Getting really edgy: On the edge of the edge

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Abstract: The paper 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 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 paper 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.

0. Introduction

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

Chomsky's (2000, 2001) 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, in press a, den Dikken 2007, Despić in press, Gallego and Uriagereka 2007, Takahashi 2010). 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 paper goes one step further: it shows that the concept of a 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 phasal status of α with respect to 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, object shift, and multiple wh-fronting.

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]

(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 it 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) 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 inžinjera].
mechanical is he fired not-serious engineer
'He fired a mechanical engineer who was not serious.'
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.'

One might think that what is involved here is the Specificity Condition (TSPC). However, the TSPC 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 TSPC. Thus, all the examples in (5), which are unacceptable in English, are acceptable in SC. (See Bošković 2012b for a suggestion regarding what is responsible for the SC/English difference with respect to the TSPC.)

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

[1]It is important to note that the judgments in (1), and a number of other places in the paper, are comparative, not absolute (the judgments should therefore not be considered in isolation). Thus, while some speakers find (1c) somewhat degraded, what is important is that even for them (1c) is better than (1a-b). The goal of the paper is to explain contrasts of this type. Note also that adjectival complements in SC have to move out of the AP, see Bošković (2013b).

In light of this I will not pursue an analysis along the lines of the TSPC. 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 the data 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 paper, where a particular approach to phasal edges is developed. Section 5 is the conclusion.

2. Background assumptions

2. 1. On the NP/DP analysis

A number of authors have argued that SC, an article-less language, does not have the DP layer (see, e.g., Corver 1992, Zlatić 1997, Trenkić 2004, Bošković 2005, 2012b, Marelj 2011, Despić 2013, Runić 2012, Takahashi 2012). Bošković (2012b) makes this claim more generally for all languages without articles based on a number of syntactic and semantic phenomena that correlate with articles which he shows can be captured if DP is not present in the TNPs of article-less languages. (The term TNP is used neutrally, without committment to functional structure that may be present above NP.) In this system, possessives, which morphologically and syntactically in every respect behave like adjectives in SC (Zlatić 1997, Bošković 2005, 2012b), are treated as NP adjuncts.[2] One argument for this analysis, noted by Despić (2013), is provided by the examples in (7). These examples contrast with English examples in (6) in that the pronoun and the name cannot be co-indexed.[3] Assuming that the possessive is an NP adjunct and that SC lacks DP, the possessor c-commands out of the TNP in (7), which results in Condition B and C violations.

(6) a. His$_i$ latest movie really disappointed Kusturica$_i$.
b. Kusturica$_i$'s latest movie really disappointed him$_i$.

(7) 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$_i$.'

Nothing changes in the presence of a demonstrative (8), which is then also treated as NP adjoined

[2]Locating possessives in SpecNP is also compatible with the NP analysis. This would in fact suffice to account for the word order facts discussed below (with multiple adjuncts re-analyzed as multiple Specs) and maintain the analysis of the data in (1)-(4) proposed below. The Spec analysis would, however, leave the binding data about to be discussed unaccounted for.

[3] See Bošković (2012b) and Despić (2013) for the full relevant paradigm and some interfering factors that need to be controlled for. Note also that SC possessors in principle can bind, see Despić (2013).

(demonstratives also behave like adjectives morphologically and syntactically, see Zlatić 1997, Bošković 2005, 2012b). Adjectives behave in the same way, as shown by (9). The data in (7)-(9) can then be accounted for in a uniform manner if possessives, demonstratives, and adjectives (which, as discussed in the references cited above, behave in the same way in a number of other respects) are NP adjoined and the DP layer is missing in SC.

(8) 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$_i$.'

(9) *[$_{NP}$ Brojni [$_{NP}$ Kusturicini$_i$ [$_{NP}$ filmovi]]] su ga$_i$ zaista razočarali.
numerous Kusturica's movies are him really disappointed
'Numerous movies of Kusturica$_i$ realy disappointed him$_i$.'

