

## The NP/DP analysis and Slovenian \*

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In Bošković (2008a) I compare the structure of the traditional NP (TNP) in languages without articles with the TNP in languages with articles. With a few exceptions (e.g. Baker 2003, Bošković 2005, Corver 1992, Despić 2008, Fukui 1988, Willim 2000, Zlatić 1997), it is standardly assumed that languages without articles have a null D; i.e. the difference between (1) and Serbo-Croatian (SC) (2) is assumed to be PF-based, the D being null in SC.

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

In Bošković (2008a) I give a number of arguments for a fundamental structural difference in the TNP of English and languages like SC, which I implement by arguing DP isn't even present in the TNPs in (2). This paper considers how Slovenian, a typologically rather interesting language which has indefinite but not definite articles, fares regarding the conclusions reached in Bošković (2008a). There is a weaker and a stronger version of the claim argued for there: the weaker version is that some languages without articles don't have DP. The stronger version, which I have tentatively adopted, is that this holds for all article-less languages. I also argued TNPs in languages like English always have the DP layer (regardless of the presence of an article). Suppose we adopt the stronger version of the above-mentioned claim. What would we then expect to find in Slovenian? Since Slovenian has an indefinite article, we might expect Slovenian TNPs would always have the DP layer, just as in English. Another possibility is that since Slovenian does not have definite articles, DP is always lacking in definite TNPs in Slovenian (i.e. in the TNPs where a definite article would normally be used), while it would always be present in indefinite NPs (or at least in TNPs with an indefinite article). However, a number of authors have argued, or at least developed systems which lead to the conclusion, that indefinite articles are not located in the DP projection (see, e.g. Bowers 1987, Stowell 1989, Chomsky 1995, Bošković 2007a). If that is true, only the presence of a definite article in a language should be relevant to the generalizations discussed in Bošković (2008a), which means Slovenian TNPs should be expected to never have the DP layer (under the strong version of the NP/DP hypothesis). Given that the last option leads to the conclusion that Slovenian never has DP, we may then be able to use Slovenian as a testing ground for the controversial question of where indefinite articles are located; in DP or in a lower position. Thus, in addition to determining the status of

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Slovenian with respect to the DP/NP debate and sharpening the generalizations noted in Bošković (2008a), the current paper may help us shed light on the controversial issue of the structural position of indefinite articles.

Before discussing Slovenian, I will discuss my arguments for the no-DP analysis of languages without articles, since they will be used as the testing ground in my discussion of Slovenian. My central argument for a fundamental difference in the structure of TNP in languages with and those without articles, which is implemented via the DP/NP analysis, concerns a number of generalizations where articles play a crucial role.<sup>1</sup> I will summarize these generalizations in section 1. I have also argued for the no-DP analysis of languages like SC on the basis of the fact that English DP-items are either missing or clearly not Ds in SC. These arguments will be summarized in section 2. I turn to Slovenian in section 3. Since Slovenian will be discussed separately, I will ignore it during the discussion of the generalizations in section 1.

## 1. Generalizations

Languages differ regarding whether they allow left-branch extraction (LB).

- (3) a. \*New/That<sub>i</sub> he sold [t<sub>i</sub> car]  
 b. \*Novata/Onazi<sub>i</sub> prodade [t<sub>i</sub> kola]  
     new.the/that sold car (Bulgarian)  
 c. Nova/Ta<sub>i</sub> je prodao [t<sub>i</sub> kola]  
     new/that is sold car (SC)

Uriagereka (1988), Corver (1992) and Bošković (2005) establish (4) (this is a one-way correlation; languages without articles don't have to have LB).

- (4) Only languages without articles may allow LB examples like (3).

Bošković (2005) notes Bulgarian and Macedonian, the only two Slavic languages with articles, differ from other Slavic languages in that they disallow LB. Within Romance, Latin, which didn't have articles, differs from Modern Romance, which has articles, in that it had LB. Mohawk, Southern Tiwa and Gunwinjguan languages also allow LB and lack articles (see Baker 1996).<sup>2</sup>

Before proceeding, let me note that for the purpose of the generalizations in this section, I take articles to be unique, i.e. occur once per TNP. The "long" form of Slavic adjectives in (5) is then not considered to be an article.<sup>3</sup>

- (5) novi/nov crveni auto  
     new<sub>DEF</sub>/new<sub>INDEF</sub> red<sub>DEF</sub> car (SC)

<sup>1</sup>They may turn out to be strong tendencies, which would still call for an explanation.

<sup>2</sup>Several accounts of the LB ban in languages with articles leave a loophole for possessor extraction to occur in some languages of this type (see Bošković 2005). On the other hand, AP LB should never be allowed.

<sup>3</sup>This makes Greek, where some speakers allow AP LB, irrelevant to (4). The "article" in such examples would not be considered an article. (Greek articles may in fact be ambiguous between real articles and Slavic-type adjectival endings. Note that Slovenian *ta*, which is not TNP unique (see Marušič and Žaucer 2006), is also irrelevant here.)

Consider now adjunct extraction from TNP, which English disallows.

- (6) a. \*From which city<sub>i</sub> did Peter meet [<sub>NP</sub> girls t<sub>i</sub>]  
b. Peter met [<sub>NP</sub> girls from this city]

Noting SC and Russian allow adjunct extraction from TNPs while Bulgarian doesn't allow it, Stjepanović (1998) (see also Bošković 2005) establishes (7).<sup>4</sup>

- (7) Only article-less languages may allow adjunct extraction from TNPs.
- (8) a. Iz kojeg grada<sub>i</sub> je Ivan sreo [djevojke t<sub>i</sub>] (SC)  
b. \*Ot koj grad<sub>i</sub> Ivan [sreštna momičeta t<sub>i</sub>]? (Bulgarian)  
'From which city did Ivan meet girls?'

In Bošković (2004) I also establish the generalization in (9).<sup>5</sup>

- (9) Only languages without articles may allow scrambling.

