Functional Architecture of Adjectival Phrases

Norbert Corver

1. Introduction

This chapter presents a comparative-linguistic perspective on the syntax of adjectival phrases.[1] It focuses on the functional architecture of what has been called 'the Extended Adjectival Projection' (henceforth: XAP); see Grimshaw (1991, 2005), Corver (1997b). According to this view on phrasal structure, the lexical layer (AP) is structurally embedded in various functional layers, each of which encodes a particular kind of adjectival information such as 'agreement', 'degree', 'comparison', *et cetera*. At the descriptive level, this chapter aims to give an overview of some of the dimensions of diversity attested in this syntactic domain of human language. At the analytical level, it aims to show how XAP-internal cross-linguistic variation can be associated with XAP's functional architecture.[2]

This chapter is organised as follows: Section 2 briefly addresses the question about the (non-)universality of the syntactic category 'adjective'. Each of the sections that follow, discusses an 'adjectival phenomenon', specifically: adjectival agreement and concord (section 3), degree word modification (section 4), comparative and superlative formation (section 5), XAP-internal placement of complements (section 6), measure phrases (section 7), and subextraction of degree expressions (section 8). Section 9 concludes this chapter.

2. Adjectives as a Lexical Category

Linguists generally agree that nouns and verbs are universal parts of speech.[3] There has been less consensus, though, on the universal status of adjectives as a word class. In earlier research on word classes, it was claimed that there are languages which do not have an adjective class at all (Dixon 1977:20, Dixon 1982:2, Schachter 1985:13-20, Amritavalli and Jayaseelan 2004:19–20, 29–31). In these adjective-less languages, nouns or verbs are used for expressing the (predicative) meaning that is associated with adjectives in languages having this word class.

More recent typological studies take a different perspective on the (non)universality of adjectives as a word class. In Baker (2003:238-63) and Dixon (2004:9-28), it is argued that languages formerly analyzed as lacking an adjective class do have this word class, distinct from nouns and verbs, after all. For example, it has often been said that, in Mandarin Chinese, all "adjectives" are verbs (Hockett 1958:223, Li and Thompson 1981:141, Schachter

[1] This chapter focusses on so-called root-adjectives (e.g. *proud*) and does not deal with derived (e.g. de-verbal) adjectives such as *dependent*; see section 6.4, though.
[2] It seems fair to say that, modulo certain typological studies (Dixon and Aikhenvald 2004), the cross-linguistic investigation of the inner organization of the adjectival system has not figured prominently on the formal-linguistic research agenda. For an overview of syntactic issues regarding the syntax of adjectival (and adverbial) modification, see Alexiadou (2013).
[3] This claim is not uncontroversial, though. See, for example, the literature on Salish languages, which have been argued to lack the noun-verb distinction (Kinkade 1983, Jelinek and Demers 1994).

1985:18). In Xu (1988) and Paul (2010), however, it is shown, based on a range of criteria, that adjectives do form a separate word class in Mandarin Chinese.

According to Dixon (2004:9), "[..] all languages have a distinguishable adjective class." The size of this class may vary cross-linguistically, however. As Dixon (2004:9-12) notes, there are languages with a very small set of adjectives. In Baker (2003: 246–249), for example, it is claimed that Chichewa has only six adjectives. Furthermore, even when the class of adjectives is open in a language, it tends to have fewer members than both noun and verb classes.

Dixon (1982) famously identified seven classes of property concepts. In certain languages, these concepts are typically lexicalised as adjectives. Take, for example, English *tall* (dimension), *old* (age), *good* (value), *red* (colour), *soft* (physical), *slow* (speed), and *tired* (human propensity). As noted in Francez and Koontz-Garboden (2015), there are also languages in which a property concept is not lexicalised as an adjective but rather as a noun. In the latter case, the nominally encoded property is typically part of a possessive construction, as, for example, in the Spanish sentence *Juan tiene sueño* (Juan has tiredness, 'John is tired'), where the noun *sueño* expresses the property class 'human propensity'. Interestingly, the property concept 'tall' ís lexicalised adjectivally in Spanish, just like English: *Juan es alto* (Juan is tall, 'Juan is tall'). In short, there is both inter-linguistic and intra-linguistic variation as regards the (adjectival versus nominal) lexicalization of property concepts.

For establishing the existence of adjectives as a word class, linguists try to identify grammatical properties that uniquely apply to this class, and not to nouns or verbs. These properties include (i) the use of specific degree words, (ii) the use of specific inflectional morphology on attributive and/or predicative adjectives, (iii) the use of specific comparative and/or superlative suffixes, (iv) specific combinatorial behaviour (e.g. occurrence as a complement of certain verbs), and (v) specific distributional behaviour (e.g. placement with respect to a modified noun).

When we apply these adjectival criteria to a language like Dutch (Indo-European, Germanic), it is very clear that this language distinguishes the class of adjectives as a separate part of speech.

(1) a. *te* oud. (i)
too old

b. een oud-*e* man (ii)
a old-INFL man

c. Jan is oud-*er* dan Piet (iii)
Jan is old-er than Piet

d. Ik vind dat dat brood *er oud uitziet*. (iv)
I find that that bread there old out.looks
'I think this bread looks old.'

e. een *[oude] man* / een *man [op leeftijd]* (v)
an old man / a man at age
'an old man / an elderly man'

The degree word *te* 'too' combines only with adjectives (1a). Attributive adjectives (sometimes) display the inflectional morphology *-e* (1b). Adjectives can carry the synthetic comparative morphology *-er* (1c). The Dutch verbal complex *eruitzien* (there.out.look, 'to look (like)') typically combines with adjectives (1d). Finally, as opposed to modifying PPs, adjectives that modify a noun, typically occur in pre-nominal position.

Some of these grammatical properties, for example (i)-(iii), are associated with the functional architecture of XAP. In what follows, some of these properties, but also other ones, will be considered from a cross-linguistic perspective.

3. Adjectival Agreement

3.1. Cross-linguistic Variation in the Manifestation of Agreement and Concord

Agreement and concord are phenomena that can be found in the adjectival domain (Clem and Norris, this volume). The former is exemplified by the Spanish copular constructions in (2): the predicative AP 'old' (the agreement target) co-varies in form with the subject noun phrase (the agreement controller). Specifically, the gender and number features of the subject are also marked on the predicative AP.

(2) a. Este hombre es viejo. (Spanish, Indo-European, Romance)
this.M.SG man is old.M.SG
'This man is old.'
b. Estos hombres son viejos.
this.M.PL men are old.M.PL
'These men are old.'

The phenomenon of concord is exemplified in (3). The attributive AP showing concord reflects certain features (*in casu*, gender, number) of the noun phrase that contains it.

(3) a. Ernesto es [un ombre viejo].
Ernesto is a man old.M.SG
'Ernesto is an old man.'
b. Ernesto y Paco son [hombres viejos].
Ernesto and Paco are men old.M.PL
'Ernesto and Paco are old men.'

Cross-linguistically, there is variation in the expression of agreement and concord in the adjectival domain. Firstly, there are languages in which co-variance is realised overtly on both predicative and attributive adjectives, just as in Spanish. In Czech, for example, the co-varying form of the adjective is the same for predicative and attributive adjectives. In Spanish, co-variance regards the features 'number' and 'gender', in Czech the features 'number', 'gender' and 'Case'. In short, languages may differ from each other as regards the grammatical features that are involved in the agreement relationship between NP and AP (Clem and Norris, this volume).

(4) a. Řeka je krásná. (Czech, Indo-European, Slavic; Naughton 2005:48)
river.NOM.SG.F is beautiful.NOM.SG.F
'The river is beautiful.'
b. krásná řeka
beautiful.NOM.SG.F river.NOM.SG.F
'a beautiful river

Secondly, there are languages in which co-variance is only marked on AP in one of its uses. In Kannada (Dravidian), for example, predicative APs are marked for gender and number (5), attributive APs are not (6); Baker (2008: 61):

(5) AvaLu tuNTa-Lu
she naughty-F.SG
'She is naughty.'

(6) a: tuNTa huDug-i
that naughty girl-F
'that naughty girl'

In a language like Dutch, we see the reverse pattern: predicative APs do not co-vary in form with the subject noun phrase in copular constructions (7). Attributive APs, on the contrary, do display co-variance in form, as exemplified in (8); see Kester (1996).

(7) a. De jongen is lang.
the boy is tall
b. De jongens zijn lang.
the boys are tall

(8) a. de lange jongen
the tall-*e* boy
b. de lange jongens
the tall-*e* boys

According to Baker (2008:64, note 26), adjectival co-variance patterns such as those in (5)-(8) are cross-linguistically rare. He further notes that the co-variance pattern in languages like Dutch is often impoverished. In Dutch, for example, it is an invariant schwa.[4] This leads Baker to the conjecture that these morphemes are not really agreement markers but rather linker morphemes of the kind that come between attributive adjectives and modified nouns in Tagalog (Austronesian) and other languages.[5]

The third class of languages consists of those that do not display any overt agreement on adjectives at all. English is a well-known case:

(9) a. The boy/girl is tall.
b. The boys/girls are tall.

[4] German displays the same pattern as Dutch, that is, co-variance in form with attributive APs but not with predicative ones. As shown in Clem and Norris (this volume), however, German attributive agreement is not impoverished at all.

[5] As shown in (i), the attributive adjective in Tagalog can occur both in postnominal (ia) and prenominal (ib) position. In both patterns, a linking element (*na/-ng*) occurs in between the attributive adjective and the noun (Rubin 1994, Scontras and Nicolae 2014):

(i) a. bahay *(na) maganda
house *na* beautiful
'beautiful house'
b. magada-ng bahay
beautiful-*ng* house
'beautiful house'

(10) the tall boy(s)/girl(s)

These examples clearly show that predicative (9) and attributive (10) adjectives do not change their form on the basis of the grammatical features (*in casu*, number) associated with the noun.

The above-mentioned data show that there are two important dimensions of variation as regards agreement and concord. Firstly, languages may differ in the selection of grammatical features —e.g., number, gender, Case— which are represented in co-variance relationships between adjectives and nouns. Secondly, languages may be different in how those features are spelled out as affixes. Spanish, for example, selects the features 'gender' and 'number' for marking agreement relationships between nouns and adjectives. As shown by the adjectival form *viejos* in (2b), each feature corresponds to a specific part of the agreement marking: *viej-*$o_{masc.}$-s_{pl}. In other languages, however, this same feature constellation is spelled out by means of a single morpheme, as in Latin *puellae laet-ae* (girl-F.PL.NOM happy-F.PL.NOM, 'happy girls'), where the suffix *-ae* of *laet-ae* is the morphological realization of the feature constellation {nominative, feminine, plural}. These cross-linguistic differences as regards the manifestation of agreement and concord can be accounted for by a theory on variation in feature-selection and feature spell-out, that is, morphological realization. For more information on this, see Embick (this volume) and Fenger and Kouneli (this volume).

As noted in Baker (2008: 21-27), the grammatical feature 'person' is typically absent in agreement marking on adjectives. In this respect, adjectives clearly differ from verbs. This contrast is exemplified in (11) for Spanish. While the finite verb can be inflected for the grammatical feature '1st person' (and also 'plural'), the adjective cannot:

(11) a. (Nosotras) com-emos las manzanas.(Spanish, Baker 2008: 22)
we.F.PL eat.1.PL the apples
'We eat the apples.'
b. (Nosotras) somos gord-as (*gord-amos).
we.F.PL are.1 fat.F.PL fat-1
'We are fat.'

According to Baker (2008: 26-27), the absence of person-marking on adjectives could very well be a universal property. There are apparent counterexamples like (12) from Mayali, in which the adjective appears to be inflected for '1st person'.

(12) Ngayih nga-mak (Mayali, Gunwinyguan language family; Evans 2003:354)
I 1-good
'I am healthy.'

