Inside the DP-world in Asian languages: structures, movements, and debates

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Abstract

This chapter provides an overview of the internal structure of the Determiner Phrase (DP) in several Asian languages, and discusses different syntactic phenomena and recent debates. The chapter is divided into four parts, each part addressing an important aspect of the DP-structure, with corresponding relevant case studies from several Asian languages. First, the chapter discusses the general structure of the DP as proposed for various Asian numeral-classifier languages (Li 1998 for Mandarin, Simpson and Ngo 2018 for Vietnamese, Syed 2017 for Bangla). The next section discusses different kinds of movement inside the DP. Akin to N-D movement in Romance, head-movement is argued inside the nominal domain of Asian languages as well, in the form of N-CL movement (Cheng and Sybesma 1999 for Mandarin and Cantonese, Simpson and Ngo 2018 for Vietnamese), and in the form of N-D movement (Davies and Dresser 2005 for Madurese). In addition to head-movement, it has been shown that several Asian languages exhibit phrasal movement of NP-movement as well (Bhattacharya 1999, Chacón 2012, Dayal 2012, Syed 2017 for Bangla). Then, complex patterns inside the Madurese DP are discussed, which are taken to suggest that Madurese allows both N-movement and NP-movement inside the DP (Syed 2020). Thirdly, the chapter addresses the NP vs DP debate, a debate relevant for many Asian languages which do not have definite articles. 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 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 DP. This debate is discussed with the case study of Bangla, which has no articles, and yet behaves like typical DP-languages (following Syed 2017, and Syed and Simpson 2017). Finally, the chapter discusses a debate regarding headedness inside the nominals. Arguments are presented from Simpson (2021) that analyzing elements inside Japanese and Korean nominals to be head-initial even though Japanese and Korean are otherwise head-final languages might give straightforward explanations for attested patterns within the nominal domain of these languages.

1. Introduction: general structure inside an Asian nominal

A nominal unit always contains a noun (N), but nouns are not the only elements that can be inside a nominal constituent. In addition to nouns, there are other elements like adjectives, numerals, articles, demonstratives, etc that can occur inside a nominal unit. For example in English, a nominal unit can be just a bare noun like (1), but it can also be a complex unit with other elements present, as in (2)-(3).

(1) apples

(2) the two red apples

(3) these two red apples

The natural question becomes how one can analyze the structure for a complex nominal unit. In English, articles and demonstratives can never co-occur, which lead researchers to think that they occupy the same syntactic slot, which is D. Following the DP-hypothesis (Abney 1987), the idea

that determiners/articles are the heads of a nominal unit, the structures of a nominal unit like “the book” and “these book” in English are represented below:

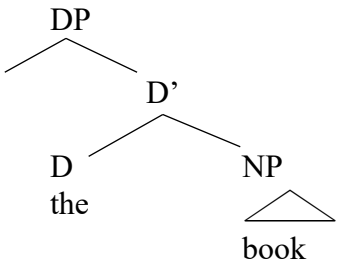


Figure 1. Structure of ‘the book’.

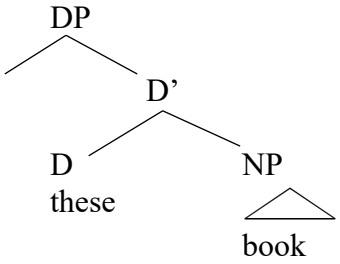


Figure 2. Structure of ‘these books’.

That is, a nominal unit is headed by a DP-layer, and the head D takes NP as its complement. When numerals are present, it is argued that there is a syntactic projection that hosts the numerals. This projection has been labelled as NumP (Li 1999, Huang et al. 2009), QP (Syed 2017, Syed and Simpson 2017, Simpson and Syed 2016), #P (Borer 2005), and the numerals are argued to be heads of this projection. A nominal expression that includes a numeral as well as a definite article is analyzed as follows:

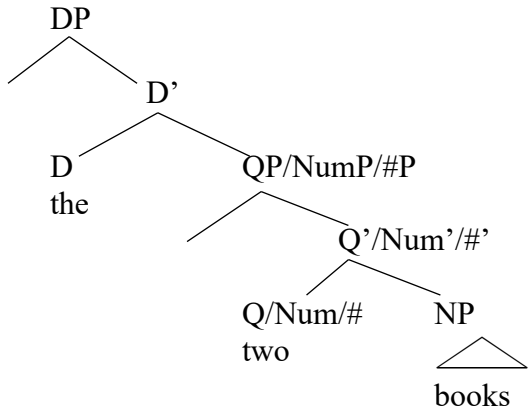


Figure 3. Structure of ‘the two books’.

In many Asian languages, there are no definite articles like ‘the’ in English. However, many of these languages have another element known as classifiers, and such languages are often called numeral classifier languages. To illustrate, let’s take the example of Chinese, which do not have

definite articles. A nominal unit like “three people” in Chinese is expressed as (4) below, and is argued to have the structure in Figure 4 (following Huang et al. 2009).