SC, Latin, Japanese, Korean, Turkish, Hindi, Chukchi, Chichewa, and Warlpiri all have scrambling and lack articles. Particularly interesting are Slavic and Romance. Bulgarian, e.g., has noticeably less freedom of word order than SC. Also, all modern Romance languages have articles and lack scrambling, while Latin lacked articles and had scrambling. It is also worth noting Lakhota, Mohawk, and Wichita, also related languages. The latter two lack articles and have more freedom of word order than Lakhota, which has articles.

Bošković (2008a) notes a correlation with neg. raising (NR), where negation can be either in the matrix or the embedded clause of *I don't believe she's smart*. The latter is confirmed by strict clause-mate NPIs. (11a-b) show these items require negation, and (11c-d) show a non-NR verb *claim* disallows their long-distance licensing. Since they require clause-mate negation, negation must be present in the embedded clause of (10) when they are licensed.

- (10) a. John didn't believe [Mary would leave [<sub>NPI</sub> **until tomorrow**]]  
b. John doesn't believe [Mary has visited her [<sub>NPI</sub> **in at least two years**]]
- (11) a. John didn't leave/\*left **until yesterday**.  
b. John hasn't/\*has visited her in **at least two years**.  
c. \*John didn't claim [Mary would leave [<sub>NPI</sub> **until tomorrow**]]  
d. \*John doesn't claim [Mary has visited her [<sub>NPI</sub> **in at least two years**]]

Before establishing the NR generalization, note that I confine myself to NR

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<sup>4</sup>Russian/Polish/Czech pattern with SC (Bošković 2007b). (8) is good in Spanish, where the relevant phrase is an argument (Ticio 2003). With clear adjuncts, such extraction is disallowed.

<sup>5</sup>By scrambling I mean the kind of movement referred to as scrambling in Japanese, not German, whose "scrambling" is a very different operation with very different semantic effects from Japanese scrambling. One of the defining properties of scrambling for the purpose of (9) is taken to be the existence of long-distance scrambling from finite clauses, which German lacks (for relevant discussion of German, see also Bošković 2004. As noted there, the term scrambling is often used for ease of exposition when one does not want to commit oneself to the nature of the movement involved. This is not what is meant by scrambling in (9)).

from finite clauses. Moreover, instead of relying on interpretation judgments, I rely on the ability of NR to license strict clause-mate NPIs, as in (10). Note now that SC disallows strict-clause mate NPI licensing under NR predicates:<sup>6</sup>

- (12) a. \*Ivan ne vjeruje da ju je Marija posjetila **najmanje dvije godine**.  
 ‘Ivan doesn’t believe Mary has visited her in at least two years.’  
 b. \*Ivan nije vjerovao da će Marija otići **sve do sutra**.  
 ‘Ivan didn’t believe Mary would leave until tomorrow.’

Checking availability of NR under the above conditions reveals a correlation with articles. SC, Czech, Polish, Russian, Turkish, Korean, Japanese, and Chinese lack articles and NR, and English, German, French, Portuguese, Romanian, Bulgarian and Spanish have articles and NR (see Bošković 2007b, 2008a for the data. ‘Believe’ was used in all NR examples). We then have (13).

- (13) Languages without articles disallow NR and those with articles allow it

Interestingly, even where the NPI test fails negation is interpretable in the lower clause: (14) has the atheist meaning ‘Ivan believes God does not exist’ (the same holds for Korean, Japanese, Turkish, Chinese, Russian, and Polish).

- (14) Ivan ne vjeruje da bog postoji. (SC)  
 Ivan neg believes that God exists

This suggests a three-way split among verbs: a. negation interpreted in a lower clause and strict NPIs licensed under NR (possible only for some verbs in article languages) b. negation interpreted in a lower clause, strict NPIs not licensed c. no NR at all. What is important for us is the NR/articles correlation.

There is also a correlation with multiple wh-fronting (MWF).

- (15) MWF languages without articles don’t show superiority effects in (16).

MWF languages differ regarding whether they show Superiority effects (strict order of wh-phrases) in cases like (16). MWF languages without articles (Polish, SC, Czech, Russian, Mohawk) don’t show them. Those that show them have articles (Romanian, Bulgarian, Macedonian, Basque, Yiddish). Hungarian is an exception (it has articles and no superiority), which doesn’t violate (15).<sup>7</sup>

- (16) a. Koj kogo vižda/\*Kogo koj vižda? (Bulgarian)  
 who whom sees  
 b. Ko koga vidi/Koga ko vidi? (SC)  
 who whom sees  
 ‘Who sees whom?’

Consider now clitic doubling, which only the two Slavic languages with articles, Bulgarian and Macedonian (*Ivo go napisa pismoto* ‘Ivo it wrote the let-

<sup>6</sup>Under the relevant reading, the NPIs are interpreted in the embedded clause. I ignore here the irrelevant ‘return tomorrow’ reading for ‘leave until tomorrow’.

<sup>7</sup>Watanabe (2003) suggests Hungarian traditional definite article is not a D-element, which casts doubt on the DP status of Hungarian (regarding Hungarian MWF, see also fn. 14).

ter’), have. In fact, all clitic doubling languages I know of (Albanian, Macedonian, Bulgarian, Greek, Somali, Spanish, dialects of French, Catalan, Romanian, Hebrew, Arabic, dialects of Dutch) have articles. This leads to (17).

(17) Only languages with articles may allow clitic doubling.

Willim (2000) notes English, Arabic, Dutch, German, and Catalan, all article languages, allow two nominal genitive arguments, where the gen. is realized via a clitic/suffix or a dummy P. On the other hand, article-less languages Polish, Czech, Russian, and Latin disallow this. The same holds for SC, Quechua, Chinese and Turkish. (Compare German *Hannibals(gen) Eroberung Roms (gen)* ‘Hannibal’s conquest of Rome’ and Polish *\*podbicie Rzymu(gen) Hannibala (gen)*, which is bad regardless of the word order.) This leads to (18).<sup>8</sup>

(18) Languages without articles do not allow transitive nominals with two genitives.

