

Iconic and Non-iconic Word Order Patterns: on Symmetry in the NP and Counterexamples to Universal 20'

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1. Introduction¹

This contribution shows that (contra Hawkins's *Universal 20'*) each word order sequence that iconically reflects the layered structure of the simple noun phrase is used in at least one of the world's languages as the basic pattern. It is hypothesized that the few non-iconic basic NP-internal ordering patterns that have been attested do not involve simple, whole (integral) NPs.

Adnominal modifiers in a layered model of the noun phrase can be divided into two major subcategories: descriptive noun modifiers and referential noun modifiers. Whereas descriptive modifiers are concerned with 'how it is' (qualifying), 'how much/many it is' (quantifying), and 'where it is' (localizing), referential modifiers are concerned with 'that it is', i.e. with the referential status of entities in the world of discourse. Here I will only be concerned with representatives of the three descriptive modifier categories (demonstratives, numerals, adjectives) and investigate the way these modifiers are ordered as free elements in a simple, integral NP that is used to refer to one or more concrete objects (e.g. 'this big knife' or 'the two long sticks'; this restriction makes it easier to set up a cross-language comparison).² This excludes, for example:

- complex NPs, containing embedded modifiers such as relative clauses: notice that in many languages adjectival or numerical notions are expressed in the form of an embedded modifier (see (6)–(7), (9)–(11) below);
- NPs containing bound modifiers: sometimes modifiers are expressed as clitics, affixes, incorporated forms or part of a compound (see e.g. (9));
- appositional forms of modification: in certain languages some or all modifiers may or must be in an appositional relation with the structure containing the head noun (see Rijkhoff 2002a: 19–23);

¹ Abbreviations: A = adjective, CLF = classifier, CN = connector, DEF = definite, DEM = demonstrative, ERG = ergative, ES = ergative suffix, GENR = general tense-aspect-mood marker, IMPF = imperfective, N = noun, NP = noun phrase, num = numeral, PL = plural, Poss.NP = possessor noun phrase, PRT = participle, REL = relative clause marker, Rel.cl = relative clause, SG = singular.

² For an analysis of complex NPs, see e.g. Mackenzie (1993, 1996).

- NPs that are used to refer to non-discrete, abstract or higher order entities (events, propositions), such as 'the water', 'the love', 'the wedding', 'the proposal'.

Since it is the main thesis of this contribution that NP internal ordering patterns iconically reflect the underlying (semantic) structure of the NP, I will first give a brief outline of the layered organization of the NP (section 2). Section 3 discusses the relevant cross-linguistic facts regarding the ordering of noun, adjective, numeral, and demonstrative and shows (contra Hawkins's *Universal 20*) that all so-called 'iconic' patterns occur as the basic order in some language. Section 4 investigates which of the 16 other (logically) possible orders occur (it turns out that only few of these what I call 'non-iconic' patterns are deemed to exist) and puts forward the hypothesis that in such cases we are not dealing with simple NPs containing fully integrated, free modifiers.

2. Descriptive modifiers in a layered model of the noun phrase

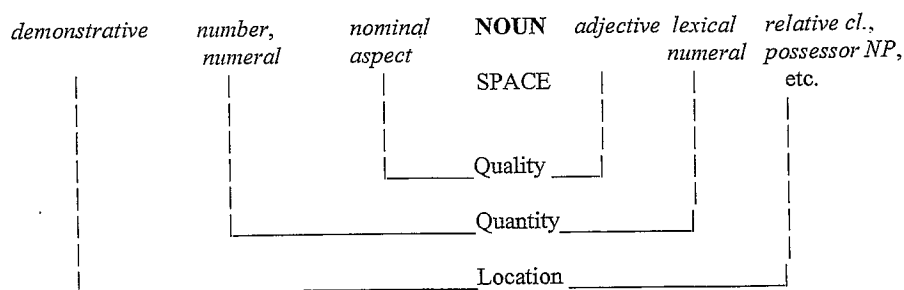
In a layered model of the NP descriptive modifiers can be distributed over three nested layers (note that languages use only a subset of the modifier categories mentioned below and that there is no one-to-one relationship between form and function).

