) and t_i in (ib), both of which are copies deleted in PF).

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

Another puzzle may also fall into place. Consider the well-known paradigm regarding extraction from Spanish DP, where possessors block extraction of agents and themes, and agents block extraction of themes (extractions that are not specifically marked as blocked are possible).

- These facts are standardly analyzed in terms of intervention effects, where in the base-generated position the possessor is higher than the agent, and the agent is higher than the theme (e.g. Torrego 1987, Ormazabal 1991, Sánchez 1996, Ticio 2003, Riqueros 2013). There is a serious problem with this analysis: why would a non-wh-phrase (in fact an argument in its base-position) interfere with wh-movement? In other words, we have here the same puzzle as in Dutch (53b). Given our understanding of intervention effects, there should be no intervention effect here. The above discussion enables us to look at this paradigm in a new light. Suppose we have the structure in (60), where the possessor is in SpecDP, the agent in the lower SpecDP (possibly moved there from SpecNP, tucking in under the possessor), and the theme is the N-complement.²⁶

²⁶ A number of other structures would also work hence (60) should not be taken too seriously; what is important is that the structure observes the extraction hierarchy, which is confirmed by binding (see e.g. Riqueros 2013, Ticio 2003); note that an analysis along the lines of (60) requires positing

(60) [_{DP} Possessor [_{D'} Agent [_{D'} [_{NP} Theme

Since DP is a phase, the theme must move to SpecDP if it is to move out of DP. Assuming tucking in, the theme has to tuck in under the agent if an agent is present.

(61) [_{DP} Possessor [_{D'} Agent [_{D'} Theme [_{D'}

We are dealing here with a multiple edge configuration. Given that only the outmost edge counts as the edge for the purpose of the PIC, only the possessor can move in (61). If only the agent and the theme are present, the agent is the outmost Spec, hence only the agent can move. The only-the-highest-edge-is-the-edge analysis thus enables us to account for the patterns of extraction from the Spanish DP without employing the problematic (in this context) intervention effect. (As expected, not realizing the higher edge lexically improves extraction of the lower edge, see Riqueros 2013.)

4.2. Multiple LBE

The same pattern, where movement of the outmost edge improves PIC violations, is observed with multiple LBE examples.

(62) Onu_i staru_i prodaje t_i t_j kuću.
 that old sells house
 ‘He is selling that old house.’

(62) involves multiple LBE, with both the demonstrative and the adjective undergoing LBE. What we are witnessing here is the same pattern as the one exhibited by Dutch double object constructions: a lower Spec, which is otherwise immobile, can undergo movement if the higher Spec also moves. I have suggested above that traces not only do not count as interveners for relativized minimality effects, they also do not count as phasal

rightward Specs or stylistic/PF movement, which are standardly assumed (see e.g. Torrego 1987 for the former and Ticio 2003 for the latter).

edges for the purpose of the PIC. Since t_i in (62) then does not count as being at the edge of the NP phase, the adjective is allowed to undergo movement, in contrast to (2a).

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

(63) Onu_i staru_i prodaje t_i t_j kuću.
 that old sells house

(64) *Staru onu prodaje kuću.

According to Bošković (2005), there is a focus requirement on LBE with multiple NP adjuncts—such LBE involves focus movement. We cannot then be dealing here with a simple superiority (i.e. Attract Closest) effect, given that, as discussed in Bošković (2002), in contrast to multiple wh-movement, multiple focus-movement is not sensitive to superiority effects. Under the current analysis, the strict ordering of the LBE-ed elements in fact follows independently of Superiority/Attract Closest. Given the above discussion, the higher Spec (*onu*) prior to movement must move first, or we would end up with a PIC violation (only the higher Spec is located at the phasal edge, hence only the higher Spec is accessible to movement; the lower Spec (*staru*) is inaccessible to movement independently of Attract Closest). After the higher Spec is vacated, the lower Spec is located at the phasal edge, hence accessible to movement. The lower Spec then moves, undergoing Richards-style tucking in into a lower Spec, yielding (63).

