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On the DP/NP status of nominal projections in Bangla: Consequences for the theory of phases

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This paper examines the status of nominal projections in Bangla from the point of view of Bošković's (2008, 2009) generalizations on NP vs. DP languages, and argues that although Bangla is an article-less language, it is not an NP language and projects a range of functional categories above NP, including a DP level. Such a conclusion is shown to have an important consequence for cross-linguistic assumptions relating to the phasal architecture of nominal projections, building on work on nominal-internal phases initiated in Simpson and Syed (2016): it is suggested that the extended projection of noun phrases may contain two separate phases, in a way that resembles the occurrence of two phasal levels within clauses.

1 Introduction

While the existence of a DP level of structure has widely been assumed to occur in languages with determiners since pioneering work in Abney (1987) and Szabolsci (1994), the presence of DP in languages without overt articles is more disputed and controversial, with some arguing in favor of a DP analysis in such languages (Li 1998, 1999; Simpson 2005; Watanabe 2006; Park 2008) and others against (Fukui 1986; Corver 1992; Cheng & Sybesma 1999; Willim 2000; Baker 2003). More recently, in an interesting and influential series of works on this topic, Bošković (2008, 2009) and Bošković and Gajewski (2011) have suggested that languages which do not have (definite) articles are "NP languages" and nominal constituents in such languages have no level of DP structure, and that these languages display a number of common syntactic characteristics, which may all be attributed to the absence of D/DP. The present paper approaches this debate with a focus on the potential DP status of (definite) nominal projections in Bangla, a language which has no definite or indefinite articles, but which has special word order alternations in the encoding of definiteness (shortly to be reviewed below) that have been taken to suggest a DP level of structure. Besides these alternations, we show that there are a range of syntactic properties in which Bangla patterns like languages with articles. We take these observations to suggest that the strong version of Bošković's generalization, namely that languages with no definite articles do not have DP, cannot be maintained. This paper suggests that regarding the structure of noun phrases and the universality of DPs, the languages of the world may be divided into three types: (i) languages with definite articles, which have a DP-layer, (ii) languages with no articles, and no DP-layer, and (iii) languages with no articles, but special word-order alternations, which have DPs.[1]

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[1] Note that this is compatible with a weaker version of Bošković's generalization. Bošković (2008) notes a weaker version of his claim would be 'that some languages without articles do not have DP'.

Let us consider first the special word-order alternations relating to definiteness in Bangla, which have been frequently mentioned in the literature (Dasgupta 1983; Bhattacharya 1999; Chacón 2012; Dayal 2012). Whereas the canonical sequencing of *numeral > classifier > adjective > noun* in Bangla produces an indefinite interpretation of nominal phrases, as illustrated in (1), an inversion of this order, in which the post-classifier material comes to precede numeral and classifier results in a necessarily definite interpretation, as shown in (2):

(1)　　du　ţo　lal　boi　　(canonical order: NUM > CL > ADJ > NOUN)
　　　　two　CL　red　book
　　　　'two red books'

(2)　　lal　boi　du　ţo　　(inverted order: ADJ > NOUN > NUM > CL)
　　　　red　book　two　CL
　　　　'the two red books'

Leftward movement of the phrasal complement of the classifier, consisting in the noun and any preceding adjectival phrases, thus has the same effect on interpretation in Bangla as adding a definite article in languages such as English, Italian, German etc. as noted in Bhattacharya (1999) (also commented on in Dasgupta 1983). This is shown in the translations in (1) and (2). This movement was shown to be NP-movement in Bhattacharya (1999), and attributed to *specificity*. However, Dayal (2012) and Chacón (2012) argue that this NP-raising actually occurs for reasons of *definiteness*, rather than specificity. Dayal (2012) gives a number of arguments in favor of an analysis in terms of definiteness over specificity, of which two will be reviewed here.[2]

First, Dayal (2012) shows that the word order differences in (1) and (2) turn on presuppositions of uniqueness/maximality, a characteristic property of definites. See the examples in (3) below: the entities in the first sentence establish the existence of a set of students from which the set of students in the second sentence is to be drawn. Such a context supports partitive specificity (see Enç 1991; Diesing 1992).

(3)　a.　Tin　ţe　chatro　esechilo.　Du　ţo　chatro　boslo.
　　　　　three　CL　student　came　　two　CL　student　sat

　　　b.　Tin　ţe　chatro　esechilo.　#Chatro　du　ţo　boslo.
　　　　　three　CL　student　came　　student　two　CL　sat
　　　　　'Three students came. Two (of the) students sat down.'

In the examples in (3), it is seen that partitive specificity can only be expressed by the base order with the NP following the classifier. Dayal argues that the unacceptability of (3b) is readily explained if we correlate NP raising with the maximality typically associated with definite descriptions, as the first sentence establishes a context in which there is no unique maximal individual made up of two atomic students.

A second argument that it is definiteness rather than specificity that causes and is associated with NP-raising comes from a consideration of specific and non-specific indefinites, and how these can be syntactically encoded. Consider the examples from Dayal (2012) below.

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[2] Dayal notes, from a personal communication with Probal Dasgupta, that Azad (1983) claimed that definiteness was at issue in NP raising and more recently, Hildegunn Dirdal has also argued in favor of definiteness being the trigger for NP movement in Bangla nominals. Dayal also notes that she does not have access to these works, and mentions them as possible predecessors of the ideas she presents in her work.

(4) a. Jodi du ʈo chatro aše, ami porabo.
         if   two CL student come I   will teach
         'If two students come, I will teach.'

     b. Jodi chatro du ʈo aše, ami porabo.
         if   student two CL come I   will teach
         'If the two students come, I will teach.'

Dayal points out that (4a) is ambiguous between a non-specific indefinite reading and a specific indefinite reading. Under the first reading, (4a) means that the speaker will teach as long as there is more than one student in his/her class, regardless of who those students might be. Under the second reading, (4a) can be used to communicate that the speaker may have many students but will only teach if two specific students that the speaker has in mind come to class. (4b), on the other hand, in which NP-raising occurs, does not allow for a specific indefinite interpretation. The sentence presupposes that the speaker has exactly two students, whose identity is familiar to both the speaker and the hearer, and the sentence is about their attendance. This is a clearly definite reading and a specific indefinite interpretation is not available. Consequently, whenever NP raising occurs, this forces a definite reading of a nominal and does not allow for a specific indefinite reading. Taking NP-raising thus to be motivated by definiteness rather than specificity, this movement has been analyzed in Dayal (2012) and Chacón (2012) as raising of an NP constituent to a higher SpecDP position associated with definiteness, projected by a null, definite D head, as schematized in (5).[3]

(5) $[_{DP} [_{NP}$ lal boi$]_i$ du ʈo t_i]

Such patterns thus raise an initial challenge to assumptions that article-less languages consistently project smaller nominal structures than languages with overt determiners, and raise the possibility that the presence of structural properties other than overt articles, such as word order alternations, may provide learners with good indications of the occurrence of DP in a language and hence lead to the acquisition of such a level of structure.[4] The present paper takes the alternations in (1–2) as its starting point and presents a range of other evidence and arguments in support of a DP analysis of Bangla and hence for the view that not all article-less languages are necessarily NP-type languages.

A second major goal of the paper is to show that the conclusion that Bangla nominals project a DP level of structure has an important consequence for the analysis of phases in the nominal domain. Building on Syed (2015) and Simpson and Syed (2016), which present arguments that Bangla nominals project internal, mid-level phases (QP constituents headed by numerals and other quantifiers), the paper provides arguments that the highest DP level of Bangla nominals also functions as a phase. This leads to the conclusion that nominal phrases may in fact consist of two phasal components, in a way that resembles the bi-phasal architecture of clauses, and suggests a stronger correspondence in phasal structure across clausal and nominal domains than commonly assumed.