Also relevant is Bošković's (2009) observation that word order within TNP is generally freer in NP (i.e. languages without articles) than in DP languages. 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 lack of the syntactic structure in question. Thus, in English demonstratives and possessives have to precede adjectives because they are located in DP, and DP is higher than the projection where adjectives are located. In SC, due to the lack of DP all these elements are treated as NP adjuncts (see also footnote 2). As a result, syntax does not impose any restrictions on the order of the elements in question. Chinese strongly confirms this approach. In stark contrast with English, any order of adjectives, demonstratives, and possessives is in principle allowed in Chinese. This follows if they are all NP adjoined (Japanese and Korean pattern with Chinese).

(10) Zhangsan-de hongsede paoche vs. hongsede Zhangsan-de paoche
Zhangsan's red sport-car red Zhangsan's sport-car
(11) na-bu hongsede paoche vs. hongsede na-bu paoche
that-CL red sport-car red that-CL sport-car
(12) na-bu Zhangsan-de paoche vs. Zhangsan-de na-bu paoche
that-CL Zhangsan's sport-car Zhangsan's that-CL sport-car

SC and Chinese, however, differ regarding word order. In SC, adjectives and possessives are freely ordered, but demonstratives must come first.[4]

(13) Jovanova skupa slika vs. skupa Jovanova slika
John's expensive picture *expensive John's picture
(14) ova skupa slika/?*skupa ova slika

[4] While the possessive-adjective order is often more neutral than the adjective-possessive order, what is really important is the contrast with English, where the latter is fully ungrammatical, as well as the contrast with the unacceptable examples in (14)-(15).

this expensive picture expensive this picture
(15) ova Jovanova slika /?*Jovanova ova slika
this Jovan's picture Jovan's this picture

Bošković (2009) notes that 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:[[Mary's]]=λx.[R_i(Mary)(x)], R_i is a free variable)). Under standard assumptions that adjectives are also of type <e,t> and that there is a rule of intersective predicate modification, semantics imposes no restrictions on the order in which possessives and adjectives are composed. Demonstrative NPs pick out an individual of type e (see Kaplan 1989): demonstrative *that* is a function of type <<e,t>,e>. Once *that* maps a nominal to an individual, further modification by <e,t> 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.

Regarding the fact that even demonstratives are freely ordered in Chinese, in contrast to SC, Bošković and Hsieh (2012) tie this to another difference between Chinese and SC, namely the fact that relative clauses can also precede a demonstrative in Chinese (but not in SC).[6]

(16) **dai yanjing de** na-ge xuesheng
wear glasses REL that-CL student
'that student who wears glasses'

Partee (1976) provides convincing argument that the head noun of restrictive relatives and the relative clause must combine before the determiner is introduced, serving together as its restrictor. Regarding Chinese, where relatives pre- cede determiners, following Bach and Cooper (1978), Lin (2003) posits a free variable in the semantics of demonstratives, with the relative clause specifying its value. (16) is analyzed as in (17). The free function variable *h* in the demonstrative's denotation carries the same function as that of a contextual pronominal variable. $H_{<e,t>}$ receives its value from the relative, whose type is <e, t>.

(17) [$_Z$ [$_{CP}$ dai yanjing de] [$_Y$ [$_{Dem}$ na-ge] [$_{NP}$ xuesheng]]]
[[NP]] = λx. x is a student
[[Dem]] = λ$f_{<e,t>}$. λ$g_{<e,t>}$. THAT x s.t. f(x) and **h(x)** and g(x)
[[Y]] = λ$g_{<e,t>}$. THAT x s.t. x is a student and **h(x)** and g(x)
[[CP]] = λx. x wears glasses
[[Z]] = λ$g_{<e,t>}$. THAT x s.t. x is a student and x wears glasses and g(x)

Bošković and Hsieh (2012) extend Lin's analysis to (11) (slightly modifying it): Given that both possessives and intersective adjectives are of type <e, t>, they can also provide a value for the

[5]This also holds for an adjective like "former", which is of type <<e,t>, <e,t>>. In fact, the account can be extended to non-restrictive adjectives under Morzycki (2008), where non-restrictive adjectives are also interpreted inside determiners.
[6] See Bošković and Hsieh (2012) for a discussion of Despić's (2013) binding tests with respect to Chinese.

contextual pronominal variable. This accounts for the fact that possessors, intersective adjectives, and relatives can precede demonstratives in Chinese (as in (11), (12), (16); see Bošković and Hsieh 2012 for non-intersective adjectives). Regarding SC, Bošković and Hsieh suggest that there is no contextual pronominal variable in the denotation of SC demonstratives (tying the Chinese/SC difference in this respect to the classifier language status of Chinese). A modifier outside of a demonstrative then cannot be interpreted as part of the restrictor of the demonstrative in SC, hence has to adjoin under the demonstrative.