Another construction falls in line under the above analysis, providing further evidence that traces do not count as phasal edges for the purpose of the PIC. An anonymous reviewer observes that (65) is significantly better than (23a).²⁷

(65) ?Jovanovog_i na tebe_j sam vidio [_{NP} t_i [_{NP} [ponosnog t_j] [_{NP} oca]]]
 Jovan's of you am seen proud father

²⁷Regarding *sam*, we seem to be dealing here with the kind of clitic placement discussed in Bošković (2001:164).

While in principle the possessor can either follow or precede the adjective (see section 3), in (65) the possessor must be generated above the adjective, just as in (23a) (not as in (37)), otherwise it could not undergo LBE. In (23a), the possessor in this position blocks PP-movement, as the outmost edge of the NP. The effect is voided in (65) by the movement of the possessor, given that traces do not count as phasal edges for the purpose of the PIC. (65) is then derived just like (62), through multiple LBE: The possessor moves first, then the PP moves, tucking in under the possessor. Just as in the case of (62), the order of the fronted elements in (65) cannot be switched. The contrast between (65) and (66) can be accounted for in the same way as the contrast between (63) and (64).²⁸

- (66) *Na tebe Jovanovog sam vidio ponosnog oca.
of you Jovan's am seen proud father

²⁸ Bulgarian multiple wh-fronting (MWF) exhibits the same pattern as multiple LBE. Consider (i).

- (i) a. ?Koj_i se opitvat da razberat kogo_j t_i e ubil t_j?
who self try to find out whom is killed
Intended meaning: 'Who are they trying to find out whom killed?'
b. *Kogo_j se opitvat da razberat koj_i t_i e ubil t_j?
whom self try to find out who is killed (Richards 2001: 100)

That crossing paths are preferred to nesting paths here follows from the above discussion. (i) is the structure prior to movement to the higher CP, with both wh-phrases moving to the lower CP edge.

- (ii) ...razberat [_{CP} koj kogo [_{C'} e ubil]]

With this movement, Superiority (Attract Closest) forces the *koj kogo* order, with the wh-phrases located in the separate Specs of the embedded CP. Given the above discussion, only the higher wh-phrase is located at the phasal edge, hence only the higher wh-phrase can move. (However, Superiority may also be at work here.)

Note that the lower wh-phrase can move if the higher wh-phrase is turned into a trace.

- (iii) a. Koj_i kogo_j misliš [_{CP} t_i t_j če [_{IP} t_i e udaril t_j]]?
who where think-2s that has hit
'Who do you think hit whom?'
b. cf. *Kogo koj misliš [če e udaril]?

The wh-phrases move to the embedded CP in the same way as in (i). Given the above discussion, *koj*, located in the higher SpecCP, must move first to the matrix SpecCP, with *kogo* then moving, tucking in under *koj* in the lower CP Spec. *Kogo* is thus allowed to move to the matrix CP in (iiia), in contrast to (ib), because the higher embedded clause SpecCP was turned into a trace in (iiia).

4.3. Binding

A strong argument that traces do not count as phasal edges is provided by (67), involving left-branch extraction of the AP, which contrasts with (68), where the AP remains in situ.

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

As discussed above, *omiljenu* must be the outmost NP-adjunct in (67), or it could not undergo LBE. Recall that (68) is ruled out because *svoju* is not located at the NP phase edge, hence cannot be bound outside of the NP. *Svoju* then must be at the NP phase edge in (67). This confirms that traces do not count as phasal edges.²⁹

Also relevant is (69).

- (69) a. Iz kojeg tima_i je pozdravio [svoje prijatelje t_i]?
from which team is greeted his-anaphor friends
'He greeted his friends from which team?'
- b. Pozdravio je svoje prijatelje iz tog tima.
greeted is his-anaphor friends from that team

In contrast to English (see (70a)), SC allows extraction of NP adjuncts, as in (70b).³⁰

- (70) a. *From which city_i did Peter meet [_{NP} girls t_i]?
b. ...