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[3] Bhattacharya (1999) and Dayal (2012) mention that this phrasal movement is similar to Longobardi's (1994) N-to-D movement, the difference being what moves here is an NP instead of just N. An anonymous reviewer has pointed out that this could mean that the NP-movement in Bangla serves to encode D-like properties.

[4] Thanks to Željko Bošković (p.c.) for emphasizing how the word order patterns may be particularly significant for processes of acquisition, if nominal constituents do not in fact project to DP in all languages (i.e. if DPs are not automatically projected in all languages, learners will require overt evidence to posit a DP level, and this might come in the form of definite articles or perhaps via movement to a higher position associated with definiteness).

The structure of the paper is as follows. Section 2 discusses three major generalizations from Bošković's work on DP vs. NP languages that are analyzed in terms of the presence versus the absence of DP: neg-raising, the interpretation of equivalents to the quantifier "most", and adnominal genitives. A consideration of the relevant data in Bangla shows that Bangla patterns clearly like a DP language in such phenomena, despite it being an article-less language. Section 3 presents binding facts providing further support that Bangla has a DP-layer, and section 4 reviews other, independent reasons why a no-DP analysis for Bangla is not well-supported. Section 5 then discusses the consequences of a DP-analysis for Bangla and presents arguments that DP in Bangla is a phase, in addition to the nominal-internal QP phase argued for in Simpson and Syed (2016). This consequently suggests a bi-phasal architecture of nominal constituents similar to the occurrence of two phasal levels within clauses.

2 Three generalizations from Bošković (2008) and Bošković and Gajewski (2011)

Bošković (2008) presents a range of generalizations that distinguish languages with and without articles, and accounts for them by positing a fundamental difference in the structure of nominal projections in language with and without articles, claiming that nominal phrases in languages without articles do not project to any DP layer whereas those with articles do. From among his set of generalizations, we will show that although Bangla does not have articles, it patterns like languages with articles in terms of three generalizations that we discuss below: (a) neg raising, (b) the availability of a *majority* reading in a language for equivalents to English 'most', and (c) adnominal genitives. This will provide (further) evidence that Bangla not only projects functional structure above NP, but also has a DP layer.

2.1 Negative raising

Negative raising refers to the phenomenon in which an instance of negation in a higher clause can be understood to negate the content of a lower clause, as illustrated in (6a/b) from Bošković and Gajewski (2011: 127), who note that (6a) can communicate the meaning of (6b):

(6)　　*English*
　　　　a.　Mary did not believe that Fred was smart.
　　　　b.　Mary believed that Fred was not smart.

This phenomenon was first noted in Fillmore (1963: 220),[5] where he notes that certain verbs in English, like 'want' or 'think', allow NEG-raising. Similarly, Bošković and Gajewski (2011) point out, not all verbs in a language necessarily permit NEG-raising, hence while English 'believe' does, 'claim' does not. Consequently, (7a) below does not imply (7b):

(7)　　*English*
　　　　a.　John did not claim that Mary was smart.
　　　　b.　John claimed that Mary was not smart.

Bošković (2008) and Bošković and Gajewski (2011) observe that a further property of NEG-raising verbs is that the negation that occurs with them typically licenses the occurrence of lower clause negative polarity items, whereas non-NEG-raising verbs do

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[5] For more discussion on NEG-raising, see Horn (1971: 125–126), Collins, Postal & Horn (2014), among others.

not, as seen in the alternations in (8)–(10). Example (8) establishes that the phrase 'until yesterday' requires licensing by negation, and (9) shows that this negation may occur in a higher clause if the predicate is a NEG-raising verb. Verbs that are not NEG-raising predicates do not permit high clausal negation to license NPIs in lower clauses, as seen in (10).

(8)　　*English*
　　　a.　　John didn't leave *until yesterday*.
　　　b.　　*John left *until yesterday*.

(9)　　John didn't believe [that Mary would leave *until tomorrow*].

(10)　　*John didn't claim [that Mary would leave *until tomorrow*].

Bošković (2008) also discovers a further interesting generalization about NEG-raising, that such predicates appear to be restricted to languages whose nominal phrases project to DP – those manifesting overt articles. Bošković (2008: 104) presents this as the correlation in (11):

(11)　　"Languages without articles disallow NEG-raising, and languages with articles allow it."

Bošković (2008) and Bošković and Gajewski (2011) tie this generalization with the presence vs absence of DP in a language, in that the presence of D (or DP) is crucial to trigger NEG-raising. Such a line of reasoning establishing a link between NEG-raising and the occurrence of D/DP in a language leads to the prediction that if a language exhibits NEG-raising phenomena, it should be concluded to be a "DP language", with nominals projecting D and DP. Data from Bangla can now be presented which shows that Bangla allows typical NEG-raising patterns, indicating that it patterns like a typical DP language, not other NP languages. Examples (12a, b) first show that the NPI *kono khabar* is in need of licensing by negation – (12a) with negation present on the verb is fully acceptable, but (12b) with no negation is ungrammatical. Example (13) then demonstrates that negation present in a higher clause with a verb such as *biswas-kora* 'believe' allows for an NPI to legitimately occur in a lower clause, and hence displays the typical licensing property of NEG-raising predicates. Finally, (14) indicates that other, non-NEG-raising predicates in Bangla do not license NPIs in lower clauses. NPIs in Bangla therefore regularly require a commanding clause-mate negation to be licensed, but such a requirement is suspended in the case of certain embedding verbs with the NEG-raising property.

(12)　　a.　　Ram　kal　　　parʈi-te　kono　khabar　khay-ni.
　　　　　　　Ram　yesterday　party-at　any　　food　　eat-**NEG**
　　　　　　　'Ram didn't eat any food at the party yesterday'.

　　　　b.　　*Ram　kal　　　parʈi-te　kono　khabar　kheye-che
　　　　　　　Ram　yesterday　party-at　any　　food　　eat-PRES PERF

(13)　　Ami　biššas　kori　na　je　　Ram　kal　　　parʈi-te　kono　khabar
　　　　I　　belief　do　　**NEG**　that　Ram　yesterday　party-at　any　　food
　　　　kheyeche.
　　　　eat-PRES-PERF
　　　　'I don't believe that Ram ate any food at the party yesterday'.

(14)　*Ami　dekhi-ni　je　ram　kal　　parʈi-te　kono　khabar
　　　　I　　see-**NEG**　that　Ram　yesterday　party-at　any　　food
　　　　kheyeche.
　　　　eat-PRES-PERF

As such patterns show that Bangla does allow NEG-raising (with certain predicates),[6] it can therefore be concluded that Bangla nominals contain a D position and project a DP level of structure.

2.2 The majority reading of MOST

The second generalization that we are going to discuss is the availability vs non-availability of the *majority* reading of **most** (near equivalents to English 'most') in DP and NP languages. Bošković and Gajewski (2011: 121) offer the cross-linguistic generalization about readings of **most** in (15):

(15)　"Only languages with articles allow the majority reading of **most**."

As discussed in Hackl (2009), Bošković and Gajewski (2011), **most** may be associated with two distinct interpretations – a majority reading and a relative reading, as illustrated in (16), which shows that English allows both such readings for **most**.

