

# On NPs and Clauses<sup>\*</sup>

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With a few exceptions, 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

(SC)

In Bošković (2008a) I argue that there is a fundamental structural difference in the traditional Noun Phrase (TNP) of English and article-less languages like SC, which can be captured if DP is not even present in the TNPs in (2) (see also Fukui 1988, Corver 1992, Zlatić 1997, Chierchia 1998, Cheng and Sybesma 1999, Lyons 1999, Willim 2000, Baker 2003, among others for no-DP analyses of at least some article-less languages). My main argument for a fundamental difference in the structure of TNP in languages with and those without articles concerns a number of syntactic and semantic generalizations where the presence/lack of articles in a language plays a crucial role. In this paper I will strengthen the argument by adding a number of new generalizations that were not discussed in Bošković (2008a). Several of these generalizations involve a surprising interplay between TNP internal syntax/semantics and clause-level phenomena, which shows that many clause-level phenomena cannot be properly understood without paying close attention to the internal structure and interpretation of TNPs. I will also explore consequences of the internal structure of TNP for the internal structure of clauses under the assumption that the two have parallel structure. Taking the TNP/Clause parallelism hypothesis and the NP/DP parameter seriously leads to the conclusion that just like the structure of TNP is poorer in NP languages than in DP languages, the structure of clauses should be poorer in NP languages than in DP languages. I will start by briefly summarizing the generalizations from Bošković (2008a). I will then discuss a number of new NP/DP generalizations and then turn to the issue of TNP/Clause parallelism and consequences of the structure of TNP and TNP internal processes for the structure of clauses and clause-level processes.

## 1. Generalizations from Bošković (2008a)<sup>1</sup>

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<sup>1</sup>The generalizations from sections 1 and 2 (the reader should note that most of them are one-way correlations) are still in the process of verification against additional languages. Future research will undoubtedly discover exceptions to many of the generalizations discussed below. However, even if the generalizations turn out to be only strong tendencies, that will still call for an explanation. Note also that a weaker version of the main claim made in this paper would be that some languages without overt articles do not have DP. The stronger (and more interesting) position is that this holds for all languages without overt articles, not just those discussed in the paper.

### 1.1. Left branch extraction

Languages differ regarding whether they allow left-branch extractions (LBE) like (3)-(4).

- (3) \*Expensive/Those<sub>i</sub> he saw [t<sub>i</sub> cars]  
(4) Skupa/Ta<sub>i</sub> je vidio [t<sub>i</sub> kola] (SC)  
expensive/that is seen car  
(5) Doroguju/Tu<sub>i</sub> on videl [t<sub>i</sub> mašinu] (Russian)  
expensive/that he saw car

Noting a correlation with articles, Uriagereka (1988), Corver (1992) and Bošković (2005) establish (6).

(6) Only languages without articles may allow LBE examples like (4).

To illustrate, Bošković (2005) notes that Bulgarian and Macedonian, the only two Slavic languages with articles, differ from most other Slavic languages (e.g. SC, Russian, Polish, Czech, Ukrainian, Slovenian) in disallowing LBE. Within Romance, Latin, which did not have articles, differs from Modern Romance, which has articles, in that it had LBE. Mohawk, Southern Tiwa, and Gunwinjguan languages (see Baker 1996) as well as Hindi, Bangla, Angika, and Magahi also allow LBE and lack articles.<sup>2</sup>

- (7) a. \*Novata<sub>i</sub> ja prodade Petko [t<sub>i</sub> kola]. (Macedonian)  
new it sells Petko car  
b. Novata kola ja prodade Petko

A particularly strong confirmation of (6) is provided by Finnish. As discussed in Laury (1997), Colloquial Finnish has developed a definite article (Dal Pozzo 2007 suggests that it may also be developing an indefinite article). Significantly, Franks (2007) observes that LBE is allowed only in literary Finnish, which does not have articles. Thus, (8)a is acceptable only in literary Finnish.

- (8) a. Punaisen ostin auton. (literary Finnish, poetic style)  
red-acc buy-pst-1sg car-acc  
b. ?\*Punaisen ostin (sen) auton. (spoken Finnish)  
red-acc buy-pst-1sg the car-acc

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<sup>2</sup>I focus on adjectival LBE (demonstratives are adjectives in Slavic LBE languages, see below), ignoring possessor extraction. The reason for this is that several accounts of the ban on AP LBE in article languages leave a loophole for possessor extraction to occur in some languages of this type (see Bošković 2005:4). Thus, Hungarian, which has articles, allows possessor extraction, although it disallows adjectival LBE, which is what is important for our purposes (see, however, den Dikken 1999, who suggests that Hungarian possessive extraction may actually involve a left dislocation-type configuration with a resumptive pronoun).

- (i) a. \*Magas(-ak-at) látott lány-ok-at.  
tall-pl-acc saw-3sg girl-pl-acc  
b. cf. Magas lány-ok-at látott.  
'Tall girls, he saw.'

Language change can often take a good amount of time. What we are witnessing in Finnish is rather fascinating from this perspective: the emergence of the article has led to a pretty much instantaneous loss of LBE.

Another argument regarding language change comes from the history of Greek. Ancient Greek underwent a change from an article-less to an article language. Thus, while Homeric Greek was an article-less language, Koine Greek was a full-blown article language. Taylor (1990) has conducted an investigation of what she refers to as split wh-phrases (involving extraction of just the wh-word out of a wh-phrase) and split NPs in the history of Ancient Greek and observed a very significant drop in the number of split wh-phrases/NPs in the Homeric and the post-Homeric period. While not all split wh-phrases and split NPs involve LBE, many of them do, which makes Taylor's results very significant in the current context. Taylor has examined the following texts and periods for Homeric Greek and Koine Greek:

1. Homeric period: Homer - Iliad and Odyssey - 8<sup>th</sup> century BC
2. Koine period: the New Testament corpus (1<sup>st</sup> century AD).

Taylor's corpus contains 68% of split wh-phrases and 25% of split NPs for the Homeric period, which, as noted above, was an article-less language. On the other hand, the corpus for Koine Greek, an article language, contains only 15% of split wh-phrases and 0% split NPs.<sup>3</sup> Given that many cases of split wh-phrases/NPs involve LBE, these facts strongly confirm the generalization in (6).

Before proceeding, let me note that for the purpose of (6) and other generalizations below, I take articles to be unique, i.e. occur once per TNP. The *i* ending in SC (9) is then not considered to be an article (see Despić 2011 for relevant discussion of this element).<sup>4</sup>

(9) novi/nov	crveni	auto	
new-def./new.indef.	red-def.	car	(SC)

Furthermore, it should become clear from the discussion below that what is important for the

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<sup>3</sup>The definite article came into general use in the Classical Greek period (which comes in between the Homeric and the Koine Greek period), though it was likely fully established only in the Koine Greek Period. In this respect, it is worth noting that the percentage of split wh-phrases/NPs is significantly lower in the Classical Greek Period than in the Homeric period, though higher than in the Koine Greek period (see Taylor 1990).

<sup>4</sup>A word is in order here regarding Modern Greek. Androutopoulou (1998) claims that Greek allows what appears to be AP LBE. My informants, however, uniformly reject examples like (i) (in fact, even Androutopoulou notes that speakers have difficulty accepting such examples).

(i) to kokkino idha forema.  
the red saw dress  
'I saw the red dress.'

Notice also that *to*, which is traditionally considered to be an article, can appear on more than one element in a TNP (the so called polydefinite construction), which may cast doubt on its article status. Mathieu and Sitaridou (2002) suggest that this type of "articles" in Greek are actually agreement markers. More importantly for our purposes, Lekakou and Szendrői (2008), who treat *to* as a true article, analyze polydefinite constructions as involving multiple full DPs with nominal ellipsis. Under the ellipsis analysis, (i) may be analyzable as involving full DP movement, not LBE, with ellipsis of the NP in the fronted constituent. The analysis makes (i) (and Greek more generally) fully consistent with the LBE generalization. It is also worth noting that Androutopoulou (1998) treats (i) in terms of remnant DP fronting. It is shown in Bošković (2005) that such an analysis cannot be applied to AP LBE in true AP LBE languages like SC. If Androutopoulou's analysis of (i) is correct we may then be dealing here with a different phenomenon from AP LBE in languages like SC (recall, however, that the grammaticality status of (i) is highly controversial.)

generalizations given here is the presence/absence of definite, not indefinite articles in a language, given that indefinite articles have often been argued to be located below DP even in languages like English that clearly have DP (see, e.g., Bowers 1987, Stowell 1989, Chomsky 1995, Bošković 2007c). In fact, Slovenian, which uncontroversially has indefinite but not definite article, in all relevant respects patterns with article-less languages (see Bošković 2009a). Thus, it allows LBE.

- (10) Visoke je videl študente.  
tall is seen students

### 1.2. Adjunct extraction from NP

Consider adjunct extraction from TNP, which English disallows (see Chomsky 1986a).

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

Observing that SC and Russian allow extraction of adjuncts out of TNPs while Bulgarian does not allow it, Stjepanović (1998) argues for (16). Note that Slovenian, Polish, Czech, Ukrainian, Hindi, Bangla, Angika, and Magahi, all article-less languages, pattern with SC and Russian, while Spanish, Icelandic, Dutch, German, French, Arabic, and Basque, which have articles, pattern with English.<sup>5</sup>

- (12) Iz kojeg grada<sub>i</sub> je Petar sreo [djevojke t<sub>i</sub>] (SC)  
from which city is Peter met girls
- (13) Iz kakogo goroda ty vstrechal [devushek t<sub>i</sub>?] (Russian)  
from which city you met girls
- (14) \*Ot koj grad<sub>i</sub> Petko [sreštna momičeta t<sub>i</sub>?] (Bg, Stjepanović 1998)  
from which city Petko met girls
- (15) a. \*¿En dónde robaron [una estatua t<sub>i</sub>?] (Spanish, Ticio 2003)  
in where stole a statue  
b. \*Frá hvaða borg sérð þú stelpur? (Icelandic)  
from which city see you girls
- (16) Only languages without articles may allow adjunct extraction out of TNPs.

### 1.3. Scrambling

There is also an important correlation between articles and the availability of scrambling.<sup>6</sup>

<sup>5</sup>See Ticio (2003) for Spanish and Fortmann (1996) for German. ((11)b is actually acceptable in Spanish, where the relevant phrase is an argument, as Ticio shows (see Ticio for relevant tests)).

<sup>6</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 (17) is taken to be the existence of long-distance scrambling from finite clauses, which German lacks (for German, see also Bošković 2004a and Grewendorf 2005).

One needs to be careful here regarding the usage of the term scrambling in the literature, since the term is often used for ease of exposition when an author wants to remain uncommitted regarding the nature of the movement involved. From this perspective, many potential counterexamples to the scrambling generalization can be easily explained away. Consider, e.g., Albanian and Greek, which are sometimes said to have scrambling. However, an object that is fronted to

(17) Only languages without articles may allow scrambling.

SC, Russian, Polish, Czech, Slovenian, 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, which are also related languages. The latter two lack articles and have more freedom of word order than Lakhota, which has articles.

#### 1.4. Negative raising

I now turn to a generalization regarding negative raising (NR), where negation can be taken to be either in the matrix or the embedded clause of (18). The embedded clause option is confirmed by the strict clause-mate NPIs in (21). That these items require negation is shown by (19), while (20) shows that non-NR verbs like *claim* disallow long-distance licensing of these items. Since they require clause-mate negation, negation must be present in the embedded clause of (21) when the NPIs are licensed.

(18) John does not believe that Mary is smart.

(19) a. \*John left until yesterday.

b. John didn't leave until yesterday.

c. \*John has visited her in at least two years.

d. John hasn't visited her in at least two years.

(20) a. \*John didn't claim [ that Mary would leave [<sub>NPI</sub> until tomorrow]]

b. \*John doesn't claim [that Mary has visited her [<sub>NPI</sub> in at least two years]]

(21) a. John didn't believe [ that Mary would leave [<sub>NPI</sub> until tomorrow]]

b. John doesn't believe [that Mary has visited her [<sub>NPI</sub> in at least two years]]

Before establishing the NR generalization, note that for the purpose of the generalization I confine myself to negative raising from finite clauses and use as the relevant diagnostics the ability of NR to license strict-clause mate NPIs. A crosslinguistic check of the availability of NR under these conditions reveals the following:

(22) Negative raising is disallowed in languages without articles.

SC, Czech, Slovenian, Polish, Russian, Ukrainian, Turkish, Korean, Japanese, and Chinese lack articles and NR (i.e. strict clause-mate NPI licensing under NR). On the other hand, English, German, Spanish, French, Portuguese, Romanian, and Bulgarian have both articles and NR (i.e. allow strict clause-mate NPI licensing under NR, see Bošković 2008a). In light of this, we may in fact be dealing here with a two-way correlation, which would strengthen (22) to (23).

(23) Languages without articles disallow NR, and languages with articles allow it.

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a sentence initial position in these languages either has to be clitic doubled or contrastively focused and adjacent to the verb (see here Kalluli 1999). This indicates that object fronting involves either clitic left dislocation or focus movement, not what is referred to as scrambling in Japanese.

Interestingly, even in languages where the NPI test fails negation is interpretable in the lower clause: SC (24) has the atheist (non-agnostic) meaning Ivan believes God doesn't exist (the same holds for Korean, Japanese, Turkish, Chinese, Russian, Polish, and Slovenian).

- (24) Ivan ne vjeruje da bog postoji  
 Ivan neg believes that God exists

This suggests that lower clause negation interpretation and strict NPI licensing under NR should be divorced (contrary to the standard practice, where the two are correlated), with a three-way split among verbs: (a) negation interpreted in the lower clause and strict NPIs licensed under NR (possible only for some verbs in languages with articles) (b) negation interpreted in the lower clause, strict NPIs not licensed (c) no NR at all.

### 1.5. Superiority and multiple wh-fronting

MWF languages differ regarding whether they show Superiority effects (strict ordering of fronted wh-phrases) in examples like (25)-(26). It turns out that there is a correlation between Superiority effects with multiple wh-fronting (MWF) and articles, given in (27).