Živanović (2006) notes (19b) has the majority reading (MR) where more than half the people drink beer. This is missing in (19a): (19a) has the plurality reading (PR) where more people drink beer than any other drink though it could be less than half the people (*pivo* is focused). Živanović notes English, German, Dutch, Hungarian, Bulgarian, Macedonian, Romanian, Farsi, which have articles, allow MR, which is disallowed in SC, Chinese, Czech, Turkish, Polish, and Punjabi. These lack articles and allow only PR. We then have (20) ((20) may in fact be a two-way correlation.)

(19) a. Najviše ljudi pije pivo. (SC)  
 b. Most people drink beer.

(20) Only languages with articles allow the majority superlative reading.

Finally, two correlations that do not concern Slavic: There is a locality distinction among languages with head internal relatives (HIR): Japanese, Quechua, Navajo, and Mohawk HIRs are island sensitive, while Lakhota and Mojave HIRs are not (see Bošković 2008a for the references, and a relevant semantic difference). Interestingly, the former lack articles, while the latter have them. We then have (21a). Finally, Baker (1996) notes (21b). (I give a number of additional generalizations, several of which are also relevant to Slavic, in work in preparation. For relevant discussion, see also Bošković in press.)

(21) a. HIRs are island sensitive in languages without, but not in those with articles.  
 b. Polysynthetic languages do not have articles.

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<sup>8</sup>(18) concerns only nominal arguments, not possessives. (18) also disregards inherent Case, as in SC *lišavanje* (depriving) *sina* (son, gen) *njegovog* (his, gen) *nasledstva* (inheritance, gen) ‘depriving the son of his inheritance’ (see Zlatić 1997), where the second genitive is inherent (the second NP remains genitive even when the Case-marker is a verb, as in *On lišava sina njegovog nasledstva* ‘He is depriving the son of his inheritance’). I also ignore for obvious reasons languages such as Japanese which allow multiple identical case constructions.

These generalizations indicate there is a fundamental difference between TNP in English and languages like SC that cannot be reduced to phonology (overt vs phonologically null articles). If DP is posited for both, we need to make a radical principled distinction between D in English and SC. Appealing to phonological overtiness won't work since English e.g. disallows LB(\**Fast, he likes cars*), scrambling, and adjunct extraction from TNPs even with null D. Moreover, the above generalizations deal with syntactic/semantic, not phonological phenomena. It is often assumed TNP should be treated in the same way in article-less languages and English for the sake of uniformity. This argument fails on empirical grounds: it is simply a fact that there are radical differences between the two—there's no uniformity here. In Bošković (2008a) I show these differences can be captured if there is DP in the TNP of English, but not languages like SC ((20) was left open). Moreover, the DP/NP analysis provides a uniform account of these differences, where a single difference between the two types of languages is responsible for all of them. I don't rule out the possibility that the differences could be captured in a uniform DP analysis (such accounts generally ignore the above generalizations, which are the most serious problems for them). The analysis would obviously have to posit radical differences in the syntax and semantics of DP in English and languages like SC. However, it's hard to see how a DP analysis could provide a uniform account of the above generalizations. Given how different the relevant phenomena are, a uniform DP account would likely rest on a number of separate stipulations regarding the nature of D in English/SC, each tailored for a separate generalization. To illustrate, while it might be possible to account for (4) by stipulating DP is a phase in English but not SC (Bašić 2007), it's hard to see how the stipulation could explain other generalizations, e.g. (13), (9), (15), (20).

I now turn to explanations of the above generalizations, starting with LB.<sup>9</sup> Bošković (2005) gives two accounts of (4) (see also this work for problems with remnant movement and copy & delete accounts of LB). The first one is based on the PIC, which says only the Spec of a phase is accessible for phrasal movement outside of the phase (so, XP movement from phase YP must proceed via SpecYP). On a par with Chomsky's (2000) claim that CP but not IP is a phase, I suggest DP is a phase, but NP isn't. Given the PIC, XP can then move out of DP only if it moves to SpecDP. There are two more ingredients of the analysis: the traditional claim that AP is NP-adjoined and the anti-locality hypothesis (the ban on movement that is too short), which is deducible from independent mechanisms and argued for by many authors (e.g. Bošković

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<sup>9</sup>I will use the term DP/NP account for ease of exposition: most of the analyses below would not change if there is some functional structure in TNPs of article-less languages (as long as it is not DP). Note also that Progovac (1998) argues SC pronouns are Ds. Most of the analyses below would not change if pronouns are the only Ds in SC. However, note that SC pronouns fail Fukui's (1988) D test. Fukui argues pronouns are Ds in English and Ns in Japanese (an NP language) based on pronoun modification. He claims only N-pronouns can be (non-appositively) modified. He shows Japanese pronouns (N-pronouns) can be modified, while English pronouns (D-pronouns) cannot be (putting aside a few exceptions). SC patterns with Japanese (see also Despić in preparation for a convincing reanalysis of the data that Progovac used to argue that SC pronouns are Ds that is consistent with the N analysis of SC pronouns).

- (i) Jesi li ga vidio juče? Jesam, ali je jučerašnji on baš nekako bio čudan.  
 are Q him seen yesterday am but is yesterday's he really somehow been strange  
 'Did you see him yesterday? \*I did, but yesterday's he was really somehow strange.'

1994,1997, Grohmann 2003, Abels 2003, Ticio 2003, Boeckx 2005). Like most other approaches, the version of anti-locality I adopted requires Move to cross at least one full phrasal boundary (not just a segment). AP then can't move to SpecDP in  $[_{DP} AP_i[_{D'} D[_{NP} t_i[_{NP}]$  due to anti-locality. Given the PIC, it can't move directly out of DP either (cf.  $AP_i[_{DP}[_{D'} D[_{NP} t_i[_{NP}]$ ). Anti-locality/PIC thus prevent AP extraction from DP, banning AP LB in English. They don't ban all movement from DP: *Who do you like*  $[_{DP} t[_{NP} friends\ of\ t]]$  is still allowed. The ban on adjunct extraction from TNP in English can be accounted for in the same way as the ban on AP LB, given that NP adjuncts are also NP-adjoined. The PIC/anti-locality problem doesn't arise in SC, which lacks DP.

