

# Nominal structure in a language without articles: The case of Estonian\*

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## Abstract

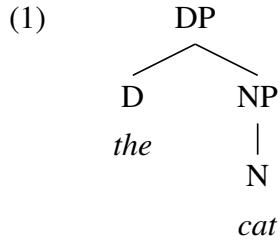
It is standardly assumed that nominals in the languages of the world are syntactically complex in the typical case, being made up of not just NP, but one or more functional projections, e.g., DP (Abney, 1987). Recently, this assumption has been questioned, especially for languages without articles (Bošković (2005), *et seq.*). The alternative proposal holds that nominals in Serbo-Croatian (and more strongly, languages without articles in general) lack the DP projection, and that this difference has a variety of syntactic consequences. In this paper, I investigate the nominal extended projection of another language without articles, Estonian (Finno-Ugric). On the basis of a number of facts about Estonian's system of adnominal genitives, I conclude that nominals in Estonian should not be given the same analysis as those in Serbo-Croatian. I propose instead that Estonian's nominals are DPs. I then propose that indefinite pronouns and *wh*-determiners instantiate the category  $D^0$  in the language, arguing that DP does more cross-linguistically than host articles. I conclude that nominal structure in languages without articles can be just as complex as nominal structure in languages with articles.

## 1 Introduction

In the syntax of nominal phrases, articles are canonically (or frequently) analyzed as heads of their own projection, DP, which in the simplest terms takes NP as its complement (Abney, 1987). An English phrase like *the cat* thus has the structure in (1).

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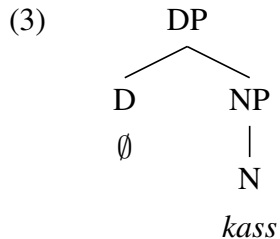
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Though DP is a standard assumption for languages with articles, it requires more abstraction in languages that do not have articles, like Estonian. In Estonian, a bare noun—that is, one without any modifiers of any kind—can be interpreted as definite or indefinite depending on context and sometimes on construction.<sup>1</sup> For example, in an existential sentence (2a), bare nouns are indefinite, but those same bare nouns can be definite in the continuation that follows (2b).<sup>2</sup>

- (2) a. Õue-s on kass ja koer.  
 yard-INE be.3.PRS cat.NOM and dog.NOM  
 ‘There is a cat and a dog outside.’  
 b. Koer aja-b kassi taga.  
 dog.NOM drive-PRS.3SG cat.PAR back  
 ‘The dog is chasing the cat.’

With the popularization of the DP hypothesis, authors working on languages without articles have either assumed or argued for the presence of DP in such languages. An analysis of this type for Estonian is represented in (3).



Under a strong universalist view of nominal syntax like the one under discussion, the difference between Estonian and English is lexical. In other words, bare nouns in Estonian contain a DP just

<sup>1</sup>An anonymous reviewer recommended providing additional discussion of the interpretation of bare nouns and its relation to aspect and case. As this article focuses on syntax, I do not have space to cover the types of interpretations available to bare nouns in detail. Tamm (2007) provides discussion about the connection between the case of a noun, aspect, and the noun’s interpretation, but as she argues, the interpretation of the noun actually cross-cuts these categories.

<sup>2</sup>Examples that follow have their sources indicated. Examples with no indication are from my fieldwork with speakers of Estonian. Examples marked with PARLIAMENT are from a corpus of records of the Estonian parliament between 1995 and 2001. Examples marked with BALANCED are from a balanced literary corpus of Estonian. Examples marked with ETTENTEN come from a corpus of native examples from the internet. Examples marked with EKSS come from the largest Estonian language dictionary of Estonian. The latter four are freely available online at <http://www.keeleveeb.ee/>.

Glossing abbreviations are as follows: 1 first person, 2 second person, 3 third person, ACC accusative case, ADE adessive case, ALL allative case, DEM demonstrative, DES *des*-gerund, FEM feminine gender, GEN genitive case, ILL illative case, INE inessive case, INSTR instrumental case, MA *ma*-infinitive, NEG negation NMLZ nominalization, NOM nominative case, PAR partitive case, PASS passive, PL plural, PRE present tense, PRS.PCPL present participle, PRCL particle, PST past, TRL translative case, SG singular.

like English, but they lack the English-like articles to fill the  $D^0$  position, having instead an element of category  $D^0$  with no phonological content in examples like (2). I refer to this kind of analysis as the DP ANALYSIS throughout.

For a little more than a decade, this idea—that nominals in languages without articles nevertheless must or may have DP—has been strongly challenged, most critically for Serbo-Croatian (Bošković 2005, 2008b, 2012; Despić 2011, 2013, among others). On the basis of a large number of arguments and generalizations, these authors have argued for the hypothesis that languages without articles do not have DP, a hypothesis which I call the SMALL NOMINAL HYPOTHESIS (or SNH).

- (4) **Small Nominal Hypothesis (SNH):** Nominals in languages without articles do not project DP. (based on Bošković & Hsieh (2015))

The hypothesis as stated above could be formalized in a number of ways, but it will suffice as written for now. Under this view, rather than having the structure in (3), a nominal in Estonian would have a structure like that in (5).

- (5) NP  
|  
N  
*kass*

I refer to this kind of analysis as the NP ANALYSIS.

The SNH led to increased interest in the syntax of nominals in languages without articles, with research in this vein conducted on (among others) Bulgarian (Dubinsky & Tasseva-Kurktchieva, 2014), Latin (Giusti & Iovino, 2016), Lithuanian (Gillon & Armoskaite, 2015), Mandarin (Bošković & Hsieh, 2015), Pazar Laz (Eren, 2015), Russian (Pereltsvaig, 2007, 2013), Slovenian (Bošković, 2008a), Tagalog (Paul et al., 2015), Tatar (Lyutikova & Pereltsvaig, 2015), Turkish (Bošković & Şener, 2014), Vietnamese (Phan & Lander, 2015), and West Greenlandic Inuit (Manlove, 2015).<sup>3</sup> The syntactic proposals have run the gamut: some argue that nominals in languages without articles are always DP (e.g., Giusti & Iovino (2016); Manlove (2015)), some agree with Bošković and Despić (e.g., Paul et al. (2015); Phan & Lander (2015)), and some argue that nominals need not be DPs but may be DPs, which is a sort of middle ground that nevertheless disagrees with the strong version of the SNH (e.g., Gillon & Armoskaite (2015); Lyutikova & Pereltsvaig (2015)).<sup>4</sup>

One goal of this paper is to add Estonian to this debate. I argue that, if the arguments for the lack of DP in Serbo-Croatian can be maintained, they do not support the same conclusion for Estonian. Furthermore, positing additional functional projections allows for a straightforward analysis of indefinite pronouns, *wh*-determiners, and a DP-internal leftward movement targeting genitives (by which I mean adnominal genitive noun phrases, including possessors) and demonstratives. These phenomena and their analyses constitute an argument that the terms *languages without articles* and *languages without DP* are not equivalent, which in turn makes the case that DP's role in the syntax of nominals cross-linguistically is broader than simply hosting Indo-European articles. Thus, while

<sup>3</sup>These are by no means the only works on such languages— see the work just cited for additional references.

<sup>4</sup>In addition to the research considered here, which investigates variation in nominal size across languages, there is a separate strand of research investigating variation in nominal size within languages, arguing that nominals in a given language can be of various sizes. I do not address this debate herein, but see Danon (2006); Pereltsvaig (2006) and references there for discussion.

research since Abney (1987) has shifted many erstwhile determiners out of the  $D^0$  position (e.g., strong quantifiers, numerals, demonstratives), there are still elements that occupy  $D^0$  (or DP) that are not traditionally called articles.

I begin with an explanation of the basics of nominal morphosyntax in Estonian in section 2. I then turn to some of the arguments for the absence of DP in section 3, focusing the discussion on genitives. I show that Estonian behaves almost completely differently from Serbo-Croatian with respect to genitives, and I argue that this receives a straightforward explanation if some languages without articles have DP. In section 4, I show that additional functional structure allows for simple analyses of indefinite pronouns, *wh*-determiners, and a DP-internal movement of demonstratives and genitives in Estonian. Finally, I close with some discussion of the general landscape of the debate surrounding languages without articles in section 5.

## 2 The basics of Estonian nominal morphosyntax

Estonian makes use of two morphological numbers (singular and plural), and traditionally, fourteen morphological cases (Erelt et al., 1993, 2000). The exact number of cases in the language is a matter of some debate, but these debates are irrelevant to the issues I explore in this article, so I will not discuss them.<sup>5</sup> An example paradigm for *inimene* ‘person’ is given in Table 1 below.

<i>Case</i>	<i>Singular</i>	<i>Plural</i>	<i>Translation</i>
NOMINATIVE	inimene	inimese-d	‘a person/people’
GENITIVE	inimese	inimes-te	‘of a person/people’
PARTITIVE	inimes-t	inimesi	‘a person/people’
ILLATIVE	inimese-sse	inimes-te-sse	‘into a person/people’
INESSIVE	inimese-s	inimes-te-s	‘in a person/people’
ELATIVE	inimese-st	inimes-te-st	‘out of a person/people’
ALLATIVE	inimese-le	inimes-te-le	‘onto a person/people’
ADESSIVE	inimese-l	inimes-te-l	‘on a person/people’
ABLATIVE	inimese-lt	inimes-te-lt	‘off of a person/people’
TRANSLATIVE	inimese-ks	inimes-te-ks	‘for/into a person/people’
TERMINATIVE	inimese-ni	inimes-te-ni	‘until a person/people’
ESSIVE	inimese-na	inimes-te-na	‘as a person/people’
ABESSIVE	inimese-ta	inimes-te-ta	‘without a person/people’
COMITATIVE	inimese-ga	inimes-te-ga	‘with a person/people’

Table 1: Estonian declension paradigm for *inimene* ‘person’

Case and number features are also active for Estonian’s system of nominal concord, which is canonically described as an agreement relation between a head noun and certain other elements with the noun’s extended projection. Some simple examples are provided in (6) and (7).

<sup>5</sup>On the presence/absence of accusative case in Estonian, see Caha (2009); Hiietam (2005); Miljan (2008); Saareste (1926). On the differing properties of terminative, essive, abessive, and comitative, see Nevis (1986).

- (6)    nende-l       rohelis-te-l    tooli-de-l  
 these.PL-ADE green-PL-ADE chair-PL-ADE  
 ‘on these green chairs’
- (7)    kõigi-s    nei-s         raske-te-s     küsimus-te-s  
 all.PL-INE these.PL-INE difficult-PL-INE question-PL-INE  
 ‘in all these difficult questions’ (PARLIAMENT)

In these examples, we see adjectives, demonstratives, and the quantifier *kõik* ‘all’ inflecting for the same case and number values as the head noun (adessive plural in (6), inessive plural in (7)). Concord is the norm in Estonian DPs; nearly every category inside nominal phrases shows concord, and this will be evident in the examples throughout. There is one category that never shows concord—genitives—but I forego examples and discussion of this fact until section 3.3, when it comes up again.

Turning now to syntax, the basics of nominal structure in Estonian are relatively straightforward. For example, adjectives precede nouns, and genitives typically precede adjectives, as we can see in (8).

- (8)    a.    Peetri       vana maja  
 Peeter.GEN old   house  
 ‘Peeter’s old house’
- b.    Kärdi       ilus       maal  
 Kärt.GEN beautiful painting  
 ‘Kärt’s beautiful painting’

For example, in (8a), the genitive *Peetri* ‘Peeter’s’ precedes the adjective *vana* ‘old’, and both precede the noun *maja* ‘house’. These genitives are also possessors (in the literal sense) here, but I use the more neutral term *genitive* throughout to refer to adnominal genitive noun phrases.<sup>6</sup> To be sure, it is also possible to find examples where the adjective precedes the genitive, as shown in (9) and (10).

- (9)    aeglane   palka-de       tõus  
 slow.NOM salary-PL.GEN rise.NOM  
 ‘the slow increase of salaries’ (BALANCED)
- (10)   pakse       paberdokumenti-de   virnu  
 thick.PL.PAR paper.document-PL.GEN stack.PL.PAR  
 ‘thick stacks of paper documents’ (BALANCED)

For example, in (9), the adjective *aeglane* ‘slow’ and the noun it modifies, *tõus* ‘rise’ are separated by a genitive *palkade* ‘salaries’. Thus, it is possible to find examples where the adjective precedes the genitive.

However, the two orders are not in free variation, and the order in (9) and (10)—where the adjective precedes the genitive—is markedly less frequent than the reverse order in corpora. I

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<sup>6</sup>Thus, the term *genitive* as I use it here is not to be confused with other types of modifiers that may bear genitive due to case concord. Whenever I use *genitive* as a noun, it refers to adnominal genitive noun phrases, of which possessors are a subset.

collected examples from two corpora using a variety of adjectives.<sup>7</sup> The order with the genitive preceding the adjective accounts for 83% (4098/4962) of the tokens collected. This supports my claim that the order Genitive-Adjective is typical.

Note, however, that (9) and (10) do not involve possession in the literal sense, but (8a) and (8b)—which exemplify a different word order—do. It is thus worth considering whether the type of semantic relation between genitive and head noun could be related to the different orders of genitives and adjectives.<sup>8</sup> Even if it turned out that both orders were strictly speaking grammatical regardless of semantic relation, there could still be a trend (e.g., possessors in the literal sense are more likely to appear on the left of adjectives, whereas non-possessor genitives more likely appear between the adjective and noun). While I believe a full investigation is beyond the scope of the present paper, I can offer some preliminary discussion.

First, there are examples where an adjective appears between an internal argument (rendered as a genitive) and the possessum noun.