- (25) a. Koj kogo vižda?  
 who whom sees  
 'Who sees whom?'  
 b. \*Kogo koj vižda (Bulgarian)
- (26) a. Ko koga vidi?  
 who whom sees  
 b. Koga ko vidi? (SC)
- (27) MWF languages without articles do not display superiority effects in examples like (25)-(26).

MWF languages without articles do not show Superiority effects. This is the case with SC, Polish, Czech, Russian, Slovenian, Ukrainian, and Mohawk. MWF languages that show Superiority effects all have articles. This is the case with Romanian, Bulgarian, Macedonian, Basque, and Yiddish. Hungarian is an exception (it has articles and no superiority), which however does not violate (27).<sup>7</sup>

### 1.6. Clitic doubling

Another generalization concerns clitic doubling, where Slavic again gives us a useful clue. Clitic doubling is allowed only in two Slavic languages, Bulgarian and Macedonian, which also have articles.<sup>8</sup> Slavic languages without articles, like SC, disallow it. In fact, all clitic doubling languages I am aware of (Albanian, Macedonian, Bulgarian, Greek, Somali, Spanish, French (some dialects), Catalan, Romanian, Hebrew, Dutch (some dialects)) have articles. We then have (29).

<sup>7</sup>Interestingly, Watanabe (2003) suggests that Hungarian traditional definite article is not a D-element, which casts doubt on its DP status. (For relevant discussion of Hungarian MWF, see Bošković 2007a.)

<sup>8</sup>Note that the doubled NP in (28)a is in situ, it is not right-dislocated; note also that true clitic doubling is associated with a definiteness/specificity effect.

- (28) a. Ivo go napisa pismoto. (Bulgarian/Macedonian)  
 Ivo it wrote letter-the  
 ‘Ivo wrote the letter.’  
 b. \*Ivan (\*ga) napisa pismo. (SC)  
 Ivan it wrote letter
- (29) Only languages with articles may allow clitic doubling.

### 1.7. Adnominal genitive

Willim (2000) notes English, Arabic, Dutch, German, and Catalan, all article languages, allow two nominal genitive arguments, i.e. both the external and the internal argument can be genitive, where the genitive is realized via a clitic/suffix or a dummy P (30). The same holds for Portuguese, Basque, French, Greek, Hebrew, Icelandic, Macedonian, Bulgarian, Spanish, Welsh, Maltese, Maori, Samoan, Swedish, all article languages. On the other hand, Willim notes articleless languages Polish, Czech, Russian, and Latin disallow two lexical genitives. (Note that word order does not matter in (31). In languages of this type the external argument is generally realized via a PP headed by an analogue of English *by* (a semantically contentful P) or an inherent oblique Case, see (32).) The same holds for SC, Ukrainian, Chinese, Quechua, and Turkish. This leads to (33).<sup>9</sup>

- (30) a. Hannibals Eroberung Roms  
 Hannibal-GEN conquest Rome-GEN  
 ‘Hannibal’s conquest of Rome’ (German)  
 b. l’avaluació de la comissió dels resultats  
 the evaluation of the committee of the results  
 ‘the committee’s evaluation of the results’ (Catalan)
- (31) a. \*odkrycie Ameryki Kolumba  
 discovery America-GEN Columbus-GEN  
 ‘Columbus’ discovery of America’ (Polish)  
 b. \*zničení Říma barbarů  
 destruction Rome-GEN barbarians-GEN  
 ‘The barbarian’s destruction of Rome’ (Czech)
- (32) a. odkrycie Ameryki przez Kolumba  
 discovery America-GEN by Columbus  
 ‘the discovery of America by Columbus’  
 b. zničení Říma barbary  
 discovery Rome-GEN barbarians-INSTR  
 ‘the destruction of Rome by the barbarians.’
- (33) Languages without articles do not allow transitive nominals with two lexical genitives.

<sup>9</sup>(33) concerns only nominal arguments, not possessives, and 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 am not concerned with this type of lexically specified cases here.) I also ignore for obvious reasons languages such as Japanese which allow multiple identical case marking constructions. (The same holds for languages like Estonian, which allows multiple genitives on adjectives that does not arise through case concord with a noun (the noun can be non-genitive in such cases).)

## 1.8. Superlatives

Živanovič (2008) notes that Slovenian (34) does not have the reading where more than half the people drink beer. It only has the reading where more people drink beer than any other drink though it could be less than half the people.

- (34) Največ ljudi pije pivo.  
most people drink beer.  
'More people drink beer than drink any other beverage.' (Plurality reading, MR)  
'\*More than half the people drink beer.' (Majority reading, PR)

English *most* gives rise to both readings, though in different contexts. German MOST also has both readings.

- (35) Die meisten Leute trinken Bier.  
the most people drink beer.  
'More than half the people drink beer.'  
'More people drink beer than any other drink.' (with focus on *beer*.)

Živanovič notes English, German, Dutch, Hungarian, Romanian, Macedonian, and Bulgarian, which have articles, allow the majority reading (the same holds for Basque and Arabic). The reading is disallowed in Slovenian, Czech, Polish, SC, Chinese, Turkish, and Punjabi, which lack articles and allow only the plurality reading (the same holds for Hindi, Angika, and Magahi).<sup>10</sup> We then have (36) (I set aside cases where the majority reading is expressed with a noun like majority).

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

## 1.9. Head-internal relatives and locality

There is a locality distinction among languages with head-internal relatives (HIR). HIRs in Japanese, Korean, Quechua, Navajo, and Mohawk are island sensitive, while those in Mojave and Lakhota are not (Basilico 1996, Watanabe 2004, Baker 1996). Interestingly, the former lack articles, while the latter have them. This leads to (37).

- (37) Head-internal relatives display island-sensitivity in article-less languages, but not in languages with articles.

Grosu and Landman (1998) show that there is also a semantic difference at work here, in particular, HIRs are restrictive in languages with articles and maximalizing in those without articles.

## 1.10. Polysynthetic languages

Baker (1996) observes the following generalization regarding polysynthetic languages.

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<sup>10</sup>The following context enforces the majority reading for (the past tense version) of (35): Suppose people at a dinner were allowed more than one beverage. 60% of the people had a beer and 75% of the people had a glass of wine.



(38) Polysynthetic languages do not have articles.

## 2. Additional generalizations

I now turn to new generalizations that were not discussed in Bošković (2008a). (Anticipating the discussion in sections 3-4, from now on I will refer to languages with articles as DP languages, and to languages without articles as NP languages.)

### 2.1. Focus morphology

In some languages, negative constituents have overt focus morphology (see (39)). Such morphology is often realized through the presence of focal elements like *even*, *also*, or *too* (SC has two series of negative constituents, a negative concord series and an NPI series, both of which contain *even*), and sometimes through obligatory emphatic (focus) stress, as in Greek.<sup>11</sup>

(39) n+i+ko                      i+ko  
      neg+even+who            even+who    ‘noone/anyone’                      (SC)

While in DP languages negative constituents may but do not have to have a focus marker, in NP languages they have a focus marker. This holds for SC, Russian, Polish, Ukrainian, Lithuanian, Hindi, Chinese, Japanese, Korean, Finnish, Yakut, Lezgian, Kannada, Quechua, Mansi, Latin, Persian, Turkish, and Kazakh.<sup>12</sup> This leads to (40).

(40) Negative constituents must be marked for focus in NP languages.

### 2.2. Negative concord with complex negative constituents

It is well-known that in some negative concord languages, the negative concord reading is unavailable with complex negative constituents (NCIs). This is illustrated below with examples from Italian. (41)a-b show that Italian is a negative concord language. However, the negative concord reading becomes unavailable with multiple NCIs if one of the NCIs is a complex element.

(41) a. Non    ho    visto    nessuno/nessuno    studente.  
      NEG    have    seen    nobody/no            student  
      ‘I didn’t see anybody/any students.’                      (negative concord only)

      b. Nessuno ha    letto    niente.  
      nobody has read    nothing                                      (negative concord or double negation)

      c. Nessuno studente ha    letto    nessun    libro/niente.  
      no            student has read no            book/nothing                      (double negation only)

<sup>11</sup>Another option, which may be realized in Slovenian, may be obligatory focus movement of the negative constituent.

<sup>12</sup>Bošković (2009c) argues that in languages with both negative concord and NPI series, the two are derived from the same underlying items, which means it suffices for one of these to have a focus marker to meet (40). There is a bit of a complication with Persian. Persian negative concord series contains *hic*. *Hic* is analyzable as *air* one+*ciy*, an emphatic particle which I assume is focus related. *Hic* was borrowed into Turkish and Kazakh, which I assume can be analyzed in the same way. A potential counterexample to the generalization in (40) is Georgian. Georgian does have a focus marker in the existential quantifier series, but not in NCIs. I leave a detailed examination of Georgian for future research.

It turns out that DP languages differ with respect to whether the double negation reading is forced in examples like (41)c. Thus, the reading is forced in Italian, Spanish, West Flemish, and French. However, Brazilian Portuguese, Basque, Hebrew, and Romanian still allow the negative concord reading. On the other hand, NP negative concord languages all allow the negative concord reading in examples like (41)c. This is, e.g., the case with SC, Russian, Polish, Ukrainian, Japanese, Korean, and Turkish. I am in fact unaware of any negative concord NP language that would disallow the negative concord reading. We are then led to the following generalization.

(42) The negative concord reading may be absent with multiple complex negative constituents only in DP negative concord languages.

### **2.3. Quantifier scope**

Consider now (43).

(43) Someone loves everyone.

The example is ambiguous: *Everyone* can take either narrow or wide scope in (43). I will refer to the latter reading as the inverse scope reading. A number of languages disallow the inverse scope reading in the unmarked order for the subject, verb, and object (SVO in SVO languages, and SOV in SOV languages). Thus, inverse scope is allowed in English, Spanish, Brazilian Portuguese, Macedonian, and Hebrew, but it is impossible in German, Basque, Dutch, Icelandic, Bulgarian, Welsh, Romanian, Japanese, Korean, Turkish, Persian, Hindi, Bangla, Chinese, Russian, Polish, Slovenian, Ukrainian, and SC. Focusing on the latter group of languages, while the first seven are DP languages, other languages in this group are all NP languages. In fact, I do not know of any NP language that productively allows inverse scope in such examples.<sup>13</sup> We then have (44).

(44) Inverse scope is unavailable in NP languages in examples like (43).

### **2.4. Radical pro-drop**

I now turn to the phenomenon of radical pro-drop, which I define as productive argumental pro drop of both subjects and objects in the absence of rich verbal agreement. This type of pro-drop differs from pro-drop in languages like Spanish, where pro-drop is licensed by rich verbal morphology. As a result, since Spanish has subject but not object agreement, pro-drop is allowed only with subjects in Spanish. Radical pro-drop is allowed in Japanese, Chinese, Korean, Kokota, Turkish, Hindi, Wichita, Malayalam, Thai, Burmese, and Indonesian, all of which are NP languages.<sup>14</sup> In light of this, we have the generalization in (45).

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<sup>13</sup>Certain quantifiers always require wide scope. Such quantifiers tend to be interpreted with wide scope even in NP languages. What I am concerned with here is quantifiers that do not require wide scope, i.e. whether the inverse scope is productively available for all quantifiers in a given language in this type of examples.

<sup>14</sup>See also Tomioka (2003) (and Saito 2007 and Neeleman and Szendrői 2007 for different perspectives). Turkish seems to combine Spanish type and radical pro-drop. A potential problem that is being investigated is Cheke Holo. If Cheke Holo indeed turns out to be an exception, (45) would simply be a strong tendency. (It is worth noting here that Brazilian Portuguese is not classified as a radical pro-drop language, since it does not have fully productive subject drop. In fact, since pronoun objects could incorporate into V, the availability of a fully productive subject pro-drop is crucial here.)

(45) Radical pro-drop is possible only in NP languages.

## 2.5. Number morphology

Gill (1987), who considers only a few languages, suggests a potential correlation between obligatory number morphology and the availability of articles. The phenomenon we are looking at here is the possibility of having examples like (46), where the N can be interpreted as plural in the absence of plural morphology. (47) divides languages into two groups, where one group has languages that at least optionally can lack number morphology with at least some Ns (i.e. where some or all countable Ns can receive plural interpretation without the presence of number morphology), and the other group contains languages that have obligatory plural morphology (on either D or N).<sup>15</sup>

(46) Susumu-ga hon-o yonda.  
Susumu-nom book-acc bought  
'Susumu bought a/the book/books.'  
(Japanese)

(47) *No obligatory number morphology*: Japanese, Korean, Chinese, Hindi, Bangla, Malayalam, Mohawk, Dyirbal, Warlpiri, Warrgamay, Kuku-Yalanji, Indonesian, Vietnamese. *Obligatory number morphology*: Russian, SC, Ukrainian, Hebrew, Portuguese, German, Bulgarian, Polish, Hungarian, Spanish, Romanian, French, Slovenian, Finnish, Bulgarian, Swahili, Greek, Dutch, Italian, Latin, Ossetic, Kannada, Macedonian, Somali, Estonian

While the second group comprises both NP and DP languages, all languages in the first group are NP languages.<sup>16</sup> We then have the generalization in (48).

(48) Number morphology may not be obligatory only in NP languages.

## 2.6. Focus adjacency

The next generalization deals with the question of whether languages that have focus movement require adjacency with the verb. It is well-known that some languages require movement of focalized elements. Such languages differ regarding whether the fronted focalized element has to be adjacent to the verb. I illustrate this for Bulgarian (49) and SC (50). (Capital letters indicate contrastive focus.)

(49)a. \*KARTINATA Ivan podari na Maria. (Lambova 2004)  
painting-the (foc) Ivan give-as-a-present-PT.3P.SG to Maria  
'Ivan gave Maria the painting as a present.'

b. KARTINATA podari Ivan na Maria.

(50) JOVANA (Petar) savjetuje. (Stjepanović 1999)  
Jovan-acc Petar-nom advises  
'Petar is advising Jovan.'