Bošković (in press a) suggests another way of capturing the Chinese/SC difference which adopts different assumptions regarding semantic types. Chierchia (1998) argues that although they both lack DP, Chinese and SC differ in the semantic type of bare nouns. For Chierchia, bare nouns are kind-denoting and of type e in Chinese, while they are of type <e,t> in SC. Building on Chierchia (1998), Huang (2006) argues that bare adjectives in Chinese are of type e, just like bare nouns.[7] Bošković (in press a) suggests a generalization of Huang's proposal whereby adjectives have the same type as bare nouns in any given language. Another relevant assumption from Huang is that prenominal modification follows a type-matching constraint whereby a bare noun and its modifier must be of the same type.

The difference between Chinese and SC in word order within TNP noted above then follows from Chierchia's Chinese/SC difference in the semantic type of nouns. Consider the second example in Chinese (11)b, where the adjective precedes the demonstrative. The type-matching constraint is satisfied here since both the demonstrative NP and the adjective are of type e. However, this is not the case with the second example in SC (14)b. Given that in SC, bare nouns and adjectives are of type <e,t>, a problem arises: the demonstrative NP *this picture* is of type e (see the discussion below (15)) but the adjective is of type <e,t>; hence, the type-matching constraint is violated if an adjective precedes a demonstrative.[8]

At any rate, 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 NP languages following from semantic considerations.[9] Having summarized the relevant assumptions concerning the syntax and semantics of SC TNPs, I now briefly summarize the relevant assumptions regarding the phase framework.

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[7]Huang's treatment of Chinese adjectives is simplified here. Note also that Bošković (in press a) assumes that *–de* has no semantic impact; it is a contextual marker whose distribution is determined by a separate rule, as in Kuo (2009).

[8]This account assumes that type-shifting of adjectives from <e,t> to e is disallowed; otherwise, the adjective could be type-shifted to type e in the SC example in question. Noting that such type-shifting is an operation of nominalizing an adjective, Bošković suggests that adjectival nominalization is possible only when no noun is present, hence not in the case under consideration.

[9] It should be noted that the theoretical claims made in the paper (cf. sections 3 and 4) actually do not crucially depend on adopting the no-DP analysis of SC. More precisely, the account of (1)-(4) given in section 3 (and more generally the analyses proposed in sections 3 and 4) as well as the account of the data discussed in this section seem maintainable under the DP analysis if the elements in question are all located at the edge of DP in SC (this would make section 2.2 irrelevant, the phenomena discussed there would remain unaccounted for under this analysis), in contrast to English. SC DP would then be quite different from English DP. At any rate, it seems clear that the elements in question behave rather differently from their counterparts in English (for a number of additional differences, see Zlatić 1997, Bošković 2012b), hence cannot be treated in the same way as in English.

2.2. Phases

It is standardly assumed that DP is a phase in English. One argument to this effect, which also provides evidence for the DP/NP analysis from section 2.1., concerns the generalization in (18) established in Bošković (2012b), Corver (1992), and Uriagereka (1988).

(18) Only article-less languages may allow left-branch extraction (LBE) examples like (19)[10]
(19) *Expensive$_i$ he loves [t_i cars]
(20) Skupa$_i$ on voli [t_i kola]
expensive he loves cars (SC)

Bošković (2005) offers a phase account of (19).[11] Given that DP is a phase in English, the adjective must move to SpecDP in (19) 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), (19) 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 (in press a,b) 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).