(4) san ge ren
Three CL person
“Three people

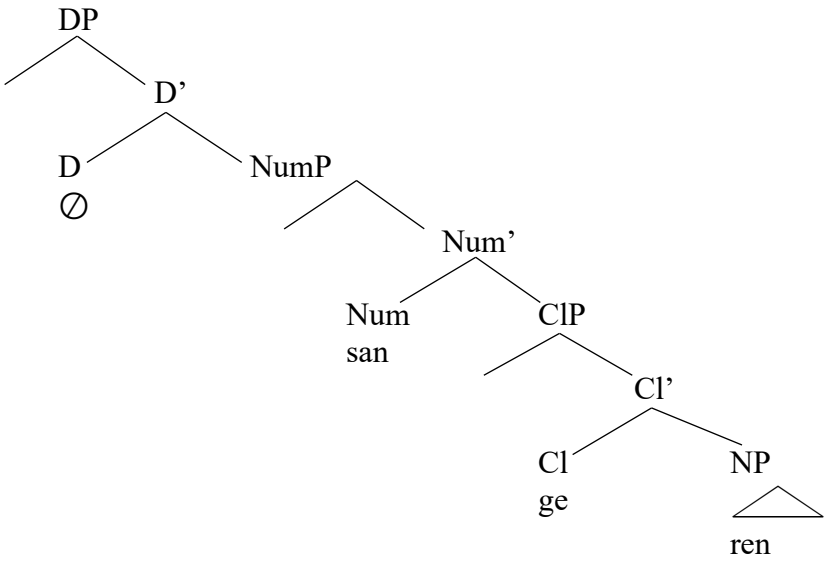


Figure 4. Structure of a Chinese numeral classifier construction (Li 1999, Huang et al. 2009)

Note that in such an analysis, a DP-layer is projected (with a null D) even though there are no articles present in Chinese. This stance that a DP-layer is syntactically present even in languages which have no definite articles is often times known as the Universal DP-hypothesis, and the basic idea is that all languages in the world potentially have a DP-layer, but not all languages have the definite articles to phonologically fill in the D-head. Note that although Chinese do not have articles, it does have Demonstratives, as illustrated in (5) below.

(5) zhe/na san ge ren
These/those three person
“these/those three people”

Demonstratives are analyzed as D in Li (1999) (also in Huang et al. 2009, Yu-Yin Hsu 2013), and the structure for (5) is given in (6) below.

(6) [$_{DP}$ zhe/na [$_{NumP}$ san [$_{ClP}$ ge [$_{NP}$ ren]]]]

This idea of a DP in Chinese also merits brief discussion on Longobardi (1994), and the idea that only DPs can be arguments, while NPs cannot[i]. Chinese nouns can occupy argument positions (i.e subject and object positions), as illustrated below.

(7) gou hen congming.

dog very intelligent
'Dogs are intelligent.'

(8) wo kandao gou.
I saw dog
'I saw dog/dogs.'

Li adopts Longobardi's (1994) idea that if a nominal can occupy an argument position, it must be a DP. Longobardi (1994) claims that even when an argument nominal expression consists of just the (bare) noun, there is a DP-level structure in the syntax, and the D-head is empty. The same idea is also adopted in Cheng & Sybesma (1999) that Cantonese and Mandarin bare nouns are not just NPs (which according to Longobardi 1994 cannot act as arguments) because bare nouns can act as arguments in both Cantonese and Mandarin. Cheng & Sybesma, however, do not project a DP layer in their analysis, and say that bare nouns are minimally CLPs, as illustrated in (9).

(9) $[_{ClP}$ CL $[_{NP}$ N]]

Note that Cheng & Sybesma (1999) do not discuss Demonstratives in their paper, and thus the syntactic position of Dem in their analysis remains unclear. The basic structure of a DP in many Asian (numeral-classifier) languages have been along the lines of Li (1999, 2005), where it is argued that the hierarchy of elements inside a DP is DP>NumP/QP>ClP>NP. Such a hierarchy has been adopted for languages like Thai, Burmese, Vietnamese, Bangla, Japanese, Korean, etc. That is, abstracting away from language-specific data, the underlying internal structure of a DP in Asian languages can be understood to be (10) below.

(10) $[_{DP}$ D $[_{NumP/QP}$ Num/Q $[_{ClP}$ CL $[_{NP}$ N]]]]

The order attested on the surface do not always align with the underlying structure given in Figure 7 above, and it has been posited that there are different types of movement[ii] that might happen inside the DP. In the section below, I discuss different types of movement that have been proposed inside the nominal domain in Asian languages.

2. Movement inside nominals

In generative syntax, the notion of movement is well accepted/motivated, and different types of movement have been proposed to happen inside a clause. One type of movement is head-movement, which has been proposed in the form of V→T and T→C in the clause in many languages. Longobardi (1994) proposes that there is head-movement not only in clauses, but inside a nominal unit as well. He argues that this head-movement is movement of the head noun to head D position, and calls this movement N→D. He argues that evidence of such movement comes from proper names in Italian, where it is possible to say 'the my Gianni' or 'Gianni my' as illustrated in the examples (11) and (12) below. Crucially, however, 'my Gianni' is ungrammatical, as illustrated in (13).