- (11) külmiku säästev kasuta-mine  
 refrigerator.GEN sustainable.NOM use-NMLZ.NOM  
 ‘sustainable using of the refrigerator’ (ETTENTEN)
- (12) kaasneva-te riski-de objektiivne hinda-mine  
 accompanying-PL.GEN risk-PL.GEN objective.NOM assess-NMLZ.NOM  
 ‘objective assessing of accompanying risks’ (ETTENTEN)

For example, in (11), the adjective *säästev* ‘sustainable’ is between the nominalization *kasutamine* ‘using’ and the theme argument *külmiku* ‘refrigerator’. I presented only two examples here, but there were many corpus examples. Thus, non-possessor genitives may appear higher than the adjective (like the possessor genitives in (8a)-(8b)).

The second question—whether true possessors as genitives can appear in between the adjective and the nominalization—is less clear. Part of the issue is pinpointing what specifically is meant by true possession, given that possession constructions can encode such a wide variety of semantic relations. It is possible to find examples with a low genitive where it is not obviously an argument of the head noun.

- (13) tume mehe vari  
 dark.NOM man.GEN shadow.NOM  
 ‘dark shadow of a man’ (ETTENTEN)
- (14) Ta on ainus Käti sõbranna, kelle-l on oma suusa-d.  
 She be.3 sole.NOM Käti.GEN female.friend-NOM who-ADE be.3 own ski-PL.NOM  
 ‘She is Käti’s only female friend who has her own skis.’ (ETTENTEN)

For example, in (14), the genitive *Käti* ‘Käti’s’ appears between the adjective *ainus* ‘sole’ and the head noun *sõbranna* ‘female friend’. Of course, *ainus* ‘sole’ has a quantificational flavor to it—these seem to be the most common, and that is certainly suggestive. However, I leave the full analysis to future work and henceforth assume that genitives typically precede adjectives,

<sup>7</sup>The corpus search was conducted with assistance from Travis McGeehan and Coree Clinton. We searched both the Estonian Language Institute’s balanced literary corpus and their corpus of parliamentary records, using a variety of adjectives from the semantic classes discussed by Laenzlinger (2005); Scott (2002) among others. I provide more information on how these data were collected and an analysis in Appendix A.

<sup>8</sup>I thank an anonymous reviewer for raising this question.

though both orders are possible to some degree. The analysis I ultimately propose allows for both orders, but I do not formalize here the observation that the Adjective–Genitive order is apparently restricted.

Turning to the higher functional domain, the strong quantifiers *kõik* ‘all’ and *iga* ‘each’ precede demonstratives (both standard *see* and colloquial *too*). These elements together typically precede adjectives and genitives, as we can see in (15) and (16).

(15) *kõik nee-d Kärdi punase-d auto-d*  
 all these-PL Kärt.GEN red-PL car-PL  
 ‘all these red cars of Kärt’s’

(16) *iga see neetud riidetükk*  
 each this cursed cloth.piece  
 ‘each of these cursed pieces of fabric’

(BALANCED)

Taking all of this together, the basic word order exemplified in Estonian nominals is given in (17). This order is common crosslinguistically, and syntactic analyses of it are plentiful (see, for example, Abels & Neeleman 2012; Cinque 2005).

(17) **Neutral order of elements in the Estonian noun phrase**  
 Q > Dem > Gen > Adj > N

Modern generative analyses of nominal phrase structure such as those just referenced almost invariably make use of functional projections above the noun phrase. These projections have grown in number since the comparatively conservative earlier proposals made by, e.g., Abney (1987); Jackendoff (1977); Szabolcsi (1983). For example, Déchaine & Wiltschko (2002); Ritter (1991) have argued for the presence of an additional functional projection in between  $D^0$  and  $N^0$ —Ritter (1991) labels it Num(ber) $^0$ , Déchaine & Wiltschko (2002) label it  $\phi^0$ . The existence of such a projection is often assumed in modern investigations of nominal morphosyntax.

However, as I mentioned in the introduction, these standard assumptions have come under increased scrutiny, especially in the domain of languages without articles. I now turn to a discussion of how Estonian fits into the typology of nominal structure in languages without articles, focusing on the behavior of genitives.

### 3 Estonian genitives in the NP/DP landscape

The Small Nominal Hypothesis is a hypothesis about the syntax of nominals in languages without articles, and work on the NP/DP divide since Bošković (2005) has focused on possible syntactic consequences of an NP analysis of nominals in languages without articles. Because it is such a strong hypothesis, the SNH makes very clear predictions about nominals in other languages without articles. In this section, I explore the predictions of the SNH in Estonian, focusing on the domain of genitives, as a number of different empirical facts about genitives in Serbo-Croatian have been used as evidence in support of an NP analysis of that language. While an NP analysis may provide some leverage in understanding the behavior of nominals in a language like Serbo-Croatian, such an analysis of Estonian predicts a certain degree of similarity between nominals in the two languages. In the domain of genitives, few similarities exist. I begin by discussing one of generalizations from the work of Bošković (2008b, 2012); Bošković & Hsieh (2015).

### 3.1 Estonian nominals can have (at least) two genitive modifiers

Bošković (2008b, 2012) reveals a variety of properties that are shared by some languages without articles, and he proposes that these differences come from an NP/DP distinction. There are many generalizations from a variety of empirical domains; a sampling from the list of generalizations is presented below, but see Bošković & Hsieh (2015:102-103) for an up-to-date version in full.

- (18) Generalizations about languages with(out) articles (abbreviated):
- a. Only languages without articles may allow left-branch extraction out of nominal phrases
  - b. Multiple *wh*-fronting languages without articles do not show superiority effects.
  - c. **Languages without articles do not allow transitive nominals with two genitives.**
  - d. Only languages with articles allow the majority reading of MOST.
- ⋮

As is clear from the examples above, most of the generalizations are structured as implications. Rather than surveying all the properties enumerated by Bošković & Hsieh (2015), this section undertakes a narrow case study of property (18c) and shows that a thorough empirical investigation in a language without articles reveals that the crosslinguistic picture is more complex and less clear-cut than previous literature takes it to be.<sup>9</sup> Further, the generalization in (18c) fits into a broader array of differences between genitives in Estonian and genitives in Serbo-Croatian, discussed momentarily. Taken together, the differences cast doubt on approaches seeking to analyze genitives (and more strongly, nominal syntax) in the two languages in the same way.<sup>10</sup>

The generalization in (18c) is based on work by Willim (2000) (see also Bošković 2008b:n7), who investigated the structure of nominal phrases in Polish. The logic of the implication predicts that only languages with articles—languages with DP under Bošković’s analysis—can permit transitive nominals with two genitives. Thus, if a language allows such constructions, then it must be a language with articles, i.e., a language with DP. If it does not, then we cannot conclude anything. The basic contrast can be exemplified with German, a DP language, and Polish, an NP language.

- (19) a. Hannibals Eroberung Roms  
 Hannibal.GEN conquest Rome.GEN  
 ‘Hannibal’s conquest of Rome’ (German, Bošković 2008b)
- b. \* podbicie Rzymu Hannibala  
 conquest Rome.GEN Hannibal.GEN  
 Intended: Hannibal’s conquest of Rome’ (Polish, Bošković 2008b)

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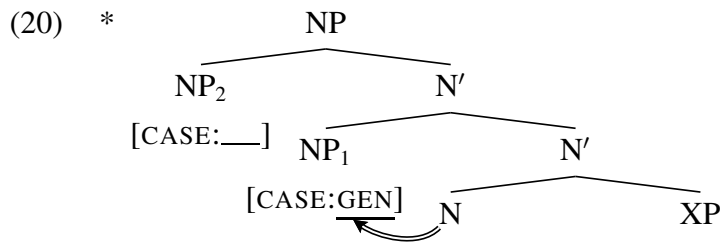
<sup>9</sup>Gillon & Armoskaite (2015) conduct an exploration of each of the generalizations in a single language (Lithuanian), although their discussion of the generalizations focuses on empirical facts rather than formal analysis. As they note (p. 106), there is no core unifying property that has been proposed in the literature to underlie all the generalizations. I focus on the generalization concerning genitives and consider its possible formalizations, as it fits nicely into a broader comparison of genitives in Estonian and Serbo-Croatian. Once enough analyses of individual generalizations are proposed, perhaps it would then be possible to seek out a thread that unites them all.

<sup>10</sup>In the discussion that follows, I essentially assume that the diagnostics can be maintained, but of course, it could also be that (18c) (among possibly other generalizations) is simply incorrect. See footnote 14 for further discussion.



The German example (19a) is grammatical with each argument of *Eroberung* ‘conquest’ in genitive case, but the Polish version in (19b) is not (regardless of word order). As German is a language with articles and Polish is not, Bošković (2008b) suggests that the availability of multiple genitive arguments is tied to the presence of articles: if a language allows two genitive arguments, then it is a DP language.

This follows straightforwardly from the NP analysis on the assumption that the relationship between case-assigning heads and case-bearing nominals is one-to-one. If we assume that  $N^0$  has the ability to assign genitive case, but only once, any structure involving a nominal with two “genitive” arguments will be ruled out, because one of them will have an unvalued case feature. This is schematized in (20):



Because  $N^0$  has already assigned case to  $NP_1$ , it is not able to assign case to  $NP_2$ , thus ruling out the structure in (20).

Before turning to Estonian, some caveats are in order regarding what examples count for the generalization. First, Bošković (2008b), *et seq.*, restricts this diagnostic to genitive *arguments*—in his words, he excludes “possessives.” By this, he means to rule out examples such as the grammatical Polish example in (21).

- (21) kolekcja znaczków Piotra  
 collection stamps.GEN Piotr.GEN  
 ‘Piotr’s collection of stamps’ (Willim, 2000:134)

This example contains two genitive-marked nominals apparently modifying *kolekcja* ‘collection’. However, note that *Piotra* is not an argument of *kolekcja* ‘collection’, but a “semantically-restricted Possessor” in the terms of Willim (2000).

Second, Bošković (2012) also disregards examples involving genitive as an inherent Case, providing the Serbo-Croatian example below from Zlatić (1997).

- (22) lišavanje [ sina ] [ njegovog nasljedstva ]  
 depriving [ son.GEN ] [ his.GEN inheritance.GEN ]  
 ‘depriving the son of his inheritance’ (Bošković, 2012:n9)

In (22), both arguments of the nominal *lišavanje* ‘depriving’ are in genitive case. However, in this instance, the genitive case assigned to the second nominal phrase is preserved even when the case-marker is a verb (Bošković, 2012:n9), meaning that this genitive case must be lexically-specified. Bošković disregards this kind of example as well.

Turning now to Estonian, the empirical observation is that nominals can have two genitive arguments. Examples are accepted by my consultants and are also attested in corpora.<sup>11</sup>

<sup>11</sup>Erelt (2009) claims that such examples are not possible, but based on my fieldwork and corpus searching, this is not true. Kehayov & Vihman (2014) also take issue with Erelt’s claim, providing several examples and discussion.

(23) lapse pidev panni-de löö-mine  
 child.GEN continuous.NOM pan-PL.GEN hit-NMLZ.NOM  
 ‘the child’s constant banging of pans’

(24) emis-te päevane proteiini tarbi-mine  
 sow-PL.GEN diurnal.NOM protein.GEN consume-NMLZ.NOM  
 ‘the sows’ diurnal consumption of protein’

(BALANCED)

In each of the examples above, we have nominalizations of transitive verbs (*lööma* ‘hit’ and *tarbima* ‘consume’) with two arguments. Neither of the arguments is a possessor in the sense referenced above. The genitive arguments are separated by adjectives that show concord with the nominalization. This is important— without an adjective, nominalizations with two prenominal genitives (like (25) below) are ambiguous.

(25) lapse panni-de löö-mine  
 child.GEN pan-PL.GEN hit-NMLZ  
 [child.GEN [pan-PL.GEN hit-NMLZ]] ‘the child’s banging of pans’  
 [[child.GEN pan-PL.GEN] hit-NMLZ] ‘the banging of the child’s pans’

In the first interpretation, each genitive is an argument of the nominalization. In the second interpretation, the first genitive is an adnominal genitive modifying the second, meaning the two genitives are a constituent to the exclusion of the nominalization. Because the intervening adjective in (23) shows concord with the nominalization itself, it is clear that the two genitive modifiers do not form a constituent to the exclusion of the nominalization. The genitive modifiers in (23) are both arguments of the nominalization *löömine*.

Furthermore, neither instance of genitive case in these examples can be said to be lexically-specified in the sense that Bošković discusses. While genitive case is one of the morphological cases borne by objects of verbs, it is likely structural.<sup>12</sup> Furthermore, it is only available for singular objects— plural objects in the same syntactic contexts must bear morphological nominative case.<sup>13</sup>

(26) Laps lõi ukse kinni.  
 child hit.PST.3SG door.GEN closed  
 ‘The child hit the door closed.’

(27) Laps lõi ukse-d / \*us-te kinni.  
 child hit.PST.3SG doors-PL.NOM / doors-PL.GEN closed  
 ‘The child hit the doors closed.’

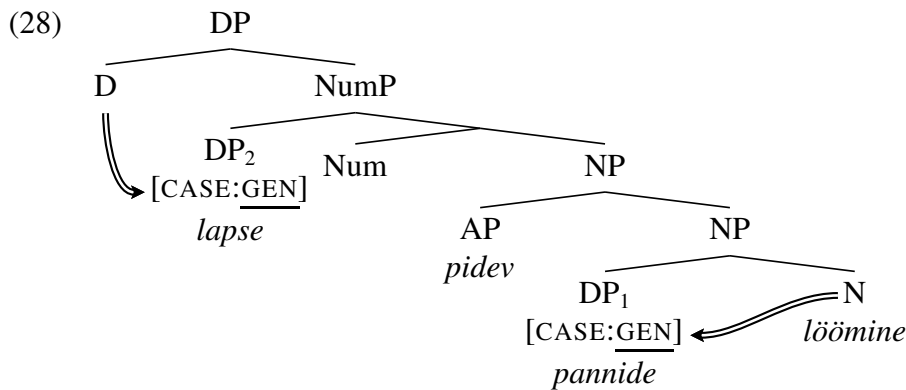
They note that native speakers both use and accept such examples, but they may sometimes be dispreferred due to the structural ambiguity that comes from having two genitives used in succession. I discuss the ambiguity straightaway.

