Phases and Left-Branch Extraction
Željko Bošković
zeljko.boskovic@uconn.edu
University of Connecticut

1. The NP/DP Parameter


(1) The stone broke the window.
(2) Kamen je razbio prozor.
   stone is broken window (SC)

(3) **Generalizations** (see Bošković 2008 and references therein)
   a. Only languages without articles may allow left-branch extraction as in (6).
   b. Only languages without articles may allow adjunct extraction from TNPs as in (13).
   c. Only languages without articles may allow scrambling

Some scrambling languages: SC, Latin, Japanese, Korean, Turkish, Hindi, Chukchi, Chichewa, Mohawk, Warlpiri (SC vs Bulgarian, Latin vs Modern Romance)
   d. Multiple-wh fronting languages without articles do not show superiority effects

Article-less MWF languages, no Superiority effects: SC, Polish, Czech, Russian, Slovenian, Mohawk

MWF languages that show Superiority effects all have articles: Romanian, Bulgarian, Macedonian, Basque, and Yiddish. (Hungarian has articles and no superiority, still conforms with (3d))
   e. Only languages with articles may allow clitic doubling

Albanian, Macedonian, Bulgarian, Greek, Romanian, Somali, Spanish, French (some dialects), Catalan, Hebrew, Arabic, Dutch (some dialects)
   f. Languages without articles do not allow transitive nominals with two genitives
   g. Head-internal relatives display island sensitivity in languages without articles, but not in languages with articles

Japanese, Quechua, Navajo, and Mohawk (island-sensitive) vs Lakhota and Mojave (island insensitive)
   h. Polysynthetic languages do not have articles
   i. Only languages with articles allow the majority reading of MOST

English, German, Dutch, Hungarian, Romanian, Macedonian, and Bulgarian, article languages, allow MR; Slovenian, Czech, Polish, SC, Chinese, Turkish, and Punjabi, article-less languages, disallow it
   j. Article-less languages disallow negative raising (i.e strict clause-mate NPI licensing under negative raising); those with articles allow it.

No articles, no NR: SC, Czech, Slovenian, Polish, Russian, Turkish, Korean, Japanese, and Chinese.
NR and articles: English, German, Spanish, French, Portuguese, Romanian, and Bulgarian

Bošković (2010a) (see also the references therein)

(4) a. Negative constituents must be marked for focus in article-less languages.
   This holds for SC, Russian, Polish, Lithuanian, Hindi, Chinese, Japanese, Korean, Finnish, Yakut, Lezgian, Kannada, Quechua, Mansi, Latin, Persian, Turkish and Kazakh
   b. The negative concord reading may be absent with multiple complex negative constituents only in ...
negative concord languages with articles  
c. Radical pro-drop is possible only in article-less languages.  
Radical pro-drop languages: Japanese, Chinese, Korean, Kokota, Turkish, Hindi, Wichita, Malayalam, Thai, Burmese, Khmer, Indonesian  
d. Number morphology may not be obligatory only in TNPs of article-less languages.  
Japanese, Korean, Chinese, Dyirbal, Warlpiri, Warrgamay, Kuku-Yalanji, Indonesian, Turkish, Vietnamese  
e. Elements undergoing focus movement are subject to a verb adjacency requirement only in languages with articles.  
The adjacency requirement holds for Basque, Hungarian, Bulgarian, Armenian, Greek, Catalan, Romanian, Macedonian, Italian, Spanish, and Albanian (article languages), but not in Slovenian, Russian, SC, Polish, Chinese, and Nupe (article-less languages)  
f. Possessors may induce an exhaustivity presupposition only in languages with articles.  
Chinese, Russian, SC, Turkish, Japanese, and Korean-no exhaustivity presupposition. English, Spanish, Brazilian Portuguese, Italian, Hebrew, and Dutch, exhaustivity presupposition  
g. The sequence of Tense phenomenon is found only in languages with articles.  
SOT languages: English, Dutch, Modern Greek, Spanish, French, German, Italian non-SOT languages: Russian, Polish, Czech, SC, Romanian, Hebrew, Japanese, Korean, Hindi, Turkish

These generalizations, which are syntactic and semantic in nature, indicate that there is a fundamental difference in the TNP of languages with and languages without articles that cannot be reduced to phonology (overt vs. null articles). Furthermore, Bošković (2008, 2010, in preparation) and Bošković and Gajewski (in press) show the generalizations can all be deduced if languages that lack articles lack DP altogether. Moreover, the NP/DP analysis provides a uniform account of these differences, where a single difference between the two types of languages is responsible for all of them.