(16)　*English*
　　　　Most people drink beer.
　　　　a.　'More people drink beer than any other beverage.'　(relative reading)
　　　　b.　'More than half the people drink beer..　　　　　　(majority reading)

The generalization in (15) stems from work carried out in Živanovič (2007), who observed a clear correlation between a language having articles and it allowing for the majority reading of **most** – every language in Živanovič's study permitting the majority reading of **most** was found to have articles, and every language in the study which had articles allowed for the majority reading of **most**. For example, in contrast to English, which has both articles and a possible majority reading of **most**, Slovenian is a language which does not have definite articles, and it is found that the use of **most** can only yield a relative reading but not a majority reading, as illustrated in (17):[7]

(17)　*Slovenian*
　　　　Največ　ljudi　　pije　　**pivo**.
　　　　most　　people　drink　beer
　　　　'More people drink beer than drink any other beverage.'
　　　　Unavailable reading: 'More than half the people drink beer.'

Bošković and Gajewski (2010) develop a syntactic account to explain the generalization in (15) making use of Hackl's (2009) semantic analysis of **most**. The key assumptions of the latter are as follows. **Most** consists in two elements **many** + **est**, with the superlative degree quantifier **est** being generated in the degree argument position of **many**, SpecAP. As the result of a type mismatch, –**est** is argued to need to undergo QR to a node of type $<e, t>$. One possibility is that **est** locally adjoins to NP, and this is suggested to result in the majority reading of **most**. Another option is that –**est** moves out of the nominal

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[6] Other verbs that allow NEG-raising in Bangla include *chaoa* 'want', *bhaba* 'think', and *bola* 'say'.
[7] Boskovic and Gajewski (2010) notes that to express the majority reading in Slovenian, the language uses the noun *večina* 'majority'.

projection containing it and occupies a higher position which facilitates the relative reading.

Bošković and Gajewski argue that Hackl's account of **most**, coupled with the assumption from Chomsky (1986) that adjunction to arguments is banned, allows for an explanation of why the majority reading is apparently only available in languages with DPs – i.e. languages with articles that cause the projection of a DP level of structure. In DP-languages like English, NP is contained within DP, and hence NP is not an argument by itself. **–est** can adjoin to NP, and this yields the majority reading. The relative reading, on the other hand, results from legitimate movement of **–est** out of the DP completely. In an NP-language such as Slovenian which does not project a higher DP level of structure, NPs themselves serve as arguments, and by virtue of being arguments, they do not allow adjunction of **–est** (due to Chomsky's claim that adjunction to arguments is not possible). Because **–est** cannot adjoin to NP, the majority reading is not available, and the only interpretation that can be obtained is the relative reading which results from **–est** moving fully out of the nominal phrase.

Considering Bangla in the light of the above discussion, if Bangla allows for a majority reading of **most**, this would suggest that **–est** can adjoin to NP in Bangla, which should only be possible if NPs in Bangla are not arguments, as in typical NP languages such as Slovenian. As shown in (18), a majority reading is indeed possible for **most** in Bangla, demonstrating that Bangla again patterns like a DP language (i.e. a language in which nominals project up to DP) rather than an NP language.

(18)   Beši-r-bhag   lok   kal   parʈi-te   beer   khelo.
       Most[8]   people   yesterday party-at   beer   drink-PAST.

   a.   'more people drank beer than any other beverage in the party yesterday'
        (relative reading)

   b.   'more than half the people drank beer at the party'
        (majority reading)

2.3 Adnominal genitives

The third generalization that we will discuss concerns adnominal genitives in languages with and without articles. Bošković (2008) offers the following generalization:

(19)   "Languages without articles don't allow transitive nominals with two genitives."

As illustration, English (a language with articles) allows two genitives in a transitive nominal as shown in example (20), but Polish (a language with no articles) does not permit equivalents of this, as seen in (21).

(20)   *English* (Willim 2000)

       Columbus's discovery of America

(21)   *Polish* (Willim 2000)

       *Odkrycie   Ameryki   Kolumba
       discovery   America.GEN   Columbus.GEN

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[8] We gloss *beSi-r-bhag* as 'most' because it is equivalent to **most** in Bangla, however, we note that it is morphologically composed of more-GEN-part. That is, **most** in Bangla may have a more complex structure than the English **most** (many + est), but the structure of the argumentation remains the same.

Bošković, following Willim (2000), attributes this difference between English and Polish to the lack of DP in Polish.[9] Following insights in Chomsky (1986) and Longobardi (1996), Willim and Bošković assume that the genitive requires licensing in a Spec, Head relation (overt or covert). While DP languages (English) have two Specs for licensing the genitive (SpecDP and SpecAGRP for Willim), NP-languages (Polish) have only one such Spec due to the lack of DP, thus explaining the contrast between the English and Polish data in (20)–(21). Bošković also mentions an alternative account which does not require genitive-licensing by Spec-head: simply assuming that N can license only one genitive (with or without AGR), D being required for the second genitive. Note that regardless of the account chosen, the assumption of the lack of DP in article-less languages is critical to deduce the differences between English and Polish.

If we consider Bangla in this light, it clearly behaves like a DP-language, as it allows two genitives, as shown in the following examples.

(22)   Ram-er   kukur-er   bheeti
        Ram-GEN   dog-GEN   fear
        'Ram's fear of dogs'

(23)   Feluda-r   badšahi angʈi-r   rohosyo   somadhan
        Feluda-GEN royal   ring-GEN mystery   solution
        'the solution of the mystery of the royal ring by Feluda'

The data in (22)–(23) show that Bangla must have a DP-layer to license two genitives, thus providing further evidence to our claim that Bangla is a DP-language.

2.4 A note on other generalizations

It is pertinent to note that although we have discussed three patterns from Bošković (2008) which bear on the presence or absence of DP in a language, several others patterns are examined in Bošković (2008) and presented as arguments for an NP or a DP analysis. Certain of these phenomena are simply not available to be tested in Bangla, as the relevant patterns do not occur in the language, for example "clitic-doubling" patterns, and "head-internal relatives and locality". Other patterns considered in Bošković (2008) that could potentially be tested in Bangla can be divided into two categories: (a) extraction (left branch extraction, adjunct extraction), and (b) scrambling. In what follows, we will argue that attempting to use such phenomena as potential tests for the presence/absence of DP in Bangla is inconclusive and uninformative, for various reasons.

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[9] An anonymous reviewer notes that another potential explanation for the contrast in (18)–(19) is that English, unlike Polish, has two distinct ways of encoding genitives. To show that this is not the relevant distinction, the reviewer suggested we provide examples from another language, in addition to English and Bangla. Such examples can be provided from Spanish and Hebrew, both of which have determiners/DPs and allow stacked genitives. The relevant examples are given below.

(i)   *Spanish* (Ticio 2005)
       [El retrato de   las Meininas   de Velasquez.
       the portrait of   the Meninas   of Velazquez
       'Velazquez's portrait of the Meninas.'

(ii)   *Hebrew* (Sichel 2003)
       Ha-tmuma   [sel ha-xamaniot]   [sel van gox].
       the-picture of   the-sunflowers of   Van Gogh
       'Van Gogh's picture of the sunflowers.'

2.4.1 Left branch extraction

Bošković (2008) gives the generalization in (24) relating to left branch extraction/LBE and its correlation with NP-type languages:

(24)   "Only languages without articles may allow LBE."

Languages which project DPs, such as English, are suggested to uniformly disallow LBE, as illustrated in (25), whereas languages without articles may allow examples equivalent to (25).[10]

(25)   *English*
         *expensive/that$_i$ he saw t$_i$ car

Regarding such patterns, Bangla seems to behave like English and not allow LBE with regular, neutral intonation, as illustrated in (26) and (27).