(21) a. On cijeni [$_{NP}$ [$_{N'}$ [prijatelje [$_{NP}$ pametnih [$_{NP}$ studenata]]]
he appreciates friends smart students
'He appreciates friends of smart students.'
b. ?*Pametnih$_i$ on cijeni [$_{NP}$ [$_{N'}$ [prijatelje [$_{NP}$ 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)b

[10]Bošković (2012b) notes that 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, Bangla, Angika, and Magahi also allow LBE and lack articles.

Particularly interesting is Finnish. Colloquial Finnish has developed a definite article. Significantly, Franks (2007) notes that 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 2012b).

Note also that the lack of DP is not the only requirement for LBE; A-N agreement is also needed (see Bošković 2013b), as a result of which LBE is disallowed in NP languages like Chinese.

[11] See also this work for arguments that (20) involves subextraction of the adjective rather than remnant movement of the TNP, or full TNP movement with scattered deletion.

can then be accounted for in exactly the same way as (19): 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 that an IP that is dominated by a CP, a phase, cannot move (cf. *[$_{IP}$ *His$_i$ father 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 such movement 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) ?*Ovog studenta sam pronašla [$_{NP}$ knjigu t_i]
this student(gen) am found book
'Of this student I found the/a book' (Zlatić 1997)

Bošković (in press a) 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.[12] In both English and SC, TNP (i.e. the highest projection in the TNP) works 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)b and (20).[13]

3. Phasal edges

3.1. Phasal edges and movement

We are now ready to return to (1), repeated 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,

[12]English *of*-genitive complements can be extracted, as in Huang's (1982) *Of which city did you witness the destruction?*, which is expected given that DP, not NP, is a phase in English.

[13] See Bošković (in press a,b) for additional evidence to this effect. The claim raises a number of interesting theoretical and empirical questions which cannot be discussed here, the reader is referred to Bošković (in press a) for relevant discussion.

from the NP-adjoined position, which leads to an antilocality violation. What is important here is that extraction is legitimate only from the TNP phase-edge position.[14]

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 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.[15]

[14] 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 (in press a), 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 18 for some relevant discussion; see also Talić 2013b 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 could project a phase since it anyway does not affect the discussion here.

[15] A potential alternative would be to appeal to relativized-minimality style intervention effects, where the higher element would count as a relativized-minimality intervener for the lower element. The analysis, however, faces several problems: first, adjuncts are standardly assumed not to count as interveners for relativized-minimality effects (Rizzi 1990, Riqueros 2013); second, 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; third, 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).

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 the literature in semantic (in terms of semantic classes) or prosodic terms (adjectival length). Bošković (2009) thus argues that there is 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). As discussed in section 2.1, such an account works well for demonstratives/possessors/adjectives, explaining both the fact that they are freer (order-wise) in article-less than in article languages, and some crosslinguistic variation found within article-less languages. What Bošković (2009) argues is that the relative order of adjectives should be handled in the same way.

Consider (3), repeated in (26a), from this perspective. Notice first that if the order 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).[16]

(26) a. *Mašinskog$_i$ je on otpustio [$_{NP}$ neozbiljnog [$_{NP}$ t_i [$_{NP}$ inžinjera]]].
mechanical is he fired not-serious engineer
b. ?Neozbiljnog$_i$ je on otpustio [$_{NP}$ t_i [$_{NP}$ mašinskog [$_{NP}$ inžinjera]]].

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

(27) a. neozbiljni mašinski inžinjer
b. ?*mašinski neozbiljni inžinjer

In Bošković's system, 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

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It should be noted that Rackowski and Richards (2005) also make the claim that only the highest specifier of a phase can be extracted, though on very different empirical grounds. Furthermore, they essentially reduce this to the Attract Closest effect (i.e intervention effects), which predicts that the effect should be easily voidable—all that needs to happen is that the higher Spec is not a candidate for the movement in question (as noted above, such an approach does not work for the constructions discussed here). This is very different from the current approach, which 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 below, where it is shown that the effect in question is operative even with multiple focus-movement, which is quite generally insensitive to Attract Closest/intervention effects, as well as certain Dutch constructions where Attract Closest considerations are also irrelevant; also relevant is section 3.2, which discusses binding, not movement).

