

## Upward P-cliticization, accent shift, and extraction out of PP

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- Syntax – prosody interaction: an interesting case of syntactic movement affecting prosodic parsing of proclitics (PCL) and their hosts.
  - This effect is visible in accent shifts from host to proclitics in Bosnian/Croatian/Serbian (Bosnian), as in (1).
- (1) **ú**\_sta:roj kući  
in\_old house
- I establish a correlation between the mobility of the host and the accent shift by examining examples like (2a) and (2b).
- (2) a. Sta:ru<sub>i</sub> je voljela t<sub>i</sub> (bratovu) kuću.  
old is loved (brother.poss) house  
b. [**Ú**\_sta:roj]<sub>i</sub> je živjela t<sub>i</sub> (bratovoj) kući.  
in\_old is lived (brother.poss) house
- Prosody gives us a way to determine the proper analysis of (2b), which appears to involve non-constituent movement.
  - The account of (2b) enables us to analyze several cases of apparent phasal complement extraction in a way that conforms with the claim that such extraction is disallowed (Abels 2003a).

### 1. Accent in Bosnian

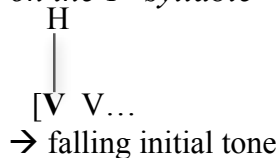
A pitch-accent language: prominent syllables carry a falling or rising tone.

*falling tone = a grave accent mark [˘] above the vowel*  
*rising tone = an acute mark [ˊ] above the vowel*

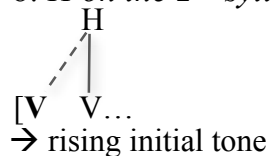
The distribution of falling and rising tones in Bosnian words can be simply described as:

- (i) A falling tone is a result of a word-initial lexical or assigned High tone (3a).
- (ii) A rising tone is a result of a word-medial or final lexical or assigned High tone that undergoes spreading to the preceding syllable, making it prominent (3b) (see e.g. Inkelas and Zec 1988).<sup>1</sup>

(3) a. *H on the 1<sup>st</sup> syllable*



b. *H on the 2<sup>nd</sup> syllable*



<sup>1</sup> For purposes of this talk, there is no need to go into details about accentuation rules that operate in this language, which are essentially the Basic Accentuation Principle (BAP; Kiparsky and Halle 1977 – if there are multiple High tones, the first one surfaces; if there is no tone, the first syllable is assigned a High tone) and High tone spreading (e.g. Inkelas and Zec 1988). It suffices to focus on the locus of the prominent syllable.

*Mobile Accent Contexts:*

- Roots and affixes can be lexically marked or unmarked for a High tone.
- Accent can retract from the host to a preceding proclitic:
  - (i) toneless PCL + toneless root  
→ default initial H on PCL (Falling tone on PCL)
  - (ii) toneless PCL + root with initial High  
→ H spreading to PCL (Rising tone on PCL)

This retraction is expected if the proclitic enters the same prosodic word with its host. However, we will see that it is affected by the syntactic configuration that the proclitic occurs in.

### 1.1. The effect of syntactic movement on accent shift to prepositions

Bosnian proclitics (including prepositions) can take over a falling accent from the first syllable of the following adjective (4). This shift is optional.

- (4) a. ú\_sta:roj kući      ~      b. u stà:roj kući  
   in\_old house                      in old house

When two adjectives modify a noun, the shift is degraded if both adjectives are descriptive:

- (5) \*ú\_sta:roj velikoj kući                      *descriptive + descriptive*  
   in\_old big house

This is not the case if the two adjectives belong to different classes. In particular, Bosnian possessives, demonstratives and some quantifiers are morphologically and syntactically adjectives (Zlatić 1997; Bošković 2005). With two adjectives from two different classes, the shift is allowed.

- (6) a. ú\_sta:roj bratovoj kući                      *descriptive + possessive*  
   in\_old brother.poss house  
   b. ú\_ovoj bratovoj kući                      *demonstrative + possessive*  
   in\_this brother.poss house  
   c. ú\_svakoj sta:roj kući                      *quantifier + descriptive*  
   in\_every old house

In most cases, the resulting tone on the proclitic is rising, which means that it results from High tone spreading from the first syllable of the host.