1.1. Left Branch Extraction

Languages differ regarding whether they allow left-branch extractions (LBE) like (5)-(6).

(5) *Expensive he saw [ti cars]  
(6) Skupa je vidio [ti kola]  
   expensive is seen car  
(7) Doroguju on videnti mašinu]  
   expensive he saw car  


(8) Only languages without articles may allow LBE examples like (6).

Bošković (2005): Bulgarian and Macedonian vs other Slavic languages, Latin vs Modern Romance. Mohawk, Southern Tiwa and Gunwinjguan languages also allow LB and lack articles (Baker 1996).

(9) a. *Novatai ja prodade Petko [ti kola].  
   b. Novata kola ja prodade Petko  
   (Macedonian)
Colloquial Finnish has developed an article; LB is allowed only in literary Finnish, no article there (Franks 2007)

(10) a. Punaisen ostin auton. [literary Finnish]
    red-acc buy-pst-1sg car-acc
b. ?*Punaisen ostin (sen) auton. [spoken Finnish]
    red-acc buy-pst-1s the-acc car-acc

Adjectival LB (Hungarian)

    tall-pl-acc saw-3sg girl-pl-acc ‘Tall girls, he saw.’

1.2. Adjunct extraction from NP

(12) a. Peter met [NP girls from this city]
    b. *From which city did Peter meet [NP girls t]?

Stjepanović (1998) (see also Bošković 2005): SC and Russian, which have no articles and allow LB, allow extraction of adjuncts out of NP, Bulgarian, which has articles and does not allow LB, does not. Slovenian, Polish, Czech, and Ukrainian pattern with SC and Russian, and Spanish patterns with English (see Bošković 2010).

(13) Iz kojeg gradi je Petar sreo [djevojke t] (SC)
    from which city is Peter met girls
(14) Iz kakogo goroda ty vstrechal [devushek t]? (Russian)
    from which city you met girls
(15) *Ot koj gradi Petko [sreštna momičeta t]? (Bg, Stjepanović 1998)
    from which city Petko met girls
(16) a. *¿En dónde robaron [una estatua t ]?
    in (they) stole a statue
    b. *¿Por quién escuchamos [una descripción t ]?
    by (we) listened a description (Span,Ticio2003)

(17) Only languages without articles may allow adjunct extraction out of TNPs.

1.3. D-like items in article-less languages

-no overt articles
-there are lexical items like that, some, and possessives, but they are adjectives morphologically

(18) a. tim nekim mladim djevojkama
    thoseFEM.PL.INST someFEM.PL.INST youngFEM.PL.INST girlsFEM.PL.INST
b. tih nekih mladih djevojaka
    thoseFEM.GEN.PL someFEM.GEN.PL youngFEM.GEN.PL girlsFEM.GEN.PL
(Occasional departures from this pattern, as in Russian, don’t necessarily indicate that the elements in question are not adjectives in Russian, just like the *go-went* pair doesn’t show *go* is not a verb.)

-they occur in adjectival positions.

(19)  a. *This book is my
    b. Ova knjiga je moja
        this book is my

-stacking up

(20)  a. *this my picture
    b. ta moja slika
        this my picture

-relaxation of Specificity effects

(21)  O kojem piscu je pročitao [svaku knjigu/sve knjige/(tu) tvoju knjigu t]
        about which writer is read every book/all books/that your book
    *About which writer did he read every book/all books/this book of yours?*

-impossibility of modification by possessives (i.e. adjectives)

(22)  *bogati susjedov konj
        rich neighbor’s horse

-relatively free word order. They also have some freedom of word order.

(23)  Jovanova skupa slika vs. skupa Jovanova slika
        John’s expensive picture *expensive John’s picture

(24)  a. bivša Jovanova kuća b. Jovanova bivša kuća
        *former Jovan’s house

(I am not saying here that the order of the SC elements in question, or adjectives in general, is always completely free. What is important is the contrast between SC and English with respect to the permutability of true adjectives and some traditional “D”-elements. The order of true adjectives with respect to each other is not expected to be any freer in SC than in English (it is likely semantically/prosodically conditioned).

The order of SC adjectives and D-items is not completely free. Both adjectives and possessives must follow demonstratives.