In Bošković (2005) I give another account based on the claim that both Abney's (1987) A-as-the-head and the traditional NP-over-AP structure are correct, but for different languages: in English A takes NP as its complement (AP option), while in SC N takes AP as its Spec (NP option; NP adjunction would also work). The difference is tied to DP.<sup>10</sup> I assume the AP option is the default, but APs cannot be arguments. This means that when DP is lacking, as in SC (but not English), NP must dominate AP. This easily accounts for English: AP LB is banned since it would extract a non-constituent (AP is not a constituent to the exclusion of NP in  $[_{DP} D[_{AP} A[_{NP} N]]$ ). The problem doesn't arise in SC, where the structure is  $[_{NP} AP N]$ . (The account doesn't extend to the ban on adjunct extraction from TNP.) I also gave several arguments for the A/N difference in the headedness of TNP in English and SC. I repeat here one argument. (22) shows prenominal adjectives disrupt case assignment in English (*him* bears default acc. instead of nom.). This is easily captured in Abney's system, where A shields the pronoun from outside case assignment as an intervening head.<sup>11</sup> (23) differs from (22), suggesting Abney's analysis should not be applied to SC. (Note the case change in an acc. context, which shows we aren't dealing here with a default case. ((23) gives the only case options.)

(22) The real him/\*he will never surface.

(23) Pravi on se nikad neće pojaviti./ Vidjeli smo pravog njega.  
 real he refl never neg+will show.up seen are real him  
 'The real him will never show up./We saw the real him.' (SC)

In Macedonian, an AP language with articles, adjectives disrupt case assignment—pronouns must bear default nominative. (The case doesn't change in (24).) Interestingly, if the pronoun is fronted, it can bear accusative (25). This is expected, since due to the fronting the adjective no longer intervenes between the verb and the pronoun. This confirms the intervention analysis.

(24) Vistinskiot toj nikogas ne ke se pojavi/Go vidov vistinskiot toj/\*nego  
 the.real he never neg will cl.show.up cl saw the-real he/him

<sup>10</sup>Note, however, that although the DP/NP analysis is compatible with positing a difference in the position of adjectives in DP and NP languages it does not require positing such a difference, i.e. the DP/NP analysis can be maintained while keeping the position of adjectives in DP and NP languages constant (as is e.g. done in the phase analysis of LB.)

<sup>11</sup>An adjective of a DP language does not seem to disrupt Case assignment to the noun it modifies. I speculate the noun gets its case via agreement with the D of the DP dominating the adjective (the verb directly Case-marks the D, not the noun).

‘The real him will never show up.’/‘We saw the real him.’

(25) Go vidov nego<sub>i</sub> vistinskiot t<sub>i</sub>.

Turning to (9), it can now be restated as follows: Only NP languages may allow scrambling (the presence of DP makes scrambling impossible). Bošković (2004) shows this can be captured under Bošković and Takahashi’s (1998) (BT) account of scrambling, which base-generates scrambled elements in their surface positions and moves them to their  $\theta$ -positions in LF,  $\theta$ -features driving the movement. Such derivations are unavailable in English, where  $\theta$ -features are strong, hence must be checked in overt syntax. The account explains a number of otherwise puzzling properties of scrambling, including Saito’s (1992) undoing effect and the ban on adjunct scrambling. What is important for us is that scrambled elements are generated in their surface position.

Under BT’s account the scrambling correlation entails DPs (English TNPs) but not NPs (Japanese TNPs) must establish  $\theta$ -relations in overt syntax. This can be ensured given an assumption regarding last resort. Chomsky (1995) assumes pure Merge is not subject to last resort, while Chomsky (2000) argues it is, which significantly enriches the theory of selection. Bošković (1997) takes an intermediate position: only pure Merge of functional items is subject to last resort. There are many appeals to economy of representation intended to ban unnecessary projections in the literature (see the references in Bošković 2004). Interestingly, they are all applied only to functional elements—they ban only unnecessary functional structure. We can make this “accident” more principled by taking my position that only pure Merge of functional items is subject to Last Resort. Assume then that functional heads are merged into the structure only if there is a reason for it. The upshot of this is that pure Merge of functional (but not lexical) projections must have independent motivation (Bošković 2004 deduces this). Since TNP is DP in non-scrambling languages and NP in scrambling languages, pure-Merging TNP with X, where X projects, must have independent motivation in the former, but not the latter. Since scrambling is pure Merge that does not involve feature-checking for BT, we deduce the scrambling correlation. To illustrate (assuming scrambling involves non-feature checking IP-adjunction), DP (TNP in non-scrambling languages) cannot be pure-Merged adjoined to IP without violating last resort, while NP (TNP in scrambling languages) can be. DPs can still be pure-Merged in  $\theta$ -positions in English since such merger involves  $\theta$ -feature checking.<sup>12</sup>

As for NR, Bošković and Gajewski (in preparation) give an account of (13) based on Gajewski’s (2005) approach to NR, which imputes to NR predicates (NRPs) the Excluded Middle Presupposition (EMP) (*A believes that p* presupposes *A believes that p* or *A believes that not p*; the EMP also holds for its negation). Under this approach, assertion *A doesn’t believe that p* and the EMP entail the NR reading *A believes that not p*. Gajewski (2005) argues the EMP is a characteristic of constructions that are semantically analyzable as distributive plural definite descriptions, rather than universal quantifiers. The EMP of definite plural NPs can be observed by comparing (26a) with (26b).

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<sup>12</sup>See Bošković (2004) for phrases other than NP. The analysis can be restated under Saito and Fukui’s (1998) overt movement analysis of scrambling, since the analysis also treats scrambling as pure Merge.



- (26) a. *Bill saw the boys* implies Bill saw all the boys; *Bill didn't see the boys* implies he saw no boys – not merely not all of them.  
 b. Negation of a universal quantifier: *Bill didn't see all the boys*.