Crucially, there is a correlation between these accent shift facts and adjective extraction in similar contexts.

Bosnian allows left-branch extraction of adjectives (LBE) (7a). With two descriptive adjectives modifying a noun, the shift is degraded (7b), but it improves if the adjectives belong to different classes (7c-d) (Bošković 2005).

- (7) a. Sta:ru<sub>i</sub> je voljela t<sub>i</sub> kuću. cf. (4a) *descriptive*  
       old is loved house  
    b. \*Sta:ru<sub>i</sub> je voljela t<sub>i</sub> veliku kuću. cf. (5) *descriptive + descriptive*  
       old is loved big house  
    c. Sta:ru<sub>i</sub> je voljela t<sub>i</sub> bratovu kuću. cf. (6a) *descriptive + possessive*  
       old is loved brother.poss house  
    d. Ovu<sub>i</sub>/Svaku<sub>i</sub> je voljela t<sub>i</sub> bratovu kuću. cf. (6b,c) *demon./quantifier + possessive*  
       this/every is loved brother.poss house

Based on this striking parallelism between accent shift availability in (4)-(6) and LBE in (7), which shows that the accent shift is possible only in contexts where it is possible to move the adjective, we reach the following generalization:

- (8) A proclitic (preposition) can take over the accent from its host only if the host is allowed to move independently.

**Q:** Why should it matter whether the adjective can move or not for the shift to take place?

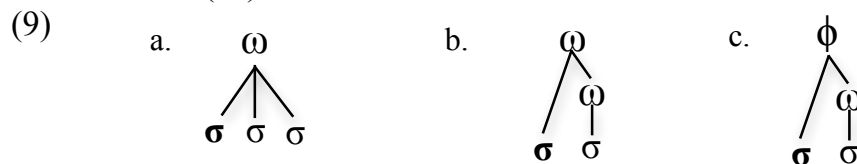
## 1.2. Detour to the prosodic structure

Rules of accent assignment (default initial High insertion and High tone spreading) take place within a prosodic word (Kiparsky and Halle 1977; Inkelas and Zec 1988; Halle 1997).

For a clitic to surface accented, it has to be in the same prosodic word as its host, i.e. the clitic needs to incorporate into the host prior to accent assignment.

Selkirk (1996): cross-dialectal variation in BCS:

- in shifting dialects clitics are either internal (9a) or affixal clitics (9b) within the prosodic word of the host,
- in non-shifting dialects clitic are free clitics, sisters to the prosodic word (9c).



I argue that to account for shifting and non-shifting contexts within the same dialect, it is necessary to allow for all the three options in (9) even within the same dialect.



Given that the accent shift is allowed from adjectives to proclitics (4), we know they constitute a prosodic word (9a).

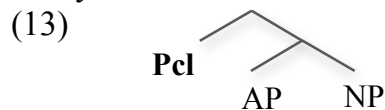
**Q:** Does the incorporation of the proclitic into its adjectival host take place in the syntax or only in prosody?

In the following section, I answer these two questions and return to the question posed earlier:

**Q:** Why should it matter whether the adjective can move or not for the shift to take place?

## 2. Prosody informing syntactic analysis

In its base position P precedes a branching NP, and if the mapping to the prosodic structure in (11)-(12) is right, we would assume that P has to cliticize to the adjective in the syntax.



There is independent evidence that this is indeed true in certain extractions that seem to be moving non-constituents, referred to “extraordinary LBE” (Bošković 2005). Bosnian allows P+AP to move out of a PP:

(14) [Ú<sub>i</sub>sta:roj]<sub>i</sub> je živjela t<sub>i</sub> (bratovoj) kući.  
in<sub>-old</sub> is lived (brother.poss) house