[16]When 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 in fact also often requires focalization, this is e.g. the case with (3b).)

the same way as (23) and (25). Below I give some 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 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 phasal

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 also 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. below—they also remain unaccounted for under this analysis.

An additional problem for this alternative is raised by the following examples (see Talić 2013b 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.[17]

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 ružičast][$_{NP}$ automobil]]]
extremely are bought expensive pink car

(41) ??Izuzetno$_i$ su kupili **[$_{NP}$** [$_{AP}$ t_i skup] [$_{NP}$ [$_{AP}$ ružičast] [$_{NP}$ automobil]]]
extremely are bought expensive pink 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.

[17] Fox and Pesetsky's (2005) system may provide another alternative. In this system, linear ordering is established derivationally, when a phasal level is reached. Furthermore, the liner 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 (53) and possibly (37) appear to be problematic. Furthermore, the analysis along these lines would have nothing to say about the binding data in section 3.2. below, where the relevant elements do not undergo movement, hence no conflicting ordering arises. It is shown below that these data instantiate the same effect as the one discussed in this section, and can in fact be accounted for in a unified manner under the current analysis.

(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.[18]

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[18]Bošković (in press b) actually argues that nouns and adjectives 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 2013a for an alternative where (42) can be treated like (ii)). The issue noted above 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

It should be noted that 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. 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 (in press b) 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 in press b)
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)
(v) **[$_{NP}$** threat [$_{FP}$ F [$_{NP}$ his [$_{NP}$ death

Bošković (in press a) 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, however, that adjectives assign inherent case, i.e. they take FP as complement). Now, Bošković (2013a) argues that Ns/As do not license A'-Specs, as a result of which A'-movement through the NP/AP edge must proceed via NP/AP-adjunction. One argument to this effect regarding NP is provided by (vi). The moved phrase in (vi) 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 (vi), and (vi) would remain unaccounted for. However, if NPs do not license A'-Specs, movement through the edge of NP2 can only proceed via NP2-adjunction. Movement to the edge of NP1 then violates antilocality. (vi) is thus accounted for if NPs do not license A'-Specs.

(vi) *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 needs to first 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

3.2. Phasal edges and binding

There is an interesting extension of the current proposals to a binding paradigm noted by Zanon (2013) for Russian, which I apply here to SC. 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 recently argued that the binding domain for Condition A should be stated in terms of phases (see e.g. Despić in press and references therein). 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.[19]

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 the phasal edge, hence accessible for higher binding.

(For additional argumens that Ns/As do not license A'-Specs, which was crucial to the account in (vii), see Bošković 2013a, where it is shown that, among other things, the assumption enables us to account for the long-standing puzzle of the unacceptability of deep extraction from NPs/APs, where N/A take a complement from which extraction occurs (viii). Recall, however, that none of the assumptions made in this footnote to block higher NP adjunction in (ii) are needed under Chomsky's 2000, 2001 approach to successive cyclic movement, which handles the issue quite straightforwardly.)

(viii) a. Who did you see friends of?
b. ?*Who did you see enemies of friends of?
c. Who is he proud of ?
d. ?*Who is he proud of friends of?
e. Combien a-t-il consulté [$_{DP}$ t de livres]?
'How many did he consult of books?'
f. ?*Combien a-t-il consulté [$_{DP}$ (plusieurs) prefaces [$_{DP}$ t de livres]]
'How many did he consult several prefaces of books?'

[19] The above discussion does not raise any issues for (8)-(9); the binder simply needs to c-command the bindee—it is quite clear that binders do not have to be located at phasal edge. However, due to space limitations I leave full examination of the consequences of the current proposals for the binding theory for future research (see in this respect xxxxx in progress), confining the discussion here to the point made in the text.

(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.) [20]

(45) *Maria$_i$ znae kăde 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 kăde bjaha kupeni
(47) Kăde kolko/kakvi snimki bjaha kupeni
(48) Kolko/kakvi snimki kăde 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 anaphoric 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).[21] [22]

4. Traces as non-edges

4.1. Object shift

[20] 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). Nissenbaum's data contain an argument wh-phrase in the higher Spec, as in (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 could be located below SpecCP when they are not the initial wh-phrase in multiple wh-fronting constructions, see Bošković (2002). (The reader is also 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.)