- the **quality layer** contains the head noun and accommodates modifier categories that only relate to the property that is designated by the noun (*qualifying modifiers*): nominal aspect markers and (typically) adjectives;
- the **quantity layer** contains the quality layer and accommodates modifier categories (*quantifying modifiers*) having to do with number distinctions (singular, plural) and cardinality (one, two, etc.);
- the **location layer** contains both the quality and the quantity layer and accommodates modifier categories specifying properties concerning the location of the referent (*localizing modifiers*), such as demonstratives and relative clauses.

Thus, in the NP 'those two black dogs on the carpet' the qualifying modifier 'black' only relates to the noun 'dog', not the quantity or the location. The quantifying modifier 'two' specifies the number of black dog entities, not the number of locations; and both 'those' and 'on that old blanket' specify the location of the dog entities with all their qualitative and quantitative properties.

The layered organization of descriptive noun modifiers is shown in *Figure 1*, where *grammatical modifier categories* or *operators* (such as demonstrative, number) are represented to the left of the head noun and *lexical modifiers* or *satellites* (e.g. adjective, possessor NP, relative clause) appear on the right side.

Figure 1
Descriptive modifiers in the layered structure of the NP



NP operators: grammatical expression of Quality, Quantity, and Location in the NP

NP satellites: lexical expression of Quality, Quantity, and Location in the NP

For illustrative purposes I have included (in italics) certain noun modifiers in *Figure 1*, but recall that there is no one-to-one relationship between form and function. We shall see below, for example, that relative clauses can be employed as qualifying, quantifying or localizing satellites.

2.1 Qualifying modifiers in the noun phrase

Qualifying modifiers specify more or less inherent properties (*qualities*) of the referent and only pertain to the entity as defined by the head noun. Grammatical expressions of the notion 'quality' are referred to as *qualifying operators*; lexical expressions as *qualifying satellites*.

2.1.1 Qualifying operators

Nominal aspect markers are qualifying operators in the NP: they specify what kind of entity is being referred to, an individual or a collective. They are typically used with set nouns, which occur in many languages and which are transnumeral in that the unmarked form can be used to refer to any number of individuals (one or more than one). Hence the unmarked form also appears when the noun is modified by a numeral (on the difference between number markers and nominal aspect markers, see Rijkhoff 2002a: 101-103, 2002b: 219-220).

Oromo (Stroemer 1987: 59)
(1) *gaala* *lamaani*
 camel(s) two
 'two camels'

The nominal aspect marker indicates what *kind* of set is being referred to: a collective set (containing more than one member) or a singleton set (with only one member).

Oromo (Stroemer 1987: 76–77, 84–85)

- | | | |
|-----|-----------------------------------|---|
| | <u>unmarked transnumeral form</u> | <u>singulative form</u> |
| (2) | <i>nama</i> 'man/men' | <i>nam-ica</i> (N-singulative suffix) 'a/the man' |
| | <u>unmarked transnumeral form</u> | <u>collective form</u> |
| (3) | <i>farda</i> 'horse/horses' | <i>fard-oollee</i> (N-collective suffix) 'horses' |

Sometimes (erstwhile) numeral classifiers also serve as nominal aspect markers. One such language is Hmong Njua. Example (4) illustrates the transnumeral character of Hmong Njua nouns, (5a) shows that the classifier indicates singularity (as well as definiteness). Example (5b) demonstrates that the group classifier *cov* marks plurality, or rather collectivity (see Ratliff 1991; but notice that I follow Harriehausen's original glossing).

Hmong Njua (Harriehausen 1990: 117)

- | | | | | |
|-------|---------------------------------|-------------|-------------|-------------|
| (4) | <i>Kuv</i> | <i>yuav</i> | <i>tsev</i> | |
| | 1SG | buy | house | |
| | 'I buy a house / (some) houses' | | | |
| (5)a. | <i>Kuv</i> | <i>yuav</i> | <i>lub</i> | <i>tsev</i> |
| | 1SG | buy | CLF | house |
| | 'I buy the house' | | | |
| b. | <i>Kuv</i> | <i>yuav</i> | <i>cov</i> | <i>tsev</i> |
| | 1SG | buy | PL | house |
| | 'I buy (the) houses' | | | |