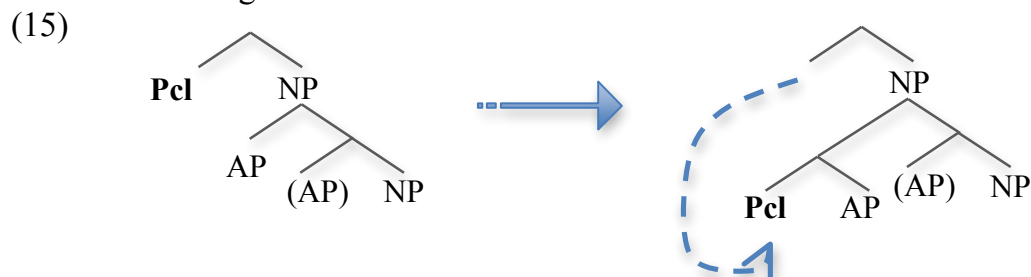
Based on a number of parallelisms (see the Appendix), Borsley and Jaworska (1988) and Bošković (2012b) argue that such constructions involve ordinary LBE where P adjoins to the moving adjective.

Given that P+AP can undergo syntactic movement, it cannot be the case that P incorporates into the adjective only in prosody.

Bošković (2012b) offers two alternative analyses for this approach to extraordinary LBE: downward vs. upward P-cliticization. Let us first consider the former.

### 2.1. Downward P-cliticization

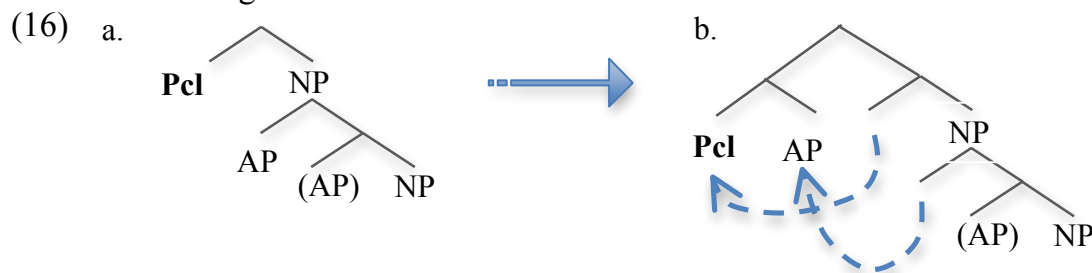
- Preposition lowers to the AP
- AP undergoes LBE



- Pcl is a sister to a branching NP in situ, but after the lowering it reaches PF as adjoined to a non-branching AP.
- P+AP can map as in (11).
- **Prediction:** Accent shift from a non-branching AP to a proclitic should always be possible.
- This captures: (4) and (6).
- But it wrongly predicts that the shift is also available in (5) → **overgeneration!**
- APs being NP adjoined, from the point of view of a lowering proclitic (4), (5), and (6) look the same.

## 2.2. Upward P-cliticization

- AP moves to a position c-commanding Pcl (e.g. SpecPP).
- Preposition cliticizes to AP.
- AP undergoes further extraction.



- Pcl is a sister to a branching NP in situ, but after the rising it reaches PF as adjoined to a non-branching AP.
- P+AP can map as in (11).
- **Prediction:** Accent shift from a non-branching AP is possible only if the AP can move.
- This captures: (4) and (6) as the previous analysis.
- But, importantly, it correctly predicts that the shift is unavailable in (5).

To answer the three questions posed above:

<b>Q:</b> Does a proclitic preceding an adjective precede a non-branching element in the output of syntax?	→ Yes in the cases where the accent shifts. → No in cases where the accent does not shift.
<b>Q:</b> Does the incorporation of the proclitic into its adjectival host take place in the syntax or only in prosody?	→ The proclitic adjoins to the adjective in the syntax, prosodic mapping gives it a status of a syllable within the prosodic word of its host.
<b>Q:</b> Why should it matter if the adjective can move or not for the shift to take place?	→ Pcl adjunction to AP = upward If the adjective cannot move above P, P cannot cliticize to it in the syntax. It reaches PF as a sister to a branching NP and can only be mapped as a free clitic (12).

### 3. Extension – What about P+NP?

In the absence of adjectives Pcl takes over the accent from the noun following it.

- (17)  $\acute{u}$ \_kući ~ u kući  
 in\_house in house

We have seen that Pcl can cliticize to an adjective only if the AP moves to SpecPP.