²⁹ Due to interfering factors it is not possible to test here the multiple wh-fronting anaphor construction from section 3.2.

³⁰ We are dealing here with another NP/DP generalization, where adjunct extraction from TNPs can be possible only in NP (i.e. article-less) languages (Bošković 2012, Stjepanović 1998; note this is a one-way correlation). Bošković (2012) notes Slovenian, Polish, Czech, Ukrainian, Russian, SC, Hindi, Angika, and Magahi, all article-less languages, allow NP-adjunct extraction, while English, Spanish, Icelandic, Dutch, German, French, Arabic, and Basque, which have articles, disallow it.

- b. Iz kojeg grada_i je Petar sreo [_{NP} djevojke t_i]
 from which city is Peter met girls

Bošković (2013b) argues such adjuncts are adjoined to NP. Their extraction is then banned in English because the PIC requires movement to SpecDP, which violates antilocality. The problem does not arise in SC, given the lack of DP. Given that these adjuncts are adjoined to NP, we would expect that adjectives/possessors can be extracted in the presence of such adjuncts and that these adjuncts can also be extracted in the presence of adjectives/possessors, since either can be generated as the higher NP adjunct. However, since a demonstrative must be generated as the outmost adjunct, it should block their extraction but should itself be able to move. All this is borne out (extraction can affect available readings):

- (71) 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
- c. Iz kojeg tima je upoznao tvoje prijatelje?
 from which team is met your friends
- d. Čije je upoznao prijatelje iz tog tima?
 whose is met friends from that team
- e. Ovog je on oborio studenta iz Beograda.
 this is he failed student from Belgrade
 'He failed this student from Belgrade.'
- f. *Iz Beograda je on oborio ovog studenta.
 from Belgrade is he failed that student

Returning to (69), (69b) is acceptable since the anaphor can be generated as the higher NP-adjunct here. The anaphor is then the outmost edge, hence can be bound outside of its NP. As for (69a), the PP has to be generated as the higher adjunct here or it could not undergo

movement. The anaphor is not located at the edge of the NP prior to the movement. However, since the movement turns the outmost edge into a trace, the anaphor is located at the NP-phase edge after the movement, hence can be bound outside of the object NP.³¹

5. Conclusion

I have shown that in constructions where more than one element is located at the edge of the same phase only the highest edge is available for movement and anaphor binding. I have argued that this shows that only the outmost edge counts as the edge of a phase for the purpose of the PIC. I have also shown that movement of the element that counts as the phasal edge in multiple Spec/adjunct configurations can affect the PIC status of the remaining edges. The central conclusion of this article provides a new argument for the contextuality of phasehood. While Chomsky's (2000, 2001) original approach to phasehood is context insensitive in that the phasal status of a phrase does not depend on its syntactic context, many have argued that, similarly to the GB predecessor of phases,

³¹Interestingly, Zanon (2014) notes (with respect to Russian) that quantifiers can precede anaphoric possessors, as illustrated in (i) with SC. She argues that what makes this possible is QR; after QR the anaphor is at the phasal edge in (i) given that traces do not count as phasal edges. (See Zanon 2014 for details of the analysis as well as a very interesting discussion of indefinites; she argues that indefinites in Russian can undergo QR but can also be interpreted in situ and shows that scopal properties of indefinites interact with anaphor binding in examples where an indefinite and an anaphor are located in the same NP exactly as predicted by the current proposals. The reader is also referred to Bošković 2014c and Zanon 2014 for discussion of the anaphor binding effect discussed in this article in Slavic genitive-of-quantification environments.)