(25)  a. ova skupa kola/?skupa ova kola  b. ova Jovanova slika/?*Jovanova ova slika
        this expensive car      this Jovan’s picture
These ordering restrictions follow straightforwardly from the semantics of the elements in question. Semantically, it makes sense that possessives and adjectives should be able to occur in either order. The most plausible semantics for possessives is modificational (e.g. Partee & Borschev 1998 and Larson & Cho 1999).

(26) Partee & Borschev (1998) ($R_i$ is a free variable) $[[\text{Mary's}]] = \lambda x. [R_i(Mary)(x)]$
(27) Larson & Cho (1999) $[[\text{to Mary}]] = \lambda x. [\text{POSS}(j,x)]$

Given the standard assumptions that adjectives are also of type $<e,t>$ and that there is a rule of intersective Predicate Modification, compositional semantics imposes no restrictions on the order in which possessives and adjectives may be composed.

Kaplan (1977): demonstratives are markers of direct reference. In other words, demonstrative noun phrases pick out an individual of type $e$. The individual is picked out at least partially as a function of its predicate complement phrase. Thus, a demonstrative element like "that" is a function of type $<<e,t>,e>$.

(28) a. adjectives $<e,t>$
    b. demonstratives $<<e,t>,e>$

Once a demonstrative has mapped a nominal element to an individual, further modification by predicates of type $<e,t>$ is impossible. Hence, semantic composition requires both adjectives and possessives to be composed before demonstrative determiners.

Conclusion: semantic composition allows possessives to be composed either before or after modifying adjectives, while demonstratives must be composed after both adjectives and possessives. This perfectly matches the actual facts regarding the ordering of the elements in question in SC.

The proponents of the DP analysis (Bašić 2004, Rappaport 2000, Pereltsvaig 2007) account for (25) by placing the demonstrative in DP, which is located above the projection where possessives and adjectives are located. ($\alpha P$ is a projection where adjectives are generated, with multiple adjectives requiring multiple $\alpha Ps$.)

(29) $[[\text{DP Demonstrative [PossP Possessive [\alpha P Adjective [NP ]]}]}]$ (Bašić 2004)

(29) accounts for (25), but it fails to capture the relative freedom of the adjectives/possessives order in SC and the SC/English contrast in this respect.

Despić (2009, in press) argues against (29) based on the following SC/English contrasts.

(30) a. His latest movie really disappointed Kusturica.
    b. Kusturica’s latest movie really disappointed him.
    Kusturica’s latest movie him is really disappointed
    ‘Kusturica’s latest movie really disappointed him.’
Despić treats SC possessives as NP adjuncts, an analysis that ensures that the possessive in (31) c-commands outside of the subject NP, which yields Binding Condition violations in (31).

Chinese and Japanese behave like SC (see Bosković 2010 as well Cheng in preparation for Chinese).

Despić shows demonstratives and adjectives do not change anything in SC, which provides strong evidence that demonstratives, possessives, and adjectives should be treated as multiple adjuncts of the same phrase.

2. Back to Left Branch Extraction: The phase analysis

Two analyses of the LBE generalization in Bošković (2005). I will adopt the phase analysis here.

PIC: only the head and the Spec of a phase are accessible for movement to a position outside of the phase.
DP is a phase, but NP is not a phase. Given the PIC, you can move out of a DP only if you first move to SpecDP. (This is a phase update of the standard assumption which goes back to Cinque 1980 that movement out of DP must proceed via SpecDP.)

AP is adjoined to NP

Anti-locality: the ban on movement that is too short (see, e.g., Bošković 1994, 1997, Saito and Murasugi 1999, Ishii 1999, Abels 2003, Grohmann 2003, Ticio 2003, Boeckx 2005, Jeong 2006. Among other things, anti-locality accounts for the ban on short subject topicalization and zero subject null operator relatives (Bošković 1994, 1997), the *that*-trace effect (Ishii 1999), the ban on movement of the phase complement (Abels 2003), and the patterns of extraction of arguments out of DPs (Grohmann 2003, Ticio 2003).) Like most other approaches, the version of anti-locality adopted in Bošković (2005) requires movement to cross at least one full phrasal boundary.

AP cannot move to SpecDP in (34) due to anti-locality. Given the PIC, it cannot move directly out of DP either (35). Anti-locality/PIC thus prevent AP extraction from DP, banning AP LBE in English. (36) is still allowed.

(34) *[DP AP₁ [D₁ D [NP t₁ [NP . . .
(35) *AP₁ [DP [D₁ D [NP t₁ [NP . . .
(36) Who do you like [DP [NP friends of t]]

The impossibility of adjunct extraction out of NP in English can be accounted for in the same way as the impossibility of AP LB, given that NP adjuncts are also adjoined to NP.