**Q:** Does the NP in (17) move to SpecPP prior to P-cliticization?

**Prediction:** Just like P+AP can undergo extraordinary LBE out of SpecPP, extraction of P+NP out of SpecPP should also be available in BCS.

- (18)  $P_j + NP_i \dots [PP \ t_j + t_i \ [P' \ t_j \ t_i \ ]]$

Extractions in (14) and (18) are ungrammatical if P stays in situ:

- (19) a. \*Sta:roj<sub>i</sub> on živi [u t<sub>i</sub> kući].  
 old he lives in house  
 b. \*Sta:roj<sub>i</sub> kući on živi [u t<sub>i</sub>]  
 old house he lives in

(19) shows that LBE across a P is disallowed, but if P moves, it is possible (14).

It has been widely noticed that derivations with certain locality violations can be rescued if the part of the structure where the violation occurred is not pronounced in PF (Ross 1969; Chomsky 1972; Merchant 2001).

Bošković (2012b) treats (14) as an instance of this more general mechanism of rescue by PF-deletion.

In Chomsky's (1972) formalization of rescue by PF-deletion, an island is \*marked if a locality violation occurs. If the island is later removed by ellipsis, the derivation is rescued.

Bošković (2012b) extends this mechanism to copy deletion, and deduces Chomsky's (1995) generalization that traces don't count as interveners for relativized minimality effects.

In particular, based on the cases where D-to-V incorporation in Galician rescues movement out of island DPs (20b), Bošković (2012b) argues that a derivation can be saved if merely the head of the island is removed by copy deletion (which means that what is \*marked is the head of the island, not the island itself), i.e. if it moves from its base position.

- (20) a. \*De quén<sub>j</sub> liches [DP os mellores poemas de amigo t<sub>j</sub> ]?  
 of whom read-(you) the best poems of friend  
 b. (?)De quén<sub>j</sub> liche-los<sub>i</sub> [DP<sub>[D'</sub> t<sub>i</sub> [mellores poemas de amigo t<sub>j</sub> ]]]  
 of whom read-(you)-the best poems of friend  
 'Who did you read the best poems of friend by?' [Uriagereka (1988); Bošković (2011, 2012b)]

Bošković accounts for the contrast in (14) and (19a) as follows:

- AP-movement to SpecPP causes a locality violation (19a) (I will return to the nature of the violation below.)
- the head of the PP-island moves from its base position (adjoins to AP) in (14),
- its copy in P<sup>0</sup> is removed,
- the derivation is rescued.

The account of (19b) is parallel to (19a) in the system, i.e. extraction of NP out of the PP is disallowed in BCS, and the derivation crashes because the head P is in situ in (19b).

**Prediction:** What follows from the system is that if the P attaches to the NP moving out of the PP, the derivation should be rescued and the hypothetical extraction in (18) should be allowed.

**Q:** Given that the result of (18) resembles movement of the whole PP (although it is only NP that moves), the question is whether we can ever detect such extraction.

Interestingly, precisely this mechanism can be used to capture certain cases of phasal-complement extraction that Bošković's (2013; 2014) contextual approach to phases fails to account for.

### 3.1. NP-movement in disguise

A quick overview of Bošković (2013/2014):

- contrary to the standard approach to phases (Chomsky 2000, 2001), where CPs, vPs, and later DPs (Svenonius 2004) are phases
- the highest phrase in the extended projection of a lexical category is a phase.
- All lexical categories (N, V, A, P) project phases in their domain
- Crosslinguistically (and in different structures in a single language), the amount of structure within a domain can vary - phasehood of a category depends on that.

Locality constraints adopted in the system:

- *The Phase-Impenetrability Condition* (PIC) (Chomsky 2000, 2001): forces all the moving elements to stop in the Spec of the phase (=at the edge) unless they are at the edge to begin with (in Spec-, or phase-adjoined).
- *Anti-locality* (Bošković 1994/1997/2005; Grohmann 2003; Abels 2003a): ban on movement that is too short
  - Bošković – a moving element must cross at least one full phrase (not just a segment).
  - Abels – PIC/Anti-locality conflict prevents phasal complements from undergoing movement:

- (21) a. \*[CP IP<sub>i</sub> [C' C t<sub>i</sub>]] [Abels 2003a]  
b. \*[IP Anything will happen]<sub>i</sub>, nobody believes [CP t<sub>i</sub> [C' that t<sub>i</sub>]].