As Baker argues, however, the form *nga-mak* is really a verb created from an adjectival root by zero-derivation. In other words, *nga-mak* has the following more abstract representation: *[nga [*$Ø_V$*-mak]]*. A parallel can be drawn with the English verb *clears*, as in *The sky usually clears at night*.

3.2 The Locus of Adjectival Agreement in XAP

An important question about the morphosyntax of adjectival agreement regards the locus of the agreement morpheme of the adjective. It has been proposed that there is a layer of

functional structure within XAP, where agreement morphemes are located (Corver 1997b; Baker 2008: 34-39). Schematically (linear order irrelevant):

(13) $[_{FP}$ F $[_{AP}$ A]]

According to this analysis, the adjectival agreement is not a property of the adjective proper but rather a property of a functional head F that takes an adjectival projection as its complement. This approach to adjectival agreement makes it quite similar to verbal agreement, where the agreement property of the verb is typically associated with a functional category (e.g. Tense or Agr) within the extended verbal projection.

Incorporation constructions provide evidence for this syntactic dissociation between the adjective (the root) and the adjectival agreement affix (Baker 2008:35). In such constructions, a lexical category undergoes head-movement to adjoin to another lexical category. Baker (2008) adopts Li's (1990) generalization which states that a lexical head (say A) cannot move through a functional head (say F) on its way to another lexical head position (say V). This generalization predicts that adjectives incorporated into verbs should be stripped of their agreement affixes. This is what we see in the Hebrew adjective incorporation structure in (17), discussed by Borer (1991); see Baker (2008:35):

(14) a. Sney ha-sir-im šxor-im. (Modern Hebrew, Baker (2008:35))
two the-pot-PL black-PL
'The two pots are black.'

b. Sney sir-im hi-šxir$_i$-u $[_{AP}$ t$_i$ haki še'epšar].
two pot-PL V-black-M.PL most possible
'Two pots blackened as much as possible.'

In (14a), the predicate adjective carries the masculine plural suffix *im*, which agrees with the subject noun phrase 'the two pots'. Notice that this affix does not show up in (14b), where the adjective has been incorporated into the inchoative verb. As indicated, the derived verb as a whole does agree (*-u*) with the subject noun phrase, a regular instance of verbal agreement.

According to Baker (2008:38-39), the presence of the functional projection encoding agreement (FP) is not obligatory. In a language like English, which does not display any overt adjectival agreement, the layer FP is arguably absent. Thus, *tall* in (9)-(10) has the structure *[$_{AP}$ tall]*. In Spanish, on the contrary, with agreement marking on both attributive and predicative adjectives, the FP-layer is typically present within the XAP. Thus, *vieja*$_{F.SG}$ 'old' in (2c) has the structure *[$_{FP}$ F$_{F.SG}$ [viej-]]*, which spells out as *vieja* after the adjective has raised to F$_{F.SG}$.

Interestingly, there are languages which have both agreeing and non-agreeing adjectives. Swahili (Afro-Asiatic, Niger-Congo) is such a language (Baker 2008:38). The non-agreeing adjectives are said to come from Arabic.

(15) a. Ch-akula hiki si ki-zuri. (agreeing adjective)
CL7-food this not CL-7-nice
'This food is not good.'
b. ch-akula ki-zuri
CL7-food CL7-nice
'good food'

(16) a. Sahani (zi-0) safi. (non-agreeing adjective)
plates CL10-be clean
'The plates are clean.'
b. ch-umba safi.
CL7-room clean
'a clean room'

According to Baker (2008:39), these examples from Swahili suggest that presence of the adjectival agreement-layer (FP) can be regulated by the individual lexical items themselves. That is, the presence or absence of the FP-layer is not necessarily determined at the level of the grammar as a whole.

3.3 The Syntax of Agreement: Configurational Properties

In section 3.1, it was noticed that, in a language like Spanish, the co-varying form of the agreeing adjective is the same for predicative and attributive adjectives; see examples (2)-(3). As for theories about the syntactic configuration that underlies such relations of co-variance, I refer the reader to the detailed discussion in Clem and Norris (this volume). In this section, I will restrict myself to saying a few words about those languages which display a superficially asymmetric agreement system, that is a system having (i) only agreement marking on predicative adjectives, as in Kannada (5), or (ii) only agreement marking on attributive adjectives, as in Dutch (8). As for languages of the first type, one might follow Baker's (2008:61-62) suggestion for Kannada that adjectives in those languages never agree. At a more analytical level, this would amount to saying that either F_A is absent (see section 3.2) or that it is not a probe in a probe-goal relationship (Clem and Norris (this volume)). This obviously triggers the question: what is the source of "agreement" on predicative adjectives? Baker proposes that these are not predicative adjective constructions but rather predicate nominal constructions in which the (attributive) adjective modifies a pro-nominal. For example, the Kannada example in (5), repeated here as (17a), has the structure in (17b) with the corresponding meaning 'they are naughty ones'. Thus, the "agreement" marking is not a realization of F_A. Rather, it is a realization of some part of a nominal structure that contains the adjective.[6]

(17) a. AvaLu tuNTa-Lu
she naughty-F.SG
'She is naughty.'

b. ….[$_{NP}$ [$_{AP}$ tuNTa] [ONE-Lu]] (ONE = a silent noun)

What about languages displaying the opposite asymmetry, that is, agreement only on attributive adjectives, as for example in Dutch? As pointed out before, Baker (2008: 64, note 26) argues that this asymmetric pattern is cross-linguistically very limited, and he suggests that it could be a kind of linking morpheme similar to the linkers that come between A and N

[6] This is reminiscent of Kayne's (2003) analysis of expressions such as *the others*, where plural *-s* immediately follows the adjectival element *other*. According to Kayne, *the others* involves a silent noun (ONE) to which the plural *-s* is attached: *the other ONE+s*.

in Tagalog and other languages. Potential support for this may come from patterns such as (18), in which the "agreement" marker *-e* does not surface on the adjective that constitutes the semantic head of XAP but rather on an adjectival element that fulfills a modifying function expressing modality (Corver 1997a,b):[7]

(18) a. een zo klein mogelijk-e fiets
a so small possible-*e* bike
'the smallest bike imaginable'

a.' *een zo klein-e mogelijk fiets

b. de grootst denkbar-e onzin
the biggest imaginable-*e* nonsense
'the biggest nonsense imaginable'

b.' *de grootst-e denkbaar onzin

In summary: cross-linguistic variation as regards adjectival agreement and concord can be associated with the following grammatical properties: (i) the presence versus absence of F, the locus of agreement; (ii) the selection of the grammatical features (e.g. gender) that are involved in agreement; (iii) the way in which the agreement features associated with the adjective are morphologically realised (Spell-out). Importantly, certain so-called agreement markers may turn out to be different kinds of grammatical formatives (e.g. "linkers" or pronominals) on closer examination.

4. Degree Expressions

4.1. The Categorial Nature of Degree Expressions

Many adjectives are gradable. This means that they can be modified by a degree expression, as exemplified in (19) for English (Kennedy 1997, Neeleman *et al* 2004):

(19) John is very/terribly/too thin. (English, Indo-European, Germanic)

The degree modifiers designate the degree to which the attribute conveyed by the gradable adjective (*thin*) applies to the entity (*John*) which it describes. As shown in (20), the degree modifiers *very* and *too* cannot act as modifiers of gradable verbs. They typically occur as modifiers within adjective phrases. In this respect, they differ from a degree expression like *terribly*, which is not restricted distributionally to the adjectival domain.

(20) She missed him *very/*too/terribly.

Languages may differ from each other as regards the cross-categorial distribution of degree modifiers (Doetjes 2008). Consider, for example, the Dutch patterns in (21) and the French patterns in (22):

(21) a. Jan is [erg/vreselijk/te mager]. (Dutch, Indo-European, Germanic)
Jan is very/extremely/too thin
b. Zij miste hem erg/vreselijk/*te.
she missed him very/extremely/too

[7] It is also impossible to have *-e* on both adjectival elements: **een zo klein-e mogelijk-e fiets*; **de grootst-e denkbar-e onzin*.

(22) a. Jean est [terriblement/trop/très maigre]. (French, Indo-European, Romance)
Jean is terribly/too/very thin
b. Elle lui manquait terriblement/trop/*très.
she to.him lacked terribly/too.much/very
'She missed him terribly/too much.'

The Dutch examples show that the degree expression *te* 'too' is distributionally restricted to the adjectival domain (21a), while *erg* 'very' and *vreselijk* 'extremely' can modify both gradable adjectives (21a) and gradable verbs (21b). The French examples display a slightly different distributional pattern: It is the degree expression *très* 'very' which is typically found as a modifier of gradable adjectives (22a). The degree expressions *terriblement* 'terribly' and *trop* 'too', on the contrary, can act as modifiers of both gradable adjectives (22a) and gradable verbs (22b).

The question arises as to what underlies this different distributional behaviour of degree expressions, both intra-linguistically and cross-linguistically. A possible line of analysis would be one which relates the different distributional behaviour to the categorial nature of the degree expression. Specifically, degree elements such as English *very* and *too*, Dutch *te* 'too' and French *très* 'very' instantiate the functional category Deg(ree), which obligatorily takes the lexical projection AP as its complement (Abney 1987, Corver 1990, Kennedy 1997), as in (23):

(23) [$_{DegP}$ Spec [$_{Deg'}$ te [$_{AP}$ mager]]]

Thus, the lexical entries of these functional degree words contain the information that Deg c(ategorially)-selects an AP as it complement. The ill-formedness of *te* in (21b) and *très* in (22b) is then possibly due to a violation of a c-selectional requirement: These degree words do not select a VP as their complement.

The cross-categorially wider distribution of degree expressions such as *terribly* (English), *erg*, *vreselijk* (Dutch), and *terriblement* and *trop* (French) suggests that they are not functional Deg-heads that select AP as their complement, but rather phrasal modifiers that are adjoined to, or occupy a specifier position of, a functional projection within XAP; see (24a) and (24b), respectively.

(24) a. [$_{AP}$ vreselijk [$_{AP}$ mager]]
b. [$_{DegP}$ vreselijk [$_{Deg'}$ Deg [$_{AP}$ mager]]]

In summary: languages may differ as regards the categorial nature of degree expressions. These categorial differences between degree words can also be found language-internally. Differences in grammatical behaviour (e.g. distribution) can be related to these categorial differences.

4.2. Degree expressions and word order variation

Another distributional property of degree expressions regards their placement with respect to the gradable adjective. Specifically, do they precede the adjective (degree word + A), or do they follow it (A + degree word); see Dryer (2013). (25) gives some illustrations of the former word order pattern, (26) exemplifies the latter pattern:

(25) a. lealián ggáo (Pumi, Sino-Tibetan; Ding 1998:107)

very deep

b. tamen jiqi congming (Mandarin Chinese, Sino-Tibetan; Gu 2008)
3PL extremely intelligent
'They are extremely intelligent.'

(26) a. the: tiwi-wa (Qiang, Sino-Tibetan; LaPolla and Huang 2004:308)
3Sg tall-very
'He is very tall.'

b. umwana gwangu umwisa ngani (Ichindali, Bantu; Kibona 2019:907)
child my beautiful very
'my very beautiful child'

In certain languages, the ordering of the degree word and the gradable adjective is rigid. In French, for example, all degree words precede the adjective:

(27) une maison [très / extrêmement / trop / assez / suffisament grande]
a.F.SG house.F.Sg very extremely too enough sufficiently big.F.SG
'a very/extremely/too/rather/sufficiently big house'

There are also languages that display mixed behaviour: Certain degree words occur pre-adjectivally, while others occur post-adjectivally. As shown in (28), Welsh is such a language (Jones 2009: 57-61).[8]

(28) a. difrifol wael (Welsh, Indo-European, Celtic)
seriousill
'seriously ill'

b. eithriadol gyflym
exceptional fast
'exceptionally fast'

(29) a. swnllyd ofnadwy
noisy awful
'awfully noisy'

b. mawr iawn
big very
'very big'

The question arises as to what underlies the cross-linguistic variation in (25)-(26) and the intra-linguistic variation in (28)-(29). One could analyze the word order variation in terms of differences in the attachment behaviour of degree modifiers; specifically, left-adjunction to AP (30a) versus right-adjunction to AP (30b):

(30) a. [$_{AP}$ very [$_{AP}$ tall]]
b. [$_{AP}$ [$_{AP}$ tiwi] [-wa]]

[8] Pre-adjectival adjectives trigger the soft mutation of the modified adjective. In examples (28a,b), *gwael* and *cyflym* are mutated to *wael* and *gyflym*, respectively (Jones (2009: 58)).

