Introduction

Adjectives – an introduction
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The contributions in the present volume deal with a variety of issues in the analysis of the syntax and semantics of adjectives.\footnote{Compared to the lexical categories of nouns and verbs, adjectives have received little attention in the linguistic literature. In the present introduction I will give an overview of some of the central issues in the study of adjectives and put the issues addressed by the papers in this volume into this wider context.}

The first section reviews the criteria that have been proposed to distinguish adjectives as a word class and discusses some cross-linguistic variation observed with respect these criteria. The second section sketches some issues in the semantics of adjectives. The third section gives a summary of the main issues in the syntax of adjectives and of the syntactic analyses proposed for the attributive and predicative uses of adjectives. The fourth section presents the papers collected in this volume.

1. Adjectives as a word-class

In a typological perspective it is crucial to have criteria that allow us to distinguish nouns and adjectives as well as different types of adjectives. Identifying nouns, verbs and adjectives cross-linguistically is, however, a difficult enterprise, with adjectives being particularly elusive. In earlier research on adjectives as a word class it was claimed that some languages do not have an adjective class at all (Dixon 1977, Shopen 1985:13-20) and that predicates typically corresponding to adjectives in other languages are either nouns or verbs in these languages.\footnote{More recent research on adjectives as a word class, however, has defended the idea that an adjective class can be identified in all languages. The detailed studies of adjectives in Baker (2003:238-63) and Dixon (2004:14-28) have both given detailed evidence for a lexical category distinct from nouns and verbs in languages that had been analysed as lacking an adjective class. The criteria invoked by Baker and Dixon to set apart a class of adjectives include the following:}

(1) a. Adjectives allow direct modification of nouns. (Baker 2003:252-6, Dixon 2004:19-20)
   b. Adjectives differ from other predicates in the comparative construction. (Dixon 2004:11,21)
   c. Adjectives do not have their own gender, they agree in gender with the modified noun (Baker 2003:247, Dixon 2004:23)
   d. Adjectives can appear without a preposition in resultative predications. (Baker 2003:219-30)

As Baker and Dixon point out, the criteria proposed need not distinguish adjectives from verbs or nouns in all languages, as independent cross-linguistic differences can interfere with the criteria.
Criterion (1a), for example, is not applicable in languages like Slave (Athapaskan) that do not allow direct modification of the noun by the adjective (Baker 2003:194 citing Rice 1989).

In order to apply criterion (1b), comparatives in a given language also have to be analysed in detail. As Dixon (2004: 26) points out, comparative constructions may but need not distinguish adjectives from nouns (adjectives, but not nouns, admit comparatives in Russian, Finnish and Hungarian, both adjectives and nouns can enter the comparative construction in Portuguese, Sanskrit and Dyirbal). This seems to be a special case of the more general observation that not all degree words select adjectives exclusively (see Baker 2003: 212-18 for discussion). While how, too, so and as in English are limited to adjectives (like the synthetic comparative), semantically similar expressions such as more, less and enough can also combine with other expressions such as mass nouns (more/less/ enough water) and verbs (I trust her more/ less/ enough). The distinction between the two types of degree expressions has other grammatical reflexes in English: more/less/ enough can combine directly with the predicate pronoun so while degree heads like how/ too/ so/ as require a dummy much (Corver 1997).

(2)  
  a. Mary is intelligent and Sue is more so.
  b. Mary is intelligent, in fact she is too much so.
  b.' *Mary is intelligent, in fact she is too so.

The application of the criterion in (1b) therefore has to be underpinned by a detailed examination of the degree words in a given language (see e.g. Doetjes 2008 for a detailed comparative study of degree expressions in French and English).

Finally, there are languages such as French, Hindi, Russian and Chichewa that do allow only PP-resultative predicates – since adjectival resultative predicates are excluded independently in these languages, criterion (1d) is rendered inapplicable (see Baker 2003:226).

Summarising, it seems fair to say that the criteria in (1) are flawed since they are too coarse to properly isolate the characteristic features of adjectives, and therefore other properties of the language can interfere with the behaviour of adjectives on a given criterion. Nevertheless, the criteria provide a useful battery of tests that may help to identify adjectives in a given language.