(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)

[21] Head movement raises an issue here 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 a number of authors have argued (see e.g. Boeckx and Stjepanović 2001). As noted by S. Wurmbrand (p.c), there are also 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) or in fact is KP movement. Another option is to appeal to phase extension with head movement (see e.g. den Dikken 2007, Gallego and Uriagereka 2007): head movement extends the phase to the next projection, which means that 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 discusss it in this paper, leaving it for future research.

[22] In 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. However, I leave for future research attempting to reconcile Müller's conclusions and the conclusions reached here, i.e. to provide a uniform account of the data behind melting effects and the data discussed here.

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. 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, 2012a) 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.[23] Given this, any example where both relevant elements undergo movement may then be irrelevant.

(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 ditransitive constructions, 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

[23] The effect of copy deletion is unified there with Ross's (1969) claim that ellipsis (taken as PF deletion) can rescue locality violations, see footnote 24.

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).[24] As a result, the problem in 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)

[24] As 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 the rescuing effect of ellipsis on locality violations (see Ross 1969), implementing this through the *-marking mechanism that goes back to Chomsky (1972) (for recent applications, see Boeckx and Lasnik 2006, Hornstein, Lasnik, and Uriagereka 2003, Lasnik, 2001, Merchant 2008, among many others), where t_j in (iib) is a *-marked element that is deleted in PF.The rescuing effect of traces on PIC violations noted below can also be implemented within the *-marking system with some rather straightforward assumptions (and interesting consequences regarding the placement of *s and its timing) though I will not go into it here due to space limitations and because the technical implementation has no bearing on the main issues discussed in the text.

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.

(54) * $[_{CP} \ldots [_{vP}$ IO DO $[_{v'} \ldots]]$

(55) $[_{CP} \ldots [_{vP}$ ~~IO~~ DO $[_{v'} \ldots]]$

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 skilaðir-ðu 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)

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 least not obligatory) in Icelandic, a true SVO language.[25] In other words, the IO in Icelandic (58) can remain in situ within VP, hence the PIC problem discussed above with respect to Dutch does not arise in Icelandic. ((57) can be treated like (53a)). In fact, Icelandic may be taken to provide evidence that (52d) and (53b) should not receive a uniform account: if (52d) is treated in terms of Attract Closest (53b) then should not receive such a treatment.

4.2. Multiple LBE

The same pattern can be observed with multiple LBE examples.

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

[25]It should be noted that German is irrelevant here due to the more general freedom of word order in double object constructions (prior to what is considered to be object shift here), see den Dikken (1995) (den Dikken also notes that the same issue arises with some Dutch ditransitives).

(59) 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 don't count as interveners for relativized minimality effects, they also do not count as phasal edges for the purpose of the PIC. Since t_i in (59) then does not count as being at the edge of the NP phase, the adjective is allowed to undergo movement, in contrast to (2a).

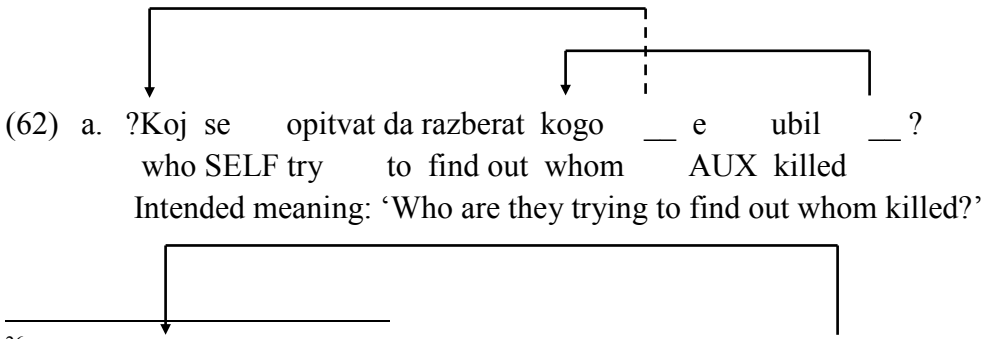
There is an ordering restriction on multiple LBE: the Spec that is higher prior to LBE must be the first, which means also the higher, Spec in the result of multiple LBE.