2.1.2 *Qualifying satellites*

Qualifying satellites are lexical noun modifiers that pertain to more or less inherent properties of the entity as defined by the head noun. Such properties involve categories such as size, weight, colour, age, and value and are typically expressed by adjectives. Adjectives, however, are not attested in every language (see e.g. Bhat 1994; on the place of adjectives in parts of speech systems see also Hengeveld *et al.* 2004 and Rijkhoff 2003). If a language does not have a distinct category of adjectives, it will usually employ qualifying NPs or relative clauses for this purpose, as in the English paraphrases 'the man **with richness**' or 'the man **who is rich**'. For example, speakers of Galela use a kind of relative clause (headed by a stative verb) and Hausa employs an adnominal NP (headed by an abstract noun). Note that the first syllable of the attributive verbal predicate in question is reduplicated in Galela, yielding the participial form.

Galela (van Baarda 1908: 35)

- | | | | | |
|-----|----------------|---------------|----------|---------------|
| (6) | <i>awi</i> | <i>do\$hu</i> | <i>i</i> | <i>lalamo</i> |
| | his | foot | it | be_big:PRT |
| | 'his big foot' | | | |

Hausa (Schachter 1985: 15)

- | | | | | | | | |
|-----|--|------------|---------------|---|---------------|---|----------------|
| (7) | <i>mutum</i> | <i>mai</i> | <i>alheri</i> | / | <i>arzaki</i> | / | <i>hankali</i> |
| | person | with | kindness | / | prosperity | / | intelligence |
| | 'a kind/prosperous/intelligent person' | | | | | | |

2.2 Quantifying modifiers in the noun phrase

Quantifying modifiers specify quantitative properties of the referent and relate to the material in the quality layer (including the head noun). Grammatical expressions of the notion ‘quantity’ are referred to as *quantifying operators*; lexical expressions as *quantifying satellites* (due to insufficient information I will ignore universal and existential quantifiers as well as ordinal numerals).

2.2.1 Quantifying operators

In many languages number distinctions are either optional or altogether absent (Rijkhoff 2002a: 106–119, 146–155), but if nominal number is a relevant category in some language it is commonly expressed by some grammatical element like a nominal affix (e.g. a suffix as in Dutch), or a clitic (Mupun):

Dutch

- (8) *fiets-en*
 bicycle-PL
 ‘bicycles’

Notice that the enclitical plural marker in Mupun (which is identical with the third person plural pronoun) is properly speaking not an integral part of the NP:

Mupun (West Chadic - Frajzyngier 1997: 200)

- (9) *jirap d'e wuraj mo*
 girl REL tall PL
 ‘tall girls’

In many languages cardinal numerals are grammatical modifiers (*quantifying operators*), but, as will be shown in the next section, there are also languages in which expressions of cardinality are explicitly categorized as lexical items (*quantifying satellites*).

2.2.2 Quantifying satellites

In quite a few languages across the globe cardinal numerals may or must appear as predicates or they are classified as lexical elements (Rijkhoff 2002a: 168–172). For example, Krongo numerals are verbs that appear in the imperfective when they modify a noun:

Krongo (Reh 1985: 252)

- (10) *nóo-còori nk-óotòonò*
 PL-house CN.PL-IMPF:be_three
 ‘three houses’

In Samoan the numeral appears as the head of a special kind of relative clause introduced by the general tense-aspect-mood marker [GENR] *e* if the NP has specific reference.

Samoan (Mosel and Hovdhaugen 1992: 318)

- (11) Sa fau=siae e Tagaloaalagi fale e tolu ...
 PAST build=ES ERG Tagaloaalagi house GENR three ...
 'Tagaloaalagi built three houses ...'

2.3 Localizing modifiers in the noun phrase

Localizing modifiers specify locative properties of the referent and relate to the material in the quantity layer (which includes both the quality layer and head noun). Grammatical expressions of the notion 'location' such as adnominal demonstratives are referred to as localizing operators; lexical expressions such as adnominal NPs ('the dog on the mat') are called localizing satellites.