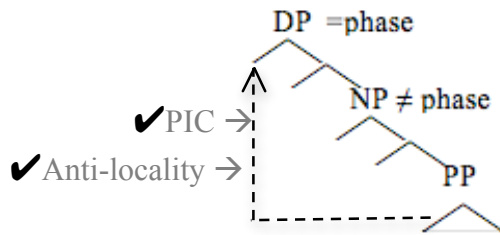
Within the nominal domain:

- DP is a phase in languages with articles
- DP is missing in languages without articles (Corver 1992; Zlatić 1997; Bošković 2005, 2013; Despić 2013, among others), so NP is a phase in BCS.

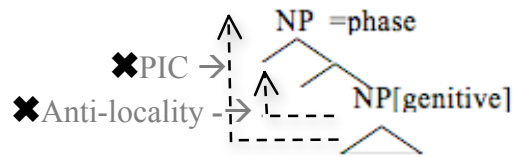
A major consequence of the system:

(22) N-complements are extractable in DP-, but not in NP-languages

(23) a.



b.



This seems to be borne out:

- (24) a. Of whom do government employees see pictures  $t_i$  every day?  
 b. ?\*[Ovog studenta]<sub>i</sub> sam pronašla [NP slike  $t_i$ ]  
 this.gen student.gen am found pictures.acc  
 ‘Of this student I found pictures.’  
 c. \*[Kojeg studenta]<sub>i</sub> gledaš [NP slike  $t_i$ ]?  
 which.GEN student.GEN look-at pictures

### 3.2. Problematic PP-complement extraction

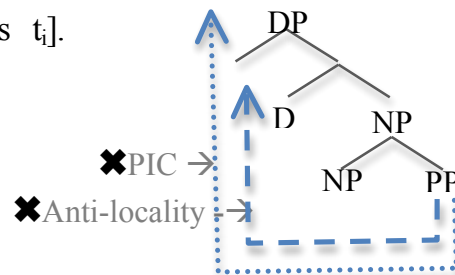
English:

PP-complements of N can extract out of DP since NP is not a phase (see (23a)).

(25) ?[To which problem]<sub>i</sub> did you discover [solutions  $t_i$ ]. [Bošković (2013)]

PP-adjuncts cannot extract out of DP.

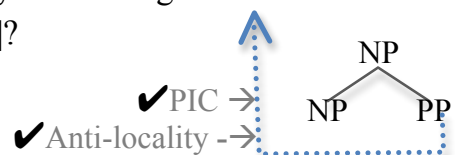
(26) \*[From which city]<sub>i</sub> did you meet [girls  $t_i$ ].



BCS

PP-adjuncts can extract out of NP since DP layer is missing.

(27) [Iz kojeg grada]<sub>i</sub> si sreo [djevojke  $t_i$ ]?  
 from which city are met girls



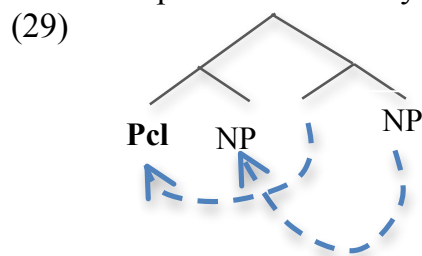
**Problem:** Bošković's contextual approach to phases predicts that PP-complements of N cannot extract since NP is a phase (cf. genitive NP (28a) & (23b) ), **but they do** (28b):

- (28) a. \*[Kojeg studenta]<sub>i</sub> gledaš [NP slike t<sub>i</sub>]  
           which.GEN student.GEN look-at pictures  
       b. [Na koje pitanje] želiš [NP odgovor t<sub>i</sub> ]?  
           to which question want answer

- Bošković (2013) suggests that PPs are never nominal complements in BCS, i.e. they are adjuncts.
- It would be more appealing to treat the two languages in the same way.