(11) Il mio Gianni

The my Gianni

(12) Gianni mio
Gianni my

(13) *mio Gianni
my Gianni

The fact that the order between the Possessor and the N is flipped in (11) and (12) and that (13) is ungrammatical lead Longobardi to propose that for a definite interpretation in Italian, either the D position is occupied by a definite article (as in 11), or by a proper name moving to D (as in 12). That is, under the standard analysis that the definite article 'il' is in D, Longobardi suggests that the surface structure for (12) is derived from N→D movement, as illustrated in (14) below:

(14) [DP Gianni mio [NP ~~Gianni~~]]

Turning our focus now to Asian languages, Cheng & Sybesma (1999) propose similar head-movement inside the nominal unit of Cantonese and Mandarin, and suggest that such head-movement involves the N moving to CL, i.e N→CL movement. In the section below, I discuss some empirical distribution of bare nominals in Cantonese and Mandarin, and provide a brief account of these patterns in Cheng and Sybesma's analysis.

2.1 Bare nouns in Mandarin and Cantonese, and N→CL movement

Bare nouns can have indefinite as well as generic interpretations in Cantonese (see 15 and 16 below), but cannot have definite interpretations (see 17).

(15) Wufei heoi maai syu. (Cantonese)
Wufei go buy book
'Wufei went to buy a book/books.'

(16) Ngo zungji gau.
I like dog
'I like dogs.'

(17) *Wufei jam-jyun tong la.
Wufei drink-finish soup SFP
Intended: 'Wufei finished drinking the soup[1].'

In Mandarin, on the other hand, bare nouns can have indefinite, generic, as well as definite interpretations, as seen in (18)-(20) below.

(18) Hufei mai shu qu le.
Hufei buy book go SFP

[1] For a definite interpretation, a classifier needs to be used.

'Hufei went to buy a book/books.'

(19) Hufei he-wan-le tang.
Hufei drink-finish-le soup
'Hufei finished the soup.'

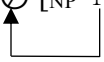
(20) Wo xihuan gou.
I like dog
'I like dogs.'

Given that bare nouns can appear as arguments in both Cantonese and Mandarin, Cheng & Sybsema suggest that bare nouns must be minimally CLPs, and not just NPs because of Longobardi's general proposal that NPs cannot be arguments (also see Stowell 1989, Szabolsci 1994). Cheng and Sybesma suggest that when bare nouns have definite interpretation (e.g in Mandarin) or generic interpretation (in Mandarin and Cantonese), the relevant structure of bare nouns is a CLP, as illustrated in (21) below.

(21) $[_{CLP} \varnothing [_{NP} \text{ N }]]$

In addition to this structure, Cheng and Sybesma propose that the N obligatorily moves to CL in this structure, as illustrated in (22) below.

(22) $[_{CLP} \varnothing [_{NP} \text{ N }]]$



They propose that because N moves to CL, it provides lexical content to a previously empty CL-head, and they suggest that this lexically filled CL head (due to N→CL movement) is the reason why bare nouns with definite interpretation have no restriction in terms of its distribution, and can appear both pre-verbally and post-verbally. Cheng & Sybesma mention that null heads have a restricted distribution, and that null heads are expected to occur only as complements of a lexical head. That is, a post-verbal position will be okay if the CL head remained empty, but in order for it to occur pre-verbally it needs the CL head lexically filled by virtue of N→CL movement.

Bare nouns with indefinite interpretations, in both Cantonese and Mandarin, are restricted to only post-verbal positions. Cheng and Sybesma argue that this is because the CL head in these structures remain empty (i.e not lexically filled), and no N→CL movement takes place. In addition to an empty CL head, Cheng and Sybesma suggest that there is also a NumP involved in these structures, where the Num head is also null, as illustrated in (23) below.

(23) $[_{NumP} \varnothing [_{CLP} \varnothing [_{NP} \text{ N }]]]$

Now that I have discussed the general structure of nominals in languages which have classifiers, and also the idea of head-movement (N→CL), I will discuss data from Vietnamese, a language which exhibits an interesting phenomenon known as the 'double classifier construction' and how such constructions are analyzed in terms of N→CL movement in Simpson and Ngo (2018).

2.2 More on N-CL movement: Vietnamese Double classifiers

In Vietnamese, there is a three-way split in the ability of nouns to combine with classifiers when nouns appear with numerals. There are three classes of nouns: (a) nouns that always require classifiers (e.g chó 'dog'; sách 'book'), (b) nouns that may optionally take classifiers (e.g. phòng 'room'; làng 'village'), and (c) nouns that can never take a classifier (e.g. ngày 'day'; màu 'color'). These three classes of nouns are respectively called "obligatory-classifier nouns", "optional classifier nouns", and "non-classified nouns" in Simpson and Ngo (2018).

(24) hai *(cuôn) sách (obligatory classifier noun)
two CL book
'two books'

(25) bôn (caˇn) phòng (optional classifier noun)
four CL room
'four rooms.'