<sup>12</sup>I say *likely* because the analysis of object case-marking in Estonian (or, more accurately, its close relative Finnish) has engendered much debate for decades now, and authors do not agree on which case(s) among the object cases are structural. However, the point here is that object genitive is not the kind of lexically-specified case that Bošković intends to exclude from the double genitive generalization. Whether or not a verb allows a genitive object is wholly determined by the semantics of the predicate in question. For more discussion of the alternation in Estonian, see Tamm (2007).

<sup>13</sup>In fact, the kind of event described by (23) does not even permit the genitive case for objects, as the events with genitive objects must typically have perfective aspect, and the events described by the nominalizations are not perfective. The examples in (26)-(27) involve the verb *lööma* ‘hit’ but have a structure that permits the object genitive case.

Plural objects of verbs in Estonian never bear genitive case, as exemplified by (27). However, plural arguments of nominalizations must bear genitive case, as in *pannide* ‘pans.PL.GEN’ in (23) or *emiste* ‘sows.PL.GEN’ in (24). Taking all of these facts together, it is clear the genitive case borne by the arguments of nominalizations have nothing to do with the verbs in the constructions. Rather, it is a result of the nominal structure they are connected to.

Returning to the main point, the generalization under consideration holds that only DP languages may allow nominals to have two genitive arguments. Thus, by the genitive argument diagnostic, Estonian must be a DP language.<sup>14</sup> Under a DP analysis of Estonian, we could say that the extra genitive is made possible by the presence of  $D^0$  (with one genitive presumably made available by  $N^0$ , as before). A structure for example (23) is given in (28) below.<sup>15</sup>



In (28), the inner DP is assigned case by the  $N^0$  head itself. The higher genitive is introduced by a functional projection below  $D^0$ , which I assume is Ritter’s (1991)  $\text{Number}^0$  for concreteness. This genitive receives case from  $D^0$ . If  $D^0$  is a case assigner, then it is immediately clear why the availability of a second genitive would correlate with the presence or absence of  $D^0$ .<sup>16</sup> In a

<sup>14</sup>This conclusion assumes that the genitive argument diagnostic is true. As an anonymous reviewer notes, one could also claim that the genitive argument diagnostic is in fact false—that languages without articles may permit two genitive arguments. That descriptive statement is plainly true. However, the more pertinent question is how the difference between languages which allow two genitives and those which do not would then be formalized. As I show, attributing the difference to the presence of  $D^0$  in line with the literature on languages without articles yields a fairly straightforward formal analysis. If, instead, nominals in both kinds of languages are analyzed as NP, then an independent explanation is needed for the differences between genitives discussed herein. If such an account can be shown to withstand scrutiny, then the argument could be made that this generalization is simply incorrect as stated.

<sup>15</sup>The analysis in (28) also comes with a welcome prediction regarding the order of adjectives and genitives. Namely, it correctly predicts that genitives should be able to appear on both sides of adjectives, as discussed in Section 2. However, while both orders are possible, the results from corpus searches (see Appendix A) suggest that they are not possible to equal degrees. A possible line of attack would be to say that while Estonian has multiple genitive positions, the positions are not interchangeable. In other words, some of the genitive positions may be restricted in some way. I leave the details of this proposal to future work.

<sup>16</sup>As an anonymous reviewer notes, some may take issue with the fact that the same case (genitive) is assigned in multiple ways within DP. On the face of it, this looks like an unnecessary complication. In other words, an analysis whereby both instances of DP-internal genitive case have the same source would be simpler, all else being equal (though I note it may be difficult to ensure that all else is indeed equal). However, there are other domains where it has been argued that one and the same case has multiple sources—see Alexiadou et al. (2014); Anagnostopoulou & Sevdali (2015) for arguments that dative and genitive must be both inherent and structural in (Ancient) Greek, thus necessitating two separate sources for the same case. This is perhaps something that a more substantive divide between the syntax and morphology of case could help solve, but I will not develop such an account here.

world in which some languages without articles have DP and others do not, the distinction between languages like Estonian and languages like Polish or Serbo-Croatian with respect to this diagnostic receives a straightforward explanation.<sup>17</sup>

### 3.2 The binding possibilities of Estonian genitives

Another difference between NP languages (exemplified by Serbo-Croatian) and DP languages (exemplified by English) concerns the binding possibilities of genitives of nouns in subject position (Despić, 2011, 2013). Before discussing the facts in Estonian, I briefly recapitulate Despić's observations and analysis. To begin, observe that the Serbo-Croatian examples in (29) and (30) are ungrammatical, in contrast to their English translations. Note that we are interested only in the readings where the elements indexed with *i* co-refer.

- (29) a. \* Kusturicin<sub>i</sub> najnoviji film ga<sub>i</sub> je zaista razočarao.  
 Kusturica's latest film him is really disappointed  
 'Kusturica<sub>i</sub>'s latest film really disappointed him<sub>i</sub>.' (Despić 2013:245)
- b. \* Njegov<sub>i</sub> najnoviji film je zaista razočarao Kusturicu<sub>i</sub>.  
 His latest film is really disappointed Kusturica  
 'His<sub>i</sub> latest film really disappointed Kusturica<sub>i</sub>.' (Despić 2013:245)
- (30) a. \* Jovanov<sub>i</sub> papagaj ga<sub>i</sub> je juče ugrizao.  
 John's parrot him is yesterday bitten  
 'John<sub>i</sub>'s parrot bit him<sub>i</sub> yesterday.' (Despić 2013:245)
- b. \* Njegov<sub>i</sub> papagaj je juče ugrizao Jovana<sub>i</sub>.  
 His<sub>i</sub> parrot is yesterday bitten John<sub>i</sub>  
 'His<sub>i</sub> parrot bit John<sub>i</sub> yesterday.' (Despić 2013:245)

Despić analyzes the distinction in grammaticality by appealing to binding. In a nutshell, the claim is that genitives in Serbo-Croatian (but not English) are capable of binding elements outside of the possessum phrase. Thus, if the genitive modifying the subject is coreferent with an object non-reflexive pronoun (as in the (a) examples) or name (as in the (b) examples), the construction is ungrammatical (due to Condition B for non-reflexive pronouns and Condition C for names).<sup>18</sup>

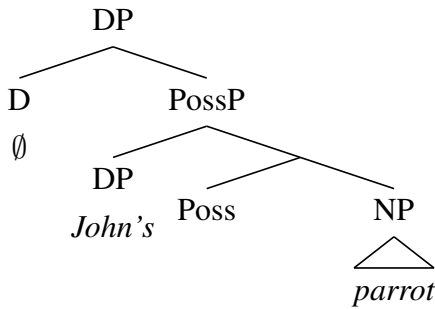
Despić adopts Kayne's (1994) analysis of English genitives, wherein they are introduced as specifiers of PossP, a projection directly below DP. In contrast, Despić proposes that genitives in Serbo-Croatian are left adjuncts to NP, with no (obligatory) functional projections above them. These structures are given in (31) and (32) below.<sup>19</sup>

<sup>17</sup>The genitive argument diagnostic has also been discussed for Latin (Giusti & Iovino, 2016:13–17). They propose three genitive positions: Spec,NP for theta-marked arguments, a position below Spec,DP parallel to the clausal subject position, and a high position derived by movement of the genitive to the left periphery of the nominal phrase. My conclusions are thus in line with theirs— possible evidence for a third position is given in section 4.3.1.

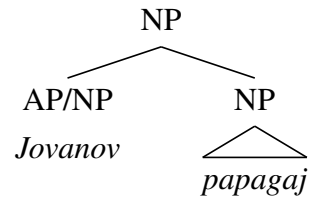
<sup>18</sup>Loosely speaking, Condition B holds that non-reflexive pronouns cannot be bound by a c-commanding element within some local domain (often: clause), and Condition C holds that R-expressions (a class of terms including proper names) cannot be bound by anything (or, more conservatively, by a c-commanding pronoun). Despić defines Condition B on page 259 and adopts Lasnik's (1989) version of Condition C as stated on page 252.

<sup>19</sup>These are the structures for the analysis that Despić develops substantially, which is rooted in the framework of Antisymmetry. I focus on this analysis as it is the analysis that Despić makes most concrete. He also briefly discusses an approach which does not adopt the same assumptions (pp. 249–251).

(31) English:



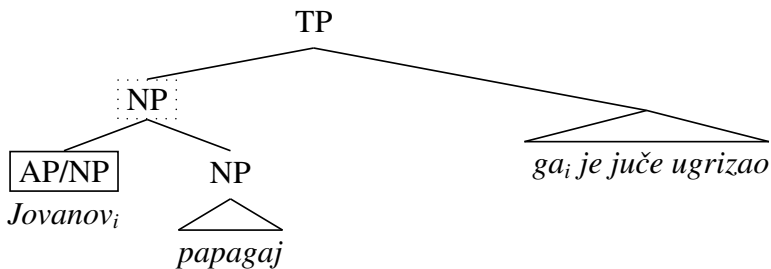
(32) Serbo-Croatian:<sup>20</sup>



He presents a number of the arguments from the literature in favor of such an analysis, some of which are discussed in section 3.3 of the present article.

The second piece of the analysis is Kayne's (1994) definition of c-command which holds that adjuncts to a phrase XP (and specifiers of XP) c-command elements that XP itself c-commands.<sup>21</sup> Under this definition, the adjoined genitive AP/NP in (32) c-commands everything that its adjunction site NP c-commands. Despić does not provide an example of a full clausal structure in Serbo-Croatian, but I sketch one simplified possibility in (33).

(33)



Under Despić's assumptions, the AP/NP genitive *Jovanov* (boxed in (33)) c-commands everything the possessum NP (in the dotted box) c-commands. This means that *Jovanov* 'John's' c-commands the object NP *ga* 'him' as well. Because the object pronoun is subject to Condition B, the binding represented in (33) is impossible.

In contrast, note that the structure Despić assumes for English genitives (and, I assume, genitives in DP languages more generally) buries the genitive below the DP layer.<sup>22</sup> As a result, while a subject DP in a language like English c-commands the object DP, the genitive of a subject DP does not. It is the proposed differences in the syntax of possessive constructions in English and Serbo-Croatian that Despić identifies as the heart of the grammaticality distinction between the Serbo-Croatian examples in (29) and (30) and their English translations. Thus, if examples parallel to (29) and (30) are grammatical in a given language, then Despić would presumably analyze possessive structures in that language as something close to the English structure in (31). If they are

<sup>20</sup>I equivocate on the genitive label here, because it is unclear whether Despić takes them to be NPs or APs— he consistently refers to them as 'adjectival', but he never explicitly says they are of category A<sup>0</sup>.

<sup>21</sup>X c-commands Y iff X and Y are categories, X excludes Y and every category that dominates X dominates Y (X excludes Y if no segment of X dominates Y) (Despić 2013:244).

<sup>22</sup>The reason Despić assumes genitives are not in Spec,DP (but in Spec,PossP below DP) is that he assumes specifiers are adjuncts, following Kayne (1994). Thus, if a genitive were in Spec,DP, it would also be able to c-command elements outside of its own DP (according to the definition of c-command that he adopts), and the contrast between English and Serbo-Croatian would require a different explanation.

not grammatical, then the language’s possessive structure must be like the Serbo-Croatian structure in (32).

Estonian behaves like English in this respect— sentences like those in (34) and (35) are grammatical, though some speakers prefer the (a) examples when compared side-by-side.<sup>23</sup>

- (34) a. Tiidu<sub>i</sub> viimane film inspireeri-s teda<sub>i</sub> väga.  
 Tiit.GEN last film inspire-PST.3SG s/he.PAR very  
 ‘Tiit<sub>i</sub>’s last film greatly inspired him<sub>i</sub>.’
- b. % Tema<sub>i</sub> viimane film inspireeri-s Tiitu<sub>i</sub> väga.  
 s/he.GEN last film inspire-PST.3SG Tiit.PAR very  
 ‘His<sub>i</sub> last film greatly inspired Tiit<sub>i</sub>.’
- (35) a. Kärdi<sub>i</sub> koer hammusta-s teda<sub>i</sub>.  
 Kärt.GEN dog bite-PST.3SG s/he.PAR  
 ‘Kärt<sub>i</sub>’s dog bit her<sub>i</sub>.’
- b. % Tema<sub>i</sub> koer hammusta-s Kärti<sub>i</sub>.  
 s/he.GEN dog bite-PST.3SG Kärt.PAR  
 ‘Her<sub>i</sub> dog bit Kärt<sub>i</sub>.’

These are constructed examples, but it is also possible to find naturally-occurring examples.<sup>24</sup> Examples where the name is the genitive (as in the (a) variants) are more common than examples where the name is the object (as in the (b) variants), but I present an example of each below.<sup>25</sup>

- (36) ... Kristiina<sub>i</sub> mees peta-b teda<sub>i</sub> ...  
 ... Kristiina.GEN man.NOM cheat-PRS.3SG s/he.PAR  
 ‘(Namely, I am certain that) Kristiina’s husband is cheating on her (and I don’t know how to proceed).’ (ETTENTEN)

<sup>23</sup>An anonymous reviewer reported different judgments for the (b) versions here from working informally with some additional native speakers of Estonian. This variation is interesting in light of the agreement among the nine speakers I worked with (8 in Tartu, Estonia; 1 in USA). For this reason, I have marked the (b) examples with % to indicate that there is variation in acceptability among speakers. Presumably, a more systematic study could reveal whether this variation is randomly distributed (i.e., idiolectal) or organized (i.e., dialectal), but this is a task that I leave to future research.