(60) Onu$_i$ staru$_i$ prodaje t_i t_j kuću.
that old sells house
(61) *Staru onu prodaje kuću.

According to Bošković (2005), there is a focus requirement on LBE with multiple NP adjuncts—such LBE involves focus movement. If this is correct (such examples indeed require focalization), we cannot 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 (60). Note also that multiple LBE involves adjunct extraction, hence it results in strong ungrammaticality with any locality violation.[26]

4.3. Multiple Wh-Fronting

I now turn to multiple wh-fronting (MWF), starting with Bulgarian (62).



(62) a. ?Koj se opitvat da razberat kogo __ e ubil __ ?
who SELF try to find out whom AUX killed
Intended meaning: 'Who are they trying to find out whom killed?'

[26]Due to the focus requirement, multiple LBE constructions are heavily restricted contextually (there are also pragmatic restrictions on what is left behind by such LBE), hence it is rather difficult to construct pragmatically felicitious examples that would involve subextraction from within the AP (additional problems arise with adverbials like *izuzetno* 'extremely' due to the morphological form of adjectives that they require, see Talić 2013b); at any rate, a comprehensive discussion of these issues, which do not affect the points made in the text, would take us well beyond the space confines of this paper.

b. *Kogo se opitvat da razberat koj __ e ubil __ ?
whom SELF try to find out who AUX killed (Richards 2001: 100)

Richards (2001) notes that crossing paths are preferred to nesting paths in MWF examples of this type. This in fact follows from the preceding discussion. Consider the derivation of (62) prior to wh-movement into the higher clause.

(63) …razberat [$_{CP}$ koj kogo [$_{C'}$ e ubil]]

Both wh-phrases move to the lower CP edge. If no further movement occurs, (63) is then the structure of the multiple indirect question. With this movement, Superiority (i.e. 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.[27]

The same effect is observed with multiple extraction out of the same declarative clause (see Rudin 1988 for original discussion of such extraction).

(64) 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 first move to the Specs of the embedded CP. Superiority forces the *koj kogo* order, with *koj* being located in the higher SpecCP. Given the above discussion, *koj* must move first to the matrix SpecCP, with *kogo* then undergoing movement, tucking in under *koj* in the lower Spec of the matrix CP. *Kogo* is thus allowed to move to the matrix CP in (64a), in contrast to (62b), because the higher embedded clause SpecCP was turned into a trace in (64a).

4.4. Binding

A strong argument that traces do not count as phasal edges is provided by (65), involving left-branch extraction of the AP, which contrasts with (66), where the AP in question remains in situ.

(65) Omiljenu$_i$ je Marija prodala t$_i$ svoju knjigu.
favorite is Marija sold her-anaphor book
(66) *Marija je prodala omiljenu svoju knjigu.
Marija is sold favorite her-anaphor book

As discussed above, *omiljenu* must be the outmost NP-adjunct in (65), or it could not undergo LBE. Recall that (66) is ruled out because *svoju* is not located at the NP phase edge, hence cannot be bound

[27] Superiority actually may also be at work here.

outside of the NP. *Svoju* then must be at the NP phase edge in (65). This confirms that traces do not count as phasal edges.[28]

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 anaphoric 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 paper 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, a number of authors have argued that, similarly to the GB predecessor of phases, barriers, the phasal status of a phrase can be affected by the syntactic context in which it occurs (e.g. Bobaljik and Wurmbrand 2005, Bošković 2005, in press a, den Dikken 2007, Despić in press, Gallego and Uriagereka 2007, Takahashi 2010). This paper 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—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.

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[28] Due to interfering factors (including increased length and the fact that even argumental wh-phrases in Bulgarian still display some wh-island effects, which get much stronger with adjuncts), it is not possible to test here the multiple wh-fronting anaphor construction from section 3.2 (cf. (45)-(46)).

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