The PIC/anti-locality problem does not arise in SC, since the DP projection is lacking in the relevant examples.

The phase analysis thus accounts both for the impossibility of AP LBE out of TNPs and adjunct extraction out of TNPs in English, as well as the availability of both of these extractions in SC, given the DP/NP parameter.

A modification of one aspect of my earlier analysis of LBE:

Bošković (2005): SC disallows deep LBE, i.e. LBE out of a complement of a noun (the same holds for Polish, Czech, and Russian).

(37) a. On je vidio [NP [NP prijatelja [NP njegove majke]]].
   he is seen friend his mother
   ‘He saw a friend of his mother’
s. Čije je on vidio [NP [NP prijatelja [NP t₁ majke]]]?
   whose is he seen friend mother
   ‘Whose mother did he see a friend of?’

An NP above an LBE-ing NP has the same effect on LBE as a DP above an LBE-ing NP does in English; they both block LBE. This can be accounted for if NP is a phase even in NP languages: (37)
can then be accounted for in the same way as (5), with the higher NP blocking LBE for the same reason DP does in the English example.

Deep adjunct extraction is also blocked, just like deep LBE. ((38) is acceptable if the PP modifies the higher NP.)

(38) *Iz kojeg grada je Petar sreo prijatelje [djevojke ti] (SC)
    from which city is Peter met friends girls

'From which city did Petar meet girls?'

Independent evidence that the proposal that NP is a phase in NP languages is on the right track

Abels’s (2003) generalization: the complement of a phase head is immobile. An IP that is dominated by a CP, a phase, cannot undergo movement. This follows from an interaction of the PIC and anti-locality, the PIC requiring IP movement through SpecCP, and anti-locality blocking it.

If NP is a phase in NP languages we would expect that an NP complement of a noun cannot undergo movement. Zlatić (1997) observes that genitive complements of nouns cannot be extracted in SC.

(39) a. ?*Ovog studenta sam pronašla [knjigu ti ]
    this student(gen) am found book
    ‘Of this student I found a book’
   
b. ?*Koga sam pronašla [knjigu ti]
    who (gen) am found book
    ‘Of whom did you find a book’

The impossibility of deep LBE, deep adjunct extraction, and the immobility of genitive complements of nouns all fall into place if NP is a phase in article-less languages; they are all ruled out in exactly the same way.

The reason why, in contrast to DP languages, NP languages allow LBE and adjunct extraction out of TNP is not a difference in the phase status of the TNP, where TNP would not be a phase in NP languages; the difference is that the relevant elements are generated at the edge of the TNP phase in NP languages, while they have to move to that position in DP languages, which yields an anti-locality violation. When they are forced to move to the phase edge, as in the case of deep LBE and deep adjunct extraction, the anti-locality violation resurfaces in NP languages as well.

The NP/DP phasal difference between article and article-less languages accounts not only for the different behavior of DP and NP languages with respect to LBE, adjunct extraction, and nominal complement extraction, but also for the fact that the first two differences are nullified in the case of deep extraction.

The above examples involve genitive complements of a noun. Adnominal genitive is the counterpart of verbal accusative; it is the standard case that nouns assign to their complements which does not need to be specified in the lexicon (structural case).
Some verbs in SC assign non-accusative, lexically specified cases to their complements (inherent case). Some nouns also depart from the standard pattern and assign an inherent, lexically specified case to their complement.

Nominal complements bearing inherent case allow deep LBE.

(40) a. ?Kakvom ga je uplašila pretnja smrću?
   what-kind-of him is scared threat death
   ‘Of what kind of death did a threat scare him?’

   b. Kakvom ga je pretnja smrću uplašila?

Nominal complements bearing inherent case can also be extracted.

(41) Čime ga je [pretnja t_{i}] uplašila?
   what instr him is threat scared
   ‘The threat of what scared him?’

Deep adjunct extraction also improves with inherently case-marked NPs.

(42) ?Iz kojeg guda ga je uplašila [djevojkama t_{i}]
   from which city him is scared threat girls

The correlations between deep LBE, deep adjunct extraction, and extraction of nominal complements thus hold.

Accounting for the structural/inherent case difference

Alternative 1—the phase analysis: heads licensing inherent Case do not head phases. Chomsky (1986b) ties inherent case to theta role licensing. Inherent case is not assigned the way structural case is assigned; an NP gets inherent case together with its theta role. Update: case valuation (Chomsky 2000) only for structural case, inherent case comes together with a theta-role.