Alternatively, one might start from the assumption that there is a universal base position for degree modifiers, as in Cinque's (1999) approach to the placement of modifiers in the extended verbal projection (see Neeleman, this volume). For example, the degree modifier within XAP may be located in the specifier position of a designated functional head, as in (31), where Q(P) represents a functional layer in which quantifier-like degree words can be found (Corver 1997a,b).

(31) a. [$_{QP}$ very [$_{Q'}$ Q [$_{AP}$ tall]]]
b. [$_{QP}$ -wa [$_{Q'}$ Q [$_{AP}$ tiwi]]]

In order to derive the surface order *tiwi-wa* in Qiang, *tiwi* would have to raise to a left peripheral position in XAP, possibly through head movement of the adjective (32a) or phrasal movement of AP (32b).

(32) a. [$_{DegP}$ [$_{A}$ tiwi]$_k$ [$_{QP}$ -wa [$_{Q'}$ t'$_k$ [$_{AP}$ t$_k$]]]]
b. [$_{DegP}$ [$_{AP}$ tiwi]$_k$ [$_{QP}$ -wa [$_{Q'}$ Q t$_k$]]]

Interestingly, as shown in (33), post-adjectival degree modifiers in Welsh typically occur in between the degree word and the PP-complement of the adjective. Thus, A+Deg+PP but not A+PP+Deg. This word order pattern follows straightforwardly from a head movement analysis, which raises the adjective across the left branch modifier; see also Jones (2009:80):

(33) a. Rydyn ni'n [falch <iawn> o Mair <*iawn>] (Maggie Tallerman p.c.)
are we-PRED proud <very> of her <very>
'We are very proud of her.'
b. [$_{DegP}$ [$_{A}$ **falch**]$_k$ [$_{QP}$ iawn [$_{Q'}$ t'$_k$ [$_{AP}$ t$_k$ [$_{PP}$ o Mair]]]]]

The question obviously arises as to why, in a language like Welsh, certain degree words occur pre-adjectivally (28) while others do not (29). This same question can be posed for the Germanic languages, which exhibit the phenomenon of '*enough*-inversion' in the adjectival domain; that is, the post-adjectival placement of the degree word 'enough'.[9]

(34) a. He is [<old> enough <*old>]. (English)
b. Hij is [<oud> genoeg <*oud>]. (Dutch)
c. Han er [<gammel> nok <*gammel>] (Danish)

Importantly, synonymous degree words such as *sufficiently* (English) /*voldoende* (Dutch) do not permit this inverted word order.

(35) a. He is [<sufficiently> old <*sufficiently>].
b. Hij is [<voldoende> oud <*voldoende>].

[9] Notice that, just like the Welsh degree word *iawn* in (33), the degree expression *enough/genoeg* occurs in between the adjective and the PP-complement:

(i) a. John is [proud <enough> of her <*enough>]. (English)
b. Jan is [trots <genoeg> op haar <*genoeg>]. (Dutch)

The contrast between (34a,b) and (35a,b) suggests that a syntactic property, rather than a semantic one, is at the basis of this contrastive word order behaviour (see also Kayne 2005). The question then arises which syntactic property this could be. A potential factor might be the categorial status of *enough/genoeg*. Notice, for example, that English *sufficient* and Dutch *voldoende* can combine with the negative prefix *in-/un-* and *on-*, respectively, as in *(in)sufficiently intelligent* and *(on)voldoende intelligent* (Kayne 2005: 150). These negative prefixes typically occur on adjectives, as in English *(in)felicitous* and Dutch *(on)aardig* '(un)kind'. The ill-formedness of forms such as *un-/in+enough* or *on+genoeg* suggests that *enough* and *genoeg* are not adjectival elements. As regards Dutch, additional support for this conclusion comes from the observation that, for most speakers of Dutch, *genoeg* cannot carry the attributive *-e* ending (Compare (36) with the examples in (18)):

(36) a. *een lang-e genoeg jongen
a tall-*e* enough boy
b. ??een lang genoeg-e jongen

Exploring the categorial status of *enough/genoeg*, one could try to decompose this degree "word" into smaller components, specifically: *e-+nough* / *ge-+noeg*. Interestingly, the Danish equivalent of this degree word is *nok*, as in *gammel nok* 'old enough'. This superficially bare (i.e. "*e-/ge-*"less) form hints at a compositional structure of *e-nough*/*ge-noeg*. Etymologically, modern English *e-* relates to Old English *ge-* 'with, together', a form which is still present in Dutch *ge-noeg*. The adpositional meaning of *ge-* is still found in Dutch patterns such as *getweeën* (litt.: *ge*+two+*en*$_{PL}$, 'with two people/with the two of us').[10] On the basis of the above-mentioned properties of *enough*/*genoeg*, one might propose that this "degree word" is a PP-like syntactic construct: *[$_{PP}$ e- [nough]]*, *[$_{PP}$ ge- [noeg]]*. The post-adjectival placement of *enough/genoeg* then possibly follows from its adpositional status. Building on this analysis, Danish *nok* is possibly a hidden PP with P being silent: *[$_{PP}$ P$_{Ø}$ [nok]]*.

This tentative analysis of *enough/genoeg/nok* suggests that it is important to look into the structure of "degree words" for obtaining a deeper understanding of their XAP-internal distributional behaviour. Possibly, the word order contrast in (28)-(29) can also be related to differences in the inner structures of pre-adjectival and post-adjectival degree expressions.

4.3 Degree words and linkers

In many languages, the degree expression and the modified adjective are linearly adjacent. Consider example (37) from Dutch:

(37) Jan is [vreselijk lang].
Jan is extremely tall

In certain languages the degree expression and the gradable adjective can be separated from each other by a linking preposition-like element that is obligatorily present and seems to lack meaning. Romanian (Indo-European, Romance) and Welsh are languages that display his Deg+P+A pattern (For Romanian, see Grosu (1974) and Mallinson (1986)):

[10] Possibly, this adpositional element *ge-* is also found in Dutch pseudoparticiples such as *goed ge-bek-t* (good-*ge*-beak-*t*, 'articulate'), *blauw-ge-ader-d* (blue-*ge*-vein-*d*, 'blue-veined').

(38) Maria e [enorm *(de) fericită]. (Corver 2000)
Maria is enormous of happy.F.SG
'Maria is enormously happy.'

(39) aruthrol *(o) hir (Jones 2009)
terrific of long
'terrifically long'

The appearance of *de/o* correlates with the placement of the degree expression in the adjectival phrase: it only appears with pre-adjectival degree modifiers. When the degree modifier occurs in post-adjectival position, the linking preposition does not appear (see Corver (2000), Vişan (2004)).

(40) a. E [foc de frumoasă]. (Romanian)
be.3.SG breathtakingly of beautiful
b. E [frumoasă foc].
be.3.SG. beautiful breathtakingly
'She is breathtakingly beautiful.'

(41) a. Mae'r sgidiau 'ma'n [ofnadwy o ddrud]. (Welsh, King 2016)
is-the shoes DEM-PRED awful of expensive
'These shoes are awfully expensive/dear.'
b. Mae'r sgidiau 'ma'n [ddrud ofnadwy].
'These shoes are awfully expensive/dear.'

The contrast between the a-examples and the b-examples raises two questions: What is the nature of this linking element, and why does it only show up when the degree modifier is in pre-adjectival position? In Corver (2000), it is proposed that the linking adposition is the same type of element that appears in *N of/de N* constructions such as English *that idiot of a policeman* and French *cet imbécile de Jean* (that idiot of Jean). In Kayne (1994:106) and Den Dikken (2006), such patterns have been analyzed in terms of DP-internal predicate displacement, where the first noun (*idiot*/*imbécile*) starts out as a predicate nominal within a noun phrase internal predication configuration and undergoes leftward movement across the subject (*policeman/Jean*) of the predication configuration, as depicted in (42) :

(42) [$_{DP}$ cet [$_{FP}$ **imbécile** [de [Jean ~~imbécile~~]]]] (French)
this idiot of John

In the spirit of the predicate movement analysis in (42), Corver (2000) proposes that the a-examples in (40)-(41) involve predicate movement of a degree modifier —i.e., the predicate— across the gradable adjective, which acts as the 'subject' of the predication relationship :

(43) [$_{FP}$ **enorm** [de [fericită ~~enorm~~]]]

According to this analysis, the post-adjectival position of the degree modifier is the base position. It is the position associated with the predicate role of the degree modifier.

An alternative approach to patterns such *enorm de fericită* would be one in terms of Case assignment. Following Emonds (2000:351), one could adopt the +N Case Filter, which states

that every nominal (i.e. +N) element requires Case.[11] In other words, Case is not just a feature of nouns, which under a decompositional analysis have the feature structure [+N,-V] (Chomsky 1970), but also a feature of adjectives (that is, [+N,+V]). As Kayne (2005: 154) points out, the existence of the French pattern in (44), in which the preposition *de* precedes an adjective, is not unexpected if the [+N]-property of the adjective needs to be Case-licensed:

(44) Jean a [quelque chose *(de) lourd].
Jean has some thing of heavy
'Jean has something heavy.'

Suppose Case is not a property that is assigned to the entire noun phrase in (44) and subsequently trickles down to the [+N] elements contained within it. Instead of that, one might assume that Case is a feature of lexical items (N, A) only (Kayne 2005: 142). For (44), this would mean that accusative Case is assigned by the verb (*a*), or maybe by little v, to the +N *chose*. If the verb *a* cannot assign its Case to the other +N element, namely the modifying adjective *lourd*, a case assigner (*de*) must be inserted (last resort) for reasons of Case licensing.

If we adopt this approach, insertion of *de* in *enorm *(de) fericită* in (38) is needed for Case-licensing the +N adjectival modifier *enorm*.[12] Even though +N *fericită*, XAP's head, can be Case-licensed "from outside", the +N adjectival modifier *enorm* cannot. Consequently, insertion of the Case-assigner *de* is needed as a last resort strategy.[13]

4.4 Inflected Degree Words

There are languages in which certain degree expressions display agreement morphology. In Russian (Indo-European, Slavic), for example, the adjectival degree expression *tak* 'so' exhibits gender and number agreement with the subject noun phrase (*Ivan*/*Nadja*); examples drawn from Baker (2008: 117, (10)).

(45) a. Ivan tak-oj xoroš-ij
Ivan.M.SG so-M.SG good-M.SG
'Ivan is so good.'

b. Nadja tak-aja xoroš-aja.
Nadia.F.SG so-F.SG good-F.SG
'Nadia is so good.'

In Romance languages such as French, Italian and Spanish, this phenomenon is attested on degree expressions of the type *tout* (French), *tutto* (Italian) and *todo* (Spanish), meaning 'entirely/completely'. Example (46) illustrates this phenomenon for French:

---

[11] See also Van Riemsdijk (1983) and Larson (1987) for the idea that case is obligatory for all [+N] categories.

[12] Interestingly, in a language like Finnish (Indo-European, Uralic), certain XAP-internal degree modifiers carry genitive case (Vainikka 1993; Corver 2000).