A heuristic that may be used to approach the task of identifying the potential adjectives in a language is provided by Dixon’s study of the semantics covered by adjectives in languages with small adjective inventories. According to Dixon (1977/1982:46-59), small adjective inventories typically include adjectives of dimension (big, small, long, short, wide), age (new, young, old), value (good, bad) colour (black, white, red); while only bigger adjective inventories typically also contain adjectives describing physical property (hard, soft, heavy, wet), human propensity (jealous, happy, kind, clever) and speed (fast, slow) (see also Dixon 2004:4).

As adjectives often share properties of either nouns or verbs it is crucial to examine the criteria that allow us to draw the boundary between adjectives and the other two lexical categories for specific languages. The paper by Paul (this volume) examines the relationship between intransitive verbs and adjectives in Mandarin Chinese. Paul argues against the traditional analysis of Mandarin Chinese adjectives as verbs, giving syntactic, semantic and morphological criteria that distinguish two classes of adjectives from intransitive verbs. Two other papers in the present volume examine the relationship between nouns and adjectives: (i) Babby (this volume) argues in detail that Russian long-form adjectives that appear in predicative position have nominal properties and should be analysed as attributive adjectives on an abstract predicative noun, and (ii) Borer & Roy (this volume) propose syntactic and semantic
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3 criteria to distinguish nominalised adjectives from cases of N-ellipsis (i.e. adjectives modifying a null pronoun pro) in English, French and Modern Hebrew.

2. Semantic properties of adjectives

In what follows I will review three central issues in the semantics of adjectives: gradability, intersectivity and lexical aspect. Gradability and the intersective/non-intersective contrast have been the object of a fair amount of research. The study of aspectual properties of adjectives, on the other hand, is only recently emerging as a focus of interest.

2.1 Gradability

Gradability is often taken to be a prototypical property of adjectives (see e.g. Jackendoff 1977): degree expressions of the type of too or very combine with adjectives but not with other categories. It has been pointed out, however, that the syntactic behaviour of degree expressions varies cross-linguistically as illustrated here by the degree expressions too and trop “too” in English and French respectively (see e.g. Doetjes 2008):

(3)

<table>
<thead>
<tr>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. trop</td>
<td>too big</td>
</tr>
<tr>
<td>b. trop</td>
<td>appreciate too much</td>
</tr>
<tr>
<td>c. trop</td>
<td>dance too much</td>
</tr>
<tr>
<td>d. trop</td>
<td>too much soup</td>
</tr>
<tr>
<td>e. trop</td>
<td>too many books</td>
</tr>
</tbody>
</table>

(Doetjes 2008:123)

As Doetjes points out, the distribution of too distinguishes adjectives from other categories in English as only adjectives can combine directly with too. In contrast, the French degree expression trop - although semantically similar to too - does not discriminate between adjectives, verbs and nouns. Gradability therefore seems to be a more general property of a subclass of predicates that are associated with a scale, be they nouns, verbs or adjectives.

Apart from degree expressions, gradable adjectives also admit comparative and superlative formation (e.g. smaller/smallest). In some languages adjectives have dedicated comparative and superlative morphological forms that do not apply to other categories:

(4)

| a. schön | schöner  | schönster |
| challenge | challenge-comparative | challenge-superlative |
| green | greener | greenest |

However, in the same way as degree expressions do not single out adjectives cross-linguistically (see discussion in section 1 above), comparative and superlative morphology is not limited to adjectives either (see (5) and the references cited in Dixon 2004).

(5)

| a. Muy filósofo | estás, Sancho, ... |
| very philosopher | be-loc.2sg Sancho ... |

‘You are in a very philosophical mood, Sancho …’

b. En este lugar del sur me encuentro con el más escritor
in this place of-DET south 1SG.DAT find with the most writer
de nuestros cineastas o con el más cineasta de nuestros,
of our filmmakers or with DET most filmmaker of our
escritores, Gonzálo Suárez.
writers Gonzálo Suárez (Sp)
‘In this place in the south I meet with the one of our filmmakers who is the most like a writer or the one of our writers who is the most like a filmmaker, G.S.’ (attested)

The preceding examples show that gradability and its reflexes in degree expressions and superlative and comparative morphology cannot be taken to characterize adjectives as a class cross-linguistically. This notwithstanding, it is true that gradability is an important semantic property of a large subset of adjectives in many languages. Kennedy and McNally (2005) propose a semantic typology of gradable predicates based on the properties of the scales along which these predicates order their arguments (their scale structure). These authors propose to classify gradable predicates along two parameters: (i) whether the scale involved is open or closed and (ii) whether the standard of comparison for the predicate is relative (i.e. fixed contextually) or absolute (a maximal or minimal value on the scale, irrespective of context).