<sup>15</sup>I ignore here TNPs involving numerals, since numerals by their very nature express number.

<sup>16</sup> The NP/DP status of Vietnamese is somewhat controversial; see, however, Cheng (in preparation) for arguments that Vietnamese lacks true articles, hence should be classified as an NP language.

It turns out that Basque, Hungarian, Bulgarian, Armenian, Greek, Catalan, Romanian, Macedonian, Italian, Spanish, and Albanian are subject to the adjacency requirement. This is not the case with Slovenian, Russian, SC, Polish, Chinese, and Nupe.<sup>17</sup> The adjacency languages are all DP languages, while the non-adjacency languages are all NP languages. We may then have here another NP/DP generalization.

(51) Elements undergoing focus movement are subject to a verb adjacency requirement only in DP languages.

## 2.7. Interpretation of possessors

Partee (2006) observes that English (52) presupposes that Zhangsan has exactly three sweaters. On the other hand, there is no such exhaustivity presupposition in Chinese (53).<sup>18</sup>

(52) Zhangsan's three sweaters

(53) Zhangsan de [san jian maoxianyi]  
Zhangsan DE<sub>Poss</sub> three CL sweater  
'Zhangsan's three sweaters'

NP languages I have checked so far, Russian, SC, Turkish, Japanese, Korean, Hindi, Bangla, Malayalam, and Magahi, all pattern with Chinese in this respect. (Partee notes this for Russian.) Spanish, Brazilian Portuguese, Italian, Basque, Hebrew, Dutch, and Arabic, on the other hand, pattern with English. This leads to (54).

(54) Possessors may induce an exhaustivity presupposition only in DP languages.

It is worth noting in this respect that Lyons (1999) argues that the DP projection is responsible for the presupposition of uniqueness/exhaustivity. It is then not surprising that the presupposition is lacking in article-less languages, which lack DP.<sup>19</sup>

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<sup>17</sup>Turkish is also subject to the adjacency requirement. However, Şener (2006) provides convincing evidence that Turkish actually does not have focus movement. Rather, focalized elements in Turkish remain in their base position, where they are subject to a prosodic requirement that focalized elements be exhaustively parsed into the same intonational phrase as the verb. The adjacency requirement in Turkish is therefore phonological, not syntactic in nature (in fact, it affects both contrastively focused elements and elements that bear simple new information focus, a state of affairs that is not found with focus movement, which typically affects only the former in the case of focalized non-wh-phrases.) Notice also that Şener (2010) argues that all elements that are interpreted as old information (both topics and discourse anaphoric elements) must undergo movement out of vP in Turkish, this in fact being the only movement that the language has, which leaves only focalized elements next to the verb. Since Turkish does not have focus movement, it is irrelevant for the phenomenon under consideration here.

<sup>18</sup>There is more than one option for word order regarding Chinese possessors. I focus here on the possessor-numeral order (in the absence of a demonstrative); see Partee (2006) for discussion of the full paradigm. (Constructions where the possessor precedes the numeral are definite, while those where the possessor follows the numeral are indefinite and roughly correspond to English *three sweaters of John's*. I exclude such examples from the discussion here since I am focusing on definite possessor phrases. For this reason I also focus on article+possessor constructions in DP languages that allow the two to cooccur.)

<sup>19</sup>Lyons in fact argues that there is no grammaticalized definiteness in Chinese, i.e. he also argues that Chinese (and other article-less languages) lack DP. Chinese (and other article-less languages) do have some definiteness effects. However, he argues definiteness effects found in such languages represent a semantico/pragmatic notion of definiteness

## 2.8. *Classifiers*

Cheng (in preparation) examines languages with obligatory classifier systems and notes a correlation with absence/presence of articles, given here in (55).

(55) Obligatory numeral classifier systems occur only in NP languages.

In other words, if a language has an obligatory classifier system, it does not have DP. What this generalization suggests is that there is an incompatibility between a classifier system, i.e. CIP, and DP. This in turn can be interpreted as support for Cheng and Sybesma's (1999) proposal that classifiers do the job of D in languages like Chinese. In other words, since CIP and DP basically do the same job, a language cannot have both. Note, however, that we are not simply dealing here with a label difference, where DP is replaced by CIP. Cheng and Sybesma show that CIP is very low in the structure. This means that the source of definiteness is lower in the structure in NP than in DP languages. In work in preparation I take advantage of this to account for the well-known fact that number (more precisely, plurality) interacts with definiteness in CIP languages like Chinese but not in DP languages like English (the reason for this being that the projection that is responsible for plurality is higher than CIP (the source of definiteness in Chinese), but lower than DP (the source of definiteness in English)).

## 2.9. *Second position clitics*

Another generalization concerns the type of clitics a language has (see also Migdalski 2010 and Runić 2011). Languages typically have either verbal (i.e. V-adjacent) clitics or so-called second position clitics.<sup>20</sup> Languages that are standardly assumed to have second position clitics include a number of Slavic languages (SC, Czech, Slovak, Slovenian, Hucul Ukrainian, and Sorbian), Latin, Ancient Greek, Pashto, Tagalog, Ngiyambaa and Warlpiri (and a number of north-central Australian languages), which interestingly all lack articles.<sup>21</sup> This leads us to the generalization in (56).

(56) Second-position clitic systems are found only in NP languages.

Slavic and Romance are again quite informative: while a number of Slavic languages have second-position clitic systems, Bulgarian and Macedonian are glaring exceptions. As for Romance, Latin had second-position clitics, while Modern Romance languages lack them. The history of Greek provides a rather strong confirmation of (56). Thus, Taylor (1990) shows that 90% of enclitics in the Homeric period, when Greek did not have articles, were in the second position; this simple second position cliticization system broke down in the later stages (i.e. article stages), like Koine Greek.

Additional generalizations will be discussed in section 5; for additional generalizations that cut across the DP/NP line, the reader is also referred to Herdan (2008), Marelj (2008), Boeckx

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as identifiability (which seems to correspond to what Partee calls familiarity), correlated with topichood. According to Lyons, such non-grammaticalized definiteness fails to involve the presupposition of uniqueness/exhaustivity (i.e. non-grammaticalized definiteness normally lacks the uniqueness/exhaustivity presupposition).

<sup>20</sup>I am simplifying here the actual state of affairs. Note that true second-position clitics are not simply enclitics (i.e. not all enclitics are second-position clitics). I refer the reader to Bošković (2001) and references therein for discussion.

<sup>21</sup>Uto-Aztecan languages are currently being investigated in this respect.

(2003a), Runić (2011), Despić (2011), and Bošković (2009d, in preparation). Taken together, these generalizations provide strong evidence that there is a fundamental difference between TNP in languages like English and article-less 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 D in SC. Appealing to phonological overtiness will not work since English, e.g., disallows LBE (*\*Fast, he likes cars*), adjunct extraction from TNP, and scrambling even with null D. Moreover, the above generalizations deal with syntactic and semantic, not phonological phenomena.

It is often assumed that the TNP should be treated in the same way in article-less languages and languages like English for the sake of uniformity. This argument fails on empirical grounds in light of the above generalizations: it is simply a fact that there are radical syntactic and semantic differences between the two—there is no uniformity here. Most importantly, as shown in Bošković (2008a, in preparation), Bošković and Gajewski (in press), and section 4, these differences (i.e. all the generalizations discussed above) can be deduced if there is DP in the TNP of English, but not languages like SC. 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. It is extremely hard to see how this can be accomplished under a uniform DP analysis. In fact, I contend that a universal DP analysis cannot even be entertained seriously until it can be shown that the analysis can also provide a principled, uniform account of the above generalizations.

### 3. D-like items in article-less languages

It should also be noted that traditional D-items do not exhibit the behavior that is standardly associated with D-items in article-less languages. Let us take a look at SC as a representative of NP languages in this respect. Although SC does not have articles, it does have lexical items like *that*, *some*, and possessives. However, such items behave like adjectives in SC both morphologically and syntactically (see Zlatić 1997 and Bošković 2008a).<sup>22</sup> In contrast to English D-items, they clearly have the morphology of adjectives (57), occur in typical adjectival positions like the predicate position of a copula (58), allow stacking up (59), and often (though not always) fail to induce Specificity effects that English D-items induce (60). Another interesting quirk is that SC possessives cannot be modified by adjectives (61), which follows if adjectives cannot modify adjectives given that SC possessors are actually adjectives.

- (57) a. *tim*                      *nekim*                      *mladim*                      *djevojkama*  
          those<sub>FEM.PL.INST</sub>      some<sub>FEM.PL.INST</sub>          young<sub>FEM.PL.INST</sub>      girls<sub>FEM.PL.INST</sub>  
       b. *tih*                        *nekih*                        *mladih*                        *djevojaka*  
          those<sub>FEM.GEN.PL</sub>      some<sub>FEM.GEN.PL</sub>          young<sub>FEM.GEN.PL</sub>      girls<sub>FEM.GEN.PL</sub>
- (58) a. \*This book is my.  
       b. Ova knjiga je moja.  
           this book is my
- (59) a. \*this my picture

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<sup>22</sup>The point of the following discussion is to demonstrate that the SC items in question behave differently from their English counterparts; we would not necessarily expect that the items in question will exhibit the same behavior in all NP languages or rule out the possibility that in some DP languages some of the items under discussion could exhibit some of the properties of the SC items in question.

- b. ta moja slika  
 this my picture
- (60) 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?’
- (61) \*bogati susjedov konj  
 rich neighbor’s horse

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 some interpretational effects regarding the order of adjectives and possessors).

- (62) Jovanova skupa slika vs. skupa Jovanova slika  
 John’s expensive picture \*expensive John’s picture
- (63) bivša Jovanova kuća vs. Jovanova bivša kuća  
 \*former Jovan’s house John’s former house

Notice, however, that the order of SC adjectives and D-items is not completely free. Thus, both adjectives and possessives must follow demonstratives.

- (64) 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 (see e.g. Partee and Borschev 1998 and Larson and Cho 1999).

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

Given the standard assumptions that adjectives are also of type  $\langle e,t \rangle$  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. On the other hand, the situation is different with demonstratives. Kaplan (1977/1989) argues that 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  $\langle \langle e,t \rangle, e \rangle$ .

Once a demonstrative has mapped a nominal element to an individual, further modification by predicates of type  $\langle e,t \rangle$  is impossible. Hence, semantic composition requires both adjectives and possessives to be composed before demonstrative determiners. In other words, semantic composition allows possessives to be composed either before or after modifying adjectives, while demonstratives must be composed after both adjectives and possessives.<sup>23</sup> This perfectly matches

<sup>23</sup>Note that the above account readily extends to non-restrictive adjectives under Morzycki’s (2008) analysis, where non-restrictive adjectives are also treated as having type  $\langle e,t \rangle$  and required to be interpreted inside the determiners.

the actual facts regarding the ordering of the elements in question in SC.

It is worth noting in this respect that English counterparts of the unacceptable examples in (64) are significantly worse than the SC examples. This follows if the English examples have the semantic violation we have discussed as well as a syntactic violation (violations of the requirement that DP must be projected on top of TNP and whatever is responsible for the incompatibility of articles and possessives in English).

- (67) a. \*\*expensive this car  
b. \*\*John's his picture

The proponents of the universal DP analysis (Bašić 2004, Rappaport 2000, Pereltsvaig 2007) account for (64) 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.)

- (68) [<sub>DP</sub> Demonstrative [<sub>POSSP</sub> Possessive [ <sub>$\alpha$ P</sub> Adjective [<sub>NP</sub> (Bašić 2004)

(68) accounts for (64), but it fails to capture the relative freedom of the adjectives/possessives order in SC and the SC/English contrast in this respect. Furthermore, Despić (2009, 2011, in press) provides conclusive evidence against (68) based on the following SC/English contrasts.<sup>24</sup>

- (69) a. His<sub>i</sub> latest movie really disappointed Kusturica<sub>i</sub>.  
b. Kusturica<sub>i</sub>'s latest movie really disappointed him<sub>i</sub>.  
(70) a. \* Kusturicin<sub>i</sub> najnoviji film ga<sub>i</sub> je zaista razočarao.  
Kusturica's latest movie him is really disappointed  
'Kusturica<sub>i</sub>'s latest movie really disappointed him<sub>i</sub>.'  
b. \* Njegovi najnoviji film je zaista razočarao Kusturicu<sub>i</sub>.  
his latest movie is really disappointed Kusturica  
'His<sub>i</sub> latest movie really disappointed Kusturica<sub>i</sub>.'

Despić notes that (69) can be accounted for if, as in Kayne (1994), English possessives are located in the Spec of PossP, which is immediately dominated by DP, the DP preventing the possessive from c-commanding anything outside of the subject. The contrast between English and SC then follows if the DP is missing in SC. (Despić in fact treats SC possessives as NP adjuncts, on a par with adjectives; see section 4.1).

Significantly, Chinese and Japanese behave just like SC in the relevant respect (see Cheng in preparation and Takahashi 2011 for further discussion of Chinese and Japanese respectively), which provides strong evidence for the no-DP analysis for these languages.

- (71) a. \*Ta<sub>1</sub>-de zuixinde dianying rang Li-An hen shiwan.  
he-gen newest movie make Li-An very disappointed

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<sup>24</sup>The examples in the rest of this subsection assume a neutral (i.e. non-focused) interpretation of the relevant nouns/pronouns. (Since contrastive focus affects binding relations it is important to control for it. I have also avoided using relational nouns like father since at least for some speakers they involve irrelevant interfering factors; see Takahashi 2011).



- ‘His latest movie really disappointed Li-An.’
- b. \*Li-An<sub>i</sub> zuixinde dānying rang ta<sub>1</sub> hen shiwang.  
Li-An newest movie make he very dsappointed  
‘Li-An's latest movie really disappointed him.’
- c. \*Kurosawa<sub>i</sub>-no saisin-no eega-wa hontoo-ni kare<sub>i</sub>-o rakutans-ase-ta.  
Kurosawa-GEN latest-GEN movie-top really him-ACC disappoint-cause-past  
‘Kurosawa’s latest movie really disappointed him’
- d. \*Kare<sub>i</sub>-no saisin-no eega-wa hontoo-ni Kurosawa<sub>i</sub>-o rakutans-ase-ta.  
he-GEN latest- GEN movie-top really Kurosawa- ACC disappoint-cause-past  
‘His latest movie really disappointed Kurosawa.’