<sup>24</sup>A pertinent question to ask in reference to the constructed examples in (34) and (35) is whether any of the relevant elements here are focalized, as it has been observed that such pragmatic changes can improve the relevant examples in Serbo-Croatian. For example, Despić (2013:n5) claims the Serbo-Croatian examples become more acceptable (though not fully grammatical), with “emphatic stress.” However, they are unacceptable in out-of-the-blue contexts. Based on my fieldwork, the Estonian examples are exactly the examples that are most appropriate for the given meaning in an out-of-the-blue context. In discussing them, consultants sometimes comment that, if we wanted to emphasize that, e.g., it was the owner who was bitten by the dog (and not some third party), then an additional reflexive pronoun is used: e.g., *teda ennast* ‘he himself’ rather than simply *teda*.

<sup>25</sup>Strictly speaking, it is not clear that *Jeesusest* ‘Jesus-ELA’ is an object in (37), because it does not bear one of the typical object cases (nominative, genitive, or partitive). Its elative case could perhaps be inherent case from *aru saama* ‘understand’, but it does not actually matter for Despić’s analysis whether these elements are true objects— they just need to be c-commanded by the subject. Given its position between *saanud* and *aru* and its semantic relation to the predicate, that seems likely.

- (37) Isegi ta<sub>i</sub> oma ema ja venna-d ei saa-nud Jeesuse-st<sub>i</sub>  
 even he.GEN own mother.NOM and brother-PL.NOM NEG get-PST.PCPL Jesus-ELA  
 aru.  
 mind  
 ‘Even his own mother and brothers did not understand Jesus.’ (ETTENTEN)

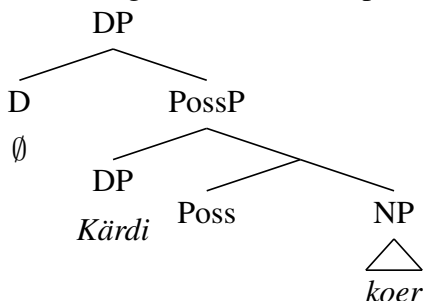
There are, in particular, abundant examples like (36) online— it is therefore possible for genitives modifying the subject to be coreferent with the object. As I mentioned, some speakers expressed a preference for the examples where the pronoun comes second (e.g., they prefer (34a) to (34b)). I believe this is true even in English; *His mother loves John* is certainly marked in out-of-the-blue contexts (though clearly not as bad as *\*He<sub>i</sub> loves John<sub>i</sub>*). One context that supports such a construction is given in (38).

- (38) Tupsu on väike koer. Ta haugub kogu aeg. Seetõttu tüütab Tupsu paljusid inimesi. Aga paljud inimesed ka armastavad Tupsut. Näiteks Maarja armastab Tupsut, Sille armastab Tupsut, . . .  
 ja muidugi tema<sub>i</sub> omaniku-d armasta-vad Tupsu-t<sub>i</sub>.  
 and of.course he.GEN owner-PL.NOM love-PRS.3PL Tupsu-PAR  
 ‘Tupsu is a little dog. He barks all the time. For that reason, Tupsu annoys lots of people. But lots of people love Tupsu, too. For example, Maarja loves Tupsu, Sille loves Tupsu, and of course his owners love Tupsu.’

I suspect parallelism across conjuncts facilitates placing the proper name in object position rather than in genitive position in this case. Thus, though the configuration is rarer than the reverse (where the pronoun is the object), it is possible, at least for some speakers (see note 23). It seems to me, though, that Despić’s analysis predicts that both orders should be equally bad. That is not the case for Estonian, even for speakers who find the (b) examples unacceptable.

The most straightforward interpretation of the Estonian data under Despić’s analysis is that the Serbo-Croatian structure in (32) cannot be right for Estonian. Instead, we could say that Estonian genitives have a similar structure to English genitives as in (31), which would require that Estonian nominals are not simply NPs. This structure is represented for Estonian in (39).

- (39) Estonian genitives (à la Despić 2013)



If Serbo-Croatian is held up as a typical example of a language without articles, then this is another way in which Estonian does not behave like a language without articles.<sup>26</sup>

<sup>26</sup>The question that remains is then what could be behind the badness of the (b) examples for any speakers who

A possible alternative, also suggested by Despić (2013:268), is that genitives might be complements of  $N^0$  in some DP-less languages. If that were true, they would not c-command out of their nominal phrase, just as we have seen in Estonian. However, this alternative is not plausible for Estonian for the following reasons. First, genitives in Estonian always appear on the left of the head noun, but in all clear examples of complements to nouns in the language, the complement appears on the right rather than the left (Erelt, 2009). Second, even if we stipulated that genitives are leftward complements in Estonian, we would then predict that all adjectives would surface on the outside of genitives, since adjuncts and specifiers are merged after complements. As we have seen, this is not true in Estonian— adjectives can easily occur between the genitive and the head noun, and in fact, this order is more common. If we adopt Despić’s analysis of the binding facts in Serbo-Croatian, the most reasonable conclusion about Estonian is that its nominal structure must be more similar to English than Serbo-Croatian.

### 3.3 The syntactic category and size of Estonian genitives

Finally, I turn to a discussion of the syntactic category and size of genitives. A consequence of the NP analysis proposed by Bošković (2005) (*et seq.*), Corver (1992), and Despić (2013) is that demonstratives and genitives are analyzed as syntactically close to adjectives. This descriptive statement is formalized in various ways. For Bošković (2005), following Corver (1992), genitives and demonstratives actually *are* adjective heads (i.e.,  $A^0$ s). Otherwise, they are assumed to be NP adjuncts (40) or multiple NP specifiers (41).<sup>27</sup>

(40) [NP Dem [NP POSS [NP Adj [NP N ]]]]

(41) [NP Dem [N''' POSS [N'' Adj [N' N ]]]]

I believe this conclusion about the syntax of genitives and demonstratives to be non-standard, and thus it could be seen as a weakness of the NP analysis. However, Bošković (2005), *et seq.* argues

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find them unacceptable. My suspicion is that their syntax is only minimally involved, because even the English translations—which are generally believed to be acceptable—are strange in neutral contexts. They are very nearly Weak Crossover constructions (cf. *?His<sub>i</sub> mother loves every boy<sub>i</sub>*, where covariation is impossible). Gillon & Armoskaite (2015) raise an issue that also suggests influence of other factors in grammaticality of these kinds of examples. In their exploration of Lithuanian, they note that their speakers’ judgments on the Despić-style examples seemed to depend in part on the lexical items involved (pp. 110-111). Speakers found examples like (35)—where the object is the creator and the possessed noun something they created—“somewhat more questionable.” As mentioned, I did not encounter this kind of variation. However, an anonymous reviewer observed that (38) becomes worse if the noun *omanikud* ‘owners’ is changed to *peremees* ‘master/head of house’. This again suggests that there is more going on here, but I suspect it is orthogonal to the syntactic structure involved and thus should not matter for Despić’s syntactic analysis. Gillon & Armoskaite leave the matter unresolved in their paper, as I do here, given that the (a) examples are acceptable, in any case.

I am reminded of experimental work on scope that has revealed that some speakers consistently choose one kind of scope— Brasoveanu & Dotlačil (2015) showed that roughly 20% of participants consistently interpreted their experimental items using surface scope and roughly 9% consistently interpreted using inverse scope. It seems to me that data such as this requires more flexibility than a purely syntactic account is able to provide, but I believe more systematic data collection needs to be done before an analysis of this variation can be attempted.

<sup>27</sup>Bošković (2005) proposes that these elements are all multiple specifiers, though he says at numerous points (e.g., pp. 20, 24) that treating them as adjuncts would also work for the analysis he develops. Despić (2013) proposes these are adjuncts to NP.



(pp. 6–7) that it is in fact a strength of the NP analysis, as genitives are adjectival in Serbo-Croatian based on a number of observations (see also Despić (2013:250ff)). I discuss three of them here.<sup>28</sup>

First, genitives in Serbo-Croatian are syntactically small. They cannot be modified by other genitives or by adjectives.

- (42) \* Moj bratov prijatelj spava.  
 my.NOM brother's.NOM friend.NOM sleeps  
 Intended: 'My brother's friend (=friend of my brother) sleeps.' (Bošković 2005:7)
- (43) bogati susedov konj  
 rich neighbor's horse  
 'rich [ neighbor's horse ]', \*'[ rich neighbor ]'s horse' (Bošković 2005:7)

In (42), we see that a sequence of two genitives cannot be a constituent to the exclusion of the head noun in Serbo-Croatian. Thus, *my brother* is not a constituent in that example. More generally, genitives cannot even be modified by an adjective, as seen in (43), which is only grammatical on the absurd reading where it is the neighbor's horse who is rich rather than the neighbor. To account for this, Despić (2013:250) proposes that these kinds of examples are impossible because they would require adjunction to an adjunct. Similarly, Bošković assumes Serbo-Croatian does not allow adjectives to modify other adjectives.

Second, genitives (and demonstratives) in Serbo-Croatian are “morphologically adjectives,” meaning that they show concord just like adjectives, and their declensions are identical (or at least very similar) to the declension of adjectives (Zlatic, 1997), as we can see in (44).

- (44) a. Milanovim zelenim knjigama  
 Milan's.FEM.PL.INSTR green.FEM.PL.INSTR books.FEM.PL.INSTR  
 'Milan's green books (instrumental)' (Adapted from Despić 2013)<sup>29</sup>
- b. Milanovih zelenih knjiga  
 Milan's.FEM.PL.GEN green.FEM.PL.GEN books.FEM.PL.GEN  
 'Milan's green books (genitive)' (Adapted from Despić 2013)

In these examples, the adjective *zelen* 'green' and the genitive *Milanov* 'Milan's' have similar endings (indicated by the underlining). These endings are different from the endings on the nouns. If genitives are A<sup>0</sup>s themselves, we expect them to show adjectival morphology and behavior (e.g., we expect them to show concord), and these expectations are borne out in Serbo-Croatian.

Finally, genitives in Serbo-Croatian can occur in typical adjectival positions. Namely, the same element that is used for possession DP-internally is used in predicative position in Serbo-Croatian, as shown in (45)–(46).

- (45) Ova knjiga je moja.  
 this book is my  
 'This book is mine.' (cf. '\*This book is my.')
- (Bošković 2005:6)

<sup>28</sup>Though I focus on genitives, some of the arguments he presents are also intended to support an adjectival analysis of demonstratives.

<sup>29</sup>These differ from Despić's original examples in that I have omitted the demonstratives from the examples, as I am focusing on genitives here.

- (46) Ova knjiga je Jovanova.  
 this book is Jovanov's  
 'This book is Jovanov's.' (Miloje Despić, p.c.)

This partially contrasts with English, where the attributive genitive determiners (except *his*) cannot be used predicatively—observe the ungrammaticality of *\*This book is my*. However, non-pronominal genitives in English can occupy predicative position, as in (46). The claim is that the difference between English and Serbo-Croatian with respect to attributive genitives boils down to their syntactic status. For example, if genitives in Serbo-Croatian are  $A^0$ s, it is no surprise that they can be used as adjectival predicates. In contrast, if the English possessive determiners are  $D^0$  heads, then according to Bošković (2005), it is unsurprising that they cannot occur as adjectival predicates.<sup>30</sup>

To recap, the NP analysis of Serbo-Croatian leads its proponents to conclude that genitives (and demonstratives) are syntactically close to adjectives, because their usual location—specifier position of higher functional material—is not present. If we were to adopt the NP analysis of Estonian in line with the SNH, a specifier analysis of genitives would likewise not be possible for Estonian. As I show momentarily, Estonian genitives behave completely differently from Serbo-Croatian genitives with respect to the facts just discussed. When combined with the other facts considered in Section 3, the resulting picture is one in which the NP analysis of Estonian does not illuminate the behavior of its genitives in any obvious way.

First, recall that genitives in Serbo-Croatian cannot be modified in any way. In Estonian, modification of genitives (47) and recursion inside genitives (48) are possible and commonplace.

- (47) ... sest ta kaitse-b laia-s mõtte-s [ kõigi töötaja-te ]  
 because s/he protect-3SG broad-INE thought-INE all.PL.GEN worker-PL.GEN  
 huve.  
 interest.PL.PAR  
 '... because s/he is advocating, in a broad sense, for the interests of all workers.'  
 (PARLIAMENT)

- (48) [[[ kehakultuuri ja spordi ] uuri-mise ] laboratooriumi ]  
 physical.education.GEN and sport.GEN study-NMLZ.GEN laboratory.GEN  
 juhataja  
 director

'the director of the laboratory for the study of sports and physical education' (BALANCED)

In (47), the genitive *kõigi töötajate* 'all workers' contains the quantifier *kõik*, which is one of the highest elements in the Estonian nominal extended projection (see section 2). Simple adjectival modification is also possible, as in *rikka mehe hobune* 'rich.GEN man.GEN horse.NOM', which is about a rich man and cannot be about a rich horse (unlike the Serbo-Croatian example (43), which *must* be about a rich horse). In (48), we see a naturally-occurring example of genitive recursion in Estonian. The bracketing provided in (48)—one possibility though certainly not the only possibility—demonstrates three levels of genitive recursion. Of course, simpler examples

<sup>30</sup>Pereltsvaig (2007:76–77) argues that this contrast cannot simply be analyzed as a difference in category label, as the *my/mine* contrast has a somewhat broader distribution than what is discussed here. I find Pereltsvaig's arguments compelling, but I do not dwell on the analysis here, as Estonian behaves differently from Serbo-Croatian in any case.

such as *mu venna sõber* ‘[my brother]’s friend’ are also possible. To put it briefly, I am not aware of any differences between the modificational possibilities of adnominal genitive nouns and other nominals in Estonian, in stark contrast to Serbo-Croatian.