(43) a. Taro-ga migime-dake-o tumur-e-ru.
    Taro-Nom right.eye-only-Acc close-can-Pres
    ‘Taro can close only his right eye.’
    (*only > can, can > only)

    Taro-Nom right.eye-only-Nom close-can-Pres
    ‘Taro can only close his right eye.’
    (only > can (*)can > only)

Only nominative object can take scope above the potential affix.


(44) a. [TP Subj_{NOM} [_{comp} t_{i} [_{vp} OBJ_{KACC} PRO [ t_{k} V ] v ] rare ] T]  (=43a)

   b. [TP Subj_{NOM} OBJ_{KNO} [_{comp} t_{i} [_{vp} (PRO)[ t_{k} V ] v ] rare ] T ]  (=43b)
In (43)a, the object is case-valued by \( \nu \) and moves to Spec \( \nu P \). As the object is below the potential verb, it must take scope under it. In (43)b, the nominative object and the nominative subject move to Spec TP. As the potential verb is below TP, the nominative object takes scope over it.

Takahashi (in press): elements that do not bear structural case show a scope contrast correlating with the case of the object.

(45)  

a. Taro-ga sakana-ga koshou-dake-de taber-are-ru.  
   Taro-Nom fish-Nom pepper-only-with eat-can-Pres  
   ‘It is only pepper that Taro can eat fish with.’  
   ‘Taro can eat fish with only pepper.’

b. Taro-ga sakana-o koshou-dake-de taber-are-ru.  
   Taro-Nom fish-Acc pepper-only-with eat-can-Pres  
   ‘It is only pepper that Taro can eat fish with.’  
   ‘Taro can eat fish with only pepper.’

In (45)a, which contains a nominative object, \textit{dake} ‘only’ in a PP can take scope above the potential affix. This is not possible in (45)b, with an accusative object. As the PPs do not have structural case, the case-movement analysis cannot account for these data.

Takahashi’s analysis, based on QR \textit{dake} ‘only’ (see also Bobaljik and Wurmbrand 2007):

(46)  

QR of \textit{dake} ‘only’ is bound to domains of case-valuation.

(47)  

a. \[ \text{TP Subj}_{\text{NOM}} \[ \text{ Obj}_{\text{Acc}} \text{ PRO } [\nu P \text{ [OBJ}_{\text{Acc}} \text{ V } \nu \text{ ] rare [ACC] [NOM]} \] ] \]  
   \[ (=\text{(43) a}) \]

b. \[ \text{TP Subj}_{\text{NOM}} \[ \text{ Obj}_{\text{NOM}} \text{ PRO } [\nu P \text{ [OBJ}_{\text{NOM}} \text{ V } \nu \text{ ] rare [ACC] [NOM]} \] ] \] \[ (=\text{(43) b}) \]

\textit{Rare} optionally absorbs the case-feature of \( \nu \). In (47)a, it does not absorb the accusative case-feature of \( \nu \) and \( \nu \) values case of the object. \( \nu P \) works as a bounding domain for QR of \textit{dake}. In (47)b, \textit{Rare} absorbs the case-feature of \( \nu \) and the object is now case-valued by T. As \( \nu \) does not assign case, \( \nu P \) is not a bounding domain for QR. \textit{Dake} can then scope over the potential morpheme.

What about inherent case? It patterns with Nom, not Acc, which means that there is no phase/case valuation with inherent case assignment.

(48)  

a. Taro-o-wa Daitooryoo-dake-ni a-e-ru.  
   Taro-Top president-only-Dat meet-can-pres  
   ‘Taro can meet only with the president.’

b. Taro-o-wa Daitooryoo-ni suutu-dake-de a-e-ru.  
   Taro-Top president-Dat suit-only-with meet-can-pres  
   ‘Taro can meet with the president only in a suit.’

Crucial ingredients: case valuation determines phases. Inherent case does not involve valuation.
Back to LBE: the maximal extended projection of a case valuator is a phase. Regarding TNPs, given that DP is an extended projection of NP, DP is then a phase in English, and NP in SC. (Since we need to block LBE in English even when a noun does not take a complement (5), we need to assume that heads that in principle can value case project phases (all nouns can in principle value genitive (i.e. take an of phrase) in English).