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

It should be noted that the adjective-*svoj* order can improve with strong focus on the adjective, as noted by Zanon (2014) and illustrated by the following, actually occurring example (*imamente* bears focus stress). The suggestion is that in such cases the adjective undergoes focus movement, either overtly (string-vacuously) or covertly, so that only a trace precedes *svoj* (see Zanon 2014; note that the possibility of scrambling the adjective out of its TNP in adjective-*svoj* examples, which would not require focus on the adjective, is ruled out by the well-known ban on string vacuous scrambling.)

- (iii) ...što paradiraju gradovima zahtijevajući neke administrativne privilegije,
 that parade cities demanding some administrative privileges,
 ističući svoje ljudske nemogućnosti kao *imamente* svoje pravo.
 asserting their human inabilities like immanent their right (Bošković 2014c:55)

barriers, the phasal status of a phrase can be affected by the syntactic context in which it occurs (for example Bobaljik and Wurmbrand 2005, Bošković 2005, 2014a, den Dikken 2007, Despić 2011, in press, Gallego and Uriagereka 2007, Takahashi 2010, 2011, Wurmbrand 2013a, Kang 2014). This article has shown that the concept of phasal edge, i.e. the status of a Spec/adjunct with respect to the PIC, is also determined contextually—it can also be affected by the syntactic context in which the Spec/adjunct occurs. In other words, not only phases themselves, but also phasal edges are contextual.

Appendix: Familiar demonstratives

As noted in section 3.2, while possessors can in principle either precede or follow adjectives in SC (cf. (31)), reflexive possessors must precede them.

(72) Marija je prodala svoju omiljenu knjigu.

Marija is sold her-anaphor favorite book

(73) *Marija je prodala omiljenu svoju knjigu.

As discussed above, an anaphor can be bound outside of its minimal phase only if it is located at its edge. Since only the outmost edge counts as the phasal edge, the anaphor is located at the phasal edge in (72) but not in (73).

Surprisingly, demonstratives allow anaphoric possessors to follow them.

(74) ?Vidjeli su tu prijateljicu.

seen are that their-anaphor friend

‘They saw that friend of theirs.’

Significantly, this is not the only case where a demonstrative+possessor combination behaves exceptionally. Recall demonstratives block LBE of adjectives, the reason being that the demonstrative must be the outmost edge of the NP. Given that only the outmost edge counts as the edge of the phase, the adjective then cannot undergo extraction in (75).

(75) *Ponosnog_i sam vidio tog t_i studenta.

proud am seen that student

Interestingly, when a possessor is added to (75a), adjectival LBE improves.

(76) Ponosnog_i sam vidio tog tvog t_i studenta

proud am seen that your student

The same kind of improvement is found with adjunct extraction. Recall that (77) is ruled out because the element that undergoes extraction is not the outmost edge of the NP, the outmost edge being the demonstrative.

(77) *Iz kojeg tima_i je upoznao [te prijatelje t_i]

from which team is met those friends

‘From which team did he meet those friends?’

Significantly, (77) also improves when a possessor is added.

(78) Iz kojeg tima_i je upoznao [te tvoje prijatelje t_i]

from which team is met those your friends

‘From which team did he meet those friends of yours?’

We have a rather interesting state of affairs here. Descriptively, the demonstrative+ possessor combination behaves just like the possessor alone would behave. Consider (75) and (77). Both of these become acceptable if the demonstrative is replaced by a possessor. The reason is that semantically, nothing prevents the possessor from being generated as the lower NP adjunct here. The extraction can then proceed from the outmost edge.

(79) Ponosnog_i sam vidio [NP t_i [NP Jovanovog [NP studenta]]]

proud am seen Jovan’s student

- (80) Iz kojeg tima_i je upoznao [_{NP} [_{NP} tvoje [_{NP} prijatelje]] t_i]
 from which team is met your friends

In light of this, I suggest that the demonstrative+possessor sequence in exceptional cases like (76) and (78) forms a constituent, which has the distribution of the possessor. Since the possessor can be generated below adjectives and adjuncts, extraction can then proceed from the outmost edge here. (76) and (78) are then treated in the same way as (79)-(80).