Next, as I noted in section 2, while most elements in the Estonian nominal phrase show concord in case and number, genitives are the one broad exception to that general rule. Genitives in Estonian do not show concord with the nouns they modify.

- (49) a. Kõigi-l Kärdi(\*l) rikas-te-l sõpra-de-l on auto-d.  
 all.PL-ADE Kärt.GEN(\*ADE) rich-PL-ADE friend-PL-ADE be car-PL.NOM  
 ‘All of Kärt’s rich friends have cars.’
- b. Kõigi-l mu(\*l) rikas-te-l sõpra-de-l on auto-d.  
 all.PL-ADE my.GEN(\*ADE) rich-PL-ADE friend-PL-ADE be car-PL.NOM  
 ‘All of my rich friends have cars.’

In (49), the quantifier *kõigil* ‘all’ and the adjective *rikastel* ‘rich’ are marked for plural number and adessive case, just as the head noun *sõpradel* ‘friends’ is. The genitives *Kärdi* ‘Kärt’s’ and *mu* ‘my’ are marked only for singular number and genitive case— no trace of plurality nor adessive case. Furthermore, marking the genitives with adessive case results in ungrammaticality. Thus, their failure to show concord sets genitives apart from adjectives.

Finally, there is the issue of genitives in predicative position. Recall that the genitives in predicative position in Serbo-Croatian are the same form (i.e., the same words) as those in attributive position. When it comes to Estonian, the facts are not as clear-cut, although I contend Estonian is more dissimilar to Serbo-Croatian in this respect than similar. To start with the clearest cases, non-pronominal genitives by and large cannot be used alone as predicates. In order to express a possessive meaning in a copular clause with non-pronominal genitives, the adjective *oma* ‘own’ is required (or strongly preferred) in addition to the genitive, as we can see in (50).

- (50) a. See auto on Kärdi ??(oma).  
 this.NOM car.NOM be Kärt.GEN own  
 ‘This car is Kärt’s.’
- b. Suvemaja on minu õe \*(oma).  
 summer house be.3 1SG.GEN sister.GEN own  
 ‘The summer house is my sister’s.’

If *oma* is missing from examples such as these, the examples are seriously degraded. I call *oma* an adjective because it agrees like an adjective— for example, if the possessum is plural, *oma* is plural as well.<sup>31</sup>

- (51) Alkopoe-d on riigi oma-d.  
 alcohol.store-PL.NOM be.3 state.GEN own-PL.NOM  
 ‘Alcohol stores are the state’s.’ (ETTENTEN)
- (52) Lause-d on Lutsu oma-d, ...  
 sentence-PL.NOM be.3 Lutsu.GEN own-PL.NOM  
 ‘The sentences are Lutsu’s, (but the connections between them belong to Unt)’ (BALANCED)

<sup>31</sup>In this respect, it differs from the use of *oma* as a subject-oriented reflexive possessive anaphor, which does not distinguish singular or plural forms: *Nad näevad oma maju*. ‘They see their(=oma) houses.’ versus *Ta näeb oma maja*. ‘S/he sees his/her(=oma) house.’

Of course, *oma* could be a noun in these examples as well, but there are no issues with treating it as an adjective, and it can in fact be used with overt nouns as well, making an adjective analysis simpler overall (see (53)-(54)).

- (53) kooli oma-d õpetaja-d  
 school.GEN own-PL.NOM teacher-PL.NOM  
 ‘the school’s own teachers’ (ETTENTEN)
- (54) Eesti riigi oma-d kodaniku-d  
 Estonia.GEN state.GEN own-PL.NOM citizen-PL.NOM  
 ‘Estonia’s own citizens’ (ETTENTEN)

In truth, I do not think the choice of category is critical for my analysis, although a fuller investigation of predicative possession and *oma*’s connection to it may reveal more evidence that can be brought to bear on this issue.<sup>32</sup>

Returning to the main point, it seems that proper names may be slightly more acceptable than common nouns without *oma* in predicative possession, but neither are preferable without *oma*. When presented with English sentences and asked to translate, my consultants invariably produced versions with *oma*. I take these facts together to indicate that predicative possession without *oma* is at best degraded with non-pronominal genitives.

The situation is slightly different with pronominal genitives. First, examples of pronominal genitives in predicative position are attested in corpora.

- (55) Laps on minu.  
 child be.3 1SG.GEN  
 ‘The child is mine.’ (BALANCED)
- (56) ... ole ainult julge ja kindel ja kõik on sinu.  
 ... be only brave and confident and all be 2SG.GEN  
 ‘... just be brave and confident and everything will be yours.’ (BALANCED)

Most of the corpus examples I have found involve the first- or second-person singular pronouns *minu* and *sinu*, and my consultants all accepted similar examples, such as the one in (55). However, even in these cases, *oma* was still possible for my consultants, and in some cases, preferable. I will not attempt an analysis of predicative possession in Estonian, as it would take us too far afield, and the point I wish to make is simpler.<sup>33</sup> Namely, genitives in Estonian—unlike genitives in Serbo-Croatian—are not adjectives that can either modify nouns (in attributive position) or stand alone as predicates. To be sure, normal adjectives in Estonian can occur in the predicative position of a copular clause.

- (57) a. Nee-d toonekure-d on pika-d.  
 this-PL.NOM stork-PL.NOM be.3 tall-PL.NOM  
 ‘These storks are tall.’

<sup>32</sup>Thanks to an anonymous reviewer for suggesting further discussion of the syntactic category of *oma*.

<sup>33</sup>There are a number of interesting questions to consider in this domain. A complete analysis would need to have an explanation for the obligatoriness of *oma* in some cases and its optionality in others. The presence of *oma* is reminiscent of the distribution of English *my* vs. *mine* in that it seems conditioned by the presence of an overt noun, whether the genitive is in predicative position or not. However, the pattern in Estonian is in a way the inverse of what is found in English: pronominal genitives are okay by themselves, but non-pronominal genitives are not.

- b. Mu jalgratas on punane.  
 1SG.GEN bicycle.NOM be.3 red.NOM  
 ‘My bicycle is red.’

While it is possible to find examples of genitives in predicative position, it is not possible to the same degree as in Serbo-Croatian. Thus, this is another way in which Estonian genitives fail to show adjectival behavior in the sense discussed by Bošković.

In sum, Estonian genitives behave differently from Serbo-Croatian genitives with respect to all three of the adjectival properties discussed here, as summarized in Table 2.<sup>34</sup> If those prop-

	ESTONIAN	SERBO-CROATIAN
MODIFIABLE?	Yes	No
CONCORD?	No	Yes
PREDICATES?	No (Mostly)	Yes

Table 2: Some properties of genitives in Estonian and Serbo-Croatian

erties are to be tied to the syntax of genitives in Serbo-Croatian, as Bošković’s argumentation suggests, then it would be difficult to argue that the syntax of genitives in Estonian is the same as the syntax of genitives in Serbo-Croatian, as would arguably be required for an NP analysis of Estonian nominals.<sup>35</sup> Instead, I propose that genitives in Estonian are ordinary nominal extended projections—that is, they are no different from the extended projection that they modify. This immediately predicts that they should have the same range of modification possibilities as normal (i.e., non-genitive) nouns, and it seems that they do (see (47)-(48)). Per the analysis presented above, genitives are introduced by a functional projection above NP, though some nouns (e.g., nominalizations) can also license a genitive in their own specifier. As for concord, it would be too terse to say that genitives in Estonian “do not show concord.” They do show concord, but it is concord internal to the genitive DP rather than concord with the head noun, exactly as expected if they are full nominal extended projections.

### 3.4 Interim summary: Estonian genitives

Thus far, I have considered the prospects for an NP analysis of Estonian nominals by way of an investigation of Estonian genitives. I began by discussing the Bošković (2008b, 2012) generaliza-

<sup>34</sup>Bošković (2005) cites two other pieces of evidence for the “D<sup>0</sup>-as-A<sup>0</sup>” analysis of genitives and demonstratives. First, the ordering between adjectives and genitives is “freer” than in English. I discussed this in sections 1 and 2. Though both orders—Genitive-Adjective and Adjective-Genitive—are possible in Estonian, the latter is significantly restricted. Further, those facts can be equally explained under a DP analysis. The other argument for the adjectival analysis is that genitives and demonstratives can co-occur in Serbo-Croatian (unlike in English, where both *\*this my dog* and *\*my this dog* are ungrammatical). Bošković ties this to the fact that adjectives can be iterated, but this is of course not the only possible explanation for the fact that genitives and demonstratives can co-occur in some languages.

<sup>35</sup>I stress that is not strictly speaking impossible to maintain that Estonian genitives and Serbo-Croatian genitives occupy the same syntactic position yet display different behavior in these domains. For example, genitives in Japanese and Chinese do not display these behaviors, but it is clear from the literature that Bošković intends to treat these languages as lacking DP. What this view would need is a formal understanding of how these differences fall out—if the behavior of Serbo-Croatian genitives falls out from their syntax, what would it be about, e.g., Estonian, that would cause genitives to behave differently despite the fact that it would have the same syntax for adnominal genitive modification? No obvious answer presents itself, but I leave this question open.

tion about nominals with multiple genitives. The generalization holds that only languages with DP may allow nominals with multiple genitive arguments. As Estonian allows this possibility, this must mean that Estonian is a DP language. I then turned to an investigation of the syntax of genitives in Estonian, with a particular focus on the conclusions that would be expected—more strongly, required—under the NP analysis. What we saw is that genitives in Estonian are quite different from genitives in Serbo-Croatian, the language that is held up as a clear case in favor of the NP analysis. It would be puzzling if genitives in the two languages had the same syntax yet behaved so differently, especially if that behavior is to be explained syntactically.

I conclude that the DP hypothesis is a more promising analysis of Estonian nominals. At a minimum, it allows for a formal understanding of the phenomena considered in this section. In addition, adopting an analysis with functional structure for Estonian nominals allows for a rather straightforward analysis of other aspects of Estonian nominals. In the next section, I consider analyses of indefinite pronouns, *wh*-determiners, and demonstratives, all of which have previously been argued to occupy the DP layer in other languages (see, e.g., Abney (1987)). Adopting DP for Estonian allows a rather straightforward analysis of the behavior of these elements.

## 4 Overt material in the Estonian DP layer

The traditional category of determiners was a broad class, including demonstratives, quantifiers, cardinal numerals, *wh*-determiners like the word *which*, articles, and pronouns (among possibly others). Even before the work of Abney (1987) and Szabolcsi (1983, 1994), it was noted that these elements did not all occupy the same syntactic position (e.g., Jackendoff 1977; Perlmutter 1970). Since then, linguists have looked more closely at the internal syntax of nominals, resulting in an expansion of functional categories and a more nuanced view of “Determiners.” Concretely, there are some elements that were at one point analyzed as exponents of  $D(et)^0$  that are now commonly assumed to occupy different positions:

- **Quantifiers** are often argued to occupy a separate projection  $Q^0$ , which is above DP (Cardinaletti & Giusti, 2006; Giusti, 1997; Matthewson, 2001) or below DP (Watanabe, 2006).
- **Demonstratives** are argued to occupy a specifier position: Spec,DP (Harizanov, 2011; Kramer, 2009), something lower (Deal, 2010), or generated lower and then moved to Spec,DP (Alexiadou et al., 2007; Brugè, 2002; Giusti, 1997, 2002).
- **Cardinal numerals** occupy a lower position: Spec,NumP (Danon, 2012; Longobardi, 2001; Watanabe, 2006) or a head position, e.g.,  $Num^0$  (Danon, 2012; Ionin & Matushansky, 2006; Nelson & Toivonen, 2000; Ritter, 1991).

This leaves us with at least articles, pronouns, and *wh*-determiners like *which* as elements that may occupy  $D^0$ . Though Estonian lacks articles, it does have clear examples of those other elements. I now turn to a discussion of Estonian indefinite pronouns and *wh*-determiners, showing that both provide evidence of a distinct functional position above NP. I propose that this projection is DP, following previous work on words of this type.<sup>36</sup> I begin discussion with indefinite pronouns.

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<sup>36</sup>I must note here that it is rather difficult to argue for a particular label for a functional projection. However, given that much previous work has treated these elements as determiners, this is a reasonable assumption. I address this question more directly in section 5.

## 4.1 Estonian indefinite pronouns

The examples in (58) and (59) exemplify Estonian's versions of what are typically called INDEFINITE PRONOUNS.

- (58) a. midagi huvitava-t  
something.PAR interesting-PAR  
'something interesting'
- b. \* huvitava-t midagi  
interesting-PAR something.PAR
- (59) a. keegi uus  
somebody new  
'somebody/someone new'
- b. \* uus keegi  
new somebody

The examples involve the indefinite pronouns *miski* 'something' and *keegi* 'someone' modified by an adjective. Note that the adjective must follow the indefinite pronoun—the same is true for their English translations.<sup>37</sup> Morphologically, indefinite pronouns in Estonian are built from the *wh*-pronouns *mis* 'what' and *kes* 'who', followed by the suffix *-gi/ki*, which exists in the language as a clitic serving some information structural purpose.<sup>38</sup> The indefinite pronouns inflect for case, with *-gi/ki* surfacing on the outside of case-marking, as seen in the following examples.