Since inherent case is not licensed through regular case valuation, nouns that license inherent case do not determine phases. The upshot of this regarding SC is that NPs headed by genitive case-licensing nouns are phases. PIC and anti-locality then conspire to block deep LBE/deep adjunct extraction and movement of the complement of such nouns. Given that the NP is a phase, any movement out of the NP has to proceed via SpecNP. However, with deep LBE and movement of the complement of such nouns, movement to SpecNP violates anti-locality.

Nouns like *pretnja ‘threat’ which license inherent case do not head phases.\(^1\) Nothing goes wrong with deep LBE, deep adjunct extraction, and movement of the complement of such nouns.

Alternative 2—the FP analysis: no need to make a distinction between NPs headed by inherent and genitive case assigning nouns with respect to phasehood; they can both be considered phases.

The difference between them is that NPs headed by inherent case assigning nouns have more structure. This additional structure can be either on top of the inherent case assigning noun, or in its complement ((49) or (50), where FP is the additional structure, provided that in (50) the extended projection of NP, namely FP, counts as the phase). Both the possessive and the whole complement NP *his death* can move to the Spec of the higher phase, SpecNP in (49) and SpecFP in (50), without violating anti-locality.

\[
\begin{align*}
(49) \quad & \left[ \text{NP threat} \right] \left[ \text{FP F} \right] \left[ \text{NP his} \right] \left[ \text{NP death} \right] \\
(50) \quad & \left[ \text{FP F} \right] \left[ \text{NP threat} \right] \left[ \text{NP his} \right] \left[ \text{NP death} \right]
\end{align*}
\]

Reasons to prefer (49): inherently case-marking TNPs in SC pattern with genitive case-marking TNPs in SC rather than English TNPs with respect to c-command relations under Despić’s test: (51) and (52) pattern with (31) rather than (30) in that they involve binding violations.

\[
\begin{align*}
(51) \quad & \text{*Njenoi upravljanje fabrikom je nerviralo Marijui,} \\
& \text{her management factory(instr) is bothered Marija(acc)} \\
& \text{‘Her management of the factory bother Marija.’} \\
(52) \quad & \text{*Marijinoi upravljanje fabrikom je nerviralo nju,} \\
& \text{Marija’s management factory(instr) is bothered her(acc)}
\end{align*}
\]

Under (50), it is necessary to assume that the possessive is adjoined to FP, which means that possessives would be in different positions in inherently and genitive case-marking NPs, FP-adjointed

\(^1\) Chomsky (1986b) considers English adnominal genitive to be inherent case. However, English adnominal genitive should be the counterpart of SC adnominal genitive; it is a regular case assigned by nouns that does not need to be specified in the lexicon. This is in contrast to SC nouns like *pretnja ‘threat’, which exceptionally assigns instrumental.
in the former and NP-adjoined in the latter. Under (49), the possessor can have a constant position within the TNP.

(49) can be tied to the intuition that inherent case assignment should be tied to prepositionhood, with a preposition being involved in inherent case assignment. F can be considered a preposition-like element, similar to English of. Alternatively, it can be a kind of a linker. Either way, the extra structure involved in inherent case-assignment is more tightly related to inherent case, which motivates its presence, in (49) than in (50) since in (49) the extra structure is present right above the inherently case-marked NP, whereas in (50) it is present above the higher noun, which itself can be structurally case-marked. I therefore assume (49) with F being a preposition/linker type element.2

Genitive of Quantification, where the numeral, which is a caseless frozen form in SC, assigns genitive case to the following noun.

(53) On kupuje pet kola
    he buys five cars-gen

Despić (2009, in press): this type of numerals bring in additional structure. In contrast to adjectives and demonstratives, genitive assigning numerals confine the c-command domain of possessives. This follows if the numeral projects a phrase on top of the NP.3

(54) \[ QP \text{ Pet } [NP \text{ Dejanovi}hi \text{ prijatelja je došlo na njegov}o \text{ venčanje}
      \text{ five Dejan’s friends is came to his wedding}
      ‘Many of Dejan’s friends came to his wedding.’

Deep LBE from under the numeral and movement of the complement of the numeral are allowed.

(55) Skupih kola je kupio mnogo/pet
    expensive cars(gen) is bought many/five
(56) Skupih je kupio mnogo/pet kola

Options: either five does not head a phase or there is a phase with numerals but the context in question involves additional structure so that movement out of the numeral phase does not violate anti-locality.