(i) valtava**n** kylmä
enormous-GEN cold
'enormously cold'

[13] See Kayne (2005: 153) for this way of motivating the appearance of 'of' in the colloquial English pattern *too big of a house*.

(46) a. Il était tout seul.
he was all.M.SG alone.M.SG
'He was all alone.'

b. Elle était toute seule.
she was all.F.SG alone.F.SG
'She was all alone'

Inflected degree words are also attested in a Germanic language like Dutch. This typically happens in colloquial language when the (adjectival) degree word modifies an inflected attributive adjective; see (47a) (Corver 2005b, 2021b). Importantly, the overt inflection *-e* appears on the degree word only when the attributive adjective itself carries the inflection; see (47a). In (47b), *erg* cannot be inflected since the modified adjective *mooi* does not carry any overt inflection. In short, the appearance of *-e* on the degree word is parasitic on the presence of overt inflection on the adjective.

(47) a. Jan kocht een [$_{XAP}$ erg(-e) mooi-e] fiets$_{[-neuter]}$.
Jan bought a very-*e* beautiful-*e* bike
'Jan bought a very beautiful bike.'

b. Jan kocht een [$_{XAP}$ erg(*-e) mooi] huis$_{[+neuter]}$.
Jan bought a very-*e* beautiful house
'Jan bought a very beautiful house.'

The question arises as to how to analyze these degree words that co-vary with the adjectives they modify. One might want to treat them as concord-like phenomena since the agreeing degree modifiers reflect certain features of the (inflected) XAPs in which they are embedded. The co-varying features of the modifier may result from feature spreading, possibly in a Spec-Head configuration (Corver 1997b).

5. Variation in comparative (and superlative) formation

As exemplified in (48), the property of comparison can be expressed by means of adjectival expressions (Kennedy 1999, Lechner and Corver 2017):

(48) John is [more/less intelligent than Peter].

The comparative construction in (48) has three principal parts: A predicate denoting a gradable property (*intelligent*), the target of comparison or comparee (*John*), and the standard against which *John* is contrasted, namely *Peter*. Besides these elements, the comparative construction contains two additional elements: the comparative marker (*more/less*) and the standard marker, which introduces the standard of comparison (*than*); see Bresnan (1973), Dixon (2008).

As noted by Dixon (2008:790, 2014:11), many languages do not have an adjectival comparative construction. They use different strategies for expressing comparison. There are two main strategies: the conjoined comparative and the 'exceed' comparative (Andersen 1983, Stassen 1985, 2008, Bobaljik 2012). In the first strategy, comparison is expressed by means of the coordination of two clauses with, for example, antonymous adjectives, or adjectives that represent different degrees, as in (49a). In the second strategy, the noun phrase representing the standard is the direct object of a special transitive verb, with the meaning 'to exceed', 'to surpass', as in (49b):

(49) a. Kaw-ohra naha Waraka, kaw naha Kaywerye. (Hixkaryana, Carib; Kennedy 2005)
tall-not he-is Waraka tall he-is Kaywerye
'Kaywerye is taller than Waraka.'

b. kăw sŭuŋ kwă kon túk kon. (Thai, Tai-Kadai; Warotamasikkhadit 1972:71).
he tall exceed man each man
'He is taller than anyone.'

When we consider "standard" adjectival comparative constructions, the following dimensions of variation can be identified: (i) the form of the comparative morpheme, (ii) the form of the standard of comparison, (iii) the ordering of the comparative morpheme and the adjectival predicate, and, finally, (iv) the ordering of the comparative morpheme and the standard of comparison. In what follows, each of these dimensions will be briefly discussed.

There are essentially three strategies for realizing the comparative marker in standard-comparative languages (Bobaljik 2012):

(50)

a. Zero-expression: comparison is not overtly expressed by means of a comparative marker associated with the adjective; see *kasikoi* in (51a).
b. Morphological (i.e. synthetic) expression: comparison is expressed by means of an affix (or morphological process) on the adjective; see *okos-abb* in (51b).
c. Analytic (i.e. periphrastic) expression: comparison is expressed with a free morpheme associated with the adjective; see *lebih tinggi* in (51c).

These three realization strategies are exemplified in (51):

(51) a. Sally-wa Bill-yori *kasikoi*. (Japanese; Beck, Oda and Sugisaki 2004: 327)
Sally-TOP Bill-from smart
'Sally is smarter than Bill.

b. Anna okos-*abb*, mint Péter. (Hungarian)
Anna smart-CMPR than Peter
'Anna is smarter than Peter.'

c. Dia [*lebih* tinggi] [dari saya]. (Indonesian, Austronesian; Dixon 2008: 796)
3.SG more tall from 1.SG
'He is taller than me'

The most common strategy cross-linguistically has no (obligatory) marking of the adjectival predicate, overt comparative morphosyntax thus being marked only on the standard (Bobaljik 2012: 20-21).[14] There are also languages which make use of more than one strategy for comparative formation. English, for example, uses synthetic comparative formation for monosyllabic adjectival roots (*tall – taller*) and the analytic strategy for poly-syllabic adjectival

[14] Comparative marking of the predicate is often optional. This is exemplified in (i) for Modern Hebrew:

(i) Dan gahova (yoter) mi-Meri. (Modern Hebrew; Bobaljik (2012: 21, ex (24))
Dan tall more from-Mary
'Dan is taller than Mary.'

Whether languages like Japanese (see (51a)) have a null comparative element is a much debated issue in the semantics literature (Beck, Oda and Sugisaki 2004, Kennedy 2007, Hayashishita 2009).

roots (*afraid – more afraid*).

Analytic expression is also often used in adjectival constructions expressing the *less than* relationship, which is exemplified in (52) for Hungarian and Indonesian. Observe that in Hungarian the free comparative morpheme *kevésbé* co-occurs with the bound comparative morpheme *-abb*. This phenomenon of Comparative Doubling will be discussed more extensively below.

(52) a. Anna [*kevésbé* okos*abb*, mint Péter]. (Hungarian)
Anna less smart-CMPR than Peter
'Anna is less smart than Peter.'
b. Dia [*kurang* tinggi dari saya]. (Indonesian)
3.SG less tall from 1.SG
'He is less tall than me.'

The question arises to what extent the various manifestations of the comparative marker — zero, bound morpheme, free morpheme— instantiate the same syntactic configuration. In other words, is there a uniform abstract representation that underlies these surface manifestations? It has been proposed that comparative adjectival constructions have a functional layer, called QP (Corver 1997a,b) or ComparP (Corver (2005a), Bobaljik (2012)), which encodes 'comparative meaning'.[15] The synthetic comparative *tall-er* has the base structure in (53a) and is derived by moving the adjective to the comparative head. The analytic form *more afraid* has the structure in (53b), with *more* occupying the specifier position of the comparative head.[16] Comparative constructions featuring the free morpheme *less* also have the free morpheme in the specifier position of ComparP, as in (53c).

(53) a. [$_{\text{ComparP}}$ [$_{\text{Compar'}}$ -er [$_{\text{AP}}$ tall]]] (taller)
b. [$_{\text{ComparP}}$ more [$_{\text{Compar'}}$ Compar^{o} [$_{\text{AP}}$ afraid]]] (more afraid)
c. [$_{\text{ComparP}}$ less [$_{\text{Compar'}}$ Compar^{o} [$_{\text{AP}}$ tall/afraid]]] (less tall/afraid)

According to the analysis in (53), the free comparative morpheme and the bound comparative morpheme occupy different structural positions. Independent evidence in support of this analysis comes from so-called 'Double (adjectival) comparatives' (Corver 2005a, Wood 2012). These are adjectives that combine with more than one comparative marker, a free one and a bound one. Some illustrations from (variants of) English are given in (54):

(54) a. The Duke of Milan / and his *more braver* daughter could control thee
(Shakespeare, *The Tempest*)
b. I think alcohol is much *more safer*, kind of relaxing if took in small quantities.
(Edwards 1993: Tyneside English)

In these examples, the adjectival root is followed by the bound comparative morpheme *-er* and preceded by the free comparative morpheme *more*. These doubling patterns are also attested with the free morpheme *less*, which suggests that *-er* itself is essentially a

[15] In Caha *et al*. (2019), it is proposed that, in Czech, the comparative head needs to be split up into two distinct heads.
[16] See Embick and Marantz (2008) for discussion of English comparative formation with monosyllabic versus polysyllabic adjectives.

grammatical marker of comparison, and does not necessarily encode the meaning 'more than' (Corver 2005a):

(55) a. Or as a moat defensive to a house.
against the envy of *less happier* lands,
This blessed plot, his earth, this realm, this England.
(Shakespeare, *King Richard II*, ii, i)

b. Parents are Not *Less Happier* than Non-Parents
(attested on the web, retrieved 11/5/12, Wood 2012)

The question arises as to how to account for comparative constructions in non-doubling languages, such as present-day (standard) English and Dutch. In line with Chomsky's (2001: 2) Uniformity Condition, one might hypothesise that non-doubling languages have the same underlying structure as comparative-doubling languages (Corver 2005a:172), the only difference being that the former languages do not permit simultaneous Spell-out of the head position and the specifier position at PF —a kind of Doubly-filled-XP effect— while the latter do. Schematically:

(56) a. [$_{\text{ComparP}}$ MORE [$_{\text{Compar'}}$ -er [$_{\text{AP}}$ loud]]] (*louder*; *MORE* is a silent free morpheme)
b. [$_{\text{ComparP}}$ more [$_{\text{Compar'}}$ -er [$_{\text{AP}}$ loud]]] (*more louder*)

Turning next to variation in the realization of the standard of comparison, we can roughly distinguish four (surface) strategies: (i) the use of a special comparative particle, as with English *than* and Hungarian *mint* (57a);[17] (ii) the use of an adpositional phrase (PP) headed by a P which is also attested in non-comparative environments; see the Japanese example in (57b). (iii) the use of a case-marked noun phrase, as in the Russian example in (57c); (iv) a combination of strategies (iii) and (iv), that is P+NP+case (57d).

(57) a. István magasa-bb *mint Peter*. (Hungarian)
István.NOM tall-CMPR than Peter.NOM
'István is taller than Peter.'

b. Sally-wa *Bill-yori* kasikoi. (Japanese; Beck, Oda and Sugisaki 2004: 327)
Sally-TOP Bill-from smart
'Sally is smarter than Bill.'

c. Medved' bol'š-e *sobak-i*. (Russian, Bobaljik 2012 (17b))
bear big-CMPR dog-GEN
'The bear is bigger than the dog.'

d. Anna smukaka *aiz Trinas*. (Latvian, Indo-European, Balto-Slavic (Stassen 1985: 152))
Anna.NOM prettier.F on Trina.GEN
'Anna is prettier than Trina'

Also for these variants of the standard of comparison, one might try to reduce them to the same abstract underlying structure, specifically an adpositional structure (PP). Cross-linguistically, this uniform structure may have different surface manifestations as a result of different choices

[17] According to some linguists, these comparative particles are prepositions; see Hankamer (1974) and Emonds (1985) for English *than*. Notice, for example, that *than* can be stranded, just like regular prepositions, as in: *[Which person]$_i$ was he taller [than t$_i$]?*

made in the grammars of these languages, such as: (i) overt realization of P (57b) or non-realization of P (57c), (ii) head-initial (57a) versus head-final (57b) placement of P, (iii) case realization (57c,d) versus non-realization (57b) of the Case property assigned by P.

Let's briefly consider another dimension of variation, namely the ordering of the comparative morpheme and the adjectival predicate. In some languages, the free comparative morpheme 'more' occurs pre-adjectivally, as exemplified in (58) for Greek. In other languages, 'more' occurs post-adjectivally, as exemplified in (59) for Warao:

(58) O Giánnis ítan [*pio* éxypnos apó ton Pétro]. (Greek)
the John was more intelligent than the Peter
'John was more intelligent than Peter.'