Despić also shows that demonstratives and adjectives do not change anything in SC, which provides strong evidence that demonstratives, possessives, and adjectives should be treated as multiple adjuncts/specs of the same phrase. Since demonstratives and adjectives do not introduce an extra projection, they do not prevent the possessive from c-commanding the co-indexed elements in (72).

- (72) a. \*<sub>[NP</sub> Ovaj <sub>[NP</sub> Kusturicin<sub>i</sub> <sub>[NP</sub> najnoviji <sub>[N'</sub> film]]]] ga<sub>i</sub> je zaista razočarao.  
this Kusturica’s latest movie him is really disappointed  
‘This latest movie of Kusturica<sub>i</sub> really disappointed him<sub>i</sub>.’
- b. \*<sub>[NP</sub> Brojni <sub>[NP</sub> Kusturicini<sub>i</sub> <sub>[NP</sub> filmovi ]]] su ga<sub>i</sub> razočarali  
numerous Kusturica’s movies are him disappointed

It should, however, be noted that the application of Despić’s test shows that functional structure is not completely lacking in SC TNPs. Thus, while demonstratives and adjectives do not bring in additional projections, non-adjectival numerals which assign genitive of quantification do bring in an additional projection. Despić observes that these elements confine the c-command domain of possessives, allowing them to co-refer with other elements without causing a binding violation. The contrast between (72) and (73) provides strong evidence that additional phrasal structure is present above the possessive only in (73), involving a numeral.

- (73) <sub>[QP</sub> Pet <sub>[NP</sub> Dejanovih<sub>i</sub> <sub>[NP</sub> prijatelja ]]] je došlo na nje<sub>i</sub>govo<sub>i</sub> venčanje  
five Dejan’s<sub>GEN</sub> friends<sub>GEN</sub> is come to his wedding  
‘Five of Dejan’s friends came to his wedding.’

Notice that Chinese and Japanese classifiers pattern with SC numerals; they apparently also introduce an additional projection into the structure.

- (74) a. You wu-ge Zhangsan<sub>i</sub>-de pengyou lai canjia ta<sub>i</sub>-de hunli  
have 5-cl Zhangsan-gen friend come attend he-gen wedding  
‘Five of Zhangsan's friend came to his wedding.’
- b. Go-nin-no John<sub>i</sub>-no tomodachi-ga kare<sub>i</sub>-no kekkonsiki-ni kita  
five-CL-GEN John-GEN friends-NOM he-GEN wedding-DAT came  
‘Five of John's friends came to his wedding.’

It is worth noting here that Saito, Murasugi, and Lin (2008) argue that only Chinese has a CIP, classifiers in Japanese being NP-adjuncts. The above data provide evidence against this conclusion.

Just like Chinese classifiers, Japanese classifiers confine the c-command domain of possessives, which indicates that they also project a CIP above NP.

#### 4. Some deductions of the NP/DP generalizations

I now turn to explanations for the generalizations from sections 1 and 2 under the DP/NP analysis. I will first briefly summarize the account of a couple of representative generalizations given in section 1 from Bošković (2005, 2008a) and Bošković and Gajewski (in press), referring the reader to Bošković (2008a) for the deduction of other generalizations from sections 1 and 2. I will focus here on phenomena that are relevant to the clause-level syntax, namely left-branch extraction (I will also suggest a modification of my original analysis of the phenomenon), which involves extraction of TNP-internal elements to the clause level (two other locality phenomena, adjunct extraction out of TNPs and islandhood with HIRs, will also be addressed), and two surprising cases of an apparent interaction between TNP-internal syntax/semantics and clause-level phenomena, namely the generalizations concerning the interpretation of superlatives and negative raising. The generalizations in question confirm the importance of TNP-internal syntax and semantics for clause-level phenomena. I will then propose a deduction of two generalizations from section 3, namely (45) and (48) (suggestions for deductions of two other generalizations, (54) and (55), have already been given in section 3), and explore its consequences for the clausal structure of NP languages.

##### 4.1. Back to Left Branch Extraction: The phase analysis

In Bošković (2005) I gave two deductions of (6). Here, I will summarize only one of them, the one based on the Phase-Impenetrability Condition (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 assumed in Bošković (2005) that DP is a phase, but NP isn't. Given the PIC, XP can then move from 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 1994, 1997, Saito and Murasugi 1999, Ishii 1999, Abels 2003, Grohmann 2003, Ticio 2003, Boeckx 2005, Jeong 2006.)<sup>25</sup> Like most other approaches, the version of anti-locality adopted in Bošković (2005) requires Move to cross at least one full phrasal boundary (not just a segment). AP then cannot move to SpecDP in (75) due to anti-locality. Given the PIC, it cannot move directly out of DP either, as in (76). Anti-locality/PIC thus prevent AP extraction from DP, banning AP LBE in English (they don't ban all movement from DP, *who do you see* [<sub>DPT</sub>[<sub>NP</sub>friends of t]] is still allowed)

(75) \*<sub>[DP AP<sub>i</sub> [<sub>D'</sub> D [<sub>NP</sub> t<sub>i</sub> [<sub>NP</sub>....</sub>

(76) \*AP<sub>i</sub> [<sub>DP</sub> [<sub>D'</sub> D [<sub>NP</sub> t<sub>i</sub> [<sub>NP</sub>....

The impossibility of adjunct extraction out of TNP in English can be accounted for in the same way

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<sup>25</sup>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).

as the impossibility of AP LBE, given that NP adjuncts are also adjoined to NP. Moreover, the PIC/anti-locality problem does not arise in SC, which lacks DP.

I would, however, like to suggest here a modification of one aspect of my earlier analysis of LBE. As discussed in Bošković (2005), SC disallows deep LBE, i.e. LBE out of a complement of a noun (the same holds for Polish, Czech, and Russian).

- (77) a. On cijeni [NP [N' [ prijatelje [NP pametnih [NP studenata]]]]  
 he appreciates friends smart students  
 'He appreciates friends of smart students.'  
 b. ?\*Pametnih<sub>i</sub> on cijeni [NP [N' [ prijatelje [NP t<sub>i</sub> [NP studenata]]]]

What this shows is that 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. (77)b can then be accounted for in exactly the same way as (3) (*\*Expensive, he saw cars*), with the higher NP blocking LBE for the same reason DP does it in the English example. As noted in Bošković (2010), strong evidence that this suggestion is on the right track concerns Abels's (2003) generalization that the complement of a phase head is immobile. Thus, Abels observes that an IP that is dominated by a CP, a phase, cannot undergo movement. This in fact follows from an interaction of the PIC and anti-locality, with the PIC requiring IP movement through SpecCP, and anti-locality blocking such movement because it is too short. Now, if NP is indeed a phase in NP languages we would expect that an NP complement of a noun cannot undergo movement. Zlatić (1997) observes genitive complements of nouns indeed cannot be extracted in SC.

- (78) ?\*Ovog študenta sam pronašla [NP knjigu t<sub>i</sub> ]  
 this student(gen) am found book  
 'Of this student I found the/a book'

The impossibility of deep LBE and the immobility of genitive complement of nouns thus fall into place if NP is a phase in article-less languages. They are both ruled out in exactly the same way.<sup>26</sup>

Notice furthermore that it is not necessary to posit crosslinguistic variation regarding phasehood. If we simply assume that the highest phrase in a TNP counts as a phase there is no real variation in the phasehood of the TNP between NP and DP languages; the real source of variation lies in the amount of structure a TNP has in DP and NP languages (see Bošković 2010). That this analysis is on the right track is confirmed by the genitive of quantification construction, where, as discussed in section 3, even SC projects functional structure above NP (see (73)). Significantly, nominal complement movement is possible in this context.

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<sup>26</sup>It should be noted here that nominal complements that bear inherent case can be extracted. However, they also allow deep LBE. The correlation between the two phenomena thus still holds. I discuss inherent case complements, as well as LBE out of other phrases, in Bošković (2010).

- (i) Čime<sub>i</sub> ga je [pretnja t<sub>i</sub> ] uplašila?  
 what.instr him is threat scared  
 'The threat of what scared him?'  
 (ii) ?Kakvom<sub>i</sub> ga je pretnja [t<sub>i</sub> smrću] uplašila?  
 what-kind-of him is threat death.instr scared  
 'Of what kind of death did a threat scare him?'

(79) Ovog studenta sam pronašla [QP t<sub>i</sub> mnogo/deset [NP knjiga t<sub>i</sub> ]  
 this student<sub>GEN</sub> am found many/ten books

This is expected if it is the highest phrase in a TNP that functions as a phase. QP rather than NP then functions as a phase in (79). In contrast to (78), where the phasal edge is SpecNP, genitive NP in (79) can move to the phasal edge, SpecQP, without violating anti-locality.

#### 4.2. Back to head internal relatives

Turning now to (37), Watanabe (2004) argues that languages differ regarding the licensing mechanism employed in HIRs. He argues that some languages employ unselective binding, which is not subject to locality, while others employ movement/feature checking, which is subject to locality, i.e. intervention effects. Given (37), the former should be employed in DP languages, and the latter in NP languages (I depart here from Watanabe). Significantly, Bonneau (1992) argues for independent reasons that the D that comes with a HIR is the unselective binder of its head (he makes the proposal for Lakhota). Since the D is missing in article-less languages, the island-insensitive binding option is unavailable in these languages.

#### 4.3. Back to negative raising

Bošković and Gajewski (in press) explain (23) by highlighting a similarity in the interpretation of definite plurals and NR predicates. A common analysis of negative raising attributes to certain predicates (negative raising predicates) an excluded middle presupposition (EMP), where *A believes that p* presupposes *A believes that p* or *A believes that not p*. As a presupposition, the EMP survives negation. Then, in *A does not believe that p* the assertion and the EMP presupposition together entail *A believes that not p*.

Now, Gajewski (2005, 2007) argues that the EMP is the hallmark of constructions that can be semantically analyzed as distributive plural definite descriptions, rather than universal quantifiers. To illustrate the EMP of definite plural NPs, *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, with a universal scoping over negation, which Gajewski attributes to the EMP and which is analogous to the lower clause negation reading with negative raising (compare *Bill didn't see the boys* with the negation of a universal quantifier: *Bill didn't see all the boys*).

Returning to negative raising, sentence-embedding predicates are standardly treated as universal quantifiers over accessible worlds. Gajewski (2005) argues that having the EMP, negative raising predicates should be treated as plural definite descriptions, which serve as arguments of the predicates contributed by their propositional complements.

In Bošković and Gajewski (in press) we assume that sentence-embedding predicates combine a modal base (set of accessible worlds) with a quantificational element. The quantificational element may be either a universal quantifier or a definite article. If a modal base combines with the definite article, the result is a negative raising predicate. Given this, if a language lacks the definite article, it lacks the necessary material to assemble a negative raising predicate. It follows that negative raising is possible only in DP languages.<sup>27</sup>

<sup>27</sup>Recall that even languages disallowing strict NPI licensing under negative raising allow negative raising negation

#### 4.4. Back to superlatives

Bošković and Gajewski (in press) also give a deduction of (36) based on Hackl's (2007) proposal that *most* should be analyzed as the superlative of *many* (*most* = *many-est*). Szabolcsi (1986) and Heim (1985, 1999) argue that *-est* can move independently to take scope. Hackl shows that if we allow movement of *-est* in *most* we can derive both the majority (MR) and the plurality (PR) reading. PR corresponds to the comparative superlative reading discussed by Szabolcsi and Heim and analyzed as *-est* taking clausal scope. Hackl shows that MR can be derived if the *-est* of *most* stays inside the DP, taking scope below the article. The ingredients of Hackl's analysis are given below:

A. MANY has a modificational meaning of type  $\langle d, \langle \langle e, t \rangle, \langle e, t \rangle \rangle \rangle$ , unlike other gradable adjectives, like *tall*, whose denotation is type  $\langle d, \langle e, t \rangle \rangle$ :

$$(80) \quad \llbracket \text{MANY} \rrbracket (d)(N) = \lambda x. [N(x) \ \& \ |x| \geq d]$$

B. The superlative is a degree quantifier (cf. Heim 1999). C is the set of contextually relevant alternatives and D is a relation between degrees and individuals

$$(81) \quad \begin{aligned} \text{a. } \llbracket \text{-EST} \rrbracket (C)(D)(x) \text{ is defined only if } &x \in C \ \& \ \exists y [y \neq x \ \& \ y \in C] \ \& \ \forall y \in C [\exists d D(d)(y)] \\ \text{b. } \llbracket \text{-EST} \rrbracket (C)(D)(x) = 1 \text{ iff} & \\ &\forall y \in C [y \neq x \rightarrow \max \{d: D(d)(x)\} > \max \{d: D(d)(y)\}] \end{aligned}$$

C. MOST = MANY + -EST. -EST is generated in the degree argument position of MANY, namely SpecAP. Due to a type mismatch, -EST must QR.

$$(82) \quad \text{MOST} = \begin{matrix} [\text{AP} & [\text{DegP} \text{-EST}_C] & & [\text{A}' \text{MANY} & ] ] \\ & \langle \langle d, \langle e, t \rangle \rangle, \langle e, t \rangle \rangle & & \langle d, \langle \langle e, t \rangle, \langle e, t \rangle \rangle & \rangle \end{matrix} \quad \text{mismatch!}$$

When it moves, -EST must target a node of type  $\langle e, t \rangle$ . One option is local adjunction to NP. Or, -EST can move out of the TNP completely (Szabolcsi 1986, Heim 1999).

$$(83) \quad \begin{aligned} \text{Bill owns (the) most Pere Ubu albums} \\ \text{a. Bill owns } [_{\text{DP}} \text{(the)} [_{\text{NP}} \text{-EST} [_{\text{NP}} [_{\text{AP}} \text{t MANY}] [_{\text{NP}} \text{PB albums}]]]] \\ \text{b. Bill } [ \text{-EST} [ \text{owns } [_{\text{DP}} \text{(the)} [_{\text{NP}} [_{\text{AP}} \text{t MANY}] [_{\text{NP}} \text{PB albums}]]]]] \end{aligned}$$

#### QR landing site Reading

TNP-internal: Majority (Bill owns more than half of the PB albums)

TNP-external: Plurality (Bill owns more PB albums than any relevant alternative individual does)

Movement out of TNP yields the plurality reading: when *-est* lands beneath the subject, this

interpretation. Bošković and Gajewski (in press) suggest that this is a pragmatic effect capturable in an approach like Horn (1989), who argues that the lower clause understanding is a case of 'inference to the best interpretation.' Significantly, Gajewski (2005) shows this approach cannot explain strict NPI licensing under negative raising (more specifically, it cannot create the anti-additive environments needed for the licensing), which his semantic account can do.