(26)   *Oi$_i$ se   t$_i$ gari   ţa   kineche.
        DEM   he   car   CL   bought.

(27)   *Dami$_i$ se   t$_i$ boi   ţa   kinlo.
        Expensive   he   book   CL   bought.

However, in other instances, LBE does seem to be acceptable, specifically where contrast and focus-movement occurs, accompanied with appropriate focus intonation/stress. In Syed (2013) and Simpson and Syed (2016) it is indeed shown that adjectives in Bangla can undergo focus-movement to the left-periphery of the nominal domain, as shown in (28) below. Such phrasal movement could be assumed to be an instance of LBE.

(28)   **Lal**$_i$ oi [t$_i$ boi   ţa]   chai.
        Red   DEM   book   CL   want.
        'I want that RED book'

Thus, LBE might seem to be possible in Bangla in appropriate circumstances, suggesting that Bangla should be analyzed as an NP language. However, we believe LBE is not a strong, reliable diagnostic for distinguishing DP and NP languages, whether LBE can occur or not. Consider the step-by-step argumentation given in Bošković for why LBE might be impossible in English:

   a.   English nominals are (always) DPs.
   b.   DPs are phases.
   c.   Given the Phase Impenetrability Condition (PIC), a phrasal constituent can only be extracted from a DP if it first moves to SpecDP.
   d.   The anti-locality hypothesis: any application of *Move* must cross at least one phrasal boundary.
   e.   In the structure [$_{DP}$ D [$_{NP}$ ADJP [$_{NP}$ N]]], an ADJP cannot move to SpecDP as such movement will not cross a phrasal boundary. Consequently, ADJP movement out of DP will not be possible.

Such an explanation of why LBE might be banned in English (or any DP language) is contingent on an important (though unmentioned) assumption: that DP immediately dominates NP and there are no intervening functional projections. If any functional

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[10] For example, equivalents to (25) are acceptable in Serbo-Croatian.

projection is projected above NP and below DP, it should be possible for an ADJP adjoined to NP to move to SpecDP and therefore potentially extract out of DP, as antilocality will not be violated in such a structure. Much argumentation has, however, been given elsewhere for the assumption that at least a NUMP/#P occurs between DP and NP (see Borer 2005 and references within this work). If this is correct, then extraction of ADJPs from DP constituents in English and other similar languages cannot be banned by anti-locality and must be attributed to some other property, which may well not involve a difference in the size of nominal constituents in a language. We therefore believe that the potential availability of LBE in a language is not a reliable diagnostic for distinguishing NP- and DP-type languages.[11]

2.4.2 Scrambling

Bošković (2008) suggests that the following connection holds between scrambling and DP vs. NP languages:

(29)   "Only languages without articles may allow scrambling."

Such a generalization immediately seems to be falsified by German, which has articles and has regularly been described as a language with scrambling. In order to maintain (29), Bošković suggests that the kind of optional movement regularly found in German is actually not real scrambling, and that this term should be reserved for other cases in which movement optionally occurs and this (a) has no semantic effect, and (b) can potentially occur long-distance out of finite clauses. As German scrambling is reported not to be possible out of finite clauses, Bošković's redefinition of "scrambling" in a more narrow way allows him to suggest that (29) is a valid generalization.

Turning to consider Bangla, while Bangla un-controversially does allow short-distance scrambling, it is not at all clear if apparently optional long-distance movement operations in Bangla fall under the definition of "scrambling" assumed by Bošković for generalization (29) to hold. Consider the examples (30)–(32) below. (30) is a non-scrambled structure; (31) has short-distance scrambling; (32) attempts a long-distance scrambling. Many native speakers of Bangla who we consulted judged the example in (32) to be bad, and people who accepted (32) reported that there is a contrastive reading (i.e 'expensive' books are contrasted with books having some other property) which introduces a component of meaning into (32) which is different from (30). If optional long-distance movement is either unacceptable or has a semantic effect on the interpretation of a sentence, this would suggest that Bangla does not have the kind of "scrambling" assumed in (29). If Bangla is a DP language, it would therefore not be a counter-example to (29), and would instead be similar to German, where the optional movement which occurs is not classified as "scrambling". However, as we are somewhat uncomfortable with the use of the narrow definition of scrambling assumed for the purpose of generalization (29), we believe that scrambling is not a strong diagnostic of NP vs. DP structure, and feel that the patterns

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[11] Furthermore, if Bošković's antilocality analysis of LBE were to be adopted, the possibility of LBE in a language would be predicted to have two possible sources. It might be expected to occur in NP languages where no functional structure occurs above NP, allowing for direct extraction out of NP from a left branch position. It should also be expected to occur in a DP language in which functional projections are present between DP and NP, as this would allow for antilocality to be satisfied when an element adjoined to NP raises to SpecDP. In Bangla, several functional projections have indeed been argued to occur between DP and NP (cf. Bhattacharya 1999; Chacón 2012; Dayal 2012; Syed 2013), and so LBE should be facilitated by this. The observation that LBE may occur in certain contexts in Bangla is therefore fully compatible with Bangla being analyzed as a DP language, and does not support its analysis as an NP language, even if Bošković's approach to LBE is assumed.

reviewed in sections 2.1–2.3 and those to be considered in sections 3 and 4 provide clearer indications of the presence of DP within Bangla.

(30)   Ram bollo je   šita [dami   boi   ʈa] kineche.
        Ram said that Sita expensive book CL has-bought
        'Ram said that Sita bought the expensive book.'

(31)   Ram bollo je   [dami   boi   ʈa]$_i$ šita t$_i$ kineche.
        Ram said that expensive book CL   Sita   has-bought
        'Ram said that Sita bought the expensive book.'

(32)   ??[dami   boi   ʈa]$_i$ Ram bollo je   t$_i$ šita t$_i$ kineche.
        expensive book CL   Ram said that   Sita   has-bought
        Attempted reading: 'Ram said that Sita bought the expensive book.'

3 Binding

In this section, we will present certain *binding* facts in Bangla that will indirectly support our argument that Bangla has a DP layer and patterns like a DP language for the purposes of Bošković's general typology. The relevant data involve an initial comparison between binding asymmetries found in English, a representative DP language, and Serbo-Croatian, an NP language in Bošković's classification, due to a range of other properties. Despić (2013) notes that the possibility for possessive pronouns and possessor DPs to be co-indexed with R-expressions and pronouns in the same clause in English, as in (33) and (34), has been taken to indicate that possessors do not c-command out of the nominal constituent they are contained in, hence there is no Principle C violation in (33), and no Principle B violation in (34). This lack of c-command between nominal possessors and other clausal material is captured straightforwardly in a standard DP structure if possessors are assumed to be projected in the specifier of DP in languages such as English.[12]

(33)   *English*
        [$_{DP}$ His$_i$ father] considers John$_i$ highly intelligent.

(34)   *English*
        [$_{DP}$ John$_i$'s father] considers him$_i$ highly intelligent.

In Serbo-Croatian, Despić (2013) points out that examples apparently equivalent to English (33) and (34) are actually not acceptable, as illustrated in (35) and (36):

(35)   *Serbo-Croatian*
        *[Kusturicin$_i$ najnoviji film] ga$_i$ je zaista razočarao.
        Kusturica's   latest   film him is really disappointed
        'Kusturica$_i$'s latest film really disappointed him$_i$.'