(59) Basayanaru tobe [taera *kurarika*] ta. (Warao; Romero-Figueroa 1986:103)[18]
ant.eater jaguar strong more is
'The jaguar is stronger than the ant eater.'

In a language like Modern Hebrew 'more' either precedes the adjective, as in *yoter gadal* (more big, 'bigger'), or follows it, as in *gadal yoter* (big more, 'bigger'). In Bosnian-Serbian-Croatian (BSC), this optionality of the placement of 'more' is attested only with foreign adjectives which typically display analytic comparative formation and cannot be declined, as, for example, in *Marija je više kul nego Jovan* (Mary is more cool than John) and *Marija je kul više nego Jovan* (Mary is cool more than John); Maša Bešlin, personal communication.[19] One way of analyzing the post-adjectival placement of the free comparative morpheme would be in terms of displacement (see Section 3). Specifically, one might propose that Modern Hebrew *yoter* 'more' in the word order pattern *gadal yoter* (big more) starts out in a left branch specifier position of ComparP, as in (60a), and that its post-adjectival placement results from head movement of *gadal* to a higher functional head (say Deg) across *yoter*, as in (60b):

(60) a. $[_{DegP}$ Deg^{o} $[_{ComparP}$ yoter $[_{Compar'}$ Compar^{o} $[_{AP}$ gahova]]]]
b. $[_{DegP}$ **gahova**$_{i}$ $[_{ComparP}$ yoter $[_{Compar'}$ t'$_{i}$ $[_{AP}$ t$_{i}$]]]]

So far, the discussion has focused on comparative formation. As shown by the (older) English examples in (61), languages have superlative formation besides comparative formation. (61a) illustrates the synthetic pattern, (61b) the analytic pattern, and (61c) the superlative doubling pattern (Corver 2005a):

(61) a. She is still only twelve and looks [the oldest of all of them].
b. I choose the person who looks [the most afraid].
c. This was [the most unkindest cut of all]. (Shakespeare, Julius Caesar iii, ii, 185)

Even though the examples in (61) suggest that the functional projection encoding superlative meaning is located directly on top of the lexical projection AP, as in (62a), there are cross-linguistic data that show directly that superlative adjectival constructions have a nested structure in which the superlative layer contains the comparative layer, which in turn contains the lexical layer AP, as in (62b). Bobaljik (2012: 4, 31) characterises this nested relationship

[18] Warao is a language isolate spoken in Venezuela.
[19] Otherwise, comparative formation in BSC is typically synthetic, as in *star-iji* (old-er.M, 'older').

between the superlative and the comparative as the Containment hypothesis: the representation of the superlative properly contains that of the comparative in all languages.

(62) a. [$_{SuperlP}$ the most [$_{Superl'}$ Superl^{o} [$_{AP}$ afraid]]] (= *the most afraid*)
b. [$_{SuperlP}$ the most [$_{Superl'}$ Superl^{o} [$_{ComparP}$ Spec [$_{Compar'}$ Compar^{o} [$_{AP}$ afraid]]]]]

As shown in (63), this embedding relationship is directly observable in certain languages (data drawn from Bobaljik 2012: 31):

(63)		POS	CMPR	SPRL	
a.	Persian	kam	kam-tar	kam-tar-in	'little'
b.	Hungarian	nagy	nagy-obb	leg-nagy-obb	'big'
c.	Czech	mlad-ý	mlad-ší	nej-mlad-ší	'young'

As (63a,b) show, the superlative morpheme (*in/-obb*) follows the comparative morpheme (-*tar/-nagy*) in Persian (Indo-European, Indo-Iranian) and Hungarian. In Czech, the superlative morpheme is realised as a prefix on the composite form *mlad-ší*. Languages like English, which do not allow the overt co-occurrence of the comparative morpheme and the superlative one (e.g. **tall-er-est*), have a phonologically null allomorph in the position of the Comparative head: *tall-Ø-est*; (Bobaljik 2012:34). In short, languages display variation as regards the lexicalization of the Comparative head in superlative adjectival constructions.

6. Functional Structure and XAP-internal Arguments

6.1 A+PP

As exemplified in (64), complements of adjectives can take the form of a PP or of a case-marked noun phrase.

(64) a. fond of chocolate
b. çikolata-ya düşkün (Turkish, Turkic)
chocolate-DAT fond

In (64a), we have a head-initial AP since the complement follows the adjective. In (64b), we have a head-final one, since the complement precedes the adjective.[20]

[20] In line with Kayne (1994), the head-final word order in (64b) possibly results from an XAP-internal displacement operation, as depicted in (ib). Notice that degree modifiers such as *çok* 'very' and *aşırı* 'extremely' typically occur in between the internal argument (*çikolata-ya*) and the adjective (*düşkün*). If these modifiers are located in a functional layer (e.g. QP) in which AP —the domain of the adjective and its internal argument— is embedded, then the word order pattern in (ia) suggests that displacement of the internal argument has taken place.

(i) a . çikolata-ya çok/aşırı düşkün (Turkish)
chocolate-DAT very/extremely fond
'very/extremely fond of chocolate'
b. [$_{FP}$ [çikolata-ya]$_{i}$ [$_{F'}$ $_{F}$ [$_{QP}$ çok/aşırı [$_{Q'}$ Q [$_{AP}$ düşkün t_{i}]]]]]

It is often assumed that the semantically empty adposition *of* in (64a), and also its equivalents in other languages, is inserted to check or mark (genitival) case on the nominal complement of A (Stowell 1981, Chomsky 1981, 1986). Languages such as Modern Persian (Farsi, Indo-European, Indo-Iranian) also require a linking element, traditionally referred to as Ezafe, between the adjective and the post-adjectival complement. Thus in (65), the adjective *asheq* is followed by a nominal complement. The Ezafe vowel *é* appears in between, suffixed to the adjective:

(65) asheq-é Hæsæn A+EZ NP Farsi (Samiian 1994)
in.love-EZ Hasan
'in love/enamored with Hasan'

In Samiian (1983, 1994), it is proposed that the Ezafe-morpheme is a clitic preposition-like element that checks or marks case on its complement, just like English *of* in (64a); see also Karimi and Brame (1986). It is inserted before complements of [+N] categories, including nouns and adjectives.

The Ezafe-morpheme introduces a Case probe into the derivation. This probe assigns Case to its following [+N] complement. Because of its clitic-like properties, it attaches to the preceding element.

(66) a. [asheq [$_{EzP}$ -é Hæsæn]] case assignment.
b. asheq-é Hæsæn cliticization

The Ezafe-construction is also attested in languages (e.g. the Caspian languages Gilaki and Mazandarani) in which the complement of A occurs in pre-adjectival position (Larson 2009). Given the reverse word order —that is, 'complement + A'— Larson calls this pattern the Reverse Ezafe construction. As shown in (67), the Ezafe-morpheme cliticises onto the complement element to its left.

(67) Hæsæn-ə aashiq NP+REZ A (Gilaki; Larson (2009: 37))
Hassan-REZ in.love
'in love with Hassan'

Larson proposes that the morpheme (*-ə*) that appears in Reverse Ezafe constructions like (67) is not a case assigner or case checker but rather a concordializing element, that is, an attributive marker. The REZ-morpheme adjectivilises the +N-element to which it attaches. This way, the +N element can be Case-licensed by means of the agreement relationship with the head of the adjectival projection in which it is embedded. Importantly, the case properties of the latter projection are licensed under a Probe-Goal relation with an AP-external probe. Thus, in (68), F_{Probe} Case-licenses the AP headed by *aashiq*, and the adjectivalised expression *Hæsæn-ə* receives Case by agreeing (via *-ə*) with *aashiq*.

(68) …F$_{Probe}$…. [[$_{RezP}$ Hæsæn-ə]$_k$ [$_{AP}$ aashiq t$_k$]]

As indicated in (68), it is assumed that *Hæsæn* moves from the post-adjectival complement position to a pre-adjectival specifier position (Larson 2009).

6.2 Transitive adjectives

Certain languages (e.g. German, Dutch, Swedish) have so-called transitive adjectives, that is, adjectives that take a noun phrase as their complement.

(69) a. Er ist [$_{AP}$ des Französischen mächtig]. (German, Indo-European, Germanic)
he is the.GEN French.GEN in.command.of
'He is able to speak French.'
b. Han var [$_{AP}$ överlägsen sin motståndare]. (Swedish, Indo-European, Germanic)
he was superior his opponent
'He was superior to his opponent.'

In German, the NP-complement precedes the adjective (69a), in Swedish it follows the adjective (69b).[21]

As shown in (70), not all languages have transitive adjectives (Maling 1983):

(70) a. *Peter was [aware **that danger**] (English)
b. *Pierre était [conscient **le danger**] (French)

Van Riemsdijk (1983) proposes that these transitive adjectives are *verb-like* adjectives which can assign (abstract) case to the noun phrase, this way satisfying the Case Filter. Specifically, these adjectives do not have the feature specification [+N,+V] but rather [+V]. Being [+V] lexical categories, these adjectives are *non-distinct* from [-N]. According to Van Riemsdijk's (1983: 232) reformulation of the Case Filter, abstract case is assigned by structural heads that are non-distinct from [-N], that is: [-N,+V] (verb), [-N,-V] (adposition), and [+V] (transitive adjective). According to this approach, cross-linguistic variation as regards the availability of transitive adjectives relates to the existence of [+V]-adjectives, which have the ability to assign case to their complement.

As opposed to Van Riemsdijk (1983), Okhado (1990) argues that transitive adjectives have the same feature composition as other adjectives, that is [+N,+V] (see also Platzack 1982).[22] In other words, it is an invariant (universal) property of human language. According to his analysis, cross-linguistic variation as regards the availability of transitive adjectives relates to so-called *Inherent case* assignment (Chomsky 1986). In certain languages (e.g. German, Swedish, Dutch), (a subclass of) adjectives can assign inherent case, in other languages (e.g. English, French), they cannot.

When there is a degree modifier present within the adjective phrase, the DP-argument is typically separated from the adjectival head by the degree modifier:

(71) Sie ist [$_{AP}$ [ihrem Vater] sehr <u>ähnlich</u>]. (German)
she is her father very similar
'She is very similar to her father.'

Under the assumption that the DP-argument receives its theta-role in the complement position of A, the pattern in (71) may be analyzed in terms of XAP-internal displacement to the specifier-position of a functional head within XAP, as represented in (72).

[21] Besides NP-complements featuring genitive case, German has NP-complements featuring dative case or accusative case.
[22] Platzack (1982) analyzes the Case on the noun phrase complement as a structural case.

(72) a. [$_{FP}$ Spec [$_{F'}$ F [$_{QP}$ erg [$_{Q'}$ Q [$_{AP}$ A DP]]]]]
b. [$_{FP}$ **DP** [$_{F'}$ F [$_{QP}$ erg [$_{Q'}$ Q [$_{AP}$ A ~~DP~~]]]]]

The displacement depicted in (72b) possibly takes place for reasons of Case-licensing.

6.3 Adjectival Construct States

The Construct State pattern, familiar from possessive noun phrases such as *beyt ha-mora* (house the-teacher, 'the teacher's house') in Modern Hebrew, is also attested in the adjectival domain. Consider, for example, (73); see Glinert (1989), Siloni (2002), Rothstein (2014), Halevy (2016).

(73) a. ha-aHot [adumat-ha-eynáyim]
the-nurse red-the-eyes
'the red-eyed nurse'
b. rina [yefat mar'e].
Rina beautiful look
'Rina is good-looking.'

The adjectival expressions in (73) display the characteristic properties of Construct States. Firstly, the head of the adjectival construction is head initial. Secondly, the adjective directly precedes a noun phrase, that is, without the mediation of any (dummy) preposition. Thirdly, phonological alternations are found between construct state forms (e.g. *yefat* in (73b)) and free state (i.e., non-construct state) forms (e.g. *yafa*, as in *yalda yafa*, girl beautiful, 'a beautiful girl'). Fourthly, when a degree modifier (*me'od*) is present, it cannot occur in between the CS-adjective and the nominal complement (*se'ar*).