- |      |  |      |  |
|------|--|------|--|
| (60) | mille-le-gi<br>what-ALL-GI<br>'to something' | (61) | keda-gi<br>who.PAR-GI<br>'someone (partitive)' |
|------|--|------|--|

Just like in a normal nominal phrase, the adjective and the indefinite pronoun must show concord, although it is only possible to see this for morphological case as the indefinite pronouns are always singular. Thus, in (58), both are in partitive case, and in (59), both are in nominative case. This is also true for most other cases, e.g., allative case in (62)-(63).

- (62) Ükskord siis helista-b Dea taas **kelle-le-gi tähtsa-le,** ...  
Once then call-PRS.3SG Dea again someone-ALL-GI important-ALL  
'Dea then again called someone important once, ...' (BALANCED)
- (63) Proovi-si-n **mille-le-gi positiivse-le** mõel-da.  
try-PST-1SG something-ALL-GI positive-ALL think-DA-INF  
'I tried thinking about something positive.' (BALANCED)

However, the terminative, essive, abessive, and comitative show a different pattern of case-marking: only the adjective bears the case-marker, and the indefinite pronoun appears in genitive case. This is exemplified with the comitative in (64)-(65).

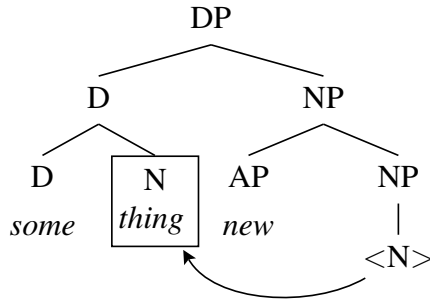
<sup>37</sup>Though I will focus on examples involving adjectives, note that *miski* and *keegi* can appear in isolation, just like their English correlates.

<sup>38</sup>The form *keegi* 'someone' is an exception to this morphological form, as we would expect \**keski* if it was morphologically transparent like the other forms. The clitic *-gi/ki* is often identified as a marker of focus, but I am not aware of any research systematically investigating all of its uses. Nevis (1984) argues that the *-gi/ki* in indefinite pronouns is fossilized, i.e., it is not the same element as the productive homophonous focus clitic.





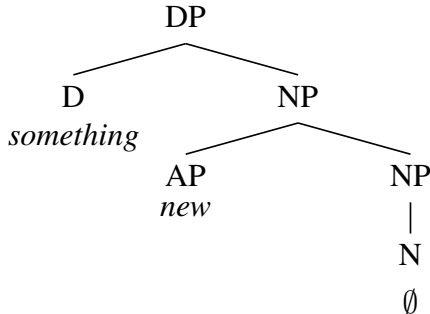
(69) Abney's (1987) analysis of indefinite pronouns



This analysis was later updated by Kishimoto (2000) as movement of  $N^0$ -to- $Num^0$ . The core claims remained the same: the determiner-like element is actually a  $D^0$ , the noun-like thing is actually an  $N^0$ , and the adjective-final order is derived from an underlying basic order through movement.

This analysis offers a rather elegant explanation for the syntax and morphology of English indefinite pronouns, but it ends up being rather English-centric, as the cognate forms in other languages are not always morphologically decomposable in the same way, as Leu (2005) notes. This is certainly true for Estonian *keegi* ‘someone/somebody’ and *miski* ‘something’, which show no trace of a lexical noun. It is perhaps not surprising, then, that more recent work on these constructions (especially Larson & Marušič (2004); Leu (2005)) has shown quite convincingly that the  $N^0$ -raising analysis of indefinite pronouns is implausible even in English. Instead, they propose that indefinite pronouns are base-generated above the adjective. Such an analysis is sketched in (70) for English.

(70) Base-generation:

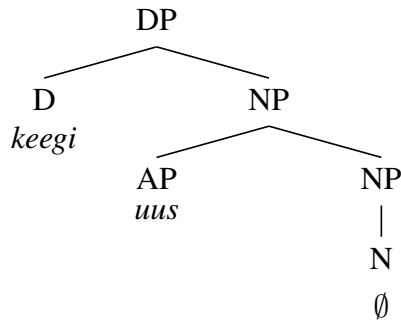


This structure is closest to one given by Larson & Marušič (2004) but captures what it has in common with Leu's (2005) analysis: (i) that the indefinite pronoun is base-generated higher than adjectives and is not morphologically derived by movement, and (ii) that there is a null or empty noun heading the entire projection.

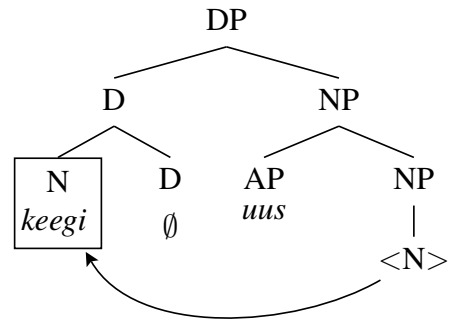
#### 4.1.2 Estonian indefinite pronouns are not generated in $N^0$

Turning back to the Estonian constructions, I have represented both analyses—the base-generation analysis and the movement analysis—in (71a) and (71b).

(71) a. Base-generation:



b.  $N^0$ -to- $D^0$  Movement:



In either case, the surface position of the indefinite pronoun is higher than  $N^0$ , and we have a clear explanation of the adjective ordering asymmetry: in Estonian, adjectives are ordered before nouns and after functional elements higher in the nominal extended projection. However, the analyses make different predictions concerning what the indefinite pronoun can co-occur with. The base-generation analysis leaves open the possibility for indefinite pronouns to co-occur with overt nouns. However, the  $N^0$ -to- $D^0$  movement analysis does not: because *keegi* is an  $N^0$  itself under that analysis, there is no place for another  $N^0$  to go.

In fact, indefinite pronouns in Estonian can co-occur with an overt noun, which provides a strong argument against the  $N^0$ -to- $D^0$  movement depicted in (71b). Some examples are provided in (72) and (73).

(72) Laua all on mis-ki kleepuv asi.  
table.GEN under be something-GI sticky thing  
'There is a sticky thing under the table.'

(Nemvalts, 1996:59)

(73) Kee-gi mees astu-s sisse.  
someone-GI man step-PST.3SG in  
'Some man entered.'

(EKSS, entry for *keegi*)

In each of these examples, we have the same *miski* 'something' and *keegi* 'someone/somebody' as before, but this time, they occur inside nominal phrases with an overt  $N^0$ . This is an argument against the  $N^0$ -to- $D^0$  movement analysis, and thus, the base-generation approach seems the most promising of the two options. This option necessitates the presence of a higher functional position. I have been labeling this projection as  $D^0$ , although the analysis would not change if we called it something else (e.g.,  $\text{Num}^0$ ).

## 4.2 Estonian *wh*-determiners *mis* and *milline*

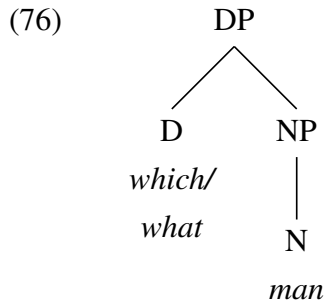
The next category I discuss is what are called WH-DETERMINERS. In English, this class consists of only *what* and *which*, as exemplified in (74) and (75).<sup>40</sup>

(74) [ Which/what man ] did you see at the store?

(75) I wondered [ what/which vase ] he broke.

<sup>40</sup>In what follows, I set aside *whose*, which is at times grouped under the larger label of *wh*-determiners. This is because there is a plausible analysis whereby *whose* is not a determiner in the strict sense (that is, a  $D^0$ ), but a DP in specifier position bearing the English possessive -'s.

Abney (1987) proposes that these words occupy the  $D^0$  position, and this assumption is adopted in later work by at least Bianchi (2000); Kayne (1994) for English and Szabolcsi (1994) for Hungarian.<sup>41</sup> Under this kind of analysis, the bracketed DP in (74) has the structure in (76).



Analyzing these elements as determiners is reasonable given that their presence is enough to license the use of a singular count noun, one of the classic syntactico-semantic functions of determiners in English. They differ from articles in English (and indeed, from other elements which may occupy the  $D^0$  position), in that they are [+WH]—that is, the DPs they head participate in *wh*-movement.

Estonian also has *wh*-determiners of this sort: the words *mis* ‘what’ and *milline* ‘which’. Some examples are given in (77) and (78). Just as in English, the *wh*-determiners appear before their NP complements.

- (77) a. ... [ **mis** töö-le ] ta nüüdse-ks on läinud.  
           what work-ALL he current-TRL be.3 gone  
           ‘(Can you tell me) [ to **what** job ] he has gone for the moment?’ (PARLIAMENT)
- b. Kelle poolt ning [ **mis** asjaolu-de-l ] loo-di teksti-d?  
    who.GEN by and what circumstance-PL-ADE create-PASS.PST text-PL.NOM  
    ‘By whom and [ in which circumstances ] were the texts created?’ (BALANCED)
- (78) a. **Millise-d** panga-d hakka-vad laene and-ma?  
        which-PL.NOM bank-PL.NOM start-3PL loan.PL.PAR give-MA  
        ‘Which banks are starting to give out loans?’ (PARLIAMENT)
- b. **Millise-s** seriaali-s ta mängi-b?  
    which-INE series-INE s/he play-3SG  
    ‘Which series is s/he in?’ (BALANCED)

There is one morphological difference between *mis* and *milline* that I wish to comment on before continuing. *Milline* is like most nominal elements in Estonian in that it shows concord in case and number. In (78a), it expresses plural number and nominative case, and in (78b), it expresses singular number and inessive case. In contrast, *mis* does not show concord in these examples. In both examples in (77), *mis* is invariant despite the fact that the noun expresses different number and case values in each example. I do not believe there is a deep reason for this— it is simply a fact that in languages with concord systems, some individual lexical items do not show concord.<sup>42</sup>

<sup>41</sup>In the work I am familiar with, either these elements are assumed to be  $D^0$ s or the author(s) remain agnostic about their category. I am not aware of any research arguing explicitly against an analysis whereby *wh*-determiners occupy the same position as articles.

<sup>42</sup>I would like to note as well that *mis* as a bare *wh*-pronoun—that is, without a nominal complement—generally

While *milline* and *mis* are different morphologically, I propose that they are of the same syntactic category, namely  $D^0$ , following the proposals of Abney (1987) and Szabolcsi (1994). Under this analysis, the DPs in (77a) and (78a) have at least the syntactic structure in (79a) and (79b).<sup>43</sup>



These structures are the same as the structures just proposed for indefinite pronouns:  $D^0$ s with (potentially) overt NP complements. The point of these examples is that adopting a DP analysis of languages without articles does not require that all  $D^0$ s are null, because the category  $D^0$  contains more than just those words that are traditionally called articles. This is certainly not a radical claim given that the term *determiner* originally applied to words of various descriptive categories. However, the claim is still worth emphasizing, especially in light of research since Abney (1987) arguing that many of those elements are not  $D^0$ s after all. If this analysis is on the right track, then equating determiners with articles only would go too far. Put another way, asking whether a language has overt determiners is not the same as asking whether a language has articles. Estonian has no articles, but that does not mean it lacks overt elements of category  $D^0$  entirely.<sup>44</sup>

Finally, I turn my attention to another descriptive category that was once assumed to be a  $D^0$ : demonstratives. As I have already mentioned, it is often argued that demonstratives occupy a specifier position rather than a head position. However, the Estonian demonstrative *see* has been studied as a potential case of an emerging article, and thus it is worth considering whether it, too, could occupy the  $D^0$  position. In the next section, I ultimately argue that demonstratives behave like phrasal elements in Estonian, and thus, they are not of category  $D^0$ . However, in so doing, I discuss some interesting evidence for the existence of an edge position (which I propose is Spec,QP, higher than DP) in Estonian nominal phrases. The evidence comes from a DP-internal movement of genitives and demonstratives.

### 4.3 Evidence for $D^0$ from demonstratives

Research that addresses Finnic nominal syntax often locates demonstratives in the  $D^0$  position. For example, in an article on case-marking in Finnish nominals, Brattico (2010:52) says, “Finnish is often said to lack the category of articles, but instead of an article the nominal projection may be

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bears case-marking, unlike the *mis* considered here. This could be cause for treating the *wh*-pronoun and the *wh*-determiner as separate but homophonous lexical items. I take no stance on this issue here, as I am concerned primarily with the syntax of *mis* rather than its morphology.

<sup>43</sup>I simply represent the terminal nodes in these trees as they are in the examples—I do not intend these structures to claim anything specific about how these items come to acquire the case features that they inflect for.

<sup>44</sup>A reviewer inquired about the behavior of such words in Serbo-Croatian—these heads could not be  $D^0$  in Serbo-Croatian if Serbo-Croatian systematically lacks  $D^0$ . In fact, Corver (1992) proposes that such heads are adjectives in Serbo-Croatian, which forms part of his analysis of Left Branch Extraction. See also Progovac (1998) for discussion of  $D^0$ -like elements in Serbo-Croatian—in contrast to most of the research discussed here, Progovac adopts DP for Serbo-Croatian.