2.3.1 Localizing operators

Adnominal demonstratives are grammatical manifestations of the notion location. As is the case with other modifier categories, they do not occur in all languages (see e.g. Derbyshire (1979: 131) on Hixkaryana), and in some languages they require the presence of a classifier or a definite article.

Mandarin Chinese (Li and Thompson 1989: 105)

- (12) *nèi-tiáo* *niú*
 DEM-CLF cow
 'that cow'

2.3.2 Localizing satellites

Lexical modifiers that specify the location of the referent of the matrix NP are, for example, adnominal prepositional phrases such as 'on this carpet':

- (13) The stain [on this carpet] was difficult to remove.

Restrictive relative clauses and possessive modifiers are also typically used as localizing satellites, but recall that there is no one-to-one relationship between the form of a modifier and its place in the layered representation of a linguistic structure (on the relationship between possession and location see e.g. Clark 1978 and Heine 1997).

- (14) Could you pass me the book [that's lying on that table]Rel.cl ?
 (15) I'd like to talk to the father [of that boy]Poss.NP .

It is essential for the localizing satellite to provide a referential anchor for the addressee, i.e. the localizing satellite must contain a reference to another entity, one that is easily identifiable for the addressee and which makes it possible to locate the referent of the matrix NP. In the examples above the referential anchors are 'this carpet', 'that table' and 'that boy'. They enable the hearer to locate (and identify) the referents of the embedding matrix NPs: 'the stain', 'the book', and 'the father' respectively. Referential anchors also play an important role in presupposition (Rijkhoff forthcoming).

3. Iconic patterns in the simple NP

This section is concerned with iconic relations between layering and syntax. It will be shown that the syntactic organization of modifiers in the noun phrase mirrors the layered organization of the underlying semantic representation.

Since information about NP-internal ordering patterns in the grammars and in the typological literature is in most cases restricted to the relative order of demonstrative, numeral and adjective, I will confine myself to these three descriptive noun modifiers. Recall that I will only consider simple NPs in which the demonstrative, numeral and adjective are free, fully integrated constituents of the simple NP. Consequently I will ignore, for example, appositional forms of modification, as well as lexical expressions of cardinality, and verbal and nominal forms that are used to express adjectival notions (such as relative clauses and adnominal NPs; see examples (6) and (7) above), since the use of such expressions would result in complex or non-integral NPs.

If demonstrative, numeral and adjective are ordered according to the scopal relations as captured in the layered organization of the underlying structure (*Figure 1*), only eight combinations (of the 24 that are logically possible) are predicted to occur.

- | | | | | |
|------|-------------|-------------|-------------|-------------|
| (16) | dem num A N | dem A N num | num A N dem | A N num dem |
| | dem num N A | dem N A num | num N A dem | N A num dem |

Notice that these NP internal orders are all instances of a more abstract symmetrical structure, in which the adjective *always* appears immediately before or after the noun and the demonstrative *always* appears in the periphery.

- (17) dem num A N A num dem

When this hypothesis is tested against cross-linguistic facts, we are faced with several problems, one of which (the presumed occurrence of non-iconic patterns) is discussed separately in section 4. Firstly, apart from the fact that not all languages have adnominal demonstratives, numerals and adjectives, we find that even if a language has these adnominal modifier categories, they may be expressed as morphologically bound forms (recall that we are only concerned with free modifiers here; see also the remarks on complexity and apposition above). Secondly, there are languages in which some of the modifier categories we are dealing with here are mutually exclusive. For example, speakers of Wambon avoid having a demonstrative, a numeral and an adjective in the same NP. Instead these modifiers appear in juxtaposed NPs, as in (CN = connective):

- Wambon* (Lourens de Vries, personal communication)
- (18) *ev-o kap ambalopkup ev-o kap kaimombalin*
 [[that-CN man five] [that-CN man good]]
 'those five good men'

Thirdly, there is the problem that not all 'iconic' patterns listed in (16) are attested in my basic sample. For example, in the 52-language sample I used (Rijkhoff 2002a: 5–8,

331), there were no languages with the order [dem A N num] or [A N num dem].³ Consequently quite a few languages from the basic sample are absent in (19):⁴