Franks (1994) argues that Genitive of Quantification (i.e. genitive assigned by numerals) is an inherent case in SC. While structural case does not have to be assigned, inherent case has to be assigned due to its lexically specified nature. When an inherent and a structural case assigner compete for case assignment to a single noun, the conflict can be resolved by assigning the inherent case and failing to assign the structural case. When two inherent case assigners compete, the conflict cannot be resolved.

2 Movement of the complement NP must strand the FP (if the whole FP were to move to the higher SpecNP the movement would violate anti-locality). SC otherwise does not allow preposition stranding. I therefore do not consider FP to be a full blown PP.

3 The majority of the literature considers genitive of quantification numerals to be functional elements. Zlatić (1997), however, considers them to be nominal in nature (i.e. Ns); they used to be nouns historically (and some, like hiljada ‘thousand’, still are; hiljada in fact takes case inflection, which pet no longer does).
(57) On pomaže ljudima
    he helps people-dat

(58) *On pomaže pet ljudima
    he helps five people-dat

(59) *On pomaže pet ljudima
    he helps five people-gen

Since SC genitive of quantification is an inherent case (55)-(56) can be accounted for in the same way as (40)-(41).

(60) \[QP five \ [FP F \ [NP expensive \ [NP cars

Deep adjunct extraction is also possible, as expected

(61) \[QIz kojeg grada je vidio pet [djevojaka ti \[from which city is seen five girls
    \[‘From which city did he see five girls?’

Confirmation that SC adnominal genitive is a structural case: Like verbal accusative, adnominal genitive can be overridden by genitive of quantification. With numerals 2-4, the noun gets genitive singular, instead of genitive plural. When these numerals occur with a noun assigning genitive case, the noun in the complement must get genitive singular.

(62) a. opis knjiga
    description book-gen.pl
    b. opis tri knjige
    description three book-gen.sg

Russian

Some variation. For some speakers, deep LBE, movement of the nominal complement, and deep adjunct extraction are unacceptable in an adnominal genitive context, with an improvement with inherent case (the SC pattern).

(63) a. On vidi druga ego materi.
    he saw friend his mother_{GEN}
    ‘He saw a friend of his mother.’
    b. *Č’ej on vidi druga materi?
    whose_{GEN} he saw friend mother_{GEN}
    ‘Whose mother did he see a friend of?’

(64) *Kogo ty našel knigu?
    who_{GEN} you found book
    ‘Of whom did you find a book?’

(65) *Iz kakogo goroda ty vstrechal [druzej devušek ti,]?
    from what city you met friends_{ACC} girls_{GEN}
(66) a. Čem vy obsudili upravlenije?
   what_INSTR you discussed management
   ‘Of what did you discuss management?’
   b. Kakoj vy obsudili upravlenije fabrikoj?
   which_INSTR you discussed management factory_INSTR
   ‘Of what factory did you discuss management?’

(67) ??[Iz kakogo goroda], ty obsuždal upravlenie [denežnymi potokami t]?
   From what city you discussed management money currents
   ‘From what city did you discuss management of cash flow?’

For one speaker, there isn't much of a difference between adnominal genitive and non-genitive, most examples having a somewhat degraded status (but not fully unacceptable).

Capturing variation:
Under the FP analysis, whether the P/linker from (49) (i.e. F) is present.

Under the phase analysis, whether genitive/inherent case involves case valuation or whether case valuation determines phasehood.

The difference with the latter seems deeper, hence perhaps less plausible.

Genitive of Quantification in Russian: Both deep LBE and nominal complement extraction are possible. The same holds for deep adjunct extraction.

(68) a. Dorogix on kupil pjat’ mašin.
   expensive_PL_GEN he bought five cars_GEN
   ‘Of expensive cars, he bought five.’
   b. Dorogix on kupil mnogo mašin.
   expensive_PL_GEN he bought many cars_GEN
   ‘Of expensive cars, he bought many.’
   c. Dorogix mašin on kupil p’jat’.
   expensive_PL_GEN cars_GEN he bought five
   ‘Of expensive cars, he bought five.’
   d. Dorogix mašin on kupil mnogo.
   expensive_PL_GEN cars_GEN he bought many
   ‘Of expensive cars, he bought many.’
   e. Iz kakogo goroda on videl [pjat’ devušek t]?
   from which city he saw five girls

As in SC, two possibilities: either QPs do not function as phases, or QPs function as phases but there is additional structure present with QPs which makes it possible for extraction out of QP not to violate anti-locality.

The latter is not easy to implement given Franks’s (1994) claim that, in contrast to SC genitive of quantification, Russian genitive of quantification is a structural case.
Russian genitive of quantification can be overridden by an inherent case.