- b. nee-d kōik ettevõtte-d  
 this-PL.NOM all.NOM company-PL.NOM  
 ‘all those companies’ (BALANCED)
- (82) Genitives before Q<sup>0</sup>:
- a. Kärdi kōik poja-d käi-vad kooli-s.  
 Kärt.GEN all.NOM son-PL.NOM go-3PL school-INE  
 ‘All of Kärt’s sons go to school.’
- b. selline akt, [ mille iga paragrahvi ] kohta on palju  
 the.kind act whose.GEN each.GEN paragraph.GEN about be many  
 eriarvamusi.  
 dissent.PL.PAR  
 ‘the kind of act for which there are many differing opinions about every paragraph.’  
 (PARLIAMENT)

Whereas normally *kōik* ‘all’ and *iga* ‘each’ are first within the DP, in (81) we find the demonstrative *see* coming first (in its plural form *need*), and in (82) we find genitives in the same position. In (82a), a normal DP genitive precedes *kōik* ‘all’, and in (82b), the *wh*-pronominal *mille* ‘whose’ precedes *iga* ‘each’.

This movement is generally optional, but there is one exception: *wh*-pronoun genitives (like *mille* ‘whose’) cannot remain *in situ*. They must appear on the left edge of the nominal. This is shown in (83) and (84).

- (83) a. \* Kōik kelle poja-d käi-vad kooli-s?  
 all.NOM who.GEN son-PL.NOM go-3PL school-INE  
 Intended: ‘All of whose children go to school?’
- b. Kelle kōik poja-d käi-vad kooli-s?  
 who.GEN all.NOM son-PL.NOM go-3PL school-INE
- (84) a. \* Kōik mille jala-d oli-d sinise-ks värvi-tud?  
 all.NOM what.GEN leg-PL.NOM be.PST-3PL blue-TRL paint-PASS.PST.PCPL  
 Intended: ‘All of what thing’s legs were painted blue?’
- b. Mille kōik jala-d oli-d sinise-ks värvi-tud?  
 what.GEN all.NOM leg-PL.NOM be.PST-3PL blue-TRL paint-PASS.PST.PCPL

In the (a) examples above, the *wh*-genitive remains in its normal position lower than the quantifier, and the result is ungrammatical. The only way to ask such questions is given in the (b) version, where the *wh*-genitive has moved to a position higher than the quantifier.

An anonymous reviewer observes that the *wh*-genitive is in the subject in both examples, and thus it could be that the *wh*-word is undergoing clause-level movement rather than DP-internal movement. To be sure, it is possible to have a *wh*-genitive in a non-subject, although that constituent will still appear clause-initially (via a successive cyclic movement process that Huhmarniemi (2012) dubs snowball *wh*-movement). Some representative corpus examples are below.

- (85) ... keele-s, [ mille kōik-i detail-e ] me ei mõist-a.  
 language-INE what.GEN all-PL.PAR detail-PL.PAR we NEG understand-INF  
 ‘... in a language whose every detail we do not understand.’ (ETTENTEN)

- (86) ... korralduse-d, [ mille kõik-i nüanss-e ] ma praegu su-lle  
 rule-PL.NOM what.GEN all-PL.PAR nuance-PL.PAR I now you-ALL  
 seleta-ma ei hakka, ...  
 explain-SUP NEG begin, ...  
 ‘(I have brought on board my own) rules, whose every nuance I will not try to explain  
 to you at the moment, ...’ (ETTENTEN)

These examples are both relative clauses, which also involve *wh*-movement. In both examples, the *wh*-pronoun is in initial position (along with the rest of the object DP, which is pied-piped). Thus, in actuality, these constructions involve both DP-internal movement and clausal movement: the *wh*-word moves to the left edge of DP, and the entire DP constituent is then pied-piped with the *wh*-word to the left edge.

All of the examples seen so far involve single words: the *wh*-pronouns *kes* (genitive *kelle*) and *mis* (genitive *mille*). Following standard bare phrase structure assumptions, one could argue that these *wh*-pronominal genitives are simultaneously minimal and maximal—that is to say, both heads and phrases. To show that this is really phrasal movement, consider that syntactically complex genitives can raise as well. In the case of *wh*-genitives, they must raise. This is shown in (87) and (88) below.

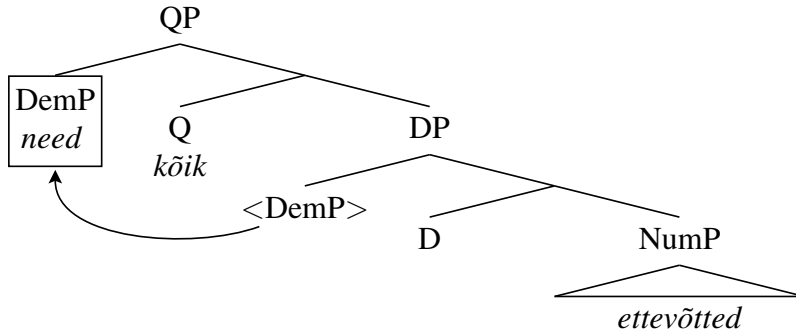
- (87) **Millise võistleja** kõik medali-d ripu-vad  
 which.GEN competitor.GEN all.PL.NOM medal-PL.NOM hang-PRS.3PL  
 spordimuuseumi-s?  
 sports.museum-INE  
 ‘All of which competitor’s medals are hanging in the sports museum?’
- (88) **Millise helilooja** kõiki sümfoonia-id hoit-akse  
 which.GEN composer.GEN all.PL.PAR symphony-PL.PAR keep-PRS.PASS  
 ülikooli raamatukogu-s?  
 university.GEN library-INE  
 ‘All of which composer’s symphonies are kept in the university library?’

In (87) and (88), genitives headed by the *wh*-determiner *milline* ‘which’ must raise to the edge of the nominal phrase in the same way as *wh*-pronominal genitives. This is significant, because it demonstrates that this movement must target phrases. Thus, we have two kinds of elements—demonstratives and genitives—that can be displaced to the initial position in Estonian nominals, and this must be a position to which phrases may move.

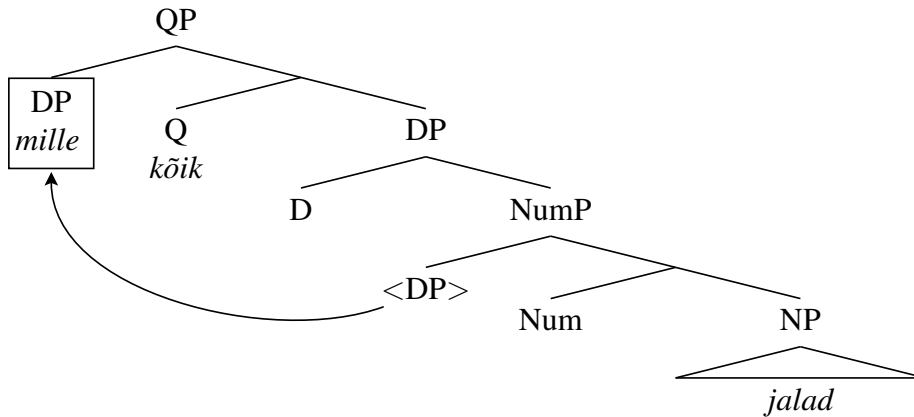
The fact that phrases can move to this position suggests that this is not a higher head position, as full phrases do not typically raise to head positions. The fact that this is the position of *wh*-phrases suggests to me that the position to the left of *kõik* and *iga* is an *A'*-position (i.e., the ‘edge’ of the nominal extended projection). I propose that the movement of demonstratives and genitives is the same: movement to the highest specifier in the nominal extended projection, which I propose is Spec,QP.<sup>47</sup> This is depicted in (89) and (90) below.

<sup>47</sup>The other reasonable choice given what we have seen so far is Spec,DP. While Spec,DP would be a more conservative choice insofar as it reduces the total number of functional heads necessary, I choose Spec,QP because it is more easily integrated with an analysis where demonstratives and genitives occupy different syntactic positions, namely Spec,DP and Spec,NumP.

(89)



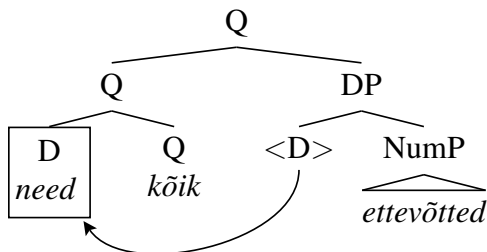
(90)



This analysis treats demonstrative fronting and genitive fronting as the same movement, following proposals about the same kinds of processes in Modern Greek (Alexiadou et al., 2007; Horrocks & Stavrou, 1987). Following these authors, I assume the movement is focus-based for non-*wh*-elements, although I cannot provide a precise breakdown of its proper context of use here. As I have shown, this movement is a phrasal movement, and thus I conclude that demonstratives must be phrasal in Estonian, as they participate in this movement.

In order to make this point a bit more forcefully, I briefly consider and reject an alternative analysis where demonstratives are  $D^0$ s and demonstrative fronting is head movement. Under this view, demonstrative fronting would have to be analyzed as head movement from  $D^0$ -to- $Q^0$ , followed by particular statements about how complex heads are linearized in Estonian. This alternative is presented in (91) below.

(91) Alternative: demonstrative fronting as head movement



Note that treating demonstrative fronting as head movement precludes the possibility of a unified analysis of genitive fronting and demonstrative fronting, assuming that heads cannot move to phrasal positions and vice versa.<sup>48</sup>

<sup>48</sup>However, see Matushansky (2006) for a proposal that pushes critically on this assumption.



More importantly, this head movement seems rather ad hoc. First, head movement is typically used to build complex words from syntactically separate material. This is certainly true in Estonian; all potential cases of head movement in Estonian involve one word (or root) and one or more affixes. Yet in this case, head movement would not create a word in any obvious sense: the two elements *need* ‘these’ and *kõik* ‘all’ are written as separate words, speakers view them as separate words, and they do not seem to form a phonological word.<sup>49</sup> Second, head movement is typically motivated by morphosyntactic considerations (Matushansky, 2006), and in the case of this movement, it seems unlikely that morphosyntax is at play. In short, it is not clear to me how a head movement analysis illuminates the phenomenon in question.<sup>50</sup> For these reasons, a phrasal movement analysis of demonstrative and genitive fronting is more promising.

Thus, although demonstratives may fulfill some of the semantic functions common to definite articles in other languages, it would be premature to analyze Estonian demonstratives as exponents of  $D^0$ . In other words, while the demonstratives may be developing into articles, the change is not yet complete.

#### 4.4 Interim Summary: Estonian evidence for $D^0$

In section 3, I situated Estonian within the NP/DP landscape, arguing that its genitive system is best understood if Estonian nominals contain DP, and in fact, an intermediate projection as well. While this requires there to be a phonologically null determiner in Estonian (in at least some cases), I argued in this section that other (i.e., non-article) elements may occupy  $D^0$  in Estonian, as well. I investigated the indefinite pronoun construction in Estonian, ultimately arguing that they are  $D^0$ s (Abney, 1987; Larson & Marušič, 2004). I also proposed that *wh*-determiners *mis* ‘what’ and *milline* ‘which’ are clear candidates for exponents of the  $D^0$  position.

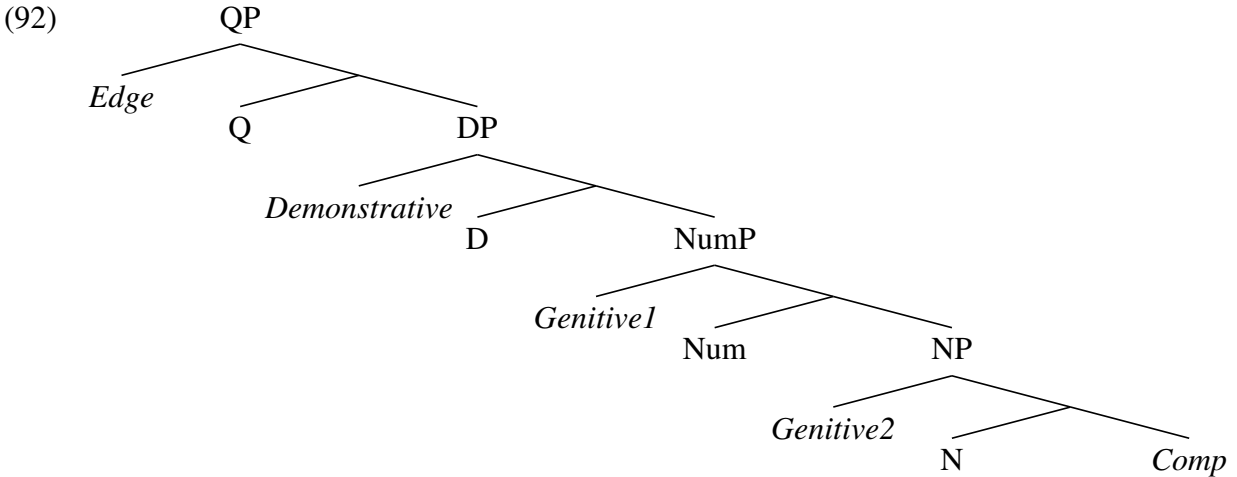
In contrast, I argued that demonstratives are not  $D^0$ s, despite their potential to contribute determiner-like semantics (Hiietam & Börjars, 2003). The evidence came from a process of fronting inside Estonian nominals targeting genitives and demonstratives. Because this fronting is obligatory for *wh*-genitives, I proposed that this was movement to the edge of DP. The fronting of genitives and demonstratives can be analyzed in the same way if both elements are phrasal, but not if demonstratives are  $D^0$ s. My conclusions about demonstratives are thus in line with many previous analyses of demonstratives (Alexiadou et al., 2007; Brugè, 2002; Deal, 2010; Giusti, 1997; Harizanov, 2011; Kramer, 2009).

Taking all of this together, my proposal for the syntactic structure of Estonian nominals is presented below.

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<sup>49</sup>Both words receive normal stress in the demonstrative fronting construction, though there is usually a pitch accent on *kõik*. What’s more, it is in the default order *kõik need* where *need* is sometimes subject to phonological reduction—though to my ear, it sounds like it forms a unit with the following word in that case. The head movement analysis of demonstrative fronting predicts the opposite pattern, if anything. I am grateful to Reet Kasik for helpful discussion of this.