Sentence-embedding predicates are standardly treated as universal quantifiers over accessible worlds. Gajewski argues that having the EMP, NRPs should be treated as plural definite descriptions. Bošković and Gajewski (in preparation) assume sentence-embedding predicates combine a modal base (set of accessible worlds) with a quantificational element. The latter may be either a universal quantifier or a definite article. If a modal base combines with the definite article, the result is a NRP. Given this, we argue that if a language lacks the definite article, it lacks the necessary material to assemble a NRP. It follows NR is possible only in DP languages. Recall that even languages disallowing strict NPI licensing under NR allow NR interpretation. We argue this is a pragmatic effect, capturable in Horn's (1989) approach, where the lower clause negation understanding is a case of 'inference to the best interpretation.' (Gajewski 2005 shows this approach cannot explain strict NPI licensing under NR, which his semantic account can do. We thus suggest combining the two.)

We also give a deduction of (20), based on Hackl's (2007) analysis of *most* as the superlative of *many* (*most=many-est*). Szabolcsi (1986) and Heim (1999) argue *-est* can move independently to take scope. Hackl derives both PR and MR assuming movement of the *-est* in *most*. PR corresponds to the comparative superlative reading discussed by Szabolcsi and Heim and analyzed as *-est* taking clausal scope. Hackl shows MR can be derived if the *-est* of *most* stays inside the TNP, taking scope below the article. To illustrate, consider Hackl's (27), which has both readings. PR derives from LF (27b) and MR from (27c).

- (27) a. Hans hat die meisten Berge bestiegen. (German)  
       Hans has the most mountains climbed  
 b. "Hans has climbed more mountains than anyone else" (PR)  
       LF: [ Hans [ *-est*<sub>i</sub> has climbed the d<sub>i</sub>-many mountains ] ]  
 c. "Hans has climbed most mountains" (MR)  
       LF: [ Hans [ has climbed [ the *-est*<sub>i</sub> d<sub>i</sub>-many mountains ] ] ]

Hackl shows that given the semantics of *-est* in (28a) and the assumption about distinctness of pluralities in (28b), the constituent [*-est*<sub>i</sub> d<sub>i</sub>-many mountains] denotes a predicate true of a plurality of mountains if and only if that plurality contains more than half the mountains (see (28c)).

- (28) a. Where  $x$  is type  $e$ ,  $C$  type  $\langle e, t \rangle$ , and  $D$  type  $\langle d, et \rangle$   
 $\llbracket -est \rrbracket(C)(D)(x)$  is defined only if  $\exists x, y [x \neq y \ \& \ x \in C \ \& \ y \in C]$   
 if defined  $\llbracket -est \rrbracket(C)(D)(x) = 1$  iff  $\exists d [D(d)(x) \ \& \ \forall y \in C [y \neq x \rightarrow \neg D(d)(y)]]$   
 b. For any two pluralities  $a, b$ :  $a \neq b$  iff  $a$  and  $b$  share no atomic parts  
 c.  $\llbracket -est \ C \ \text{many mountains} \rrbracket$   
 $= \lambda x. \exists d [x \text{ contains } d\text{-many mountains} \ \& \ \forall y \in C [y \text{ doesn't overlap } x \rightarrow y \text{ doesn't contain } d\text{-many mountains}]]$   
 $= \lambda x. x \text{ contains more than half of the mountains}$

Importantly, even with MR the superlative morpheme must make a short

movement, which Bošković and Gajewski propose is adjunction to NP. Now, in article-less languages NP is an argument, while in DP languages it is not, the argument being the DP. Chomsky's (1986) ban on adjunction to arguments then rules out local scoping of *-est* in NP languages, blocking the MR reading.

As for (15), in Bošković (2008a) I suggest an account of (15) based on my (2002) claim that MWF languages with Superiority effects have wh-movement, while those not showing such effects don't have it—they move wh-phrases to a lower position. Bošković (1999) shows the account explains different behavior of MWF languages regarding Superiority. I refer the reader to this work for details of the account; what is important for us is that Superiority effects arise with MWF to SpecCP (wh-movement), not with MWF to a lower position.<sup>13</sup> We can then restate (15) as follows: Article-less MWF languages move wh-phrases to a position below SpecCP. To deduce this I make a natural assumption that MWF languages must front all their wh-phrases (for an account, see Bošković 2002). This is what it means to be a MWF language (the wh-phrases in (16) cannot stay in situ). I also assume the D feature is crucially involved in movement to SpecCP, which may be deducible from the often assumed DP/CP parallelism. The lack of DP then prevents NP MWF languages from having wh-movement. Since they still must front their wh-phrases, they move them to the lower position. Since superiority effects arise only with MWF to SpecCP (not the lower position), it follows NP MWF languages do not show Superiority effects, which deduces (15).<sup>14</sup>

Turning to (17), there is a definiteness effect associated with clitic doubling. I assume this is a syntactic requirement instantiated via DP. Many authors have argued the doubled TNP is at some point located in the same phrase as the doubling clitic and/or that the two are involved in feature checking (see the references in Boeckx 2003). I implement this by assuming an Agree relation between the clitic and the doubled TNP, which involves the D feature. In other words, the doubling clitic agrees with a D element, the definiteness effect of clitic doubling being imposed by tying the Agree relation to a particular value of D. It follows clitic doubling is impossible in NP languages.

As for (18), I assume N can license only one genitive, D being required for the second one (this can be implemented via Spec(Agr)NP/SpecDP, but this isn't necessary). Due to the lack of DP in article-less languages (18) is deduced

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<sup>13</sup>I will leave open the contexts where SC shows superiority effects (see Bošković 2002). The Superiority test is confirmed by question interpretation. Bošković (2002) notes multiple questions disallow single-pair answers in wh-movement languages (French, e.g., allows them only with wh-in-situ). Such answers correlate with the lack of Superiority effects in MWF languages (see the references in Bošković 2007c).

<sup>14</sup>As for DP MWF languages, nothing seems to prevent their wh-phrases from targeting either SpecCP or the lower position. Given the Superiority data from sec. 1, the former would be the case in, e.g., Bulgarian, Romanian, and Yiddish, and the latter in Hungarian (but see fn. 7), which is the standard analysis of these languages. Hungarian may actually have MWF to SpecCP (note that it disallows SP answers (see fn. 13)). However, as discussed in Bošković (2007c), an exceptional property of Hungarian MWF regarding its driving force enables Hungarian to void Superiority effects even if its MWF lands in SpecCP (Hungarian MWF turns out to share with MWF languages that target the lower position precisely those formal properties that are under Bošković's 1999 analysis responsible for voiding the Superiority effect in the latter group of languages). If the above account of Hungarian suggested in Bošković (2007c) is on the right track (I do suggest another option for Hungarian; see also this work for Basque), then MWF in all DP MWF languages could be targeting SpecCP; the option of targeting the lower position being unavailable to them. I leave the issue for future research.