(6) a. open scale relative: big
   (i) no upper limit on the scale: big is incompatible with completely
   (ii) relative standard of comparison: big can be modified by very

b. closed-scale absolute adjective: undocumented
   (i) upper limit on the scale: completely undocumented
   (ii) absolute standard of comparison: # very undocumented

Kennedy & McNally point out that the two properties of gradable predicates interact; in particular, gradable adjectives associated with totally open scales have relative standards (Kennedy & McNally 2005:361). The inverse correlation is not as strong: gradable adjectives that use totally or partially closed scales need not have absolute standards but in the default case the standards for close-scale adjectives correspond to an endpoint of the scale (either the minimum or the maximum).

As the preceding discussion shows, the claim that gradability is proto-typical of adjectives cannot be maintained. However, even if gradability does not characterise adjectives as a class, it is an important semantic property of a large subset of adjectives in many languages that is a crucial component of the meaning of many adjectives.

2.2 Intersective and non-intersective adjectives

Adjectives can further be classified based on the inferences that an adjective+noun combination can license. The simplest case is that of intersective adjectives: these adjectives license inferences between the attributive and the predicative use based both on the noun and on the adjective:

(7) Intersective adjectives: Licensed inferences
   a. X is Adj N --- X is a N X is a red house --- X is a house
   b. X is Adj N --- X is Adj X is a red house --- X is red
Among the adjectives that are not intersective, we can distinguish *subsective* adjectives, and *non-subsective* adjectives. For subsective adjectives only one of the patterns of inference is fulfilled, namely the inferences based on the noun:

(8) **Subsective adjectives: Licensed inferences**

a. \( X \text{ is Adj N} \rightarrow X \text{ is a N} \quad X \text{ is a perfect typist} \rightarrow \ X \text{ is a typist} \)

b. \( X \text{ is Adj N} \rightarrow X \text{ is Adj} \quad X \text{ is a perfect typist} \rightarrow \ X \text{ is perfect} \)

Non-subsective adjectives can be further divided into *simple subsective* adjectives where the adjective+noun combination implies neither the adjective nor the noun, and *privative* adjectives that license a negative inference for the noun:

(9) **Non-subsective adjectives**

i. **Simple subsective**

   a. \( X \text{ is Adj N} \rightarrow X \text{ is a N} \quad X \text{ is an alleged murderer} \rightarrow \ X \text{ is a murderer} \)

   b. \( X \text{ is Adj N} \rightarrow X \text{ is Adj} \quad X \text{ is an alleged murderer} \rightarrow \ *X \text{ is alleged} \)

ii. **Privative**

   a. \( X \text{ is Adj N} \rightarrow X \text{ is not a N} \quad X \text{ is a fake diamond} \rightarrow \ X \text{ is not a diamond} \)

   b. \( X \text{ is Adj N} \rightarrow X \text{ is Adj} \quad X \text{ is a fake diamond} \rightarrow \ X \text{ is fake} \)

The intersective/non-intersective distinction is partially correlated with the syntax of the adjectives: only attributive adjectives allow intersective and non-intersective readings, while predicative adjectives are always intersective.

It has been observed that some attributive adjectives give rise to intersective/non-intersective ambiguities (Vendler 1967, Larson 1998), as in the following example.

(10) Olga is a beautiful dancer.

   i. ‘Olga is a dancer who is beautiful’ (Intersective reading)

   ii. ‘Olga dances beautifully’ (Non-intersective reading)

Larson (1998, 2000) argues that adjectives with a non-intersective reading are closer to the noun. When combined with an adjective like *blonde* that only has an intersective reading, the adjective *beautiful* can only have the non-intersective reading if it is closer to the noun as in (11a); when *beautiful* is separated from the noun by the intersective adjective *blonde*, only the intersective reading is possible (11b):

(11) a. Olga is a **blonde beautiful** dancer \( \text{INT} – \text{INT ok} \)

    \( \text{INT} – \text{NON-INT ok} \)

b. Olga is a **beautiful blonde** dancer \( \text{INT} – \text{INT ok} \)

    \( \text{NON-INT – INT *} \)

    (ex 40 from Larson & Takahashi 2007)