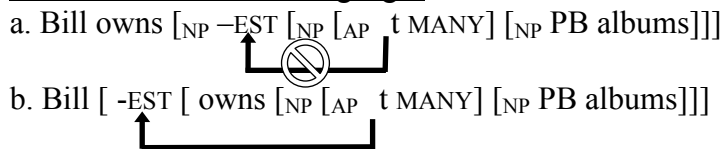
establishes that individuals will be compared on the number of albums owned. Hackl's achievement is in showing that TNP-internal scope yields the majority reading. The key to achieving this result is interpreting non-identity of pluralities as non-overlap.

(84) [ -EST<sub>i</sub> [ t<sub>i</sub> MANY] PB albums ]

(84) then denotes a predicate true of a plurality of PB albums if it contains more PB albums than any other non-overlapping plurality of PB albums. The pluralities of PB albums that contain more PB albums than any non-overlapping pluralities of PB albums are precisely those that contain more than half the PB albums. A covert existential determiner quantifies over these, yielding the majority reading.

Returning to the DP/NP parameter, in article-less languages the only option that would yield the majority reading is adjunction to NP. Notice, however, that, in contrast to DP languages, where DP is the argument, in NP languages, NP is an argument. Chomsky's (1986a) (see also Bošković 2004b and McCloskey 1992) ban on adjunction to arguments then rules out local scoping of *-est* in NP languages (but not in DP languages, where NP is not an argumental category), ruling out the MR reading.<sup>28</sup> Only long-distance movement of *-est*, which yields the PR reading, is then available in NP languages (see Bošković and Gajewski in press for discussion of other superlatives.)

(85) -EST movement in NP languages



#### 4.5. Back to radical pro-drop and number morphology

I now turn to the deduction of the pro-drop generalization in (45), which concerns another clause-level phenomenon, namely licensing of pro-drop. It turns out that the generalization can be captured in the same way as the number generalization in (48). I will therefore start with the latter. To capture the generalization, I adopt the condition in (86).<sup>29</sup>

(86) The number feature of D must be morphologically realized.

What I mean by (86) is that an Agree relation that involves the number feature of D must have morphological realization. Following Longobardi (1994), there is a feature checking relation between D and N, which includes Agree for the number feature. The relation must be morphologically realized. There are three ways of doing this: realizing it on D, as in French and

<sup>28</sup>This does not contradict the earlier assumption that APs are NP-adjoined. In Bošković (2005), I interpret the ban on adjunction to arguments derivationally. When AP adjoins to NP in the SC counterpart of *I like green cars*, NP has not yet been merged as an argument; when covert *-est* movement applies, NP is already an argument.

<sup>29</sup>(86) can be actually generalized to include  $\phi$ -features in general, including the person feature. However, since the person feature is hardly ever present in D (in fact, it is possible that it is not present in non-pronominal TNPs; note that the gender feature is generally not at all realized in the nominal domain in languages that have grammatical gender), there may not be much empirical difference between adopting (86) as it is and generalizing it. However, the latter would obviously be conceptually more appealing.

colloquial Brazilian Portuguese, on N, as in English, or on both N and D, as in Bulgarian. (I assume that what counts here is the singular-plural opposition, which means that the lack of a marker indicates singular in (87)c; see also footnote 15.)

- |         |             |                  |             |
|---------|-------------|------------------|-------------|
| (87) a. | [lə livr]   | [le livr]        | (French)    |
|         | the-sg book | the-pl book      |             |
| b.      | grad-ət     | gradove-te       | (Bulgarian) |
|         | city-the    | city(pl)-the(pl) |             |
| c.      | the book    | the books        |             |

(86) captures (48) by requiring morphological realization of number morphology in DP languages, leaving it up to the morphological properties of the language/relevant lexical items to determine whether number morphology will be realized in NP languages.

(86) also deduces the radical pro-drop generalization, providing a uniform account of the generalizations in (48) and (45). In the case of phonologically null pro, number morphology cannot be realized on either D or N. Yet, (86) requires its realization. I suggest that this is done via verbal morphology. In other words, (86) forces the presence of rich verbal morphology with pro-drop in DP languages, giving it the appearance of licensing pro-drop by verbal morphology.<sup>30</sup> The “licensing” condition is irrelevant in NP languages because (86) is itself irrelevant, languages in question not having the DP layer.<sup>31</sup>

A question that arises here is why there is a difference in the requirement of morphological realization of number morphology between D and N. I suggest that we are dealing here with a more general difference, where this type of licensing requirements can hold only of functional elements.<sup>32</sup>

A question that arises then is whether all functional categories should be subject to this kind

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<sup>30</sup>It appears that we now cannot force morphological realization of the Agree relation between D and N (for number), if the number of D will be later morphologically realized through rich verbal morphology. In other words, it appears that we may allow number morphology not to be realized in DP languages with rich verbal morphology. Consider (i).

(i) T/v D N

What is relevant here is the timing of the relevant relationships. D and N enter into an Agree relation before any relationship between a DP external and a DP internal element is established. We can easily capitalize on this by requiring (86) to satisfy Pesetsky’s (1989) Earliness Principle. This would require (86) to be satisfied as early as possible, which means after the D-N relation is established in (i). Alternatively, we can appeal here to cyclic spell-out, assuming that D and N are sent to spell-out together before any TNP external elements are merged with it. (86) would then have to be satisfied within this spell-out unit. (D and N will be sent to spell-out together if we assume that DP is a phase and either that the whole phase is sent to spell-out or that the edge of a phase is not sent to spell-out but the edge contains the Spec but not the head of the phase (this would still allow successive cyclic phrasal movement, but head movement would be pushed outside of the syntax, as in Boeckx and Stjepanović 2001 and Chomsky 2001, among others)

<sup>31</sup>The underlying assumption is that pronouns are NPs, not DPs, in NP languages, as Fukui (1988) argues (see also Tomioka 2003, Bošković 2008a, Despić in press, 2011, Runić 2011).

<sup>32</sup>Note incidentally that this assumption (more generally, assuming that only functional categories are subject to syntactic licensing requirements) suffices to deduce the radical pro-drop generalization. Let us assume that pro-drop is subject to a  $\phi$ -licensing requirement, as standardly assumed, and that only functional categories can be subject to syntactic licensing requirements. Since pro-drop involves DP-drop in DP languages it is subject to the  $\phi$ -licensing requirement, which means that radical pro-drop is disallowed in DP languages. The requirement cannot be imposed in NP languages, since pro-drop involves NP drop in such languages, and NP is a lexical category. (This type of analysis can be easily restated under the PF deletion/argument ellipsis approach to radical pro-drop; see also Tomioka 2003 and Cheng in preparation for relevant discussion under the ellipsis account of radical pro-drop).

of a morphological realization requirement, i.e. whether the morphological realization requirement can be generalized to hold for all functional categories and all features. In the attempt to generalize (86), consider first the Agree relation that D and N are involved in.

(88) D (unvalued, interpretable #)    N (valued, interpretable #)

Following standard assumptions, the number of nouns is valued and interpretable. Capturing the intuition that D agrees with N in number, the number feature of D is lexically unvalued, its value being determined through agreement with N. Following Sauerland's (2004) arguments that the number feature of nominals should be interpreted in a high position,<sup>33</sup> I assume that the number feature of D is also interpretable.<sup>34</sup> Given this, we may be able to generalize (86), keeping the effects of (86) discussed above with respect to verbal morphology, as in (89), where *i*K stands for an interpretable feature, and F for a functional head.

(89) *i*K of F must be morphologically realized.

(89) may turn out to be too strong. For example, assuming that force is semantically interpretable and that it is encoded in C, different force specifications may now require different morphological realizations of C, which seems too strong. (89) can then be weakened as follows.

(90) Unvalued *i*K of F must be morphologically realized.

Given the plausible assumption that C is lexically valued for the force feature, the problem raised above is resolved. Notice, however, that depending on how topicalization and focalization are treated, (90) may need to be stated in terms of PF realization more generally. If topicalization and focalization are treated on a par with Pesetsky and Torrego's (2007) treatment of *wh*-movement, the topic and focus heads (which attract topicalized and focalized phrases) would have an unvalued interpretable topic/focus feature, which would receive its value from the topic/focus phrase. This would make (90) relevant to topicalization/focalization. Now, in most languages topicalized and focalized phrases do not morphologically differ from their non topic/focus counterparts (in contrast to *wh*-phrases). However, topicalization and focalization are typically accompanied by a PF reflex, a pause in the case of topicalization and contrastive stress in the case of focalization (note that focus movement typically affects only contrastively focused phrases, not phrases bearing simple new information focus). I assume that this suffices to satisfy (90), with morphological realization now taken to be PF realization.

I turn now to a rather interesting consequence of (90). Suppose that there is an Agree relation between T and V for the tense feature, as argued by Pesetsky and Torrego (2007). I will follow Pesetsky and Torrego regarding the exact features involved in this Agree relation. They implement the Agree relation as in (91), where T has an unvalued interpretable tense feature, and V has a valued uninterpretable tense feature. (The underlying assumption here is that tense is interpreted in

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<sup>33</sup>I am departing here from details of Sauerland's proposal, which places the feature in question not only higher than N, but also higher than D.

<sup>34</sup>I am following Pesetsky and Torrego (2007) and Bošković (2009b, in press) in not lexically associating interpretability and valuation, as in Chomsky 2001, so that both uninterpretable and interpretable features can be either valued or unvalued. See the works in question for empirical and conceptual arguments for this position.



T. However, the exact value of the tense feature of T depends on the verb with which it co-occurs.)

(91) T (unvalued *i*Tense)                                V (valued *u*Tense)

Since the tense feature of T is interpretable and unvalued (90) requires morphological realization of tense. In English, tense is generally morphologically realized, except in the Present Tense, where the only morphology, *-s* in the third person singular, is a  $\phi$ -feature, not a tense feature. Interestingly, Enç (1991) argues that precisely in this case there is actually no tense in English. In other words, she argues that there is no Present Tense in English, the relevant constructions lacking tense.<sup>35</sup>

It should be noted, however, that generalizing (86) does not necessarily require morphological realization of tense. Even if we keep the T-V feature checking relation from (91),<sup>36</sup> there is a way of generalizing (86) that keeps its effects for number morphology but does not require morphological realization of tense. Thus, we can generalize (86) as in (92), where proxy values are defined in (93), the intuition here being that percolation, i.e. passing on, of values of interpretable features from lexical (L) to functional (F) categories requires morphological realization.

(92) Proxy values must be morphologically realized.

(93) Proxy: unvalued *i*K of F which receives its value from *i*K of L.

The Agree relation between T and V from (91) now does not require morphological realization of tense, since the relevant feature of V is uninterpretable. However, (92) still captures the effect of (86) regarding the presence of number morphology within TNP.<sup>37</sup>

Suppose, however, that we adopt (90), which requires morphological realization of tense given (91), as the correct generalization of (86). From this perspective, the lack of morphologically present tense in e.g. Chinese (I am putting aspect aside here) would then imply quite generally the lack of TP in Chinese. There are in fact some pretty strong arguments that there is no need to posit TP for Chinese, since temporal interpretation can be easily derived from aspect or temporal adverbs (see Lin 2003, 2005 and Smith and Erbaugh 2005, among others<sup>38</sup>).

<sup>35</sup>Alternatively, the opposition *-ed* vs  $\emptyset$  may suffice here, where the lack of *-ed* would indicate Present Tense.

<sup>36</sup>The relation can of course be changed in such a way that it would not be affected by (90).

<sup>37</sup>It does not, however, capture its effect regarding the impossibility of radical pro-drop in DP languages, unless we assume that pronouns have both D and N. Recall, however that there is an alternative way of deducing the radical pro-drop generalization (cf. footnote 32), i.e. (92) is not necessarily needed for this generalization.

<sup>38</sup>Lin (2003, 2005) and Smith and Erbaugh (2005) argue that temporal interpretation is derived from aspect even in examples without morphologically realized aspect markers. Consider (i)-(ii), where (i), involving a telic verb, can only have past interpretation, and (ii), involving an atelic verb, can only have present interpretation.

- |      |   |                |
|------|---|----------------|
| (i)  | Ta    dapuo                    yi-ge            hua            ping |                |
|      | he    break                    one-CL        flower        vase     |                |
|      | ‘He broke a flower vase.’   | (only past)    |
| (ii) | Wo    xiangxin            ni  |                |
|      | I     believe            you  |                |
|      | ‘I believe you.’  | (only present) |

The gist of the analysis pursued by Lin (2003,2005) and Smith and Erbaugh (2005) is that temporal interpretation comes from aspect, past from perfective and present from imperfective, with the default aspect (which is what we have in (i)-(ii)) for telic events being perfective, and for atelic events imperfective. Smith and Erbaugh implement this via (iii).

Interestingly, there are NP languages that have very rich verbal morphology; yet, they seem to lack tense morphology. This is, e.g., the case with SC. Consider the SC paradigm for present and aorist.