As for (74), given that demonstrative+possessor forms a constituent, there is only one NP edge in (74), which means that the anaphor in (74) is located at the outmost edge, in contrast to (73), where this is not the case. (74) is then treated in the same way as (81).

- (81) Vidjeli su svoju prijateljicu.
 seen are their-anaphor friend

The exceptional examples with demonstratives thus all fall into place once we observe that in all those cases the demonstrative occurs with a possessor, and capitalize on this observation by treating the demonstrative+possessor sequence as one constituent that has the same structural positioning as the possessor. Note also that the two must be adjacent in the examples under consideration. Thus, if an adjective that normally can occur above a possessor is added to (74), (76), and (78), all these examples become unacceptable. This confirms the relevance of the demonstrative+possessor sequence in the examples under consideration and in fact provides evidence that the demonstrative and the possessor form a constituent in these examples.

- (82) *Vidjeli su tu omiljenu svoju prijateljicu.
 seen are that favorite their-anaphor friend
- (83) *Ponosnog sam vidio tog ćelavog tvog studenta.
 proud am seen that bold your student
- (84) *Iz kojeg tima je upoznao te omiljene tvoje prijatelje?
 from which team is met those favorite your friends

But what kind of a demonstrative are we dealing with here? This obviously cannot be the “usual” demonstrative whose semantics was discussed above. In fact it isn’t. As pointed out by Sandra Stjepanović (p.c.), what is relevant here is a special demonstrative usage that does not have the same semantics as regular demonstratives which was discussed in Partee (2006), namely the familiar demonstrative, which is accompanied with some presumption of familiarity, where the relevant NP is understood as familiar to both the speaker and the hearer. On this usage, *that/those* is unstressed and cannot be accompanied by a pointing gesture. It is also not anaphoric to any antecedent explicitly present in the preceding discourse. It harks back to some earlier discussion, but the relevant entities have not been mentioned in the immediately preceding context and are not being pointed to.

(85) Those three books of yours are still in my office.

(86) I really didn’t like that one argument of his, and I told him so. (Partee 2006)

Partee observes that we are dealing with a discourse-anaphoric usage here, the examples could be paraphrased by using “that I told you about”, “that we were talking about earlier”. There is also a presumption of familiarity: the speaker conveys confidence that the hearer recognizes the referent although it has not been mentioned in the immediate context. Another exceptional property of the demonstratives in question is the absence of presupposition of exhaustivity with familiar demonstratives. Thus, while *I really didn’t like his one argument, and I told him so* presupposes that he gave only one argument, (86) is compatible with his having given several arguments.

Interestingly, familiar demonstratives are often accompanied by possessors, though this is not always the case, as in Lyons’ (1995) example: *I’m all in favor of people cycling more, but those mountain bikes are a nuisance in the country*, where the familiar demonstrative is used to express emotional solidarity between the speaker and the hearer, which also involves a presupposition of shared familiarity with the referent.

Turning now to the exceptional demonstrative cases in the SC examples, they all in fact involve Partee’s familiar demonstratives. The demonstrative in these examples is unstressed, cannot be accompanied by a pointing gesture, and it is used to hark back to some earlier discussion although the entities referred to have not been mentioned in the

immediately preceding context. There is also a presupposition of shared familiarity, the relevant referents are understood as being familiar to the hearer and the speaker. In fact, it appears that the presence of a possessor (especially a pronominal possessor) facilitates establishing shared familiarity. In other words, we are dealing here with Partee's familiar demonstrative. The above examples help us elucidate the syntactic position of this demonstrative. At least in the cases where this demonstrative is accompanied with a possessor, the demonstrative is merged with the possessor, not with the rest of the NP. While this seems exceptional it is not when we take into consideration that we are dealing here with a different type of element from the regular demonstrative. Recall, e.g., that the familiar demonstrative is characterized by non-exhaustiveness. While it is true that the TNPs in question are interpreted as definite, the definiteness may actually also come from the presence of the possessive.

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