(26) hai màu (non-classified noun)
two color
'two colors.'

Simpson and Ngo (2018) adopt the idea that classifiers occupy a syntactic position as the heads of CLP (similar to the structures in Chinese as seen in Li (2009)). Simpson and Ngo further adopt a DP-analysis for Vietnamese with null D; the structure proposed for the obligatory-classifier noun in (19) is thus represented in (27) below:

(27) $[_{DP}\ \varnothing\ [_{NumP}$ hai $[_{CLP}$ cuôn $[_{NP}$ sách]]]]

Simpson and Ngo (2018) suggest that the above structure should be the underlying structure for optional-classifier nouns as well, regardless of the classifier being (phonologically) present or not. That is, the CLP is projected in the structure in optional-classifier nouns, and the CL-head can either be null or phonologically realized. An illustration of the structure for an optional-classifier noun is given below in (28), where the brackets in (caˇn) represent optionality.

(28) $[_{DP}\ \varnothing\ [_{NumP}$ bôn $[_{CLP}$ (caˇn) $[_{NP}$ phòng]]]]

Furthermore, Simpson and Ngo (2018) argue that the projection of CLP occurs in a non-classified noun as well, where the CL head is null, and the noun occurs as the head of NP. Such a structure is shown below in (29).

(29) $[_{DP}\ \varnothing\ [_{NumP}$ hai $[_{CLP}\ \varnothing\ [_{NP}$ sách]]]]

Now that I have discussed the three-way split in Vietnamese nominals and their syntactic structures, I will lay out an interesting syntactic phenomenon in Vietnamese as discussed in

Simpson and Ngo (2018) – called 'double classifiers', with the classifier *cái*. The classifier *cái* can be used with inanimate nouns, as illustrated in (30).

(30) cái ban
CL table
'a/the table'

Interestingly, in addition to this regular classifier function, *cái* can also occur as a second classifier with another classifier. This is shown in (31) below.

(31) cái con chó
CL CL dog
'the dog'

This use of *cái* as a second classifier is known as 'double classifier construction' or 'extra cái' construction. While a regular use of *cái* can yield either a definite or an indefinite interpretation as evident from the translation in (22) above, the 'extra *cái*' construction can only yield a definite interpretation. Simpson and Ngo (2018) explore the distribution of extra *cái*, and show that extra *cái* can occur with all three noun classes (obligatory-classifier nouns, optional-classifier nouns, and non-classified nouns). These examples from Simpson and Ngo are shown below, where the extra *cài* is glossed as CL$_{DEF}$.

(32) hai cài *(cuôn) sách (cài + obligatory classifier noun)
two CL$_{DEF}$ CL book
'two books'

(33) hai (người) phu huynh
two CL parent
'(the) two parents'

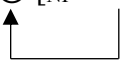
(34) hai cài *(người) phu huynh (cài + optional classifier noun)
two CL$_{DEF}$ CL parent
'the two parents'

(35) hai màu (cài + non-classified noun)
two color
'two colors'

Note that when extra *cái* occurs with optional classifier nouns, the regular classifier no longer remains optional, as seen in (33) and (34) above. Below, we discuss the syntactic structures and movements proposed in Simpson and Ngo (2018) in order to account for the extra *cái* occurring with all the three classes of nouns.

Simpson and Ngo (2018) propose that *cài* must take CLP as its complement, whose head position is overtly filled. In the underlying structure in (36), the CL head is null, and thus N→CL movement must take place to overtly fill the CL head, so that CLP can be a complement of cài.

(36) [$_{DP}$ ∅ [$_{NumP}$ ∅ [$_{CaiP}$ cài [$_{CLP}$ ∅ [$_{NP}$ sách]]]]]



When extra *cài* occurs with an obligatory-classifier noun or an optional classifier noun, there is an overt classifier obligatorily present as seen in the data (32)-(34) above. As the CL head is already lexically filled, there is no need for N→CL movement. This is how we get the co-occurrence of extra *cài* with obligatory-classifier nouns as well as optional-classifier nouns, as shown below in (37) and (38).

(37) [$_{DP}$ ∅ [$_{NumP}$ hai [$_{CaiP}$ cài [$_{CLP}$ cuôn [$_{NP}$ sách]]]]] [cài + obligatory classifier nouns]

(38) [$_{DP}$ ∅ [$_{NumP}$ hai [$_{CaiP}$ cài [$_{CLP}$ người [$_{NP}$ phu huynh]]]]] [cài + optional classifier nouns]

2.3 Not only head-movement, but phrasal movement inside nominals: evidence from Bangla

So far, we have seen head-movement inside nominal phrases, N-D movement in Longobardi (1994), N-CL movement in Cheng and Sybesma (1999), and in Simpson and Ngo (2018) among others. In the section below, I will discuss data from an Indo-Aryan language Bengali/Bangla (following work in Bhattacharya 1999, Chacón 2012, Dayal 2012, Syed 2017) that provide evidence for phrasal movement inside nominal units.