(36)   *Serbo-Croatian*
        *[Njegov$_i$ najnoviji film je zaista razočarao   Kusturicu$_i$.
        his   latest   film is really disappointed Kusturica
        'His$_i$ latest film really disappointed Kusturica$_i$.'

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[12] Despić (2013: 244–245) actually adopts a complex Kaynean approach to c-command to model the lack of c-command between nominal possessors and other elements in the clause in English and Serbo-Croatian. However, the crucial contrasts in binding in the two languages can also be captured using a more simple and traditional approach to c-command if possessors are assumed to occur in SpecDP in English, as is very common. Because there is no special advantage to adopting a Kaynean approach at this point, and since it would take considerable extra space to introduce and defend such a modeling, we do not make a digression along these lines here. Were a Kaynean view of c-command to be made use of, as in Despić, the same conclusions relating to contrasts between Bangla and Serbo-Croatian would be reached.

Despić argues that if the internal structure of English and the Serbo-Croatian nominal projections were to be the same, it would be expected that possessors in Serbo-Croatian would fail to c-command out of their containing nominal constituents and the attempted co-indexation in (35) and (36) should be acceptable, as in English. The fact that (35) and (36) are ungrammatical leads Despić to the natural conclusion that possessors in Serbo-Croatian do indeed c-command out of the nominal projections in which they are merged. It is suggested that possessors in Serbo-Croatian are in fact adjoined to NP, and there is no DP layer dominating NP. Assuming an approach to c-command which requires that an element be dominated by all phrasal segments of a projection in order to fail to c-command out of a phrase (May 1985), possessors adjoined to NP in Serbo-Croatian will c-command out of NP, and if there is no higher DP layer projected (with a null D head), possessors within subjects in Serbo-Croatian will successfully c-command all material in a clause that subjects themselves regularly c-command. As a result, examples such as (35) and (36) will be ruled out as Principle B and Principle C violations.

Turning now to Bangla, if nominals in Bangla were to be structured like those in Serbo-Croatian, and Bangla were to be a typical NP language with no DP level projected above NP, it would be expected that possessors in Bangla would c-command out of the subject and object phrases containing them and disallow co-reference with pronouns and R-expressions present in the same clause. If, however, Bangla nominals were to be structurally more like those in English, and project to DP, with possessors being merged in SpecDP, one would expect that possessors should allow for co-indexation with pronouns and R-expressions occurring in the same clause. As examples (37–40) show, Bangla patterns like English, and equivalents to English (33) and (34) are well-formed, unlike those in Serbo-Croatian:[13]

(37)   [Rituɔrno$_i$-r   šeš   sinema   ʈa]   ta$_i$-ke   khub   hɔtaš   korlo.
        Rituporno-GEN   last   film   CL   he-ACC   very   disappoint   did
        'Rituporno's last film really disappointed him.'

(38)   [Ta$_i$-r   šeš   sinema   ʈa]   Rituɔrno$_i$-ke   khub   hɔtaš   korlo.
        he-GEN   last   film   CL   Rituporno-ACC   very   disappoint   did
        'His last film really disappointed Rituporno.'

(39)   [Ram$_i$-er   poša   pakhi]   kal   ta$_i$-ke   kamre-che.
        Ram-GEN   pet   bird   yesterday   he-ACC   bite- pres perf
        'Ram$_i$'s pet bird has bitten him$_i$ yesterday.'

(40)   [Ta$_i$-r   poša   pakhi]   kal   ram$_i$-ke   kamre-che.
        he$_i$-GEN   pet   bird   yesterday   Ram-ACC   bite- pres perf
        'His pet bird has bitten Ram yesterday.'

An anonymous reviewer has pointed out that in addition to the above data, it will be helpful to show a contrast to (37), where it is unacceptable if a reflexive in the object position is coreferential with the possessor. This contrast is shown in (41).

(41)   *Rituɔrno-r   šeš   sinema   ʈa   nije-ke   khub   hɔtas   korlo.
        Rituporno-GEN   last   film   CL   self-ACC   very   disappointed   did

A comparison of binding patterns in typical DP and NP languages with those in Bangla therefore again supports an analysis of Bangla as a DP language.

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[13] We note that although (38) and (40) are perfectly acceptable to one of the authors and many of our consultants, several speakers found these examples less acceptable.

4 A further argument against an np analysis of Bangla nominals: The patterning of demonstratives and possessors

In sections 2 and 3, a number of arguments have been presented in support of a DP analysis of nominals in Bangla, and for the categorization of Bangla as a DP rather than an NP-type language. In this section, we will present additional reasons why there is little positive support for considering Bangla to be an NP language, aside from the absence of definite and indefinite determiners, focusing on the status of demonstratives and possessives (the latter already partially discussed in section 3). While not all languages manifest definite and indefinite articles, it is fully widespread for languages of all types to have demonstratives and possessor phrases within nominals, and it has become commonplace to analyze such elements as occurring in a DP level of structure, either in SpecDP or D itself, as a way of explaining the simple complementary distribution of demonstratives/possessors and other articles assumed to be in D. In order to argue for a DP-less analysis of a particular language, an alternative analysis of demonstratives and possessors is clearly called for, and one has been offered for Serbo-Croatian, an NP language, in Zlatić (1997) and Bošković (2005).

Bošković (2005), following work in Zlatić (1997), argues that demonstratives and possessors in Serbo-Croatian are not projected in a D or SpecDP position but are rather *adjectives*, adjoined to NP. There are three main arguments for such an adjectival analysis. First, Bošković notes that these elements pattern morphologically like adjectives in their inflections. This can be seen in (42) and (43), which are actually taken from Despić (2013: 247), who also adopts the adjectival analysis of demonstratives.

(42) *Serbo-Croatian*
 on**im** Milanov**im** zelen**im**
 those.FEM.PL.INSTR Milan's.FEM.PL.INSTR green.FEM.PL.INSTR
 knjigama
 books.FEM.PL.INSTR
 'those green books of Milan's'

(43) *Serbo-Croatian*
 on**ih** Milanov**ih** zelen**ih** knjiga
 those.FEM.PL.GEN Milan's.FEM.PL.GEN green.FEM.PL.GEN books.FEM.PL.GEN
 'those green books of Milan's'

Secondly, these items in Serbo-Croatian can occur in typical adjectival positions, in contrast to English, as shown in (44a/b), where the possessive adjective can occur in main predicate position in Serbo-Croatian, unlike in English:

(44) *Serbo-Croatian*
 a. Ova knjiga je moja.
  this book is my
  'This book is mine.'

 b. *This book is my

Thirdly, Bošković (2005: 6) notes that the ordering of demonstratives and possessors relative to other adjectives is significantly free in Serbo-Croatian, which is entirely expected in an NP-adjunction analysis of such elements, as illustrated in (45), and in stark contrast to English (46), where possessors and demonstratives must always precede adjectives, due to their being merged in higher positions (D/SpecDP).

(45)　　*Serbo-Croatian*
  a. Jovanova/ova bivsa kuca
    Jovan's/this former house

  b. bivsa Jovanova/ova kuca
    former Jovan's/this house
    'Jovan's/this former house'

(46)　　*English*
  a. John's/this former house
  b. *former John's/this house

Given such patterns, an adjectival NP-adjunct analysis of Serbo-Croatian possessors and demonstratives seems well-motivated, and allows for an analysis of Serbo-Croatian as an NP language with no DP level of structure to be convincingly maintained.