- (94) Present Tense for ‘to love’: volim, voliš, voli, volimo, volite, vole  
 Aorist for ‘to love’: volih, voli, voli, volismo, voliste, voliše  
 Infinitive for ‘to love’: voli-ti (SC)

There is quite a bit of morphology in (94). However, it is all  $\phi$ -related, there is no overt tense morphology. There is a very surprising difference with English here: Although SC is way richer with respect to verbal morphology than English, it is actually poorer than English with respect to tense morphology. On the other hand, there is tense morphology in Bulgarian (see Scatton 1984), a DP language that is otherwise closely related to SC. Could we be dealing here with another difference between DP and NP languages? In the next section I will explore this possibility.

Before discussing the issue, let me briefly note that we may now be in a position to deduce (at least partially) the Lobeck (1990)/Saito and Murasugi (1990) generalization that only agreeing functional heads may license the ellipsis of their complement, a generalization that has been quite extensively appealed to in the literature on ellipsis but has eluded deeper understanding.<sup>39</sup>

(iii) Temporal schema principle:

In a zero-marked clause, interpret a verb constellation according to the temporal schema of its situation type, unless there is explicit or contextual information to the contrary.

They argue that if an event is taking place at the speech time, it is inconsistent with the telic meaning that indicates that the event has an endpoint. Then, telic verbs without aspectual markers or adverbs cannot appear with present interpretation. They argue that bare telic verbs cannot be interpreted as future tense because past tense is simpler than future tense in that the latter contains modal interpretation. (What is relevant here is a pragmatic principle they adopt which favors interpretation that requires the least additional information). Finally, if the event represented by a verb is not bounded, the default interpretation is present because the event is on going and temporally open.

It should be noted that when they are present, aspectual markers and temporal adverbs determine the temporal interpretation of the sentence. This is illustrated for the latter in (iv).

- (iv) a. Ta zuotian hen mang  
 he yesterday very busy  
 ‘He was very busy yesterday.’  
 b. Ta xianzai hen mang  
 he now very busy  
 ‘He is very busy now.’  
 c. Wo mingtian hen mang  
 I tomorrow very busy  
 ‘I will be very busy tomorrow.’

The case for deducing temporal interpretation from aspect/adverbs in Chinese thus seems quite strong. (Note also that Hu et al 2001 argue against the finite/non-finite distinction for Chinese; see also Lin 2010 for the lack of Tense in Chinese.)

<sup>39</sup>More precisely, Lobeck (1990) and Saito and Murasugi (1990) note that functional heads can license ellipsis of their complement only when they undergo Spec-Head agreement (SHA). Thus, (i) shows that tensed INFL, ‘s, and +wh-C, which according to Fukui and Speas (1986) undergo SHA, license ellipsis, whereas the non-agreeing functional categories *the* and *that* do not.

- (i) a. John liked Mary and [<sub>IP</sub> Peter<sub>i</sub> [<sub>I</sub> did ~~*t<sub>i</sub> like Mary*~~]] too.  
 b. John’s talk about the economy was interesting but [<sub>DP</sub> Bill [<sub>D</sub>’s ~~*talk about the economy*~~]] was boring.

Roughly following Merchant (2008), suppose ellipsis involves marking of the functional head F whose complement is elided with an additional interpretable feature X that indicates ellipsis, which in the spirit of (89)/(90) requires additional morphological realization, not otherwise found on the head F. This is accomplished by having F undergo Agree with another, morphologically realized element, which then undergoes movement to SpecXP to avoid undergoing deletion (since the element in question realizes the additional feature, it must escape undergoing ellipsis).<sup>40</sup>

## 5. No TP in article-less languages

Returning now to the issue of whether NP languages have TP, positing a difference in the availability of TP between DP and NP languages can in fact be easily justified theoretically. Suppose we assume that DP is the counterpart of IP, not CP as is often assumed, which is not implausible given that SpecDP is the host of the counterpart of movement to SpecTP in examples like *John's destruction of the painting* under Chomsky's (1986b) analysis. Suppose furthermore that we take the TNP/Clause parallelism hypothesis seriously, where the lack of DP in a language would imply the lack of its clausal counterpart, namely TP (assuming with Chomsky 1995, 2000, 2001 that TP stands for the IP of the GB framework). It would then follow that TP should be absent in NP languages (or perhaps it is weak, as in Tsai 2008).<sup>41</sup> This fits some NP languages rather nicely. For example, the assumption can capture Chinese and the surprising case of SC, which we have seen lacks tense morphology although it has very rich verbal morphology (see in this respect Paunović 2001 for arguments that SC does not have grammaticalized tense (i.e. TP), temporal interpretation being derived from aspect and mood). There are, however, NP languages that are traditionally considered to have tense morphology, like Japanese and Turkish. The Turkish case is actually quite controversial. A number of authors have argued that what has been traditionally considered to be tense markers in Turkish are in fact aspect and/or modal markers. Thus, the aorist {-Ar/Ir} is argued to be an aspect and modal marker by Yavaş (1981, 1982b) and Giorgi and Pianesi (1997), {-mİş} is treated as an aspect and a modal marker by Slobin and Aksu (1982), {-DI} is also treated as an aspect and modal marker by Taylan (1988, 1996, 1997), {-AcAK} is also treated as a modal marker by Yavaş (1982a), and {-Iyor} is treated as an aspect marker by Giorgi and Pianesi (1997). The relevant state of affairs is actually also not completely clear even in Japanese, which Fukui (1988) argues lacks TP (see also Whitman 1982 as well as Shon et al 1996 and especially Kang 2011 for a similar view for Korean).

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c. \*A single student came to the class because [<sub>DP</sub> [<sub>D</sub> the *student*]] thought that it was important.

d. John met someone but I don't know [<sub>CP</sub> who<sub>i</sub> [<sub>C</sub> C *John met t<sub>i</sub>*]].

e. \*John believes C/that Peter met someone but I don't think [<sub>CP</sub> [<sub>C</sub> C/that *Peter met someone*]].

<sup>40</sup>This way of looking at the Lobeck/Murasugi and Saito generalization requires agreement with a morphologically realized element. Since agreement with PRO does license ellipsis this leads us to Hornstein's (1999) approach to PRO, where PRO is actually a copy of a moved element. Assuming the relevant condition is checked when the moved element is still within the projection of the head X, there will be no problems with respect to the licensing condition on ellipsis discussed above if the moving element is itself morphologically realized. This approach will likely require considering some phonologically null elements to arise through PF deletion of overt elements (see in this respect Takahashi 1997, who argues for an analysis along these lines for several constructions that were traditionally assumed to involve null operator movement), with the condition in question checked before the deletion.

<sup>41</sup>It is important to bear in mind that adopting a no-DP analysis of article-less languages does not require adopting a no-TP analysis for such languages, i.e. the absence of DP in a language does not have to be correlated with the absence of TP, which means that if it turns out that (some) article-less languages do have TP, the no-DP analysis of such languages will not be invalidated.

It is, however, important to notice that analyzing the traditional tense morphology in Japanese and Turkish as actual tense morphology does not necessarily force us to posit TP for these languages. Consider again (91). In (91), tense is represented in two different structural places, T and V, and interpreted only in the former. Suppose, however, that the tense feature of V is interpretable in a language. In such a language there would be no semantic need for T (as far as temporal interpretation is concerned), since temporal interpretation would come from the verb. It is then possible that Japanese and Turkish do have temporal verbal morphology. However, since the tense on the verb is interpretable, the languages can still be considered to lack T (the morphology itself would be part of the morphologically complex verb, a suggestion that was actually made by Fukui 1988 for Japanese). The state of affairs can in fact be nicely captured within the system developed in Osawa (1999), who also argues that languages differ with respect to the presence of TP (in fact, he argues that the property in question can be affected by historical change). Parallel to the line of research pursued by Higginbotham (1985), who argues that nouns have an open position, Osawa argues that verbs have an open event position which must be saturated through binding. In TP languages, the event position is bound by T. On the other hand, Osawa argues that in languages lacking TP the event position is bound by a temporal/aspectual affix on the verb (in a language like Chinese, where adverbs affect temporal interpretation, the event position can also be bound by a temporal adverb). Osawa's analysis can be considered to be an implementation of the above suggestion that in some languages the tense feature of the verb is interpretable, given that on Osawa's analysis in languages where a verbal affix binds the event position of the verb there is no need for T to accomplish temporal interpretation. What is important for our purposes is that a mere presence of temporal verbal morphology does not necessarily require positing a dedicated TP projection, as already pointed out by Fukui (1988) (see also Whitman 1982).

Granted that assumption, a question still arises regarding other TP-related effects, such as movement to SpecTP. Such movement can be easily reanalyzed as movement to a projection other than TP, which would not be surprising if the traditional IP is split at least to some extent. Research on quantifier float, V-movement, and multiple subject positions quite clearly shows that a simple structure where the only A-related phrase above the projection where a subject gets a  $\theta$ -role is TP is clearly wrong. The simple TP-over-vP structure cannot account for the fact that it is possible to float a quantifier in between the  $\theta$  and the surface position of a subject which does not undergo A'-movement (see Bošković 2004b for crosslinguistic data to this effect), or that there are many languages where the verb is lower than in Spanish but higher than in English (this is e.g. the case with most Slavic languages, see Bošković 2001, and with French infinitives, see Pollock 1988); if the Spanish verb is in T, and the English verb is in v, where would then the verb be in these languages if all we have above vP is TP? Multiple subject position languages like Icelandic also very clearly have two subject positions above the  $\theta$ -position of the subject (see Bobaljik and Jonas 1996, Bobaljik and Thráinsson 1998, Jonas 1996, Vangsnes 1995), which again cannot be accommodated under the simple TP-over-vP structure. It thus seems quite clear that there should be more A-related structure above vP; TP alone is not enough. Since what I am arguing here is merely that one layer of clausal structure is missing in NP languages, there is still room for accommodating A-movement of a subject in no-DP/no-TP languages. The point made here is simple, the presence of tense morphology on the verb or A-movement of a subject does not necessarily require positing a TP projection. But then, how can one argue that TP is present/absent in a language? Fortunately, there are better tests for the presence of TP that can be conducted to test the hypothesis that the TP projection is missing in article-less languages. I will consider the issue by focusing on SC and Japanese/Korean as representatives of article-less language (for discussion of Japanese and Korean,

see also Fukui 1986, 1988, Fukui and Takano 1998, Fukui and Sakai 2003, Kang 2011, and Shon et al 1996).

### 5.1. Subject expletives

First, one property of the TP projection is the traditional EPP, which requires filling SpecTP. When nothing moves to SpecTP, the position is often filled by an overt expletive. In fact, it appears that the only function that an overt expletive like *there* has in English is to satisfy the EPP. Japanese, Korean, and SC do not have overt expletives. In fact, article-less languages seem to lack uncontroversial overt subject expletives like English *there* (see here Cheng in preparation). If this is true, the question is why that would be the case.<sup>42</sup> The hypothesis pursued here, that article-less languages do not have the TP projection, provides a straightforward explanation for this state of affairs, given that expletives are introduced to satisfy the EPP, a property of the TP projection (Fukui 1986, 1988 also uses the lack of subject expletives in Japanese to argue against the presence of (syntactically active) TP in Japanese). On the other hand, the lack of overt expletives in article-less languages is a real mystery if such languages do have TP. Consider what could be appealed to in this scenario. First, if a language has Spanish-style pro-drop (which SC does have), where overt pronouns are typically used for emphasis, we might not expect to find an overt expletive in such a language, since expletives cannot be used for emphasis. It is actually not clear that this explanation works for Spanish-style pro-drop languages since Galician Portuguese, which has this type of pro-drop, does have an overt expletive (see Franks 1995). At any rate, even if the account can be made to work, it would extend only to the Spanish-style pro-drop. In languages that have pro-drop of the Japanese type (what I called radical pro-drop, which we have seen is in fact limited to article-less languages), overt pronouns are not used only for emphasis, so the above consideration regarding Spanish-style pro-drop would not apply to them. We are then still left with the question of why article-less languages lack overt expletives. One could assume here that the EPP

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<sup>42</sup>Franks (1995) notes potential candidates for overt expletives in several Slavic languages. However, the elements in question are either used to indicate discourse focus or emphasis, as indicated by Czech (i), where the overt expletive (v)ono is not possible, or are located in SpecCP, as argued quite conclusively by Lindseth (1993) for Upper Sorbian wone, or function as an event pronominal located in the CP field, as shown with a number of convincing arguments by Progovac (2005) for Serbian to. In other words, we are not dealing with true subject expletives here.

- (i) \*(v)ono prši, ale svítí slunce.  
 it is-raining but sun is-shining

The only potential counterexample to the claim that article-less languages lack true overt expletives I am aware of involves Finnish (see Holmberg and Nikanne 2002). For the sake of argumentation, I will assume below that article-less language do not have overt expletives, leaving a detailed investigation of Finnish for future research. I merely note here that at least in some cases the element in question (*sitä*) does not seem to be located in SpecIP since it precedes the question particle *-kö* and the ‘focus-particle’ *-hän* (recall also that at least colloquial Finnish has developed a true definite article, so we may be dealing here with a system undergoing a change).

- (ii) a. Sitäkö ovat teidän lapset jo kaikki käyneet uimassa? (Holmberg and Nikanne 2002:95)  
 EXP-Q have your children already all been swimming  
 ‘Have your children already all been swimming?’  
 b. Sitähän ei nykyään puhuta vakoilusta.  
 EXP-PRCL not nowadays talk-PASS espionage-ABL  
 ‘We don’t talk about espionage these days, do we?’

is parameterized (see McCloskey 1997 and Wurmbrand 2006). We would then not expect to find overt expletives in all article-less languages. But we would still certainly expect to find it in some, if not many, languages of this type. The upshot of the above discussion is that if article-less languages indeed consistently lack overt expletives, which seems to be the case, this will provide very strong evidence that such languages lack TP. The no-TP hypothesis provides a straightforward explanation for the lack of overt expletives in article-less languages, which otherwise represents a real mystery.