**Proposal:** I propose that the upward P-cliticization analysis developed earlier, where the AP or NP host moves to SpecPP and P cliticizes to it, can be used to capture these cases, and unify them with the account of extraordinary LBE.

- Parallel to the AP in (4), (6), and (16), the NP *which question* in (28b), moves to SpecPP, violating anti-locality.
- P then cliticizes to the NP in SpecPP (29), and the derivation is rescued since the PP-phase is headed by a trace.



- P+NP can move further from SpecPP.
- What seems to be PP-extraction is actually an NP moving out of PP and carrying along the preposition. This analysis unifies the account of this NP-movement out of PP and extraordinary LBE.

### 3.3. PP-complements of adjectives

Bosnian allows PP-complements of adjectives to extract as well:

- (30) Na najmlađeg sina je on jako ponosan t.  
       of youngest son is je very proud  
       ‘Of his youngest son he is very proud.’

Parallel to NPs, predicative APs in Bosnian do not have any functional projections above the AP, which is supported by the availability of intensifier extraction out of predicative APs (Talić 2013).

Recall that in languages with bare NPs attributive APs can undergo LBE (7).

Similarly, intensifying adverbs adjoined to the AP can extract.

- (31) Jako je bio [ t ponosan na najmlađeg sina].  
 very is been proud of his son.  
 ‘He was *very* proud of his son.’
- 

This means that (30) is also problematic for Bošković (2013/2014).

- (32)
- 

We can capture this case as well in the same way as (28b).

### 3.4. Extraction out of Korean KP

An instance of similar extraction may exist in Korean classifier constructions.

In Korean nominal phrases with numerals and classifiers the noun either follows (33a) or precedes (33b-c) the numeral and classifier.

- (33) a. sey-kay-uy sakwa [Yoo 2014]  
 3 – cl- gen apple  
 b. sakwa sey-kay-lul  
 apple three-cl-acc  
 c. sakwa-lul sey-kay  
 apple-acc three-cl

Takahashi (2011), Bošković (2012), and Yoo (2014) assume that numerals with classifiers project a QP in the extended projection of N above KP in Japanese and Korean. The case particle is in KP (cf. Takahashi 2011 for evidence that in some cases it can move on its own in the syntax)

Yoo (2014) argues that phrases in (33b-c) involve movement of the NP from its base position to the SpecQP in front of the numeral and classifier.

- (34)
-

Under the contextual approach to phases, QP is a phase here as the highest phrase in the extended projection of N. The moving NP in (33b) crosses a full phrase (KP) on its way to SpecQP, the case particle remains in situ and is realized after the classifier. Therefore, this movement step is allowed.

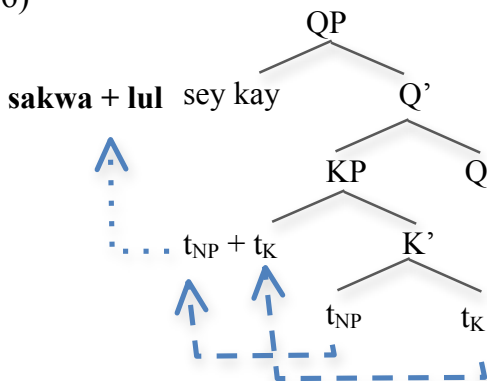
However, assuming that Q is a phase head, (33c) appears to be another instance of phasal complement extraction, where it seems that the whole KP moves to SpecQP, which should be ruled out by anti-locality.

In fact, the N+Case can move further out of QP:

(35) Sakwa-lul Hwun-un sey kay mekessta.  
 apples-acc Hwun-top 3 cl ate  
 ‘Hwun ate three apples.’

Given that the case particle is also a kind of a clitic/affix, this may be another case of NP-movement in disguise (Yoo 2014). The NP first moves to SpecKP, and the case particle moves to it, prior to further extraction out of SpecQP.