(69) Ivan pomogaet pjati devočkam.
Ivan helps five girls.

Since structural case does not come with additional structure the Russian data may then seem to favor the no-QP phase analysis.

Should the analysis be extended to SC?

Russian genitive of quantification may not work the same way as SC genitive of quantification.

Evidence that Russian Genitive of Quantification is not assigned by the numeral, but by another element below the numeral.

Franks (1994): the distributor po construction, where the noun following the numeral bears genitive, but the numeral has a non-genitive case form. (Po is a dative case assigner; see Franks 1994 for other options for such constructions)

(70) Každyj učenik polučil po pjati rublej.
each student received distributor five-dat rubles-gen

Franks (1994), Bailyn (2004), and Bošković (2006) argue that the numeral itself does not assign Genitive of Quantification, which is assigned by a null head below the numeral. (The underlying assumption is that the same element cannot function as a case assigner and a case assignee (see Stowell’s 1981 Case Resistance Principle). A structure along the lines of (71) can then be applied to Russian Genitive of Quantification numerals, with the null Q functioning as genitive assigner.

(71) [FP numeral [QP Q [NP his [NP death

This structure is very similar to (50). The earlier discussion of (50) can then be applied to Russian numerals: the highest extended projection of a TNP is a phase, which in the case of (71) is FP (I leave its exact nature open). The NP complement of Q and deep LBE from under Q can proceed without violating anti-locality. (71) is also consistent with Franks’s claim that Russian Genitive of Quantification is a structural case and the current claim that there is no additional structure above a structurally case-marked NP, in contrast to inherently case-marked NPs.

3. Going beyond clauses and NPs

SC PPs

---

4 SC numerals are always caseless. While Russian numerals can bear case, when genitive of quantification is assigned it is not clear whether the numeral is caseless or nominative/accusative. Bošković 2006 argues that the numeral in the Genitive of Quantification context is ambiguous between a caseless and an accusative/nominative form, the ambiguity being revealed with subject numerals, which optionally undergo subject-verb agreement (which SC numerals normally do not undergo). Bošković (2006) argues that caseless numerals do not agree, and nominative numerals agree.
Abels (2003): PPs as (non) phases

(72) a. *Sobu on uđe u (juče).
   room he entered in yesterday
b. *Njoj on hoda prema.
   her he walks toward
c. On hoda prema njoj.

Prepositional cases behave like structural cases with respect to Genitive of Quantification (see Franks 2002) (compare (74) and (57)-(59)).

(73) a. u Londonu
    in London-loc
b. u pet soba
    in five rooms-gen
(74) a. prema Londonu
    toward London-dat
b. prema pet soba
    toward five rooms-gen

Predictions: no movement of the complement of P, no deep LBE, no adjunct extraction

No P-stranding (72)

No Deep LBE

(75) *Veliku on uđe u sobu.
    big he entered in room

No adjunct extraction

(76) *Iz kojeg grada je on hodao prema djevojkama
    from which city is he walked toward girls

Extraordinary LB (see Bošković 2005)

(77) U veliku on uđe sobu.
    in big he entered room
    ‘He entered the big room.’

Adjectives
Genitive of quantification indicates that they assign inherent case.

(78) a. lojalan studentima
    loyal students-dat
‘loyal to students’

b. *lojalan pet students
   loyal five students-gen

Predictions: complement of an adjective can be moved, deep LBE should be allowed, adjunct extraction should be possible

(79) ?Studentima je on lojalan
    students is he byal

(80) Njegovim je on lojalan studentima
    his is he byal students

(81) ?Iz kojeg grada je on lojalan studentima
    from which city is he byal students

Russian

(82) a. On veren/predan svoim studentam.
    he loyal self'sDAT students.DAT
    
   b. Svoim on veren/predan studentam.

   c. [Iz kakogo goroda], on veren/predan [studentam t]
   from which city he loyal students.DAT

Verbs: Due to the presence of vP, which functions as a phase, structural case assigning verbs allow movement of their complement NP

Conclusion: no small n, p, at least not with structural case assignment.

More general conclusion: inherent/structural case distinction has very significant consequences for uncontroversially syntactic phenomena (locality of syntactic movement). Since the distinction has to be reflected in the syntax, case cannot be pushed outside of the syntax.

References
Bošković, Ž. 2008. What will you have, DP or NP? In *Proceedings of NELS 37*.
Bošković, Ž. 2010. On NPs and clauses.