(19) dem num A N	Alamblak, Dutch, Georgian, Hungarian, Kayardild, Ket, Nama Hottentot, Imbabura Quechua, Pipil, Tamil, Turkish
dem num N A	Burushaski, Guaraní
dem A N num	
dem N A num	Bambara ⁵
num A N dem	Berbice Dutch Creole
num N A dem	Basque, Hmong Njua
A N num dem	
N A num dem	Oromo

In other words, languages with the numeral following and the adjective preceding the noun are absent in my sample. The same is true for languages in the sample used in a study by Hawkins, who stated (Hawkins 1983: 119-129): 'In no case does the adjective precede the head when the demonstrative or numeral follow'. Notice, however, that (contra Hawkins) my sample does contain a language with the order [A N dem], Berbice Dutch Creole, which has [num A N dem]. Furthermore it has recently been claimed in a short study by Haddican (2002) that the order [num A N dem] is also attested in other creole languages, such as Bislama and Sranan. In fact the same source mentions a creole language with the order [A N num dem], namely Sango. Finally, Zande is a language that appears to have the order [dem A N num]:⁶

³ In Hawkins (1983: 118-9) three 'iconic patterns' are not attested: apart from the two missing patterns listed in (19), he did not have languages with the pattern [num A N dem], which is represented by Berbice Dutch Creole in my sample.

⁴ I used a variety sample, which does not necessarily give a good indication of the relative frequencies of the patterns. As to the less frequently attested patterns in my sample, the pattern [dem num N A] is also found in the Romance languages. According to Hawkins (1983: 119) the pattern [dem N A num] is also found in Kabardian and Warao and the pattern [N A num dem] in Selepet and Yoruba, although it remains to be seen if we are really dealing with simple, integral (whole) NPs here.

⁵ In Rijkhoff (2002a) certain details about Bambara NPs were not available, but according to information supplied by Bernd Heine the basic order is [dem N A num], as in (the diacritics are: à = low tone, á = high tone, on all syllables of a word):

Bambara (Bernd Heine, personal communication)

- (1) *Nin jiri bèlebele sàba*
 these tree big three
 'these three big trees'

There is also a marked alternative order with the demonstrative following the numeral:

Bambara (Bernd Heine, personal communication)

- (2) *Jiri bèlebele sàba nìnnu*
 tree big three these.PL
 'THESE three big trees'

⁶ Note that the deictic demonstrative *gi* and the definiteness marker *re* (literally 'here') always appear together. Furthermore, the numeral may be preceded by *du*, whose meaning or function is unclear

Zande (Christopher Leone Daffalla, personal communication)

- (20) *gi rarai a-mangu biata-re*
 DEM heavy PL-box three-DEF/here
 'these three heavy boxes'

If we were to add these languages to the original sample, there would be no gaps in the 'iconic' patterns:

- | | |
|------------------|---|
| (21) dem num A N | Alamblak, Dutch, Georgian, Hungarian, Kayardild, Ket, Nama Hottentot, Imbabura Quechua, Pipil, Tamil, Turkish |
| dem num N A | Burushaski, Guarani (also e.g. French and other Romance languages) |
| dem A N num | Zande |
| dem N A num | Bambara |
| num A N dem | Berbice Dutch Creole, Bislama, Sranan |
| num N A dem | Basque, Hmong Njua |
| A N num dem | Sango |
| N A num dem | Oromo, Fa d'Ambu, Nubi |

4. Non-iconic patterns in the simple NP

In the previous section it was shown that all iconic ordering patterns involving a demonstrative, a numeral, an adjective and a noun are attested in the world's languages. The other sixteen logically possible orders are listed in (22).

Non-iconic patterns

- | | | | |
|------------------|-------------|-------------|-------------|
| (22) num A dem N | A num N dem | dem N num A | N dem num A |
| A num dem N | num dem N A | num N dem A | N num dem A |
| A dem num N | A dem N num | A N dem num | N A dem num |
| dem A num N | num dem A N | N num A dem | N dem A num |

But *Universal 20* indicates that there is a clear preference for the iconic patterns :

Universal 20. When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they are always found in that order. If they follow, the order is either the same or its exact opposite. (Greenberg 1966: 86-7)

(Christopher Leone Daffalla, personal communication).