Bangla does not have definite articles, but has a special word-order alternation to signal definite interpretations. This special word-order alternations relating to definiteness in Bangla has 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 (39), 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 (40):

(39) du To lal boi (canonical order: Num > Cl > Adj > Noun)
two CL red book
'two red books'

(40) lal boi du To (inverted order: Adj > Noun > Num > Cl)
red book two CL
'the two red books'

This word-order alternation in (40), where the noun and the adjective appear to the left of the numeral and classifier, has been understood to be derived by movement of material from below the numeral and classifier to a position higher than the numeral and classifier. This movement is phrasal in nature, as adjectives can move along with the noun, and has been argued to be NP-movement (Bhattacharya 1999, Dayal 2012, Chacón 2012, Syed 2017). That is, while some languages employ head movement (N→D movement) for definiteness-related reasons, Bangla employs phrasal movement (NP-movement) to achieve a similar result.

This phrasal movement of NP was originally attributed to specificity in Bhattacharya (1999). However, Dayal (2012), Chacón (2012), Syed (2017) argue that this NP-raising actually occurs for reasons of definiteness, rather than specificity. I will not go into the details of these arguments in favor of definiteness in this chapter, but interested readers are referred to Dayal (2012), Chacón (2012), Syed (2017). 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 (41).

(41) $[_{DP}\ [_{NP}$ lal boi$]_i$ du To t_i]

2.4 Languages with head-movement as well as phrasal movement: Madurese

In the sections above, we have seen that there can be displacement/movement of elements within the nominal domain. This nominal-internal movement can be head-movement in nature, e.g N→D movement in Romance, or N→CL movement in Mandarin, Cantonese, Vietnamese etc. This movement can also be phrasal in nature, as seen in the form of NP-movement in Bangla. In this section, I will discuss the curious case of Madurese, a language where it is argued that both head-movement (N→D) as well as phrasal movement (NP-movement) take place inside the nominal domain (Syed 2020). That is, the core proposal in Syed (2020) is that regarding movement of material inside the Madurese DP, Madurese permits both head movement (of N) as well as phrasal movement (of the NP). Below, I discuss some patterns that are attested inside Madurese nominals, and how Syed (2020) accounts for these patterns by proposing there are both head- and phrasal movement in the language.
In Madurese, the N is usually the leftmost element inside the DP, and the patterns attested inside the DP are given in Table 1 below. All these patterns are reported originally in Davies and Dresser (2005) (D&D henceforth), and also discussed in Syed (2020).

Table 1: The patterns found inside Madurese DP (from D&D 2005)

(a) N Num/Q	(c) N PP DEM	(e) N-DEF POSS ADJ	(g) N ADJ1 ADJ2-DEF POSS
(b) N PP	(d) N DEM PP	(f) N ADJ-DEF POSS	(h) N-DEF POSS ADJ1 ADJ2

D&D note they cannot account for all the patterns, but attempt to account for some of them by proposing that the functional projection NP is syntactically the lowest below the DP, PossP and DemP. The left-most ordering of the N is derived by head-movement of N from inside the NP to the head of the D. This derivation is schematized in (42):

(42) [DP N-DEF [PossP [DemP [NP ~~N~~]]]].

The motivation for this head-movement is to get close to the definite marker -DEF, as the N can be marked with -DEF. D&D also suggest that adjectives are adjoined to N, but in order to maintain their head-movement account to explain the pattern in (f), they assume that the N and the Adj together form a complex head. There are several issues with this analysis, some of which D&D themselves acknowledge. For example, D&D acknowledge that the biggest gap in their analysis is that such an account cannot derive the alternating orders of Dem and PP (see (c) and (d)). In addition, if N and adjective together form a head as D&D argue, it cannot account for (e), where the adj is not marked with DEF. That is, why does the adjective get DEF in some cases but not in others?

Building on D&D's basic insights, Syed (2020) proposes an analysis that straightforwardly captures all the attested patterns. The gist of the idea is: (i) that when it comes to movement of material inside the DP, Madurese permits both head movement (of N) as well as phrasal movement (of the NP) and (ii) the adjunction of adjective to the noun makes it into a phrase, suggesting that when the adjective is moving with the N, it is actually phrasal NP-movement. Syed (2020) argues that (c), (d), (e) which remain a problem in D&D can easily be accounted for, along with all the other patterns in (a)-(h) in Table 1, if we entertain the idea that in some cases it's only the Head N moving, while in the other cases it is the entire NP. The derivations for the relevant patterns in this analysis are given below in Table 2.

Table 2. Derivations for the patterns (c), (d), (e), (f), (g), and (h).