Since the generalizations in (21) are not relevant to Slavic, I won't discuss them here, referring the reader to Bošković (2008a) for their deduction.

## 2. Looking for D in the traditional NP in SC

I now turn to arguments against DP in article-less languages that are independent of the above generalizations. I will discuss the issue regarding SC (see Bošković 2005, Despić 2005, Zlatić 1997; see also Bošković 2007b for Russian, Corver 1992 for Czech/Polish and Fukui 1988 for Japanese). First, SC lacks articles, the prototypical D<sup>0</sup>. Though SC does not have articles, it has items like *that*, *some* and possessives. However, there is a lot of evidence that these are adjectives in SC. First, they are morphologically adjectives, as (29) shows.

- (29) *nekim mladim djevojkama/ nekih mladih djevojaka*  
some<sub>FEM.PL.INST</sub> young<sub>FEM.PL.INST</sub> girls<sub>FEM.PL.INST</sub> FEM.GEN.PL

Second, in contrast to English, the SC elements in question can occur in typical adjectival positions. Thus, in (30a) a possessive occurs in the predicate position of a copula. Third, unlike in English, the elements in question can stack up in SC, just like adjectives (30b).

- (30) a. Ova knjiga je moja.  
       \*this book is my  
       b. ta moja slika  
       \*this my picture

They also have some freedom of word order. While English D-items must precede adjectives, SC allows adjectives to precede some “D”-items (see Bošković 2007b for interpretation of (31). Adjectives also have some freedom of word order—*tall angry men/angry tall men*). Note that I do not claim the order of the SC items in question is completely free. What is important is the SC/English contrast regarding the order of adjectives and some “D” items (the order of true adjectives with respect to each other, which follows from semantic and prosodic (not syntactic) factors (see the data in Pereltsvaig 2007), is not expected to be any freer in SC than in English, see Bošković 2008b).<sup>15</sup>

<sup>15</sup>The analysis of LB from Bošković (2005) is incompatible with Cinque's (1994) system, where each adjective is located in the Spec of a separate functional projection. Cinque's analysis has been questioned on very serious grounds; see, e.g. Despić (2008) and Ticio (2003). Proponents of this analysis usually assume the analysis derives the order of adjectives, in particular, from phrase structure. However, the analysis does not really explain it since the order simply follows from stipulations regarding the order of merger of projections hosting different adjectives. One could argue that these should ultimately follow from semantics since the restrictions in question are standardly stated in semantic terms (e.g. size>length>width>weight>temperature>age>color, where > indicates precedence). But then there is really no need for a middle man in terms of phrase structure (which requires stating the same stipulations twice). We can simply assume that adjectival ordering restrictions follow directly from the rules of semantic composition, which require some adjectives to be composed before others. We can then let the order of adjectives be free in the syntax, the illegitimate orders being filtered out in the semantics. Under this analysis, we would not expect to find any significant differences in the ordering restrictions on adjectives with respect to each other in DP and NP languages.

Note that Pereltsvaig (2007) shows prosodic heaviness also affects the order of adjectives. Such ordering restrictions clearly should not be handled in the syntax, since the syntax

- (31) a. Jovanova bivša kuća/ bivša Jovanova kuća  
 Jovan's former house/ \*former John's house  
 b. Marijina omiljena knjiga/ omiljena Marijina knjiga  
 Marija's favorite book/ \*favorite Marija's book

SC prenominal possessives cannot be modified by possessives, or more generally, adjectives ((32) is good if *moj/bogati* modifies *konj*). Assuming adjectives can't be modified by adjectives, (32) follows if SC possessives are adjectives.

- (32) \*moj/bogati susjedov konj  
 my/rich neighbor's horse

Extraction from definite TNPs/TNPs with a filled SpecDP is banned in English. Interestingly, the effect is often relaxed in SC (see also Willim 2000 for Polish). This follows given the standard claim that the culprit for the unacceptability of English (33) is DP, which I claim is not present in SC, demonstratives, possessives, and quantifiers like *every* not being DP items in SC.

- (33) O kojem piscu je pročitao svaku knjigu/sve knjige/(tu) tvoju knjigu  
 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'

English Ds are thus either missing or clearly not Ds in SC. This argues in favor of the no-DP analysis, which provides a principled account of this state of affairs. On the other hand, a uniform DP account faces the question of why languages like SC do not have articles given that they have D, and why all other English DP-items display 'strange' non-DP behavior in SC. Note also that

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should not be 'aware' of such prosodic factors. Rather, they should be handled via a filtering effect of PF. The suggestion made above is to treat the semantic constraints on adjective ordering in the same way (this is in fact along the lines of Ernst's 2002 account of adverbs).

Note also that demonstratives must precede adjectives and possessives in SC. As discussed in Bošković (2008b), this also follows from semantics. Possessives are standardly treated as modifiers, i.e. both adjectives and possessives are of type  $\langle e, t \rangle$ . A demonstrative like *that*, on the other hand, is a function of type  $\langle e, t \rangle e$ . Once a demonstrative has mapped a nominal element to an individual, further modification by predicates of type  $\langle e, t \rangle$  is simply not possible. This means that while semantic composition allows possessives to be composed either before or after modifying adjectives, it requires demonstratives to be composed after both adjectives and possessives. This perfectly matches the actual facts regarding the ordering of the elements in question in SC. Given that the obligatory demonstrative-adjective/possessive ordering follows from the requirement that modifiers be composed before demonstratives, we can let syntax generate all orders of demonstratives, adjectives, and possessives in SC and have semantics filter out the unacceptable orders. Interestingly, English *\*\*expensive this car* is worse than its SC counterpart *?\*skupa ova kola*. This can be accounted for if the English example has the semantic violation noted above as well as a syntactic violation (given that syntax requires DP to be projected on top of the TNP). The reader is also referred to Despić 2008 for conclusive evidence that, in contrast to English, demonstratives, adjectives, and possessives, all of which agree with the noun and are treated as adjectives in the system discussed above (they are either adjoined to NP or located in multiple NP Specs), must indeed be all located in the same projection in SC. (Despić shows a possessive that is preceded by a demonstrative or an adjective c-commands outside of its TNP in SC, which means the demonstrative and the adjective cannot be located in separate projections from the possessive.)