(74) na'ara [sxorat <*me'od> se'ar <me'od>]
girl black <very> hair <very>
'a girl whose hair is very black'

In the spirit of analyses of the nominal Construct State (Ritter 1988, 1991, Siloni 2002), it has been proposed that an adjectival Construct State like (74) is derived as follows:

(75) [$_{ZP}$ sxorat$_k$ [$_{FP}$ se'ar$_j$ [$_{F'}$ t'$_k$ [$_{AP}$ me'od [$_{AP}$ t$_k$ t$_j$]]]]]

According to this analysis, two movement operations take place: Firstly, head movement of the CS-adjective (*sxorat*) to the leftmost head-position of the extended adjectival projection (XAP); secondly, movement of the noun phrase (*se'ar*) to the specifier position of a functional head (F) within XAP. In its derived position, the construct adjective (*sxorat*) assigns genitival case to the noun phrase to its immediate right. In Modern Hebrew, this genitival case is not morphologically visible, in a language like Standard Arabic, however, it is; see (76) (example from Siloni 2002):

(76) r-rajul-u l-jamiil-u l-wajh-i
the-man-NOM the-beautiful-NOM the-face-GEN
'the man with the beautiful face'

Adjectival Construct States, and Construct States more in general, are familiar from Semitic languages such as Modern-Hebrew and Standard Arabic. The question arises as to whether they are also attested in other languages. As noted in Corver (2021c), although Dutch does not have

CS-patterns in any productive way, there turn out to be adjectival constructions that display the characteristics of Adjectival Construct States:

(77) De emmer was [vol water].
the bucket was full water
'The bucket was full of water.'

In (77), the adjective *vol* is followed immediately by the nominal complement *water*.[23] As shown by the English translation, the adjective *full* cannot have a noun phrase to its immediate right: *full *(of) water*. It requires the presence of an intervening preposition, presumably for reasons of case assignment. The restricted appearance of the adjectival Construct State pattern in Dutch is in line with the idea that morphosyntactic variation is associated with individual lexical items. Languages may differ from each other as regards the "size" of a phenomenon, that is, the number of lexical items that display a certain grammatical behaviour.

6.4 Scrambling within XAP

In a language like English, the word order of the adjectival head and its (PP-)complement is fixed: the adjective must precede its PP-complement within XAP:

(78) [<*for this job> suitable <for this job>] John certainly isn't!

In a language like Dutch, the word order arrangement of the adjective and its PP-complement is more free, at least for certain adjectives (79).[24] As shown in (80), there are also adjectives that prefer the A+PP word order (Corver 1997b, Broekhuis 2013)

(79) a. [<Voor deze functie> geschikt <voor deze functie>] leek Jan me niet.
for this job suitable for this job seemed Jan to.me not
b. [<Van zijn broer> afhankelijk <van zijn broer>] leek Jan me niet.
on his brother dependent on his brother seemed Jan to.me not

(80) [<??voor haar> bang <voor haar>] leek Jan me niet.
of her> afraid of her seemed Jan to.me not

The adjectives in (79) have verb-like properties. The adjective *geschikt* in (79a) has been qualified as a pseudo-participle: it displays the participial morphology (*ge-…-t*) that is also found on past/passive participial forms, as in *ge-dans-t* 'danced'. The adjective *afhankelijk* is verb-like because it consists of a verbal root (*afhang-* 'to depend') to which the adjectival suffix *-elijk* has been attached. Adjectives such as *bang* (80) clearly do not display any verb-like characteristics.

---

[23] In older varieties of Dutch, the genitival *-s* was still visible on the noun phrase that follows vol 'full':

(i) Die knapen zijn [vol vuur-s] (Older Dutch; Royen 1947-1954)
those lads are full fire-GEN
'Those lads are fiery.'

[24] See Struckmeier (2010) for a discussion of scrambling phenomena within the German adjectival system.

The acceptability of the pre-adjectival placement of PP can be accounted for by assuming that (at least in certain adjectival constructions) leftward movement of the PP-complement into some XAP-internal position is possible (Corver 1997b, Broekhuis 2013, Corver 2018). Consider the following examples:

(81) a. [<?Daarvan> erg <daarvan> afhankelijk <daarvan>] is Jan eigenlijk nooit geweest.
there.on very there.on dependent there.on has Jan actually never been
'Jan has actually never been much dependent on that.'
b. [een [$_{XAP}$ <daarvan> erg <daarvan> afhankelijke <*daarvan>] jongen]
a there.on much there.on dependent there.on boy
'a boy who is much dependent on that'

In (81a), we have a predicate XAP that occupies the clause-initial position; that is, the position preceding the finite verb (*is*) of the main clause (the so-called Verb Second phenomenon). Besides being able to occupy a post-adjectival position, the PP can also occur to the left of the adjective, either interspersed between the degree modifier and A or in a position preceding both the adjective and the degree word. In the attributive XAP in (81b) we find the same distributional pattern except for the post-adjectival placement, which is impossible due to the Head Final Filter (Williams 1982) or any principle from which it can be derived (e.g. the Final-Over-Final Constraint; see chapter 29).[25] [26]

From a cross-linguistic perspective, the question arises as to why certain languages display the phenomenon of scrambling in the adjectival domain, while others do not. Another issue in need of further investigation regards the subtle differences in word order variation between verb-like adjectives (e.g. *afhankelijk*) and regular adjectives (e.g. *trots* 'proud').[27] Both questions require further inter-linguistic and intra-linguistic investigation.

[25] HFF bans anything from intervening between the head of a prenominal modifier and the phrase which it modifies, as in the following English example: *a proud (*of his daughter) father*.

[26] When in attributive position, regular adjectives such as *bang* 'afraid' in (80) can have a PP-complement in pre-adjectival position. The PP prefers a position in the left periphery of XAP, that is, a position preceding the degree modifier. Placement in between the degree modifier and the attributive adjective yields a marked result.

(i) een <*erg> voor zijn broer <erg> bange jongen.
a very of his brother very afraid boy
'a boy very afraid of his brother'

.

[27] Contrasts between regular adjectives and verb-like adjectives are attested also in English. Notice, for example, that verb-like adjectives permit modification by *much* while regular adjectives do not:

(i) a. Thailand is [*much* dependent on the tourism industry].
b. *Oxford is [*much* close to London].

7. Measure Phrases within the Adjectival Domain

Measure adjectives are adjectives that can be modified by nominal phrases like *2 meters*, as in (82a,b); see Schwarzschild (2005), Corver (2009), Eguren and Pastor (2014).

(82) a. John is [two meters tall].
b. The lake is [ten meters deep].

As shown in (83), there is cross-linguistic variation in the surface manifestation of the pattern 'MP + measure adjective'. Besides the pattern MP+A in (83a), we find the reverse surface pattern A+MP in (83b).

(83) a. Deze auto is [drie meter lang]. (Dutch)
this car is three meter long
b. Gianni è [alto due metri]. (Italian, Indo-European, Romance)
Gianni is tall two meters
'Gianni is two meters tall.'

In these examples, there is no intervening element between the measure adjective and MP. They differ in this respect from the French and Romanian examples in (84), which feature the preposition-like element *de* in between A and MP:

(84) a. La voiture est [longue de deux mètres]. (French)
the car is long of two meters
'The car is two meters long.'
b. Cladirea e [înalta de un kilometru]. (Romanian)
building-the is high of one kilometer
'The building in one kilometer tall.'

Although, superficially, the (French) pattern A+*de*+MP in (84a) looks very similar to adjective phrases such as *fier de son fils* 'proud of his son' (A + *de* +argumental noun phrase), it is clear that the two adjectival constructions display very different syntactic behaviour (Corver 2009). As shown in (85), for example, the adjectival pattern *fier de son fils* permits pronominalization of just the adjectival head (85a). As shown in (85b), however, the A+*de*+MP pattern does not allow pronominalization of just the adjective *long*.

(85) a. Jean est [*fier* de son fils et Pierre *l*'est de sa fille.
Jean is proud of his son and Pierre it-is of his daughter
'Jean is proud of his son and Pierre is proud of his daughter.'
b. *Le poisson de Jean était [*long* de deux mètres], et celui de Pierre ..
the fish of Jean was tall of two meters and that of Pierre

..*l*'était de 1.5 mètres.
..it-was of 1.5 meters

From the contrast between (85a) and (85b), one may draw the conclusion that *fier de son fils* and *long de deux mètres*, even though superficially the same, have different underlying structures.

In Corver (2009), it is proposed that the three 'MP+Adjective'-patterns discussed above display a certain similarity to the three types of possessive constructions in (86).

(86) a. John's car
b. casa Rossi
house Rossi
'Rossi's house'
c. une voiture de Jean
a car of John
'a car of John's'

Specifically, the MP+A-pattern in (83a) is reminiscent of the so-called Saxon genitival construction in (86a), where the possessor precedes the possessed noun (Longobardi 2001). The A+MP-pattern in (83b) reminds us of the Construct State pattern in (86b), in which the possessor (*Rossi*) immediately follows the possessum-noun (*casa*); see also section 6.3. The A+*de*+MP pattern in (83c) is similar in form to the possessive construction in (86c), which has been analyzed in terms of DP-internal predicate displacement (Kayne 1994, Den Dikken 2006); see also example (42). For a more explicit discussion of the derivation of the different MP-patterns in (83)-(84), see Corver (2009).[28]

8. Subextraction

Extraction of complements out of adjective phrases is possible in many languages, as exemplified in (87):

(87) a. Je me demande [$_{CP}$ [de qui]$_{I}$ [$_{TP}$ il était [$_{XAP}$ très fier t_i]]]. (French)
I REFL wonder of whom he was very proud
'I wonder of whom he was very proud.'
b. [Na kojeg sina]$_i$ je [$_{XAP}$ ponosan t_i]? (BCS;[29] Bošković (2013))
of which son is proud
'Of which son is he/she proud?'

Although extraction of complements from within XAP is often possible in natural languages, extraction of degree modifiers from within XAP displays much more cross-linguistic diversity. In many languages, extraction of degree modifiers is typically ruled out (examples in (88) from Talić (2017)); see also Corver (2017):

(88) a. *[Estremamente]$_i$ è [$_{XAP}$ t_i intelligente]. (Italian)
Extremely is intelligent
'He/she is extremely intelligent.'
b. *Nagyon$_i$ ő [$_{XAP}$ t_i intelligens]. (Hungarian)
very he smart
'He is very smart.'

The sentences in (88) are well-formed when the modified adjective moves along with (that is, is pied piped by) the degree modifier, as exemplified in (89) for Italian:

[28] See Corver (2021a) for discussion of the syntactic behaviour of measure phrases that occur in adjective phrases featuring the degree word *too* or the comparative morpheme *more/-er*, as in *two inches too tall* and *two inches taller than Bill*.
[29] 'BCS' stands for 'Bosnian-Croatian-Serbian' (Indo-European, Slavic).

(89) [Estremamente intelligente] è Gianni!
'Gianni is extremely intelligent!'

As shown in (90), there are languages that do allow subextraction of degree modifiers from within the adjective phrase; data from Talić (2017).

(90) a. Strašno$_i$ je bila [$_{XAP}$ t$_i$ umorna]. (BCS)
terribly is been tired.F.SG
'She was terribly tired.'
b. Okropnie$_i$ on był [$_{XAP}$ t$_i$ zmęczony]. (Polish)
terribly he was tired
'He was terribly tired.'