 Switching our attention now to Bangla, the reasons that might perhaps lead to demonstratives and possessors being assumed to be adjectival in Serbo-Croatian and certain other languages do not exist in Bangla. Demonstratives and possessors in Bangla do not occur in the same nominal-internal position as adjectives, which are merged between classifiers and nouns, as shown in (47):

(47)　　du　ţo　choţo　šobuj　chine　　fuldani
   2　CL　small　green　Chinese　vase
   'two small green Chinese vases'

Demonstratives and possessors must instead be merged to the left of numerals and classifiers, as in (48), and may never occur to the right of numerals and classifiers in the regular position of adjectives, as attempted in (49):

(48)　　a. amar　du　ţo　choţo　šobuj　chine　　fuldaani
    my　 2　CL　small　green　Chinese　vase
    'my two small green Chinese vases'

  b. ei　du　ţo　choţo　šobuj　chine　　fuldaani
    this　2　CL　small　green　Chinese　vase
    'these two small green Chinese vases'

(49)　　a. *du　ţo　amar　fuldaani
     2　 CL　my　 vase

  b. *du　ţo　ei　 fuldaani
     2　 CL　this　vase

Because of the different merge-site of demonstratives/possessors and adjectives, the kinds of free alternation in ordering of possessors and adjectives shown above in Serbo-Croatian (45) are not at all possible in Bangla:

(50)　　a. Ram-er　 prakton　bandhobi
    Ram-GEN　former　 girlfriend
    'Ram's former girlfriend'

  b. *prakton　Ram-er　 bandhobi
     former　 Ram-GEN　girlfriend

A demonstrative and a possessor may in fact both be present in a single nominal projection in Bangla, as shown in (51), but when this occurs, there is a strict ordering of these

elements and the possessor must precede the demonstrative. Slavonic equivalents may allow both orders, as illustrated from Russian in (52).

(51) a. amar oi   lal   boi
          my   DEM   red   book
          'that red book of mine'

      b. *oi   amar lal boi
          DEM   my   red book

(52) *Russian*
      a. moya eta   krasnaya kniga
          my   DEM   red   book
          'this red book of mine'

      b. eta   moya krasnaya kniga
          DEM   my   red   book
          'this red book of mine'

Finally, it can be mentioned that possessors are reported not to be able to modify other possessors in Serbo-Croatian, and this is attributed to the adjectival nature of such elements – it is assumed that adjectives cannot modify other adjectives (Bošković 2005). In a DP language such as English, however, where possessors are merged in SpecDP positions and not as regular adjectives, it is possible for a possessor phrase to contain and be modified by another possessor, as in (53), and similar patterns are found to be fully acceptable in Bangla as shown in (54):

(53) *English*
      my rich neighbor's horse

(54) amar dhoni protibesi-r ghora
      my   rich   neighbor's   horse
      'my rich neighbor's horse'

What all the above shows is that possessors and demonstratives in Bangla display none of the regular characteristics of adjectives in the language, and none of the typical freedom of ordering which occurs with adjuncts. Bangla possessors and demonstratives must instead be merged in a rigid order relative to both adjectives and the functional elements numerals and classifiers. Assuming that the latter are themselves merged in functional projections (QP, CLP see section 5), as in other classifier languages such as Chinese and Japanese (Li 1998; Watanabe 2006; Chacón 2012), accounting for their rigid relative ordering (Num > CL) and their ordering relative to adjectives to their right and possessors and demonstratives to their left, the fixed occurrence of possessors and demonstratives in the highest/leftmost part of nominal phrases above other functional structure is naturally accounted for if these elements are also merged into high functional projections, the highest of which can be taken to be DP, housing possessors in SpecDP.[14]

Having reviewed a range of patterns bearing on the DP/NP language parameter and their manifestation in Bangla, it can be said that collectively the phenomena examined all converge on the same conclusion and point to Bangla being a DP language – i.e. a language projecting a high, functional DP level of structure. If Bošković and Gajewski's (2011) semantic arguments relating to NEG-raising are correct, the identity of this high functional

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[14] Demonstratives, we assume, are merged into a functional projection related to deictic reference below DP where possessors occur. The label DeicP can be used for this high-but-not-highest functional projection in nominal phrases.

projection should indeed be taken to be DP rather than some other functional label, and this is supported further by the parallels consistently found between patterns in Bangla and those in a clear DP language, English, as well as the Bangla-internal connections of word order encoding definiteness seen in section 1. In general, the conclusion that Bangla patterns consistently like a DP language though not having overt determiners can be taken as evidence that the strong version of Bošković's hypothesis might not necessarily be exceptionless, and it may need to be conceded that there are languages which have developed DPs without the simultaneous emergence of overt articles. Commenting on the patterns regularly found to characterize NP languages and distinguish them from DP languages, Bošković (2008: 101) states that:

> "The generalizations could turn out to be strong tendencies, which would still call for an explanation. A weaker version of the claim made in the paper would be that some languages without articles do not have DP. The stronger (and more interesting) position is that this holds for all languages without articles."

The conclusion that Bangla is a DP language also has other interesting consequences for the theory of phases, which we now examine in section 5.

5 Phases within nominal projections

It has long been suggested that clauses and nominal phrases are structured in similar ways (Abney 1987; Szabolsci 1994). One important property ascribed to CPs in a Minimalist view of syntax is that they function as *phases* and also contain an internal *phase* – vP (Chomsky 2000), or ASPP when present (Bošković 2014; Harwood 2015). Within the nominal domain, extensions of Chomsky's original proposals relating to phases in clauses have led to suggestions that DPs occur as phases (Svenonius 2004; Bošković 2012; Hinzen 2012 among many others). In Syed (2015) and Simpson and Syed (2016), an extended argument from variant word order patterns within nominal phrases in Bangla is presented to argue that nominal constituents may also contain an internal QP phase, paralleling the occurrence of a lower phasal unit within clauses. Now that it has been argued here that Bangla nominals also project up to a DP level, we will claim that DPs in Bangla occur as phases in addition to internal QP phases, presenting two specific empirical patterns and arguments in favor of such a conclusion (which is in fact the default conclusion given either common assumptions that DPs are phases, or Bošković's 2014 proposal that the highest functional projection in any nominal or clausal constituent is contextually determined to be a phase). Such conclusions in turn suggest that the extended projection of noun phrases may consist in two separate phases, in a way that resembles the occurrence of two phasal levels within clauses, hence that clauses and nominals share a strong similarity in their cyclic/phasal architecture, as might be anticipated from other parallels between clauses and noun phrases. Section 5.1 presents a brief summary of the argument developed in Simpson and Syed (2016) that QP (hosting numerals and other quantifiers) functions as a nominal-internal phase. Section 5.2 then provides arguments that suggest that DP in Bangla acts as a phase as well as QP.

5.1 QP as a phase

The focus of the discussion in Simpson and Syed (2016) is the kind of alternation typically found in examples such as (1) and (2), repeated below, in which there is an inversion of the canonical order of *numeral > classifier > adjective > noun* in instances where nominal constituents receive a definite interpretation:

(1)   du   ʈo lal boi   (canonical order: NUM > CL > ADJ > NOUN)
        two CL red book
        'two red books'

(2)   lal boi du ţo   (inverted order: ADJ > NOUN > NUM > CL)
        red book two CL
        'the two red books'

As noted in section 1, the alternative order in (2) is analyzed in the literature (Bhattacharya 1999; Dayal 2012; Chacón 2012) as phrasal movement of the NP *lal boi* 'red book' from its base position in (1) across the numeral classifier, as was schematized in (5), repeated below:

(5) $[_{DP} [_{NP}$ lal boi$]_i$ du ţo t_i]

However, such phrasal movement is interestingly blocked when a numeral higher than *four* occurs (see Syed 2015; Simpson & Syed 2016), as shown in (55).