Chierchia (1998) shows that the DP layer is not needed for argumenthood, which removes a potential semantic argument for DP in SC. Most importantly, recall that the DP/NP analysis provides an explanation (actually, a uniform explanation) for all the generalizations from section 1. In fact, I contend that a uniform DP analysis cannot even be seriously entertained until it can be shown that the analysis can provide a principled, uniform account of the generalizations from section 1.<sup>16</sup>

### 3. Slovenian

I now turn to Slovenian. First, note the above generalizations are of two types. Most of them are one-way correlations, where DP languages can't have a property X, while NP languages can, but don't have to have it. If Slovenian doesn't have X in this scenario, this won't tell us anything about its D/NP status. The presence of X, on the other hand, would allow us to conclude Slovenian is an NP language. However, several of the above generalizations are two-way correlations, where one way or another we should be able to categorize Slovenian regarding the D/NP typology. I will first consider three one-way correlations.

Slovenian doesn't have clitic doubling, doesn't show Superiority effects (*Kdo koga/koga kdo pretepa* 'Who beats who'), and disallows nouns with two genitives (?\**uničevanje Rima Hanibala* 'Hannibal's conquest of Rome'). All of this is consistent with Slovenian having NP status. Based on these properties, it is tempting to conclude Slovenian is an NP language. However, since we are dealing here with one-way correlations, the data are not conclusive.

I now turn to NR, where we are dealing with a two-way correlation. Slovenian patterns with NP languages in disallowing long-distance licensing of strict clause-mate NPIs under NR, as (34a-b) show (see also fn. 6). This provides straightforward evidence for its NP status.<sup>17</sup> Note also that, like other NP languages, Slovenian allows lower clause negation interpretation under NR. Thus, (34c) has the atheist interpretation.

- (34) a. \*Janez ne verjame, [da jo je Marija obiskala **že najmanj dve leti**]  
'John doesn't believe that Mary has visited her in at least two years.'

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<sup>16</sup>Pereltsvaig (2007) argues against the DP/NP analysis. However, as discussed in Bošković (2008b), the arguments given by Pereltsvaig, most of which are based on misunderstandings of the DP/NP analysis, do not go through.

It is sometimes erroneously assumed that the no-DP analysis cannot account for binding, Case, or selectional properties of SC TNPs. This is not true. All of these can be easily handled without the DP layer, and in fact were handled without the DP layer for all languages before the DP hypothesis. (For some of these, e.g. selection of TNPs, the DP layer is even now standardly ignored even in DP languages.) Notice in this respect that when it, e.g., comes to demonstratives and possessives the no DP analysis only changes their categorial status, or to be more precise, takes seriously their adjectival morphology. Nothing else is different. Their semantics, e.g., remains unchanged. There is then no reason to assume, as Pereltsvaig does, that TNPs with possessives should be unable to bear  $\theta$ -roles and introduce a referent (because this is something adjectives cannot do) in article-less languages under the no-DP analysis. Introducing a referent and functioning as an argument are semantic properties, and the no-DP analysis does not posit any changes in the semantics of these elements (it certainly does not claim that they are adjectives semantically).

<sup>17</sup>Depending on how Slovenian is treated, we may need to conclude that a definite D/article is needed for NR, which is in fact what Bošković and Gajewski (in preparation) conclude, as discussed above.

- b. \*Janez ni verjel/ne verjame, [da bo Marija odšla **vse do jutri**]  
 ‘John didn’t believe Mary would leave until tomorrow.’  
 c. Janez ne verjame, da bog obstaja.  
 Janez neg believes that god exists

Turning to (20) recall we may need to strengthen it to a two-way correlation. (35), which has only the PR reading, then argues for NP status of Slovenian.

- (35) Največ ljudi pije pivo.  
 most people drink beer (Živanovič 2006)

I now turn to one-way correlations where the behavior of Slovenian is not simply consistent with the behavior of NP languages, but incompatible with that of DP languages. Consider (9). While it is a bit difficult to determine conclusively whether Slovenian has scrambling, it does seem to have it, which characterizes it as a NP language in spite of the one-way correlation status of (9).<sup>18</sup>

The same holds for (36). Slovenian allows adjunct extraction from TNP, which provides evidence for its NP status. Significantly, Slovenian also allows adjunct extraction from TNPs with indefinite articles (and other “D”s. (36a-b) are in fact slightly better with the determiner. (36e) has a plural indef. article.)

- (36) a. Iz katerega mesta je srečal največ deklic/deklice?  
 from which city (he) is met most women(gen)/women(acc)  
 b. Iz katere vasi je spoznal (vse) pijance?  
 from which village (he) is got-to-know all drunkards  
 c. Iz katere vasi je spoznal (enga) pijanca?  
 from which village (he) is got-to-know a drunkard  
 d. Iz katerega mesta je srečal (eno) punco?  
 from which city (he) is met a girl

<sup>18</sup>As Bošković (2004) notes, in languages with topicalization (top) and focalization (foc), which Slovenian has, it’s not easy to determine whether scrambling is also available. For that we need something scrambling can do, but top/foc cannot. As is well-known, multiple top/foc is disallowed, while multiple scrambling is allowed. (i) then shows Slovenian has scrambling.

- (i) Petru uro želi Meta, da Stane podari.  
 Peter-dat watch-acc wishes Meta that Stane gives  
 ‘\*To Peter, a watch, Meta wishes that Stane gives.’