(36)



**Conclusions:**

- We have seen interesting cases of interaction between syntax and prosody, where the modules influence and inform each other.
- The place of clitics in their prosodic structure depends on the branchingness of their host.
- There is a correlation between syntactic movement of adjectives and accent shift from adjectives to proclitics, which shows that proclitics move up to cliticize to their host.
- The upward P-cliticization analysis can be extended to cover several cases of apparent phasal complement extraction.

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*Appendix:*

**Parallel behavior of LBE and extraordinary LBE**

Ordinary LBE cannot extract an adjective alone in the presence of an intensifier (37a), and deep LBE out of a complement of N is disallowed (37b):

- (37) a. \*Veliku<sub>i</sub> je kupila [[izuzetno t<sub>i</sub>] kuću].  
big is bought extremely house  
cf. [Izuzetno veliku]<sub>i</sub> je kupila [t<sub>i</sub> kuću].  
b. \*Čije<sub>i</sub> je on [prijatelja [t<sub>i</sub> majke ]] vidio. (Bošković 2005: 9)  
whose.GEN is he friend.ACC mother.GEN seen

Parallel to that, extraordinary LBE has to affect the intensifier together with the adjective (38a), and deep extraordinary LBE out of a complement of N is not permitted (38b):

- (38) a. [U izuzetno veliku]<sub>i</sub> on uđe t<sub>i</sub> sobu. (Bošković 2005: 33-34)  
in extremely big he entered room  
cf. \*[U veliku]<sub>i</sub> on uđe t<sub>i</sub> izuzetno t<sub>i</sub> sobu.  
b. \*O kakvim<sub>i</sub> je Jovan pročitao članak t<sub>i</sub> studentima?  
About what-kind-of.INSTR is Jovan read article.ACC students.INSTR  
cf. [O kakvim studentima]<sub>i</sub> je Jovan pročitao članak t<sub>i</sub>?

These parallelisms support the intuition that extraordinary LBE should be treated as ordinary LBE, with the preposition attaching to the moving AP.

**Extraordinary LBE is not remnant movement or scattered deletion**

Bošković (2005) provides evidence against remnant PP-fronting (Franks and Progovac 1994; Abels 2003b) and scattered-deletion (Ćavar and Fanselow 2000):

- (39) a. On uđe pravo u veliku sobu. (Bošković 2005: 31-32)  
he entered straight in big room  
b. \*Pravo u veliku<sub>i</sub> on uđe t<sub>i</sub> sobu.  
straight in big he entered room  
c. \*Sobu<sub>i</sub> on uđe u veliku t<sub>i</sub>.  
room he entered in big  
d. Zbog čijih je došao studenata?  
because-of whose is arrived students  
'He arrived because of whose students?'

(i) Remnant PP-fronting involves NP-extraction, followed by movement of the whole PP. If this analysis were right, extraordinary LBE should be possible even if the PP is modified by an adverb (39a), in which case the adverb would be pied-piped with the PP. (39b) shows that this is not possible.

(ii) Another problem is that we would expect to be able to front the NP alone and leave the PP in its base position. This is also not possible (39c).

(ii) The most serious problem for this analysis is the fact that extraordinary LBE is allowed out of adjuncts too (39d), which means that the initial step of the remnant movement analysis, NP-extraction, would take place out of an adjunct island, hence should be ruled out.

Furthermore, Stjepanović provides strong support for the direct extraction analysis of LBE, arguing against the two alternatives above. Stjepanović (2010) observes a contrast in (40) below, where LBE of *ni* negative concord adjective out of the subject NP is blocked (40a), but moving the whole subject NP is allowed (40b). It is impossible to capture this contrast under the alternative analyses, both of which involve movement of the whole NP even in (40a).

- (40) a. \*Nijedan<sub>j</sub> nikog<sub>i</sub> [t<sub>j</sub> momak] ne vidi t<sub>i</sub>.  
no.NOM nobody.ACC guy not sees  
'No guy sees anybody.'  
b. [Nijedan momak]<sub>j</sub> [nikog]<sub>i</sub> t<sub>j</sub> ne vidi t<sub>i</sub>.  
no.NOM guy nobody.ACC not sees  
'No guy sees anybody.'

See also Stjepanović (2012) for evidence based on interpretation properties of multiple wh-questions involving LBE of a wh-element.