## 5.2. Subject-object asymmetries

Another relevant test concerns well-known subject-object asymmetries of the kind found in English. One such asymmetry concerns the *that*-trace effect, where an object, but not a subject can be extracted across a clause-mate *that*.<sup>43</sup>

- (95) a. Who<sub>i</sub> do you think that John saw *t<sub>i</sub>*?  
 b. \*Who<sub>i</sub> do you think that *t<sub>i</sub>* saw John?

Another asymmetry concerns extraction out of subjects/objects. As is well-known, English allows extraction out of objects, but not subjects.

- (96) a. \*Who did friends of see you?  
 b. Who did you see friend of?

Turning now to Japanese/Korean and SC, these languages do not display the subject-object asymmetries in question (see here Shon et al 1996 regarding Korean. (97) actually cannot be tested in Japanese since the language disallows scrambling of *-ga* marked phrases.)

- (97) a. I mokcang-i<sub>i</sub> Chelswu-ka [*t<sub>i</sub>* caknyen-kkaci-man hayto  
 this meadow-Nom Chelswu-nom last year-until-just  
 kwaswuwen-i-ess-ta-ko] malha-yess-ta.  
 orchard-be-Pst-Dc-Comp say-Pst-Dc  
 ‘Chelswu said that this meadow used to be an orchard just until last year.’ (Shon et al 1996)  
 b. Nwu-ka<sub>i</sub> [ne-nun [*t<sub>i</sub>* nay cacenke-lul hwumchie-ka-ss-ta-ko sayngkakha-ni?  
 who-Nom you-Top my bicycle-Acc steal- go-Pst-Dc-Comp think-Q  
 ‘Who do you think took my bicycle away?’
- (98) Ko<sub>i</sub> tvrdiš da *t<sub>i</sub>* voli Mariju (SC)  
 who you-claim that loves Marija  
 ‘Who do you claim loves Marija?’
- (99) [OP[Mary-ga t yonda-no]-ga aikarana yorimo .bhn-wa takusan-no hon-o yonda]  
 Mary-NOM read that-NOM is.obvious han John-TOP many-GEN book-ACC read  
 ‘John read more books [than Mary read \_\_ ] is obvious.’ (Japanese, Takahashi 1994)
- (100) Čiji<sub>i</sub> tvrdiš da [*t<sub>i</sub>* otac] voli Mariju (SC)  
 whose you-claim that father loves Marija  
 ‘Whose father do you claim loves Marija?’

<sup>43</sup>For ease of exposition, I am simplifying here the actual state of affairs. The same holds for the discussion regarding extraction out of subjects/objects directly below.

It should be noted, however, that the asymmetries may also be missing in article languages. They are indeed tests for movement to SpecTP, since they affect only subjects in this position (see Stepanov 2001a,b for evidence that extraction is crosslinguistically disallowed out of subjects that must raise to SpecTP). However, since subjects do not have to always move to SpecTP in all article languages, such asymmetries can also fail to surface in article languages. One such language is Spanish, which does not show the *that*-trace effect and allows extraction out of subjects, but crucially only out of postverbal subjects, which do not move to SpecTP. Extraction is impossible out of preverbal subjects, which do move to SpecTP (see Gallego and Uriagereka 2007). The question is then whether the above subject-object asymmetries are ever found in article-less languages. I am in fact not aware of any article-less language that would exhibit such asymmetries.<sup>44</sup> If it indeed turns out that such asymmetries are never found in article-less languages we will have here very strong evidence that such languages lack TP. Since the asymmetries arise only in the case of subjects that move to SpecTP, the lack of such asymmetries is straightforwardly captured if the languages in question lack TP.

To summarize, if article-less languages indeed turn out to consistently lack true subject expletives and consistently fail to exhibit subject-object asymmetries, as seems to be the case, we have here strong evidence that article-less languages lack TP.<sup>45</sup> This in turn follows once the TNP/Clause parallelism hypothesis is taken seriously, given that TP is the clausal counterpart of DP, which is missing in article-less languages.<sup>46</sup>

### 5.3. *Nominative case*

An obvious question arises at this point. If article-less languages lack TP, what is responsible for nominative Case assignment in such languages? One possibility is that a head other than T is responsible for this. As an illustration, if IP is split into TP and AgrsP, it may be that AgrsP is responsible for nominative case assignment, at least in languages lacking TP. Nominative case in Turkish, an article-less language, indeed correlates with (and has been argued to be assigned by)

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<sup>44</sup>Thus, SC, Russian, Palauan, Chinese, Japanese, Turkish, Hindi, and Navajo all allow extraction out of subjects. Note that non-colloquial Russian disallows subject extraction across the counterpart of *that*; however, it also disallows object extraction, which means that it does not exhibit a subject-object asymmetry here.

<sup>45</sup>It should, however, be noted that it is certainly not of our question that any movement of the subject, not just movement to SpecTP, could lead to the problems noted in the text regarding extraction from/of subjects. Since TP-less languages may still have subject movement, as discussed above, the problems in question could still arise in TP-less languages. Under this analysis, article-less languages (i.e. languages without TP) would only be much less likely to exhibit subject-object asymmetries than DP/TP languages.

<sup>46</sup>In principle, V-to-T head movement is another relevant phenomenon, since it should be missing in article-less languages. It is, however, rather difficult to test whether such movement is indeed absent in article languages for several reasons: assuming that the traditional IP should be split, even if TP is missing there would still be head positions above vP and below CP where a verb could move in article-less languages. We may still be able to run the relevant test if TP is the highest head in the Split IP field. Assuming that the finite verb in Romance languages like French, Spanish, and Italian moves to T, we would then expect to find article-less languages with V-movement, which, however, would not go as high as in French/Spanish/Italian (unless the landing site of the movement is C). Most Slavic languages indeed seem to behave like this, with the verb able to move higher than in English but not as high as in French/Spanish/Italian. Notice also that many relevant languages are SOV languages, where it is quite difficult to determine whether the verb undergoes Pollock-style head movement (notice also that Koizumi's 1994 analysis on which Japanese verb moves to C is consistent with the no-TP movement analysis; it is however far from clear that there is any kind of V-movement in Japanese, see in this respect Fukui and Sakai 2003, who argue against V movement to either T or C in Japanese).

agreement (see George and Kornfilt 1981, Kornfilt 1984, 2005, 2006). Under this analysis it can be assumed that a head other than T assigns nominative case in all languages (C has also been occasionally assumed to be the source of nominative Case), or that TP and non-TP languages differ in this respect, a head other than T assigning nominative only in the latter. The variation would not be particularly surprising given that it has been argued that nominative can be assigned by different heads even within a single language (see Harley 1995, Sigurðsson 1996, 2000, McGinnis 1998, Alexiadou 2003, and Boeckx 2003b for Icelandic; and Tada 1993, Takahashi 1996, and Saito and Hoshi 2000 for Japanese). There is, however, another possibility that does not require positing more than one source for assignment of structural nominative case. It is possible that nominative case is not a structural case in non-TP languages. If correct, this will allow us to maintain T as the sole source of structural nominative licensing crosslinguistically. Saito (1985) has in fact argued that Japanese *-ga* is not a structural case (licensed by tense; see also Fukui 1986, 1988). It is in fact very easy to justify this claim; Japanese *-ga* in many respects simply does not behave like regular structural nominative case. One well-known respect in which *-ga* departs from regular structural nominative concerns the well-known multiple *-ga* construction, where non-subjects receive *-ga* in addition to the subject. One relevant example, together with its English counterpart, is given below.

- (101) \*Civilized countries, male, the average life span is short  
 (102) bunmeikoku-ga dansei-ga heikinzyumyoo-ga mizikai  
 Civilized countries-NOM male-NOM average lifespan-NOM is short  
 ‘It is civilized countries that men, their average lifespan is short in.’ (Kuno 1973)

Moreover, Fukui and Sakai (2003) observe that what gets *-ga* does not have to be a syntactic constituent, and it does not have to be an NP (PPs and some clauses such as those headed by *-ka* ‘Q’ can also get *-ga*), again a non-standard behavior from the point of view of standard assumptions regarding structural nominative.

The well-known operation of *ga/no* conversion, where a subject of what should be a finite clause fails to get *-ga*, instead getting genitive from a higher noun, is another illustration of non-standard behavior of *-ga*.

- (103) Taroo-ga /-no it -ta tokoro  
 Taroo-nom/-gen go-past place  
 ‘the place where Taroo went’

It is well-known that in contrast to objects marked for structural accusative, caseless objects cannot scramble. The fact that *-ga* marked NPs cannot scramble, as noted by Saito (1985), is significant in this respect, given that *-ga* marked elements here pattern with caseless objects, not with objects marked with accusative case.

- (104) a. John-ga dare(-o) nagutta no?  
 John-nom who-acc hit  
 ‘Who did John hit?’  
 b. Dare-o John-ga nagutta no?  
 c. \*Dare John-ga nagutta no? (Saito 1985:267)
- (105) \*Sono okasi-ga John-ga [oisii to] omotte iru (koto)  
 that candy-nom John-nom tasty that think fact



The above discussion shows that Japanese *-ga* quite clearly does not behave like regular structural nominative case. There are, however, article-less languages where traditional nominative does not exhibit such exceptional behavior. Unless we want to fall back on the possibility of more than one nominative case licensor (or non-T case licensor), there is only one possibility for such languages: nominative case in such languages is assigned by default. We are then making a prediction: nominative case in article-less languages will either exhibit exceptional behavior (like Japanese *-ga*) or it will function as default case. As is well-known, default case for English and French is accusative, as shown by the accusative case on the pronoun in (106) (in an out of the blue context).

(106) Me/\*I intelligent?!

A survey of which case functions as a default case in article-less languages reveals that nominative is indeed the default case in Polish, Russian, Slovenian, SC, Turkish, Hindi, and Korean. In fact, I am not aware of any article-less languages where a case other than nominative functions as a default case. In light of the above discussion, I conclude that the presence of nominative case does not argue against the no-TP analysis of article-less languages.

Before turning to a rather strong argument for the lack of TP in article-less languages in the next section, I will briefly mention one potential argument for the lack of TP in Japanese. Tanaka (2002) and Nemoto (1991) provide strong evidence that A-movement across CP boundaries is possible in Japanese. Tanaka’s examples involve raising to object out of "finite" CPs. (107)a-b give the base-line data, with (107)b being the relevant example. (107)d, where *stupidly* modifies the matrix V, shows the accusative subject moves into the matrix clause (in contrast to the nominative subject in (107)c). (108) and (109) argue against an alternative, control analysis. (108)a illustrates the well-known fact that the Proper Binding Condition holds for movement in Japanese (see Saito 1992), though it is irrelevant for control (109). The fact that (108)b patterns with (108)a rather than (109) indicates that the construction under consideration involves movement (into the matrix clause) rather than control. (111)b, where what used to be the embedded clause subject binds an anaphor in the matrix subject, shows that raising to object can be followed by A-scrambling to the sentence initial position of the higher clause, which confirms the raising to object analysis (i.e. it shows the relevant movement involves A-movement, as expected under the raising to object analysis). Finally, (110) shows raising to object can occur even out of +wh clauses, which are uncontroversially CPs.

- (107) a. John-ga [Bill-ga baka-da-to] omot-teiru.  
 John-NOM [Bill-NOM fool-COP-COMP] think-PROG  
 'John thinks that Bill is a fool.'
- b. John-ga Bill-o<sub>i</sub> [t<sub>i</sub> baka-da-to] omot-teiru.  
 John-NOM Bill-ACC<sub>i</sub> [t<sub>i</sub> fool-COP-COMP] think-PROG  
 'John thinks of Bill as a fool.'
- c. \*John-ga [Bill-ga orokanimo tensai-da-to] omot-teiru.  
 John-NOM [Bill-NOM stupidly genius-COP-COMP] think-PROG  
 'Stupidly, John thinks that Bill is a genius.'
- d. John-ga Bill-o<sub>i</sub> orokanimo [t<sub>i</sub> tensai-da-to] omot-teiru.  
 John-NOM Bill-ACC<sub>i</sub> stupidly [t<sub>i</sub> genius-COP-COMP] think-PROG  
 'John thinks of Bill stupidly as a genius.'

- (108) a. \*[[Bill-ga t<sub>i</sub> katta-to]<sub>j</sub> [sono-hon-o<sub>i</sub> [John-ga t<sub>j</sub> itta]]].  
 [[Bill-NOM t<sub>i</sub> bought-COMP]<sub>j</sub> [the book-ACC<sub>i</sub> [John-NOM t<sub>j</sub> said]]]  
 'That Bill bought t<sub>i</sub><sub>j</sub>, the book<sub>i</sub>, John said t<sub>j</sub>.'
- b. \*[t<sub>i</sub> baka-da-to]<sub>j</sub> John-ga Bill-o<sub>i</sub> t<sub>j</sub> omot-teiru.  
 [t<sub>i</sub> fool-COP-COMP]<sub>j</sub> John-NOM Bill-ACC<sub>i</sub> t<sub>j</sub> think-PROG  
 '[t<sub>i</sub> as a fool]<sub>j</sub>, John thinks of Bill<sub>i</sub> t<sub>j</sub>.'
- (109) [PRO<sub>i</sub> gakko-ni]<sub>j</sub> John-ga Bill-ni<sub>i</sub> t<sub>j</sub> meizita.  
 PRO<sub>i</sub> school-to in-order-to]<sub>j</sub> John-NOM Bill-DAT<sub>i</sub> t<sub>j</sub> ordered  
 'John ordered Bill to go to school.'
- (110) John-ga Bill-o baka-ka-to kangaeta.  
 John-NOM Bill-ACC fool-Q-COMP consider  
 'John wonders if Bill was a fool.'
- (111) a. ??Otagai<sub>i</sub>-no sensei-ga karera-o<sub>i</sub> [t<sub>i</sub> baka-da-to] omot-teiru.  
 each other<sub>i</sub>'s teacher-NOM them-ACC<sub>i</sub> [t<sub>i</sub> fool-COP-COMP] think-PROG  
 'Each other<sub>i</sub>'s teachers think of them<sub>i</sub> as fools.'
- b. Karera<sub>i</sub>-o otagai<sub>i</sub>-no sensei-ga t<sub>i</sub> [t<sub>i</sub> baka-da-to] omot-teiru.  
 them<sub>i</sub>-ACC each other<sub>i</sub>'s teacher-NOM t<sub>i</sub> [t<sub>i</sub> fool-COP-COMP] think-PROG  
 'Them<sub>i</sub>, each other<sub>i</sub>'s teachers think of t<sub>i</sub> as fools.'