(c) [$_{NP}$ N PP] DEM [$_{NP}$ ~~N PP~~] **NP-movement**	(e) N-DEF POSS [$_{NP}$ ~~N~~ ADJ] **N-movement**	(g) [$_{NP}$ N ADJ1 ADJ2]-DEF POSS [$_{NP}$ ~~N ADJ1 ADJ2~~] **NP-movement**
(d) N DEM [$_{NP}$ ~~N~~ PP] **N-movement**	(f) [$_{NP}$ N ADJ]-DEF POSS [$_{NP}$ ~~N ADJ~~] **NP-movement**	(h) N-DEF POSS [$_{NP}$ ~~N~~ ADJ1 ADJ2] **N movement**

Some relevant data from Madurese illustrating the (abstract) patterns in (a)-(h) are given below in (43)-(50):

(43) kanca tello' **Pattern: N Num**
friend three
'Three friends'

(44) mored kabbi **Pattern: N Q**
student all
'all students'

(45) kana' dhari Kamal rowa **Pattern: N PP DEM**
child from Kamal that
'that child from Kamal'

(46) kana' rowa dhari Kamal **Pattern: N DEM PP**
child that from Kamal
'that child from Kamal'

(47) koceng-nga John soklat **Pattern: N-DEF POSS ADJ**

cat-DEF John brown

'John's brown cat'

(48) koceng soklat-a John **Pattern: N ADJ-DEF POSS**

cat brown-DEF John

'John's brown cat.'

(49) koceng celleng koros-sa Atin **Pattern: N ADJ1 ADJ2-DEF POSS**

cat black skinny-DEF Atin

'Atin's skinny black cat'

(50) koceng-nga Atin celleng koros **Pattern: N-DEF POSS ADJ1 ADJ2**

cat-DEF Atin black skinny

'Atin's skinny black cat'

For a detailed discussion on the mechanism of the analysis and more discussion of the Madurese data, readers are referred to Syed (2020) and Davies & Dresser (2005), and also Davies (2010).

3. A brief discussion on DP vs no DP languages

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; 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. This section discusses Syed (2017) and Syed and Simpson (2017), who approach this debate with a focus on the potential DP status of nominal projections in Bangla. Recall that Bangla has no definite or indefinite articles, but has special word order alternations to signal definiteness (which has been discussed in Section 2.3), which has been taken to suggest a DP level of structure. In addition to these alternations, Syed (2017) and Syed & Simpson (2017) show that there are a range of syntactic properties in which Bangla patterns like languages with articles. These observations are taken to suggest that the strong version of Bošković's generalization, namely that languages with no definite articles do not have DP, cannot be maintained. Furthermore, Syed (2017) 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.

Bošković (2008, 2009), Bošković and Gajewski (2011), Despić (2013) suggest that nominal constituents in languages which do not have definite articles are 'NP languages' which do not

project a DP level of structure, and support such an analysis with reference to a number of common syntactic characteristics present in these languages. They claim that all these common characteristics can attributed to the absence of DP in these languages. Some of these properties include: (a) binding differences between NP and DP languages, (b) free word order of demonstratives, possessors, and adjectives, (c) lack of neg raising. Below I discuss the status of nominal projections in Bangla from the point of view of these generalizations and by using examples from Syed & Simpson (2017), which leads to the conclusion 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.

3.1 Binding.

Despić (2013) notes that possessors in nominal projections in Serbo-Croatian appear to c-command out of the nominal constituents and disallow the binding relation found in DP languages such as English, in which a possessor in SpecDP can be co-referential with a pronoun or an R-expression in the same clause. Despić claims that this is because possessors in Serbo-Croatian are adjoined to NP and c-command out of NP, whereas possessors in a DP language like English are in SpecDP, and do not c-command out of the constituent containing them. With regard to such binding phenomena, Bangla patterns like a DP language, and allows the binding relation, much like English and unlike Serbo-Croatian, as shown in (51) and (52). For a more detailed discussion, see Syed & Simpson (2017).

(51) [Rituporno$_i$-r SeS sinema Ta] ta$_i$-ke khub hɔtaS korlo.
Rituporno-GEN last film CL he-ACC very disappoint did
'Rituporno's last film really disappointed him.'

(52) [ta$_i$-r SeS sinema Ta] Rituporno$_i$-ke khub hɔtaS korlo.
he-GEN last film CL Rituporno-ACC very disappoint did
'His last film really disappointed Rituporno.'

3.2 Ordering of demonstratives, possessors, and adjectives

Demonstratives, possessors and adjectives may be freely ordered in NP languages such as Serbo-Croatian. Bošković (2008) suggests that this is because demonstratives, possessors and adjectives in NP languages like Serbo-Croatian are all adjectival and freely adjoined to NP in any order, whereas similar elements in DP languages occur in the specifiers of ordered functional projections, accounting for the fixed word order patterns found in DP languages. Considering Bangla, demonstratives and possessors do not show any signs of being adjectival, and such elements are rigidly ordered with respect to each other, as shown in (53) and (54), suggesting that they occur in the specifiers of functional projections and are not simply adjoined to NP.

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

b. *oi amar lal boi
that my red book
'Ram's former girlfriend'

(54) a. Ram-er prakton bandobhi
Ram- GEN former girlfriend

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

3.3 Neg raising.

Bošković (2008) and Bošković and Gajewski (2011) suggest that 'neg-raising', where a higher clause negation is interpreted in a lower clause, and where NPIs can be licensed in the lower clause (by the higher clause negation), is disallowed in NP languages. However, Bangla allows neg raising, indicating that it patterns like typical DP languages, not NP languages. Example (55a) shows that *kau-ke* is an NPI in need of licensing by negation, and (55b) indicates that this licensing can be provided by negation in a higher clause:

(55) a. Ram kal parTi-te kono khabar khay-ni / *kheyeche.
Ram yesterday party-at any food eat-**NEG** / eat- PRES-PERF
'Ram didn't eat any food at the party yesterday'.