Zande (Christopher Leone Daffalla, personal communication)

- (1) *Gi rarai a-mangu (du) biata-re*
 Dem heavy PL-box DU three-Def/here
 'these three heavy boxes'

The reason why Greenberg had to allow for one non-iconic pattern was due to Kikuyu, the only one language in his sample with the order [N dem num A].

Almost two decades later Hawkins, using a large sample of over 300 languages, mentioned two other Bantu languages with a non-iconic basic pattern in the NP: Aghem [N A dem num] and Noni (which has [N dem num A] as well as [N dem A num]), both spoken in Cameroon. Consequently he reformulated Greenberg's *Universal 20* as follows (Hawkins 1983: 119-120):⁷

Universal 20'. When any or all of the items (demonstrative, numeral, and descriptive adjective) precede the noun, they (i.e., those that do precede) are always found in that order. For those that follow, no predictions are made, though the most frequent order is the mirror-image of the order for preceding modifiers. In no case does the adjective precede the head when the demonstrative or numeral follow.

Thus, whereas all iconic patterns are attested, only a small fraction of the non-iconic orders has been found so far. Apart from the three non-iconic patterns listed above ([N dem num A], [N A dem num] and [N dem A num]), Heine (1980) mentions a number of languages spoken in Kenya with non-iconic patterns. Notice that the word order sequences given below are not only possible patterns; all the languages mentioned are said to display an enormous amount of variation.

(23) Rendille (Afro-Asiatic; Cushitic):	N-dem num A
Gabra (Afro-Asiatic; Cushitic):	N num A dem
Sampur (Nilo-Saharan; Eastern Nilotic):	dem N num A
Camus (Nilo-Saharan; Eastern Nilotic):	dem N num A
Turkana (Nilo-Saharan; Eastern Nilotic):	N dem num A
Luo (Nilo-Saharan; Western Nilotic):	N num A dem
Logoli (Niger-Congo; Central Bantu):	N num A dem

Detailed analyses of NPs in the languages listed above are not available (Heine's article is only six pages long), but some of Heine's comments suggest that we may not be dealing with simple, integral NPs in which modifiers are expressed as free forms (Rijkhoff 1990, 2002a: 19-23, 273-6, 329-32). For example, adjectives in Sampur and probably also in Camus (both are dialects of Nilo-Saharan Maa) are probably better analysed as verbs heading a relative construction (Heine 1980: 182). Therefore it may be hypothesized that at least one of the following statements is true for non-iconic patterns:

- adjectives are actually verbs or nouns, i.e. adnominal relative clauses or NPs, turning the NP into a complex structure (see examples (6) and (7));

⁷ Recall, however, that Zande [dem A N num], Berbice Dutch Creole, Bislama, Sranan [num A N dem] and Sango [A N num dem] all constitute counter examples to the claim that the adjective never precedes the head noun when the demonstrative or numeral follow (*Universal 20'*).

- numerals are expressed as phrasal modifiers, also turning the NP into a syntactically complex construction (see examples (10) and (11));
- modifiers are expressed as bound rather than free elements, which means their expression is a matter of morphology rather than syntax, as in (see also the demonstrative suffix in Rendille above);
- modifiers are in apposition (rather than fully integrated constituents). For example, in the Australian language Kalkatungu 'there are in fact no noun phrases, but [...] where an argument is represented by more than one word we have nominals in parallel or in apposition. [...] Each word is a constituent of the clause [...]' (Blake 1983: 145);
- modifiers are assigned a special pragmatic function like Focus, indicating we are dealing with a marked pattern (Rijkhoff 2002a: 272–3).

5. Conclusion

Cross-linguistically, the position of adnominal modifiers relative to the head noun strongly tends to reflect the differences in scope as captured in the layered model of the noun phrase (*Figure 2*). It was shown that, contra Hawkins's *Universal 20*, all eight 'iconic' patterns are attested as the basic order in at least one of the world's languages. Only few of the 16 'non-iconic' orders have been attested and there is evidence to suggest that these orders are either non-basic (e.g. due to focus assignment to a constituent inside the NP; Rijkhoff 2002a: 334–335), or do not involve simple, integral NPs.

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