<sup>50</sup>The head-movement analysis also predicts that *kõik* and *need* would behave as a unit, but I am not in a position to test this prediction, because I know of no syntactic processes that target the  $Q^0$  head and only the  $Q^0$  head.



I proposed that Estonian nominals contain three functional projections, which I label Num<sup>0</sup>, D<sup>0</sup>, and Q<sup>0</sup>, in line with conclusions about nominal structure in a variety of languages (see references at the beginning of this section). Estonian has (at least) two genitive positions: one in Spec,NP and one in Spec,NumP. Demonstratives are typically in Spec,DP, although they may optionally raise to Spec,QP in some circumstances.

## 5 Implications and conclusions

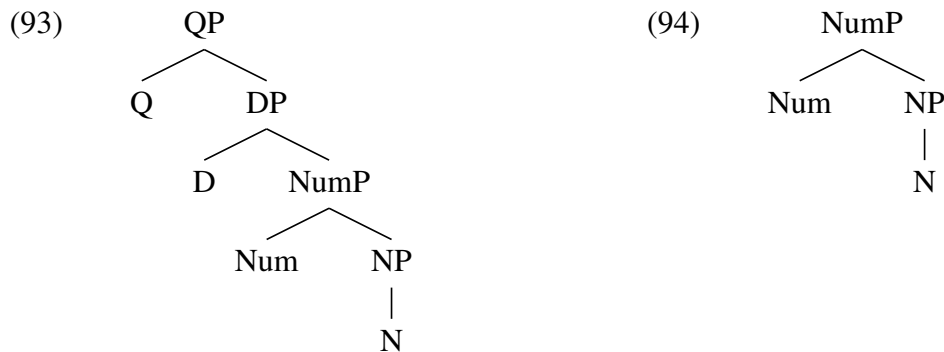
The goals of this paper were twofold. First, I aimed to situate Estonian, a language without articles, into the existing literature on such languages. Focusing on the syntactic properties of genitives, I showed that Estonian behaves rather differently from Serbo-Croatian, and I argued that Estonian should be treated as a language without articles that nevertheless has DP. The second goal of the paper was to consider some possible exponents of D<sup>0</sup> in the absence of articles. To wit, I explored the structure of indefinite pronouns and *wh*-determiners, arguing that both required the presence of an additional functional projection, which I proposed was D<sup>0</sup>. I also considered the behavior of the Estonian demonstrative *see*, which has been argued to be an article in the making (Hiietam & Börjars, 2003; Pajusalu, 1997, 2000, 2009). I argued that demonstrative *see*'s transition to article is not yet complete, and it is best treated as a phrasal specifier and thus not an exponent of D<sup>0</sup>. Thus, while the lexical categories of elements believed to occupy D<sup>0</sup> has narrowed since the work of Abney (1987), the category D<sup>0</sup> is still broader than just *articles*, and research that equates D<sup>0</sup> with *article* thus runs the risk of oversimplification.

Turning to the broader picture, I note that the claim that nominals lack DP can be interpreted in multiple ways. We could interpret the claim to be about labels: languages without articles may have functional projections, but they do not have any that are labeled D<sup>0</sup>. For example, we could assert that a language like Estonian does not have a DP but does have a SpecificP (Cheng & Sybesma, 2012; Sio, 2006). This strikes me as more of a claim about lexical semantics than about syntax; it still involves an additional functional projection above NP with a semantic meaning very similar to D<sup>0</sup>.<sup>51</sup> I do not believe it is a particularly strong assertion to say that a language lacks DP just because none of its projections are labeled D<sup>0</sup>, especially in light of recent research questioning the utility and necessity of syntactic labels more generally (see Adger (2013); Chomsky (2013)).

<sup>51</sup>Thanks to Peter Jenks for helpful discussion of this point.

And indeed, the analyses proposed by Bošković (2005, *et seq*) and Despić (2013) do not hinge formally on the label of the functional element above NP, but on the presence of additional functional material, whatever its label may be. For example, Bošković (2009:196–199) demonstrates that the presence of a QP layer results in completely different grammaticality judgments for the binding facts uncovered by Despić in Serbo-Croatian, which provides support to their treatment of Serbo-Croatian as a language with impoverished nominal functional structure.<sup>52</sup> However, in order to strengthen debates surrounding whether languages with functional structure have DP specifically (as opposed to some other functional projection), we must come to some consensus about the universal syntactic and semantic properties of  $D^0$ .<sup>53</sup> The generalizations proposed by Bošković (2012) (and others) could serve this function, but whether that is so will crucially depend on the formal analyses given to those generalizations.<sup>54</sup>

The most likely formal version of the Small Nominal Hypothesis (SNH) is that nominals in languages without articles have less functional structure than languages with articles. Thus, while they do not include DP, they may still include structure below DP (e.g., Num<sup>0</sup>). This version of the SNH is particularly interesting with a more articulated nominal spine of the type often assumed in contemporary literature on the syntax of DPs (and as I proposed at the end of section 4). The SNH could thus maintain that languages with articles have a structure like that in (93) but (some) languages without articles have the structure in (94).



Thus, a language may lack DP but still have other functional structure (e.g., NumP, or the QP discussed by Bošković (2009)). In these toy examples, the language that lacks DP also lacks functional projections above DP (e.g., the QP that I adopt (Cardinaletti & Giusti, 2006; Matthewson, 2001)). Demonstrating that a language without articles also lacks functional projections higher than DP would be interesting evidence in favor of the NP analysis for that language.

Let me be perfectly clear that no author makes a statement in prose as strong as claiming that nominals in languages without articles are syntactically uniform. However, using the terms

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<sup>52</sup>Similar arguments are provided by Bošković (2014) regarding extraction and ellipsis. For Serbo-Croatian, see the contrast between (17a) and (17b) on p. 36, where the presence of a functional head licenses an extraction that would not otherwise be licit—the particular label of the projection is immaterial to the analysis presented there.

<sup>53</sup>I have focused exclusively on syntax here, and thus it is certainly possible that some of Bošković’s diagnostics relating to semantics could furnish evidence for  $D^0$ . However, as Gillon & Armoskaite (2015:106) note, some putative semantic universals of  $D^0$  are arguably not universal (e.g., exhaustive interpretation), and so this is again a domain where more systematic study in individual domains must be carried out.

<sup>54</sup>To put the question another way: if the claim is that a language without articles has such-and-such functional projection(s) but does not have DP, what kind of evidence could be furnished as the basis of a counterargument? This question should have an answer under any analysis that places importance on labels.

*languages with articles* and *languages without articles* as syntactic natural classes does imply similarity among the groups, and when the formal discussion focuses on the presence or absence of DP, that becomes the likely similarity. To be sure, these are certainly linguistic natural classes—although the make-up of those natural classes depends on how we define *article*, a particularly thorny piece of jargon—but there is no universally agreed upon formal syntactic property of lexical items called *articles*, to my knowledge. The arguments brought forward for Serbo-Croatian suggest that nominals in the language can be quite small in nearly every context, and they present a case for treating DP as something that could be parameterized. However, if the analyses presented in the literature should be adopted for Serbo-Croatian, then it is clear to me that they should not be adopted for Estonian.

Ultimately, the debate boils down to a choice between a strongly universalist viewpoint of nominal functional structure (i.e., all languages have the same nominal structure) and a non-universalist view (i.e., the extent and nature of nominal functional structure may vary from language to language). Danon (2006); Pereltsvaig (2006) have argued that nominal structures may vary within individual languages, and they both argue that this kind of variation occurs in languages with articles.<sup>55</sup> This debate presses on whether that same variation can be seen across languages without articles, and the evidence presented herein adds to the growing literature arguing that it can. In other words, if it is correct that there is variation with regard to the nature and extent of nominal functional structure across languages, then that variation must extend into languages without articles.

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<sup>55</sup>Pereltsvaig (2006) also discusses Russian, a language without articles, and ultimately argues that the presence or absence of articles has nothing to do with the possibility of having nominals of different sizes in a language. See also Gillon & Armoskaite (2015) for arguments that nominals in Lithuanian (no articles) are sometimes NPs and sometimes DPs.

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## A The order of adjective and genitive in corpora

I claimed in Section 2 that adnominal genitives typically precede adjectives in Estonian nominal phrases. It has been observed that the order of elements within DPs is freer in some languages without articles than it is in, for example, English. Thus, to clarify the claim that genitives “typically” precede adjectives in Estonian, I conducted a corpus study (with the assistance of Travis McGeehan and Coree Clinton) to investigate the relative frequencies of the two orders. In brief,

the study supports the claim that it is more common for genitives to precede adjectives (Gen-Adj), accounting for roughly 83% of all examples collected. In this section, I explain the design and discuss briefly questions that this study raises.

We used the balanced literary corpus and the corpus of parliamentary records available online (<http://www.keeleveeb.ee/>). The corpora are tagged for grammatical information. We collected examples of nominal phrases bearing one of three cases that are used fairly frequently: nominative, partitive, and adessive. Genitive could not be used, because the genitive itself bears genitive case. In order to ensure that the adjective was actually modifying the noun, both adjective and noun were tagged with the same case information.

In order to ensure a variety of adjectives, we searched the corpora for examples containing specific adjectives according to the classification given by Laenzlinger (2005); Scott (2002). Given that some analyses maintain that some adjectives are merged with the nominal spine later/higher than other adjectives, a reasonable hypothesis to entertain is that structurally higher adjectives are more readily found on the left of genitives and structurally lower adjectives more readily found between genitives and the head noun. The results are presented in Table 3 on the next page.

The table is organized as follows. The BROAD column corresponds to Laenzlinger's (2005) adjective classes, and the NARROW column corresponds to Scott's (2002) adjective classes. The table is organized with the adjective classes that are closest to the noun at the top, moving further away as the table moves down. The chart ignores nationality/origin adjectives (e.g., *French*) and material adjectives (e.g., *wooden*) as these are not typically expressed with adjectives in Estonian. In the columns showing the specific token percentages, the figure on the left (#) corresponds to the total number of tokens collected, and the percentage given corresponds percentage of tokens with that particular order for that particular adjective. To verify whether the proportions are distinct, we ran a test of independent proportions, and the  $\chi^2$  values are reported in the final column. Shaded rows are the classes where the difference between the number of Adj-Gen orders and Gen-Adj orders was significant at  $\alpha = 0.05$ .

The results do not support the hypothesis that adjective class affects availability of adjective-genitive word order. Even with ordinals, the highest adjective class in the hierarchies of Laenzlinger (2005) and Scott (2002), it is more common to have the genitive precede the ordinal. Only one adjective (*paks* 'thick') has more tokens of the order adjective-genitive than the order genitive-adjective, although the difference is not significant due to the small number of tokens. Thus, the overall picture indicates that the order wherein the genitive precedes the adjective is more common, thus supporting my claim that this is the typical order in Estonian.

SEMANTIC CLASS		WORD		ADJ-GEN		GEN-ADJ		$\chi^2$
BROAD	NARROW	ESTONIAN	ENGLISH	#	%	#	%	
non-scalar	color	<i>punane</i>	‘red’	2	4.8%	40	95.2%	65.2
non-scalar	color	<i>valge</i>	‘white’	7	10.9%	57	89.1%	75
non-scalar	shape	<i>kolmnurkne</i>	‘triangular’	0	—	0	—	—
non-scalar	shape	<i>ümmargune</i>	‘round’	1	14.3%	6	85.7%	4.6
measure	age	<i>kaasaegne</i>	‘modern’	9	36.0%	16	64.0%	2.9
measure	age	<i>noor</i>	‘young’	18	34.0%	35	66.0%	9.7
measure	temperature	<i>külm</i>	‘cold’	3	10.0%	27	90.0%	35.3
measure	temperature	<i>kuum</i>	‘hot’	1	4.8%	20	95.2%	30.9
measure	weight	<i>kerge</i>	‘light’	16	33.3%	32	66.7%	9.4
measure	weight	<i>raske</i>	‘heavy’	22	22.4%	76	77.6%	57.3
scalar	height	<i>kõrge</i>	‘tall/high’	18	8.4%	197	91.6%	294.7
scalar	height	<i>madal</i>	‘low’	32	28.8%	79	71.2%	38.1
scalar	length	<i>lühike</i>	‘short’	15	28.8%	37	71.2%	17
scalar	length	<i>pikk</i>	‘long/tall’	36	31.9%	77	68.1%	28.3
scalar	size	<i>suur</i>	‘big’	294	35.5%	534	64.5%	138
scalar	size	<i>väike</i>	‘little’	73	43.2%	96	56.8%	5.7
scalar	speed	<i>aeglane</i>	‘slow’	6	20.0%	24	80.0%	19.3
scalar	speed	<i>kiire</i>	‘fast’	19	6.4%	277	93.6%	446.3
scalar	width	<i>paks</i>	‘thick’	4	80.0%	1	20.0%	1.6
scalar	width	<i>peenike</i>	‘thin’	1	16.7%	5	83.3%	3
speaker	subj. comm.	<i>suurepärase</i>	‘excellent’	6	25.0%	18	75.0%	10.1
speaker	subj. comm.	<i>vastik</i>	‘nasty’	1	33.3%	2	66.7%	0
quant	ordinal	<i>esimene</i>	‘first’	180	9.8%	1650	90.2%	2358.4
quant	ordinal	<i>viimane</i>	‘last’	100	11.2%	792	88.8%	1070.6
TOTAL				864	17.4%	4098	82.6%	4212.9

Table 3: Order of adjective and genitive across adjective types in nominative, partitive, and adessive nominal phrases

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