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

The gist of this section is as follows. If Bošković (2008, 2009), Bošković and Gajewski (2011), Despić (2013) are on the right track that the cross-linguistic split between 'DP' and 'NP' languages with regard to a range of morpho-syntactic phenomena can be explained in terms of presence vs absence of a DP-layer, Bangla is shown to be a language with no articles and yet exhibiting properties that are associated with DP-languages[2]. There are other article-less languages which also have been argued to have a DP by using some of the diagnostics above, or by using independent evidence. For discussion on some these languages, see Lyutikova and Pereltsvaig (2015) for Tatar, Norris (2018) for Estonian, Erschler (2019) for Ossetic. It is interesting to note that Serbo-Croatian, which has been treated as a canonical NP-language in Bošković (2008, 2009) and Despić (2013), has also been argued to be a DP-language in Stanković (2017). Also note that some researchers have questioned the validity of the general enterprise taken in Bošković (2008, 2009), Bošković and Gajewski (2011), Despić (2013), for example, Kornfilt (2017, 2018), Köylü (2021).

4. Head-initial vs head-final debate: Japanese and Korean nominals

I will end this chapter with a debate on headedness inside the DP in Asian languages, as discussed in Simpson (2021). We have discussed the structure of several numeral-classifier languages in this chapter, and it is widely assumed that the hierarchy of elements like demonstratives, classifiers, numerals, and nouns in Asian languages is:

(56) DP > NumP/QP > CLP > NP

In an SVO language like Chinese, the clause-structure is head-initial. The DP-structure is also argued to be head-initial, e.g recall the structure proposed for Chinese '*san ge ren*' in Li (1999), which was illustrated in Figure 4, and is repeated below in (57).

[2] We have shown three diagnostics to illustrate that Bangla patterns as a DP-language. There are other diagnostics to support this claim, such as the behavior of adnominal genitives and the majority reading of 'most'. Due to space constraints, these are not illustrated in the paper – interested readers are referred to Syed and Simpson (2017).

(57) $[_{DP}\ \varnothing\ [_{NumP}$ san $[_{ClP}$ ge $[_{NP}$ ren]]]]

The linear order from the structure given in Figure 4 will be: D-Q-CL-NP, and this linear order straightforwardly corresponds to the hierarchy of the elements given in (57). However, in a purely head-final SOV language, like Japanese and Korean, if the DP-structure was also head-final, then the structure would look like Figure 5 below.

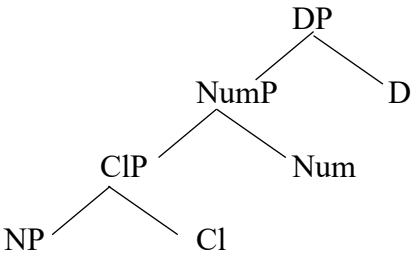


Figure 5. Head-final structure inside a nominal

The linear order that arises from Figure 5 is NP-CL-Q-D, and is expected to occur in head-final languages like Japanese and Korean, but in actuality is never attested. Instead, the orders that are found in Japanese are schematically given below (from Watanabe 2006:244, reported in Simpson 2021; parallel data found in Korean, in An 2018: 662).

(58) NP Num CL Acc
(59) Num CL Gen NP Acc
(60) NP Acc Num CL
(61) Num CL NP Acc

Any head-final analysis of Japanese and Korean nominals thus have to posit the base-structure given in Figure 14, but derive the orders in (58)-(61). Many challenges arise to such analyses, and given that numerals are always to the left of the noun, proposals have been made that numerals in Japanese are phrases occupying the specifier of the NumP[iii] (Watanabe 2006). The orders in (58)-(61) are derived by employing remnant movement in Watanabe (2006). Simpson (2021) argues that such remnant movement analysis for deriving the patterns is overtly complex, and in addition also comes with major problems, e.g if the numerals are assumed to be in SpecNumP and if NP and CLP are head-final as given in Figure 5, the underlying base-structure of a Japanese nominal will be **Numeral NP Classifier** and yet, this order is not attested in the language at all. Moreover, this hypothesized base-order order of **Numeral NP Classifier** is not attested in any language in the world. If this was to be the base-order in Japanese, one would expect this order to surface in at least some languages, even if it does not in Japanese. In the absence of this order in any language, the validity of this to be a base-order is argued to be questionable in Simpson (2021). Simpson (2021) instead argues that a much more straightforward analysis is available if one entertains the idea that nominal-internal elements are head-initial even in otherwise head-final languages like Japanese and Korean.