(55)   Ami lal boi   du ţo/ tin ţe/ char ţe/ ?panc ţa/ *choy
        I   red book 2   CL/ 3   CL/ 4   CL/ 5   CL/ 6
        ţa/ *sat ţa/ *at ţa   kinlam.
        CL/ 7   CL/ 8   CL   bought
        'I bought the 2/3/4/?5/*6/*7/*8 red books'

Simpson and Syed suggest that the blocking effect seen in (55) can be explained if numerals in Bangla are assumed to occupy different structural positions in nominal projections, with lower numerals being merged in the Q^0 head position of QP, while higher numerals ('five' and above) occur as phrasal constituents in SpecQP.[15] It is suggested that in contexts of definiteness, NPs need to undergo movement through SpecQP before landing in a higher position associated with the licensing of definiteness, and the presence of higher numerals in SpecQP will block the attempted movement of NPs through this position. However, when lower numerals occur in Q^0, the SpecQP position will be available as an escape hatch for successive cyclic movement of NPs out of QP to higher positions with nominal phrases. As this kind of movement to/through SpecQP only occurs when nominals have an interpretation of definiteness, it cannot be directly attributed to a regular need for NPs to engage in an Agree/feature-checking relation with Q^0 – such movement does not occur when nominals have an indefinite interpretation. The movement of NPs through SpecQP therefore takes place purely in order that NPs can reach a higher position in the nominal projection, relating to definiteness. It is consequently a locality-motivated movement, similar to other extraction phenomena which require successive cyclic movement and the use of escape hatches, such as extraction of elements out of DP via a SpecDP escape hatch (Szabolsci 1983, 1994), and successive cyclic wh-movement through intermediate SpecCP positions (McCloskey 2000). Viewed from a Minimalist perspective, the only kind of formal motivation that can be given to successive cyclic movement to positions which simply occurs in order for an element to reach a higher position is that this movement occurs in order to avoid a violation of the Phase Impenetrability Condition (PIC; Chomsky 2000). Only elements which occur in the edge of a phase are visible to probes in higher phases and consequently eligible for further movement. If an element needs to establish an Agree/feature-checking relation with a functional head in a higher phase, it must first move to the edge of its containing phase, and then successive cyclically further.

In the case of definiteness-driven NP movement within nominal phrases in Bangla, this leads to the conclusion that QP is a nominal-internal phase. NPs which need to enter into

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[15] Note that in Simpson and Syed (2016), non-numerical quantifiers are shown to pattern the same way as low vs high numerals. Simpson and Syed argue that the quantifier *ko* (a reduced form of the quantifier *koyek* 'some') occurs as the head of QP, while the non-reduced form *koyek* (and other quantifiers like *šɔb* 'all') is generated in the specifier of QP. It is pertinent to note that numerals and quantifiers in Bangla are generated in the same projection (they cannot co-occur, see Bhattacharya 1999).

an Agree/feature-checking relation with a higher functional head related to definiteness must first move to SpecQP, in order to be visible to a probe in a higher portion of the nominal structure. When lower numerals are present, in Q⁰, this initial movement to SpecQP and the edge of the QP phase is possible, whereas when higher numerals occur in SpecQP, movement of NPs to the edge of the QP phase is blocked, and movement of an NP directly to a position higher than QP from the base position of the NP is barred by the PIC – in its phase-internal position, an NP will not be visible to a probe external to the QP phase.[16] Various additional motivations for such an analysis of QPs as phases and further support for the analysis of numerals as occurring in two different structural positions in Bangla are presented and discussed in Simpson and Syed (2016). All of the patterns and theoretical considerations are argued to converge on the same conclusion, that nominal constituents may indeed contain an internal, mid-level phase, in a similar way to clauses and the projection of vP or ASPP phases (Bošković 2014; Harwood 2015).

5.2 DP as a phase

We will now offer arguments that DP in Bangla functions as a phase as well as QP. In addition to the simple cross-linguistic assumption now regularly made that DPs should be taken to be phases, two particular patterns can be taken to offer more specific support for the view that DP constituents in Bangla are phases: argument ellipsis and extraction from DP. Each of these phenomena is described below.

5.2.1 Argument ellipsis

Argument ellipsis is the term that has come to be associated with the omission of overt arguments from sentential structures in certain languages, where this critically results in the availability of interpretations of sloppy identity (Hoji 1988; Oku 1998; Saito 2004; Aoun & Li 2008; Takahashi 2008; Simpson, Choudhury & Menon 2013 among others). This is illustrated in the Japanese example in (56) from Şener and Takahashi (2009).

(56)   *Japanese*
   a.   Taro-wa   [zibun-no   kodomo-ga   eigo-o   sitteiru   to]   itta.
        Taro-TOP   [self-GEN   child-NOM   English-ACC   knows   that   said
        Lit.: 'Taro said that self's child knew English'.

   b.   Hanako-wa   [e eigo-o   sitteiru   to]   itta.
        Hanako-TOP   English-ACC   knows   that   said
        Lit.: 'Hanako said that he knew French.'
        Strict: 'Hanako said that Taro's child knew English.'
        Sloppy: 'Hanako said that her own child knew English.'

In Bošković (2014), the proposal is made and defended that only *phases* or the complements of phase heads may permit ellipsis, and that argument ellipsis in the nominal domain can be used as a diagnosis for the presence of a phase.[17] In Simpson, Choudhury and Menon (2013), it is demonstrated that argument ellipsis occurs commonly in Bangla, licensing typical interpretations of sloppy identity. This is shown in example (57) from

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[16] Such an account assumes that there is a single SpecQP position available, and that QP does not project multiple specifiers. An alternative account is also considered in Simpson and Syed (2016) in which QP does project multiple specifiers, but higher numerals merged in SpecQP block any attempted extraction of NPs moved to a lower SpecQP position, as a consequence of Bošković's (2016) conditions on extraction from complex edges.

[17] See also Harwood (2015) for extensive defense of this proposal with patterns from clausal domains.

Simpson, Choudhury and Menon (2013). The antecedent for ellipsis in (57) is *nije-r du To receptionist-ke,* which is a full DP as it contains a possessor in SpecDP. Using the presence of argument ellipsis as a diagnostic for the functioning of a constituent as a phase, this clearly supports an analysis of DPs as phases in Bangla.

(57) Ram [DP   nije-r du ʈo receptionist-ke] boklo,   kintu raj _
      Ram   self's 2   CL receptionist-ACC criticize-PAST but   Raj
      prošongša korlo.
      praise   do-PAST
      'Ram$_k$ criticized his$_k$ two receptionists, but Raj$_m$ praised (his$_m$ two receptionists).'

5.2.2 Extraction out of DP

A second set of phenomena that add support for the phasal analysis of DPs in Bangla relates to extraction out of DP constituents. If DP is indeed a phase in Bangla, and if possessors occupy a unique SpecDP position in the phasal edge, it is predicted that extraction out of DPs should not be possible when an overt possessor fills this escape hatch position. Such an expectation is fully borne out. Example (58) shows first that extraction of a constituent out of DP is acceptable if no possessor phrase occupies SpecDP. Example (59) then shows that extraction out of a DP is no longer possible when a possessor occupies SpecDP. It should be noted that the base sequence of elements in the DP in (59) *Ram-er du to boi* allows for an indefinite partitive interpretation 'two of Ram's books', hence the extraction of the NP in (59) is not unacceptable because it violates any condition barring extraction from specific nominal phrases, as the DP in (58) can be interpreted as non-specific. Hence it is critically the structural presence of the possessor phrase in SpecDP which blocks the extraction of the NP.