Another difference between top/foc and scrambling is that the former cannot take a wh-phrase outside of its scope (the interrogative CP where it is interpreted), while scrambling can marginally do that (see the references in Bošković 2004). The fact that (iib) is better than (iia) on the reading on which *koga/porabiti koliko denarja* are interpreted in the embedded wh-clause then provides evidence for the availability of scrambling ((iia) is the base-line data establishing the level of unacceptability associated with clauses where a wh-phrase is located outside of its scope. (The judgment is given only for the relevant reading.) Notice that (iib) also involves extraction out of a wh-island, which may contribute to its marginality.)

- (ii) a. \*Kdo pravi, da je koga vprašal, kaj je ona naredila?  
 who says that is who asked who is she done  
 ‘Who says that she asked who what she did?’  
 b. ??Porabiti koliko denarja Marko ve, kdo hoče?  
 to-spend how-much money Marko knows who wants  
 ‘Marko knows who wants to spend how much money.’

- e. Iz katerega mesta je srečal (ene) punce?  
 from which city (he) is met a girls

Crucially, Slovenian contrasts here with English, where such examples are clearly worse (cf. *\*From which city did he meet a girl?*). We then have here evidence that DP is absent even in TNPs with indefinite articles in Slovenian, which means indefinite article is located below DP.<sup>19</sup>

Finally, consider LB.<sup>20</sup>

- (37) a. Nekam dolge si je Janez kupil smučke.  
 somehow long refl. is Janez bought skis  
 'Janez bought for himself skis that are somehow long.'  
 b. Take je Janez že imel bicikle.  
 that-kind is Janez already had bicycles  
 'Janez already had bicycles like that.'  
 c. V temle sem užival vinu.  
 in that am enjoyed wine  
 'I enjoyed that wine.'  
 d. Rossignolove si je omislil smučke.  
 Rossignol's refl. is got skis  
 'He got Rossignol's skis.'  
 e. Visoke je videl študente.  
 tall is seen students  
 'He saw tall students.'

<sup>19</sup>The options here are locating it in a projection above NP (which wouldn't be DP) or treating it like an adjective. Note that locating indefinite article below DP in English entails positing a null DP above it since English TNPs must have DP given the generalizations from section 1.

<sup>20</sup>See also Franks & Stanić (2006) for a different perspective on LB. (37c) involves Bošković's (2005) extraordinary LB. Note LB is often not as good in Slovenian as in SC (e.g. with demonstratives, *??Tiste tam kupuje smuči* 'those there he is buying skis'), though still much better than in English. (We could posit DP in such cases or treat Slovenian uniformly as an NP language, with an independent factor to be determined responsible for such cases. The data in question are not that surprising given that some languages that can be much more clearly categorized as NP languages than Slovenian, e.g. Japanese, disallow LB). Some speakers also have a sg/pl distinction with inanimate, masc., sg. nouns. (L. Marušič suggests that when adjectives appear alone they take animate declination, which leads to a mismatch with the declination of *avto* in (ia). The distinction is neutralized in plural as well as fem. and neuter gender.)

- (i) a. \*Janezov je kupil avto.  
 Janez's (he) is bought car  
 b. ?Janezove je kupil sanke.  
 Janez's (he) is bought sled(pl.)

Note that LB is possible even in the presence of an indefinite article. (iia) seems analyzable along the lines of Bošković's (2005) account of extraordinary LB, illustrated by (37c). In fact, just like extraordinary LB must carry the preposition (iic), LB in (iia) must carry the article.

- (ii) a. ?Eno drago kupuje hišo/?Eno drago si je kupil hišo.  
 an expensive buys house an expensive refl. is bought house  
 'He is buying/bought an expensive house.'  
 b. \*Drago kupuje eno hišo/\*Drago si je kupil eno hišo.  
 c. \*Temle sem užival v vinu.  
 that am enjoyed in wine

The data in (37) provide evidence for the NP status of Slovenian.

Let us now turn to the tests from section 2. It turns out that with respect to all the tests in question, Slovenian patterns with SC.<sup>21</sup>

- (38) a. nekimi mladimi deklicami/ nekih mladih deklic  
some<sub>FEM.PL.INST</sub> young<sub>FEM.PL.INST</sub> girls<sub>FEM.PL.INST</sub> FEM.GEN.PL  
 b. Ta knjiga je moja.  
 that book is my  
 c. ta moja slika  
 that my picture  
 d. Janezova bivša hiša/bivša Janezova hiša  
 Janez's former house  
 e. \*moj/bogati sosedov konj (on the relevant reading)  
 my rich neighbor's horse  
 f. O katerem pisatelju je prebral [vse knjige/vsako knjigo]<sup>22</sup>  
 about which writer is read all books/every book  
 ki mu je prišla pod roko]  
 that him is come under arm  
 'About which writer did he read all books/every book he was able to get'

As in SC, English Ds are thus either missing or clearly not Ds in Slovenian. Recall we have interpreted the corresponding SC data as evidence in favor of the no-DP analysis, which provides a principled account of this state of affairs.

The facts discussed above thus point to the conclusion that Slovenian is an NP language, which in turn leads to the conclusion that indefinite article, which Slovenian has, is not located in DP, as in Bowers (1987), Stowell (1989), Chomsky (1995), and Bošković (2007a).<sup>23</sup>

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<sup>21</sup>Note also that Slovenian pronouns pattern with SC with respect to the D/N test from fn. 9.

(i) Ali si ga videl včeraj? Ja, ampak včerajšnji on je bil prav nekam čuden.  
 'Did you see him yesterday? \*I did, but yesterday's he was really somehow strange.'

<sup>22</sup>Speakers disagree regarding extraction from TNPs with a possessive.

(i) ?/\*O kateri filmski zvezdi je prebral tisto Petrovo knjigo o kateri se pogovarjate  
 about which film star is read that Peter's book about which refl talk  
 '\*About which film star did he read Peter's book that you are talking about?'

<sup>23</sup>I wouldn't rule out the possibility that we are starting to witness a change here, i.e. the beginning of the emergence of a DP system, with the change starting with indefinite articles and possibly some TNPs noted in fn. 20). The prediction of this analysis is that Slovenian should start patterning with English rather than SC regarding the generalizations from section 1. Of course, only time can tell whether the above speculation is on the right track.



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