The question obviously arises as to what underlies the extraction asymmetry depicted in (88) and (90). According to Talić (2015), the contrast in extraction behaviour relates to the nature of the (extended) adjectival projection in combination with principles of locality. Specifically, she proposes that, cross-linguistically, degree modifiers are base-generated as phrases adjoined to AP. An important contrast between languages that permit subextraction of a degree modifier and those that do not regards the nature of the extended adjectival projection. In subextraction languages, the lexical projection AP counts as the highest projection in the adjectival domain; see (91a). In non-subextraction languages, on the contrary, the lexical projection is embedded in a higher functional projection, which is represented as FP in (91b).

(91) a. [$_{AP}$ strašno [$_{AP}$ umorna]]. (BCS; see (90a))
'extremely tired'
b. [$_{FP}$ Spec [$_{F'}$ F [$_{AP}$ estremamente [$_{AP}$ intelligente]]]] (Italian; see (88a))

Starting from the structural contrast in (91), Talić accounts for the different subextraction behaviour in terms of the notions 'locality' (Don't move over too big a distance!) and anti-locality (Don't move over too small a distance!). The locality requirement is defined in terms of the Phase Impenetrability Condition (PIC), which is stated in (92); see Chomsky (2000) for discussion.

(92) *Phase Impenetrability Condition*:
Phrasal movement out of a phase XP must proceed via Spec,XP or XP-adjunction.

The notion of phase refers to the locality domain from which material is extracted. In line with Bošković (2013, 2014), Talić proposes that the highest projection in the extended domain (*in casu*, XAP) functions as a phase. Phasehood of a phrase thus depends on the amount of structure in the extended domain of a lexical head (A). In non-subextraction languages such as English, FP counts as the phase. In sub-extraction languages such as BCS, AP counts as the phase.

Let's next consider the anti-locality requirement on movement operations. This requirement is stated in (93); see Grohmann (2000), Abels (2003):

(93) *Anti-locality*:
A moving element must cross at least a full maximal projection (not just a segment).

The interplay between locality condition (92) and anti-locality condition (93) accounts for the cross-linguistic difference in subextraction behaviour. In a non-subextraction language like

Italian, the degree modifier *estremamente* in (91b) is in a way "imprisoned" within XAP. It can't move directly from the modifier position within the adjective phrase to a position external to the adjective phrase (say, Spec,vp); see (94a). Such a movement step would violate locality (i.e. PIC). If *estremamente* leaves the adjective phrase by first moving to Spec,FP (the edge of the phase FP), we have a violation of anti-locality: such a movement step does not cross a (full) phrase; it only crosses a segment of the lexical projection AP; see (94b).

(94) a. *…[$_{vP}$ **estremamente** [$_{vP}$ is [$_{FP}$ Spec [$_{F'}$ F [$_{AP}$ ~~estremamente~~ [$_{AP}$ intelligente]]]]
b. *…[$_{FP}$ **estremamente** [$_{F'}$ F [$_{AP}$ ~~estremamente~~ [$_{AP}$ intelligente]]]]

Consider next subextraction-languages such as BCS. In these languages, AP is the highest projection and constitutes the domain of locality (i.e. phase). Since the modifier is adjoined to AP, it is already at the edge of the adjectival phrase and consequently able to run away from the adjectival home. Suppose it adjoins to vP on its way to Spec,CP, as represented in (95):

(95) …[$_{vP}$ **strašno** [$_{vP}$ v …[$_{VP}$ … [$_{AP}$ ~~strašno~~ [$_{AP}$ umorna]]]]]

On its way to the edge of vP, the degree modifier *strašno* crosses the maximal projection VP. Consequently, this movement step is not too local and thus does not violate the anti-locality requirement. From the position adjoined to vP, the degree modifier *strašno* moves on to the left periphery of the clause, yielding the surface word order in (90a).

9. Conclusion

This chapter took a comparative-linguistic perspective on the syntax of adjectival phrases. Given the absence of a systematic cross-linguistic study of adjectival phenomena, we should be careful with drawing firm conclusions about the universality or (the nature of) variability of certain adjectival properties. Keeping this in mind, I will nevertheless highlight a number of grammatical properties and phenomena that seem relevant for our future thinking about this part of speech in human language. These properties/phenomena are the following:

- The word class 'adjective' seems to be part of the categorial inventory of every human language (section 2).
- The grammatical property 'person' does not seem to play any role in agreement dependencies between nouns and adjectives (section 3).
- Post-adjectival degree words typically precede post-adjectival PP-complements; that is, *A+Deg+PP* but not *A+PP+Deg* (section 4.2).
- At a descriptive level, cross-linguistic variation as regards the inner organization of the adjective phrase can be found for the following linguistic phenomena: agreement (section 2), word order, including movement (sections 4.2, 5, 6, 7), and doubling (section 5).
- Besides inter-linguistic variation, there is also intra-linguistic variation, for example as regards the XAP-internal distributional behaviour of degree expressions (section 4.2, 4.3) and the distinction between "regular" and more verb-like adjectives (section 6.4).

- The "size" of a phenomenon can vary cross-linguistically; e.g., the number of adjectives in language L (section 1), the number of post-adjectival degree words (section 4.2), the number of Construct State adjectives (section 6.3).[30]
- Languages may differ from each other in terms of the presence *versus* absence of certain functional projections within XAP: e.g. the projection encoding agreement (sections 3.2, 3.3), the projection encoding comparison (section 5); see also section 8 on subextraction.
- Languages display variation as regards the phonological realization (Spell-Out) of certain functional positions (head/specifier): e.g., Spell-Out of agreement relations (section 2), realization of "linking" material (sections 4.3 and 6.1)

As was noted in the introduction (section 1), the cross-linguistic study of the inner organization of the adjectival system has not figured prominently on the formal-linguistic research agenda. The aim of this chapter was to give an overview of the major questions, empirical findings, and theoretical insights that can be found in studies on adjectival phrases from the last couple of decades. More systematic and in-depth inter- and intra-linguistic investigation of adjectival properties is obviously needed for obtaining a deeper understanding of the variant (diversity) and invariant (uniformity) dimensions of the extended adjectival projection, one of the core syntactic domains of human language.

Acknowledgements: I would like to thank Artemis Alexiadou and Maša Bešlin for useful comments on an earlier version of this chapter.

References

Abels, K. (2003). Successive cyclicity, anti-locality, and adposition stranding. Ph.D. Dissertation. University of Connecticut.

Abney, S. (1987). The English Noun Phrase in its Sentential Aspect. Ph.D. Dissertation, MIT.

Alexiadou, A. (2013). Adverbial and adjectival modification. In M. den Dikken, ed., *The Cambridge handbook of Generative Syntax*. 458-484. Cambridge: Cambridge University Press.

Amritavalli, R. and K. A. Jayaseelan (2003). The genesis of syntactic categories and parametric variation. Ms., CIEFL, Hyderabad.

Andersen, P. K. (1983). *Word Order Typology and Comparative Constructions*. Amsterdam: John Benjamins.

Baker, M. C. (2003). *Lexical Categories: Verbs, Nouns, and Adjectives.* Cambridge: Cambridge University Press.

Baker, M. C. (2008). *The Syntax of Agreement and Concord*. Cambridge: Cambridge University Press.

Beck, S., T. Oda, and K. Sugisaki (2004). Parametric variation in the semantics of comparison: Japanese vs. English. *Journal of East Asian Linguistics* 13: 289-344.

Bobaljik, J. (2012). *Universals in Comparative Morphology. Suppletion, Superlatives, and the Structure of Words*. Cambridge, Mass.: The MIT Press.

[30] Another example is the number of subject-to-subject raising adjectives. In English, this (small) class consists of *likely* and *certain*, as in *John$_i$ is likely/certain [t_i to leave]*. Other Germanic languages, such as Dutch and German, do not have such adjectival 'subject-to-subject' raising constructions.

Borer, H. (1991). The causative-inchoative alternation: a case study in parallel morphology. *The Linguistic Review* 8: 119-58.
Bošković, Ž. (2013). Phases beyond clauses. In L. Schürcks, A. Giannakidou & U. Exteberria, eds., The nominal constructions in Slavic and beyond, 75-128. Berlin: Mouton de Gruyter.
Bošković, Ž. (2014). Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45: 27-89.
Bresnan, J. (1973). Syntax of the comparative clause construction in English. *Linguistic Inquiry* 4: 275-343.
Broekhuis, H. (2013). *Syntax of Dutch. Adjectives and Adjective Phrases*. Amsterdam: Amsterdam University Press.
Caha, P., K. De Clerq, & G. Vanden Wyngaerd. 2019. The fine structure of the comparative. *Studia Linguistica* 73: 470–521.
Chomsky, N. 1970. Remarks on nominalization. In *Readings in English Transformational Grammar*, ed. R.A. Jacobs and P.S. Rosenbaum. 184-221. Waltham: Ginn and Company.
Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.
Chomsky, N. 1986. *Knowledge of Language: Its Nature, Origin and Use*. New York: Praeger.
Chomsky, N. (2000). Minimalist inquiries: The framework. In R. Martin, D. Michaels & J. Uriagereka, eds., *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, 89-155. Cambridge, Mass.: MIT Press.
Chomsky, N. (2001). Derivation by phase. In M. Kenstowicz, ed., *Ken Hale: A Life in Language*. 1-52. Cambridge, Mass.: MIT Press.
Cinque, G. 1999. *Adverbs and Functional Heads. A Cross-linguistic Perspective.* Oxford: Oxford University Press.
Corver, N. (1990). *The Syntax of Left Branch Extractions*. Ph.D. Dissertation. Tilburg University.
Corver, N. (1997a). *Much*-support as a last resort. *Linguistic Inquiry* 28:119-164.
Corver, N. (1997b). The internal syntax of the Dutch extended adjectival projection. *Natural Language and Linguistic Theory* 15: 289-368.
Corver, N. (2000). Degree adverbs as displaced predicates, *Italian Journal of Linguistics*, 12: 155-191.
Corver, N. (2005a). Double comparatives and the comparative criterion, *Recherches linguistiques de Vincennes* 34: 165-190.
Corver, N. (2005b). Proleptic agreement as a good design property. In J. Costa & M. C. Figueiredo Silva, eds., *Studies on Agreement*, 47-74. Amsterdam: John Benjamins.
Corver, N. (2009). Getting the (Syntactic) Measure of Measure Phrases. *The Linguistic Review* 26: 67-134.
Corver, N. (2017). Subextraction. In M. Everaert & H.C. van Riemsdijk, eds., *The Blackwell Companion to Syntax (Volume IV)*. Malden, MA: Blackwell. **https://doi-org.proxy.library.uu.nl/10.1002/9781118358733.wbsyncom054**
Corver, N. (2018). The freezing points of the (Dutch) adjectival system. In J. Hartmann, M. Jaeger, A. Kehl, A. Konietzko & S. Winkler, eds., *Freezing - Theoretical Approaches and Empirical Domains*. 143-194. Berlin: De Gruyter.
Corver, N. (2021a). On Measure Phrase Alternation and Smuggling. In: A. Belletti & Chris Collins, eds., *Smuggling in syntax*. 108-146. Oxford: Oxford University Press.
Corver, N. (2021b) Inflected intensifiers: the structure dependence of parasitic agreement. In: A. Bárány, T. Biberauer, J. Douglas & S. Vikner, eds., *Syntactic Architecture and its Consequences, Volume 3: Inside Syntax*. 185-217. Berlin: Language Science Press https://langsci-press.org).
Corver, N. (2021c). Adverbial *-s* as last resort: *n* and *a* get their support. *Natural Language and Linguistic Theory*. https://doi.org/10.1007/s11049-021-09527-w