Simpson (2021) observes that if one ignores the case-markers in the patterns in (58)-(61), there remains two main patterns in terms of the relative ordering between NP, NUM, and CL: one where the NP comes after Num and Cl, and the second, where the NP precedes the Num and CL. These two patterns are schematized below:

(62) i. Pattern A: numeral > classifier > NP

ii. Pattern B: NP > numeral > classifier

Simpson (2021) argues for a head-initial analysis for Japanese and Korean nominals, and suggests that the patterns (62i) and (62ii) can be straightforwardly captured in terms of (optional) NP-movement across the Num-Cl. When there is no NP-movement, we get the order Num CL NP as illustrated below in (63). This NP-movement is reminiscent of the NP-movement seen in Bangla before, which also resulted in alternation between Num-Cl-NP and NP-Num-CL orders.

(63) [$_{DP}$ [$_{NumP}$ Num [$_{ClP}$ Cl [NP]]]]

If there is NP-movement, the order on the surface becomes NP Num CL, as illustrated below in (64).

(64) [$_{DP}$ NP [$_{NumP}$ Num [$_{ClP}$ CL [~~NP~~]]]]

Regarding the case-markers in (58)-(61), Simpson (2021) follows Nakamura (2012), Harada (2002), Fukui and Sakai (2003), Miyagawa (2012), Kitagawa and Ross (1982), Saito et al (2008), and adopts a view that case-markers, including genitives, are inserted in PF, and that they do not project syntactically in Japanese. Simpson (2021) takes this to suggest that if case-markers are inserted non-syntactically, the patterns that are attested in nominal syntax are reduced to only the two word-orders discussed above: (i) NP preceding Num-CL and (ii) NP following Num-CL. The alternations between these two orders are easily captured in a head-initial analysis, with the phrasal movement of NP as shown in (63) and (64). Simpson (2021) thus makes a strong case that Japanese and Korean nominals should be analyzed as head-initial, even though the languages exhibit head-final patterns in the clause structure. That is, Japanese and Korean may not be uniformly head-final, and can be understood to exhibit mixed-headed properties, where the nominal internal phrases are head-initial. For more data and discussion, please refer to Simpson (2021) and the references therein.

5. Conclusion

In this chapter I set out to discuss the general elements present inside the nominal units of Asian languages, and how such elements have been analysed. I have discussed that numerals, classifiers, and nouns are understood to project their own phrases, with the general cross-linguistic hierarchy NumP>ClP>NP (Li 1999, 2009; Cheng and Sybesma 1999; Syed 2017; Chacón 2012; Simpson and Ngo 2018, among others). In addition, it is widely argued that there is a DP-layer that dominates the NumP, and this DP-layer has been posited in Asian languages to

host demonstratives, as many Asian languages do not have definite articles. Once the hierarchy of the elements were discussed, I talked about different types of movement that have been proposed inside the nominal domain of Asian languages. Following N→D movement in Romance, head-movement in Asian languages has been proposed in the form of N→CL (Cheng and Sybesma 1999; Simpson and Ngo 2018) and in the form of N→D (Davies and Dresser 2005). In addition to head-movmement, phrasal movement of the NP is also permissible in Asian languages (Bhattacharya 1999, Dayal 2012, Chacón 2012), and there can even be languages which have both N→D movement and NP-movement inside the nominal unit (Syed 2020). Next, I briefly discussed the DP vs NP debate, with a focus on an Asian language, Bangla. Following a wide range of diagnostics proposed in Bošković (2008, 2009), Bošković and Gajewski (2011), and Despić (2013) that seem to differentiate between languages with no articles and languages with articles, it was shown that Bangla, a language with no articles, behaves like languages with articles in these diagnostics. The conclusion drawn was that Bangla must have a DP-projection. Finally, I discussed a debate in terms of head-initiality and head-finality of nominals in Asian languages, where I presented arguments from Simpson (2021) that understanding the nominal-internal elements to be head-initial in an otherwise head-final language like Japanese or Korean might offer a straightforward way of deriving the attested patterns in these languages.

The present chapter aimed to offer a comprehensive overview of several debates and discussions within nominal units. These discussions presented in the chapter are by no means the only debates within the nominal units. There are many research questions and debates that are not discussed in the chapter in the consideration of space. For example, how parallel are the structures of clausal units and nominal units? It is quite well accepted that clauses have two phases, CP and vP/AspP. If nominal architecture is parallel to clausal architecture, then one will expect the nominal domain to also have two phases. Simpson and Syed (2020) argue this is true and that such parallelism exists, based on evidence from Bangla. Another recent debate on the structure of nominal units is about how one can derive the cross-linguistic patterns related to co-occurrence of non-article determiners. Several models have been proposed, and interested readers are referred to Giusti (2015), Hsu and Syed (2020) and the references therein.

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[i] Note that Chierchia (1998) argues that NPs can also potentially act as arguments. Interested readers are referred to Cheirchia (1998) for detailed discussion on the exact mechanism of his analysis.

[ii] What I call 'movement' in this chapter can be interchangeably understood with 'internal merge' in Chomsky's (2000) terms.

[iii] There is an added assumption here that specifiers are on the left, unlike the head. That is, the nominal-internal structure is taken to be spec-initial, head-final in Watanabe (2006).