Turning now to Nemoto (1991), her examples involve A-movement out of control CPs (the fronted element binds the anaphor in (112)a).

- (112) a. John to Bob<sub>i</sub>-o otagai<sub>i</sub>-no titioya<sub>j</sub>-ga [<sub>CP</sub> PRO<sub>j</sub> t<sub>i</sub> rikaisiyoo to] kokoromita.  
 John and Bob-acc. each other's fathers-nom understand C attempted  
 'John and Bob, each other's fathers attempted to understand.'
- b. \*Otagai<sub>i</sub>-no titioya-ga [<sub>CP</sub> PRO John to Bob-o rikaisiyoo to] kokoromita.

Regarding (112), Nemoto (1991) assumes that A-movement cannot skip CP/TP pairs, following Chomsky (1986a). It must then be that either CP or TP is missing in (112). Nemoto then argues that since CP is clearly present in (112) it must be that the embedded clause lacks TP. The analysis also straightforwardly extends to (107)b/(110)/(111)b. The possibility of A-movement out of CPs in Japanese is suggestive of a rather strong argument for the no-TP analysis. While a question still arises how to block A-movement out of CPs where such movement is not possible, what is important here is that such movement is in principle possible in Japanese.<sup>47</sup>

I now turn to a rather strong argument for the lack of TP in article-less languages, which involves the Sequence-of-Tense phenomenon.

#### 5.4. Sequence of Tense

Consider English examples in (113) and (114). (113) is ambiguous between the non-past/simultaneous and the anteriority reading. As for (114), the time of the alleged illness must

<sup>47</sup>The issue, however, arises not only in Japanese but in other article-less languages as well. It is possible that a projection from split IP other than TP (which would be present in article-less languages) is to blame for this. Another rather straightforward possibility is that an A-movement that is blocked is driven by a feature that the CP in question also has (the movement would then be blocked by Attract Closest).

contain not only the time of John's believing, but also the utterance time (see, e.g., Sharvit 2003).

(113) John believed that Mary was ill.

Non-past/simultaneous reading: John's belief: Mary is ill (time of the alleged illness overlaps John's now)

Anteriority reading: John's belief: Mary was ill (the time of the alleged illness precedes John's now)

(114) John believed that Mary is ill.

The time of the alleged illness contains the time of John's believing state and the utterance time

The above illustrates typical behavior of a language that exhibits the Sequence-of-Tense phenomenon (SOT). It is well-known that not all languages exhibit SOT. Thus, SC (115) has the non-past reading. More generally, the simultaneous reading of English examples like (113), where the embedded clause is in the Past Tense, is expressed with a structure where the embedded clause is in the Present Tense in SC. Furthermore, (116) can only have the anteriority reading in SC.<sup>48</sup>

(115) Jovan je vjerovao da je Marija bolesna

Jovan believed that Mary is ill

(nonpast/simultaneous)

(116) Jovan je vjerovao da je Marija bila bolesna

Jovan believed that Mary was ill

(only anteriority)

English and SC can then be taken to illustrate the behavior of SOT and non-SOT languages respectively. Is the variation between SOT and non-SOT languages arbitrary? I am not aware of any proposals in the literature to the effect that it is not. A preliminary crosslinguistic investigation of how languages behave regarding SOT shows the following language division:

(117) a. SOT languages: English, Dutch, Modern Greek, Spanish, French, German, Italian

b. non-SOT languages: Russian, Polish, Czech, SC, Romanian, Hebrew, Japanese, Korean, Hindi, Turkish, Malayalam, Bangla, Angika

There is a generalization lurking behind the language division in (117). While DP languages are found in both the SOT and the non-SOT group, NP languages are uniformly located in the non-SOT group. This leads me to posit the generalization in (118). (In fact, if it were not for Hebrew and Romanian we would have a two-way generalization here. It is possible that a more careful examination of Hebrew and Romanian,<sup>49</sup> or a more fine-grained distinction between SOT and non-SOT languages, will yield a true two-way correlation.)

(118) Languages without articles do not show Sequence of Tense.

This surprising generalization, which is another illustration of a surprising interaction between

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<sup>48</sup>This does not appear to be the case in all non-SOT languages. I therefore take the availability of the non-past reading for examples like (114)-(115) as the more reliable test for the presence/absence of SOT in a language.

<sup>49</sup> It could be relevant that the definite article in both Hebrew and Romanian is an affix. As discussed in Bošković (2008b) and Despić (2011), affixal articles behave differently from non-affixal articles in some rather surprising respects (e.g. the distinction determines the behavior of a language with respect to wh-islands, see Bošković 2008b). It is, however, unclear why this would matter here.

NP-level and clause-level phenomena, falls into place rather nicely under the approach pursued here, where article-less languages lack TP. If TP is needed to impose Sequence of Tense, it follows that languages without articles will fail to exhibit Sequence of Tense, since they lack TP.<sup>50</sup>

### 5.5. Subject reflexives

Finally, I note here a very interesting generalization in the context of a no-TP analysis of article-less languages noted by Despić (2011). Despić examines subject reflexive constructions like (119) and observes there is a generalization regarding languages that allow such constructions. In particular, he observes such constructions are allowed only in the subset of article-less languages (e.g. Japanese, Chinese, Korean, Thai, Vietnamese, Tamil), which leads him to posit the generalization in (120).

(119) \*John thinks that himself will leave

(120) Only languages without articles may allow subject reflexives, i.e. examples like (119).

The gist of Despić's account of (119) is that TP closes the binding domain for anaphors (more precisely, TP dominated by CP closes it; Despić states his analysis in terms phases under Chomsky's 2008 approach to phases, where a CP/TP pair works as a phase<sup>51</sup>). As a result, examples like (119) can only be possible in languages that lack TP.<sup>52</sup> If correct, Despić's generalization/

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<sup>50</sup>I-Ta Hsieh (p.c.) observes that the generalization can in fact be quite straightforwardly deduced under the Stowell (1993, 1995a,b)/Kusumoto (2005) approach to SOT. In this approach, a predicate has an argument slot for time; the past tense morpheme in an SOT language like English functions as a time variable which receives its value from higher operators like the phonetically null anteriority operator **PAST**. (In other words, the past tense morpheme is like a polarity item that needs to be licensed by **PAST**.) The anteriority meaning is then introduced by the operator **PAST**, which I assume is located in T, not the past tense morpheme itself. On the anteriority reading of (113), there is a **PAST** operator in both the matrix and the embedded T, as a result of which the two past tense morphemes receive their values from different operators. On the simultaneous reading of (113), on the other hand, **PAST** is present only in the matrix T, hence both past tense morphemes are licensed by the same operator; the attitude verb here quantifies-in over the time variable introduced by the embedded past tense morpheme. In NP languages, due to the lack of TP, the operator **PAST** is unavailable. As a result, such languages cannot have an English-like past tense morpheme, which semantically merely introduces variables and is licensed by **PAST**. Elements that these languages have instead of English past must carry a lexically specified meaning and contribute to the temporal interpretation on their own by saturating the time argument slot of the predicate (as for their location, one possibility is AspP). When these elements are embedded in the complement of an attitude predicate that is anchored with the past tense, since they are not variables they cannot be quantified-in by an intensional verb like *say*. As a result, the simultaneous reading for (113) is unavailable in the case of *past-under-past* in an NP-language. (As noted by I-Ta Hsieh (p.c.), the elements in question can be treated as generalized quantifiers over time, which, with the assumption that the topic time is saturated by the utterance time in the root context and by the matrix event time in the embedded context, can quite straightforwardly yield the simultaneous reading for *pres-under-past* in non-SOT languages.) Let me finally point out that while an NP language cannot have a **PAST** operator due to the lack of TP, a DP language can still lack the operator as an idiosyncratic property, which is consistent with the one-way nature of the generalization in (118) (recall that some DP languages lack SOT).

Khomitsevich's (2007) system can also be quite straightforwardly modified to deduce (118). On Khomitsevich's analysis SOT results from a series of Agree relations through which the embedded verb is valued for the tense feature by the matrix verb. Modifying the original system, this can be implemented as a V-T-V series of Agree relations under Chomsky's (2001) definition of the PIC, where V can Agree with T in its CP complement. Due to the lack of T(P), the higher V however cannot Agree with the lower V in an article-less language without violating the PIC.

<sup>51</sup>Working within this system, Kang (2011) argues that CP in Korean does not work as a phase (since it does not dominate TP, Korean lacking TP). Her argument is based on her claim that Korean does not have successive cyclic movement via SpecCP (she observes that several standard diagnostics for such movement fail in Korean).

<sup>52</sup>See Despić (2011) for details of the analysis and other factors that are involved.

analysis provides a rather strong argument for the no-TP analysis of article-less languages.<sup>53</sup>

## 6. Conclusion

Based on a number of crosslinguistic generalizations, including new generalizations regarding radical pro-drop, number morphology, negative constituents, negative concord, second-position clitics, and focus-V adjacency, where the presence/absence of articles in a language plays a crucial role, I have argued that there is a fundamental difference between TNP in languages with articles like English and article-less languages like SC that cannot be reduced to phonology (overt vs phonologically null articles) since the generalizations in question involve syntactic and semantic, not phonological phenomena. In particular, I have argued languages with articles and article-less languages differ in that the latter do not have DP. Given that a number of these generalizations involve surprising interactions between clause-level and TNP-level phenomena, pursuing the TNP/Clause parallelism hypothesis, I have then explored the possibility that the structural difference between languages with and without articles on the TNP-level has its counterpart on the clausal level; in other words, I have explored the possibility that just like the structure of TNP is poorer in NP languages than in DP languages, the structure of clauses is poorer in NP languages than in DP languages. Taking the TNP/Clause parallelism hypothesis seriously in fact naturally leads to the conclusion that the lack of DP in a language implies the lack of its clausal counterpart, which I assume is TP. I have offered initial evidence that article-less languages indeed lack TP (but see footnote 41). The evidence came from crosslinguistic generalizations involving phenomena such as subject expletives, subject-object asymmetries regarding locality of movement, subject reflexives, and Sequence of Tense. The discussion in this paper is in some respects reminiscent of the traditional configurational vs non-configurational languages distinction, given that many article-less languages belong to what used to be called non-configurational languages (see here the scrambling correlation in (17), scrambling being one of the central characteristics of non-configurational languages). Over the years we have seen conclusive evidence that non-configurational languages do have structural hierarchies. While nothing in this paper challenges that conclusion, the discussion here leads to the conclusion that traditional non-configurational languages (more precisely, article-less languages) may have a bit flatter (i.e. a bit less) structure than configurational languages (more precisely, article languages) on both the clausal and the TNP level.<sup>54</sup>

Finally, I will briefly compare the position taken in this paper with the possibility explored in Fukui (1986, 1988), Fukui and Takano (1998), and Fukui and Sakai (2003) that Japanese lacks syntactically active functional structure. Putting aside for the moment the two obvious differences in the scope of these works and the current work (the current work deals with all article-less languages and does not deny the presence of all functional structure), the issue I would like to focus on is the distinction between lacking certain projections vs having these projections as syntactically inactive. As noted in Fukui (1988), it is actually very hard to tease apart these two options (the works cited above mostly leave the issue unresolved); in fact many of the generalizations discussed in this work would be compatible with a weaker position that article-less languages have DP and TP, which are

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<sup>53</sup>Note that Migdalski (2010) offers a deduction of the second-position clitic generalization in (56) which crucially ties it to (118) (i.e. the current hypothesis that article-less languages lack TP), whereby a second-position clitic system cannot occur in a TP language (see also Condoravdi and Kiparsky 2002 for relevant discussion).

<sup>54</sup>I emphasize here that although I am arguing that article-less languages are structurally poorer than article languages on both the clausal and the TNP level I am not arguing that article-less languages completely lack functional structure in clauses and TNPs, a point which has sometimes been misinterpreted in the literature addressing Bošković (2005, 2008a).

however syntactically inactive. This would mean that these projections could not be involved in any syntactic phenomena (such as movement or agreement) in article-less languages; they would merely serve as place holders for certain lexical elements. Such an analysis would still allow for the placement of verbal morphology, such as e.g. Japanese *-ru*, under T (though, as discussed in section 5 and Fukui 1988, this is not really necessary). However, Fukui's (1988) point is that as far as syntax is concerned, this analysis does not seem to differ from the analysis where the relevant projections would be completely lacking. There are, however, still some differences between the two analyses. Thus, it appears that to account for Despić's (2009, 2011, in press) binding facts, it is not enough to posit a DP which cannot be targeted by movement or be involved in an Agree relation in article-less languages; even without these properties such a projection should still close off the c-command domain of possessors, thus failing to account for the binding properties of SC, Japanese, and Chinese possessors discussed in section 3. I also refer the reader to Bošković (2008a) for deductions of the generalizations from sections 1-2 (see also the discussion in section 4), some of which appear not to be consistent with postulation of syntactically inactive DP in article-less languages. More generally, if the inactivity is confined to syntax, which means that DP (and TP) would be active in phonology and semantics, the semantic generalizations from sections 1, 2 and 5 will raise questions, given that DP (and TP) would then be present in the semantics of article-less languages. Let me finally note that the reason for deactivation (or lack of) DP and TP in Japanese from Fukui (1986, 1988), Fukui and Takano (1998), and Fukui and Sakai (2003), who relate it to the lack of agreement in Japanese, cannot be extended to many of the languages discussed here, since many article-less languages clearly have agreement (this, e.g., holds for all Slavic article-less languages). Nevertheless, in spite of the differences noted above, in many respects the current work follows the line of research that originated with Fukui (1986).

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