Den Dikken, M. (2006). *Relators and Linkers: The Syntax of Predication, Predicate Inversion, and Copulas.* Cambridge, Mass.: MIT Press.
Ding, S. (1998). *Fundamentals of Prinmi (Pumi): A Tibeto-Burman Language of Northwestern Yunnan, China*. Ph.D. Dissertation, The Australian National University.
Dixon, R.M.W. (1977). Where have all the adjectives gone? *Studies in Language* 1: 19-80.
Dixon, R.M.W. (1982). *Where Have all the Adjectives Gone? And Other Essays in Semantics and Syntax*. The Hague: Mouton.
Dixon, R.M.W. (2004). Adjective classes in typological perspective. In: R.M.W. Dixon & A. Y. Aikhenvald, eds., *Adjective Classes, a Cross-linguistic Typology*. 1-49. Oxford: Oxford university Press.
Dixon, R.M.W. (2008). Comparative constructions: A cross-linguistic typology. *Studies in Language* 32: 787-817.
Dixon, R.M.W. & A. Y. Aikhenvald. (2004). *Adjective Classes, a Cross-linguistic Typology*. Oxford: Oxford university Press.
Doetjes, J. (2008). Adjectives and degree modification. In L. McNally & C. Kennedy, eds., *Adjectives and Adverbs. Syntax, Semantics, and Discourse*. 123-155. Oxford: Oxford University Press.
Dryer, M. S. (2013). Order of Degree Word and Adjective. In M. S. Dryer & M. Haspelmath, eds., *The World Atlas of Language Structures Online*. Leipzig: Max Planck Institute for Evolutionary Anthropology. (Available online at http://wals.info/chapter/91, Accessed on 2022-07-08.)
Edwards, V. (1993). The grammar of Southern British English. In Milroy, J. & Milroy, L. eds., *Real English. The Grammar of English Dialects in the British Isles*. 214-238. London/New York: Longman.
Eguren, L., & A. Pastor (2014). Measure Phrases with bare adjectives in Spanish. *Natural Language & Linguistic Theory* 32: 459-497.
Embick, D. & A. Marantz (2008). Architecture and blocking. *Linguistic Inquiry* 39: 1-53.
Emonds, J. E. (1985). *A Unified Theory of Syntactic Categories*. Dordrecht: Foris.
Emonds, J. E. (2000). *Lexicon and Grammar: The English Syntacticon*. Berlin: Walter de Gruyter.
Evans, N. (2003). *Bininj Gun-wok: A pan-dialectal grammar of Mayali, Kunwinjku and Kune*. Canberra: Pacific Linguistics.
Francez, I. & A. Koontz-Garboden (2015). Semantic variation and the grammar of property concepts. *Language* 91: 533-563.
Glinert, L. (1989). *The Grammar of Modern Hebrew*. Cambridge: Cambridge University Press.
Grimshaw, J. (1991). Extended projection. Unpublished manuscript, Brandeis University, Waltham, Mass. [Published in Grimshaw (2005), 1-73]
Grimshaw, J. (2005). *Words and Structure*. Stanford, CA: CSLI Publications.
Grohmann, K. (2000). Prolific peripheries: A radical view from the left. Doctoral dissertation. Univeristy of Maryland, College Park.
Grosu, A. (1974). On the nature of the left branch condition. *Linguistic Inquiry* 5: 308-319.
Gu, Y. (2008). Studies of tense, aspect and Chinese time reference. In S. Yang & F. Shengli, eds., *Contemporary Linguistic Theories and Related Studies of Chinese*. 97–119. Beijing: Commerce Press.
Halevy, R. (2016). The 'swift of foot' construction and the phrase structure of the adjectival construct in Hebrew. *Studies in Language* 40: 380-413.
Hankamer, G. (1974). Why there are two *than*'s in English. In C. Corum *et al*., eds., *Papers from the Ninth Regional Meeting of the Chicago Linguistic Society*, 179-191. University of Chicago.

Hayashishita, J.-R. (2009). *Yori*-comparatives: A reply to Beck *et al*. (2004). *Journal of East Asian Linguistics* 18: 65-100.
Hockett, C. F. (1958). *A Course in Modern Linguistics*. New York: Macmillan.
Jelinek, E. & R. Demers (1994). Predicates and pronominal arguments in Straits Salish. *Language* 70: 697-736.
Jones, B. M. (2009). The modification of adjectives in Welsh, *Journal of Celtic Linguistics* 13: 45–116.
Karimi, S. & M. Brame (1986). A generalization concerning the Ezafe construction in Persian. *Linguistic Analysis* 38: 111-144.
Kayne, R. S. (1994). *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
Kayne, R. S. (2003). Silent years, silent hours. In L.-O. Delsing *et al*., eds., *Grammar in Focus. Festschrift for Christer Platzack*, vol. 2, 209-226. Lund: Wallin and Dalholm.
Kayne, R. S. (2005). *Movement and Silence*. Oxford: Oxford University Press.
Kennedy, C. (1999). *Projecting the Adjective: The Syntax and Semantics of Gradability and Comparison*. New York: Garland.
Kennedy, C. (2005). Variation in the Expression of Comparison Implications for the Semantics of Comparatives and Gradable Predicates. Handout of a lecture at Cornell University, November 11th, 2005.
Kennedy, C. (2007). Modes of Comparison. In M. Elliott, J. Kirby, O. Sawada, E. Staraki & S. Yoon, eds., *CLS 43*, 141-165. Chicago: University of Chicago, Chicago Linguistic Society.
Kester, E.-P. (1996). *The Nature of Adjectival Inflection*. Ph.D. Dissertation, Utrecht University.
Kibona, N. J. (2019). An Analysis of a Noun Phrase in Ichindali, *Journal of Language Teaching and Research* 10: 906-913.
King, G. (2016). *Modern Welsh: A Comprehensive Grammar*. London: Routledge.
Kinkade, M. D. (1983). Evidence against the universality of 'noun' and 'verb'. *Lingua* 60: 25-39.
LaPolla, R. J. & C. Huang (2004). Adjectives in Qiang. In R.M.W. Dixon & A. Y. Aikhenvald, eds., *Adjective Classes. A Cross-linguistic Typology*. 306-322. Oxford: Oxford University Press.
Larson, R. (1987). Missing Prepositions' and the Analysis of English Free Relative Clauses. *Linguistic Inquiry* 18: 239-266.
Larson, R. (2009). Chinese as a reverse Ezafe language. *Yuyanxue Luncong* [Essays on Linguistics] 39: 30-85.
Lechner, W. and N. Corver (2017). Comparative Deletion and Subdeletion. In M. Everaert & H.C. van Riemsdijk, eds., *The Blackwell Companion to Syntax*. Malden, MA: Backwell. **https://doi-org.proxy.library.uu.nl/10.1002/9781118358733.wbsyncom079**
Li, Y. (1990). Xy-binding and verb incorporation. *Linguistic Inquiry* 21: 399-426.
Li, C. N. and S. A. Thompson (1981). *Mandarin Chinese. A Functional Reference Grammar*. Berkeley CA: University of California Press.
Maling, J. (1983). Transitive adjectives: a case of categorial reanalysis. In F. Heny & B. Richard, eds., *Linguistic Categories: Auxiliaries and Related Puzzles, Vol. 1*. 253-289. Dordrecht: Reidel.
Mallinson, G. (1986). *Rumanian*. London: Croom-Helm.
Naughton, J. (2005). *Czech: An Essential Grammar*. London: Routledge.
Neeleman, A., H. van de Koot & J. Doetjes (2004). Degree expressions. *The Linguistic Review* 21: 1-66.
Ohkado, M. (1990). Transitive Adjectives and the Theory of Case. *Lingua* 81: 241- 264.

Paul, W. (2010). Adjectives in Mandarin Chinese. The rehabilitation of a much ostracised category. In P. Cabredo Hofherr & O. Matushansky, eds., *Adjectives. Formal analyses in syntax and semantics*. 115-151. Amsterdam: John Benjamins.
Platzack, C. (1982). Transitive adjectives in Swedish: A phenomenon with consequences for the theory of abstract case. *The Linguistic Review* 2: 39-57.
Ritter, E. (1988). A head-movement approach to Construct-State noun phrases. *Linguistics* 26, 909-929.
Ritter, E. (1991). Two functional categories in noun phrases: Evidence from Hebrew. In S. Rothstein, ed., *Perspectives on Phrase Structure: Heads and Licnesing.* 37-62. San Diego: Academic Press.
Romero-Figueroa, A. (1986). Warao comparatives. *Studies in Language* 10: 97-108.
Rothstein, S. (2014). Adjectivally headed construct states and the semantics of metonymic predication. *Lingua* 138: 23-54.
Royen, G. 1947-1954. Buigingsverschijnselen in het Nederlands. Delen I-IV. Amsterdam: Noord-Hollandsche Uitgevers Maatschappij.
Rubin, E.J. (1994). *Modification: A syntactic analysis and its consequences.* Ph.D. Dissertation, Cornell University, Ithaca, NY.
Samiian, V. (1983). *Structure of Phrasal Categories in Persian: An X-bar Analysis*. Ph.D. Dissertation, Los Angeles, CA, UCLA.
Samiian, V. (1994). The Ezafe construction: Some implications for the theory of X-bar syntax. In M. Marashi, ed., *Persian Studies in North America*, 17-41. Bethesda, MA: Iranbooks.
Schachter, P. (1985). Parts-of-speech systems. In T. Shopen, ed., *Language, Typology, and Syntactic Description*, 3-61. Cambridge: Cambridge University Press.
Schwarzschild, R. (2005). Measure phrases as modifiers of adjectives. *Recherches Linguistiques de Vincennes* 34: 207-228.
Scontras, G. & A. C. Nicolae (2014). Saturating syntax: Linkers and modification in Tagalog. *Lingua* 149: 17-33.
Siloni, T. (2002). Adjectival constructs and inalienable constructions. In J. Ouhalla & U. Shlonsky, eds., Themes and Issues in the Syntax of Arabic and Hebrew. 161-187. Dordrecht: Kluwer Academic Publisher.
Stassen, L. (1985). *Comparison and Universal Grammar: An Essay in Universal Grammar*. Oxford: Blackwell.
Stassen, L. (2008). Comparative constructions. In *World Atlas of Language Structures Online*. In M. Haspelmath, M. S. Dryer, D. Gil & B. Comrie, eds., chapter 121. Max Planck Digital Library. http://wals.info/feature/121.
Stowell, T. (1981). *Origins of Phrase Structure*. Ph.D. Dissertation, MIT.
Struckmeier, V. (2010). Attributive constructions, scrambling in the AP, and referential types. *Lingua* 120: 673-692.
Talić, A. (2015). Adverb extraction, specificity, and structural parallelism. *Canadian Journal of Linguistics*, 60: 417-445.
Talić, A. (2017). *From A to N and Back: Functional and Bare Projections in the Domain of N and A.* Storrs, CT: University of Connecticut, Ph.D. Dissertation.
Vainikka, A. (1993). The three structural cases in Finnish. In A. Holmberg & U. Nikanne, eds., *Case and Other Functional Categories in Finnish Syntax*. 129-159. Berlin: Mouton de Gruyter.
Van Riemsdijk, H. (1983). The case of German adjectives. In F. Heny & B. Richards, eds., *Linguistic Categories: Auxiliaries and Related Puzzles, Vol. 1*, 223-252. Dordrecht: Reidel.
Vişan, R. (2004). The *cât de/cum...de* exclamative patterns in Romanian. *Bucharest Working Papers in Linguistics. Syntax * Phonology * Language Acquisition*. VI.1: 116-127.
Warotamasikkhadit, U. (1972). *Thai Syntax: An Outline.* Berlin: Mouton de Gruyter.

Williams, E. (1982). Another argument that passive is transformational. *Linguistic Inquiry* 13: 160-163.
Wood, J. (2012). Double comparatives. *Yale Grammatical Diversity Project: English in North America*. (Available online at http://ygdp.yale.edu/phenomena/double-comparatives. Accessed on 2022-7-8). Updated by Tom McCoy (2015) and Katie Martin (2018).
Xu, W. (1988). Capturing the adjective in Chinese. Ms. Australian National University.