(58) [$_{NP}$ Boi]$_k$ ami [$_{DP}$ t$_k$ [$_{QP}$ t$_k$ du ʈo t$_k$]] kinlam.
         book   I   2 CL   bought
         'I bought two books.'

(59) *[$_{NP}$Boi]$_k$ ami [$_{DP}$ ram-er [$_{QP}$ t$_k$ du ʈo t$_k$]] kinlam.
         book   I   Ram-GEN   2 CL   bought

As SpecDP consequently shows signs of functioning as a necessary escape hatch for extraction from DPs in Bangla, as in other languages, and as obligatory successive cyclic movement through escape hatches can be attributed to a need to avoid violations of the PIC, this leads again to the conclusion that DPs function as phases in Bangla, and extraction of DP-internal elements needs to first target the edge of DP (SpecDP) in order to be visible to and attracted by higher probes present in a clause.

Summing up, we have argued here that in addition to a mid-level phase inside the nominal domain in the form of QP (following Simpson & Syed 2016), DPs can also be assumed to constitute phases in Bangla, as in other languages. Such a conclusion brings with it the potentially important result that two cyclic phases are/may be projected within nominal phrases, in a way that is parallel to the assumed bi-phasal architecture of the clausal domain, and whereas previous approaches to nominal projections have assumed DPs to be simplex phases with no internal phasal structuring, there are now reasons to believe that there is more complexity to the phasal make-up of nominal phrases and both an external and an internal phasal boundary is projected by such constituents: DP and (internal) QP.

6 Summary and further discussion

This examination of nominal structures in Bangla has had two primary interconnected goals. First, given the interesting claims in Bošković (2008, 2009) that there is a cross-linguistic split between "DP" and "NP" languages with regard to a range of morpho-syntactic phenomena, and that the absence of in/definite determiners regularly correlates with typical NP-type properties, we set out to see how Bangla might pattern relative to the DP/NP parameter. Although Bangla is a language which has no articles, it does exhibit a robust pattern of definiteness marking which occurs in distinct word order alternations, and it might be anticipated that such patterns could be a manifestation of an underlying development of DP structure, even if overt instantiations of a D position through the grammaticalization of a set of definite determiners has not come about. The various patterns reviewed in the paper were all argued to converge on the conclusion that Bangla patterns like a DP rather than an NP language in various clear ways. We therefore have concluded that Bangla has indeed developed functional structure within nominal projections which mirrors that present in DP languages, and that Bangla should consequently be classified as a language in which a DP level of structure is projected in nominal constituents. We believe that such a conclusion actually does not challenge the essence of the broad DP/NP typology established in Bošković (2008, 2009), which remains borne out well by patterns in a significant number of languages. Rather, we suggest that it indicates that robust definiteness-marking patterns established by means other than determiners, and associated with a specific position in nominal structures, can trigger the development of DP structure in languages without articles, hence that the DP/NP typology of languages needs to allow for the establishment of functional structure above NPs not only through the development of functional heads (e.g. determiners), but also through regular phrasal movement to a distinct position which subsequently becomes analyzed as the specifier of a new functional projection. We believe that the head movement of nouns to a high position in certain languages can also play a similar role in establishing a D or other high functional projection in the absence of overt determiners (see, e.g. N-to-D movement in Bantu languages, which do not have determiners, in Carstens 1991, 1993).[18]

The second goal of the paper has been to examine the consequences of the conclusion that Bangla is a language projecting functional structure up to a DP level for the theory of phases, given the recent claim in Simpson and Syed (2016) that Bangla nominals project a *nominal-internal* QP phase. It is now assumed quite broadly that DPs in general constitute phases. If Bangla nominals also project a DP level of structure, and such constituents are assumed to be phases, this results in the conclusion that nominal phrases may consist in two phases: DP, the highest projection in noun phrases, and QP projected above the lexical core of nouns/NPs. Two patterns in support of the assumption that DPs constitute phases in Bangla as in other languages were presented to strengthen such a conclusion, which establishes a clear parallel in the phasal structuring of nominal and clausal domains. In both constituent types, the highest functional projection is a phase (or is "determined/identified" as a phase, if Bošković's 2014 theory of the contextual determination of phases is adopted) – CP and DP, and in both domains a second phase potentially occurs either at, or above

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[18] Note that Börjars et al. (2016) suggest that the simple development of determiners is not a necessary indication that DP structure has developed in a language, and that it is only when determiners come to be associated with a fixed position in nominals that it can be concluded that DP functional structure has come into existence. Hence it is the regularization of a morpho-syntactic pattern with a particular position that is critical for the grammaticalization of a new functional category. While this might often arise through the consistent use of new articles in a particular position, it could also occur through the regular association of other material (e.g. an N or an NP) with a particular position, via movement.

the lexical core of the clause or nominal: ASPP in clauses (Bošković 2014; Harwood 2015), and QP (at least) in nominal structures (from the investigation in Simpson & Syed 2016).[19] The asymmetry present in previous assumptions about phases, that clauses consist in two phasal components whereas nominals instantiate just one, despite the other, obvious structural parallels frequently argued to exist in CPs and DPs, can now be suggested to disappear, and both clauses and nominal projections can be taken to potentially contain a similar cyclic structure.[20] This raises further interesting questions for future research. Now that two phasal levels have been identified in Bangla nominal phrases, it will be natural to look for further evidence of bi-phasality in nominals in other languages. We believe that whether such patterns can be found will depend on whether languages have in fact developed significant functional structure in nominal phrases above NP, up to a DP level (i.e. are "DP languages"), or whether such extended structure has not yet grammaticalized, as in the set of "NP languages" discussed by Bošković. Our expectation would be that bi-phasal nominals might be found to occur in the former type of language, while mono-phasal nominals would be present in NP languages. Such a hypothesis will be an intriguing line of research to explore in future investigations.

Abbreviations

ACC = accusative, AGRP = agreement phrase, ASPP = aspect phrase, CL = classifier, CLP = classifier phrase, DEM = demonstrative, D = determiner, DP = determiner phrase, FEM = feminine, GEN = genitive, INSTR = instrumental, NEG = negation, N = noun, NP = noun phrase, NUMP = number phrase, PERF = perfect, PL = plural, PRES = present, TOP = topic, QP = quantifier phrase, VP = verb phrase

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Competing Interests

The authors have no competing interests to declare.

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[19] Given semantic suggestions that Aspect may have certain *quantificational properties,* we believe it is not surprising that the mid-level phases present in clauses and nominals should be ASPP and QP, both having in common that they are functional projections with quantificational properties occurring immediately above an associated lexical core (VP/NP).

[20] We would like to point out that the conclusion that clauses and nominal projections are both bi-phasal can be made even if the particular identity of the highest projection in Bangla nominals were not to be "DP" but some other functional projection. If the contextual determination view of phases (Bošković 2014) is adopted, whichever projection occurs as the highest in a phasal domain will be determined to be a phase. Hence whatever the projection is that occurs highest in Bangla nominals will be determined as a phase. Here, we have suggested that it is indeed DP, but the arguments for a bi-phasal analysis of Bangla nominals would remain if a different label were in fact to be assigned to the highest projection in such constituents.

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Hackl, Martin. 2009. On the grammar and processing of proportional quantifiers: Most versus more than half. *Natural Language Semantics* 17(1). 63–98. DOI: https://doi.org/10.1007/s11050-008-9039-x

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