As pointed out by Larson, the analysis of the intersective/ non-intersective ambiguity proposed by Siegel (1980, see section 3.3 below) attributes the ambiguity to a hidden semantic ambiguity of adjectives and implicitly assumes that nouns do not contribute to the ambiguity. The analysis proposed by Sproat & Shih (1991) attributes the difference between intersective and non-intersective modification to a difference in syntactic structure between the modifiers: intersective modification results from reduced relatives while non-intersective modifiers are APs. Larson (1998) proposes that the semantic difference is due to the syntactic position of the modifier in the noun phrase: modifiers that attach outside the NP are uniformly intersec-
Adjectives, modifiers that attach inside the NP are non-intersective. Larson analyses intersective pre-nominal adjectives as originating post-nominally in the position of relative clauses; their surface position is analysed as the result of movement (for a recent proposal for the syntactic analysis of direct and indirect modification see Cinque 2010).

2.3 Aspectual classes of adjectives

The bulk of the work on aspect has studied the aspectual contrasts that can be observed for verbs (following Vendler 1967). In more recent research on aspect, aspectual contrasts have been studied for other word classes including adjectives, nouns (Borer 2005), and prepositions.

Aspect in non-verbal categories has not received the same attention as verbal aspect, even though as early as 1979, Dowty pointed out that the stative- non-stative distinction can also be applied to adjectives and nouns (Dowty 1979). Dowty used the progressive to distinguish stative and non-stative adjectives and nouns: while stative adjectives and nouns are incompatible with the progressive (12b/b’), non-stative ones allow it (12a/a’):

(12)  

| a. John is being careful. | a’. John is being a hero. |
| b. *John is being tall.  | b’. *John is being a grandfather. |

(Dowty 1979: 130)

Ultimately, however, Dowty classified adjectives as stative predicates on a par with stative verbs and common nouns (Dowty 1979:384), thus taking the states in the Vendler-classification to extend to adjectival states. In subsequent research it is evident, however, that adjectival states do not easily fit the Vendler classification; Rothstein’s (2004) detailed study of Vendler classes, for example, characterises verbal states as cumulative, non-dynamic and totally homogeneous, explicitly excluding adjectival states from her discussion. This choice is empirically justified since adjectival states such as careful combined with the copula be fail the tests for verbal states (see Rothstein 2004:14-15).

In recent research on lexical aspectual properties of verbs (Aktionsart, or situation aspect, Smith 1991), the lexical aspectual properties of verbs are analysed in terms of subevental structure (see e.g. Ramchand 2007 and references cited there). This subevental structure is reflected in the structure of the temporal trace of the event: an accomplishment like build a house for example, can be viewed as having an INITIATING EVENT that sets off the process, a PROCESS PHASE (of building) and a RESULT PHASE (the house being finished) with the three elements corresponding to three parts of the temporal trace.

In a manner similar to verbal predicates the meaning of adjectives can also impose conditions on the internal structure of the interval of which the state holds. Take an adjective like dead or changed: both adjectives imply that the state holds of an interval that has a left boundary; while the interval of which dead by virtue of its lexical meaning does not have a right boundary, changed is neutral with respect to the length of the interval.

(13)  

| a. He was dead. (transition, no right boundary) |
| b. He was changed. (transition, right boundary not restricted) |

Gradability further affects the temporal trace of which the state holds in two respects: (i) the distribution of the property denoted by the state across the interval and (ii) the possible transitions from state to non-state. Compare the following examples illustrating the distribution of a
state across an interval: while drunk is compatible with varying degrees of drunkenness over an interval, open/closed for a shop is a yes-no state that either holds or does not hold. These two examples also contrast with respect to the possible transitions from state to non-state: while the transition from sober to drunk is a matter of degree, the transition from open to closed (for a shop) is not: the interval of which open holds has a right boundary, while this need not be true for the interval of which drunk holds as the transition is gradual.

\[(14)\]  
\[a.\] The shop is open.  yes/no states  
\[b.\] He was drunk/sick.  gradable states

The study of deadjectival verbs in Kennedy and Levin (2008) (following Hay, Kennedy & Levin 1999) supports the hypothesis that there is dualism between gradability in adjectives and lexical aspect (telicity) in verbal predicates. More specifically, they provide evidence that deadjectival verbs such as to cool and widen inherit the scalar properties of the adjectives from which they are derived and that these scalar properties largely determine the aspectual properties of the derived verb.

Notice that the aspectual distinctions evoked above cannot be reduced to the contrast between individual-level and stage-level adjectives: adjectives like open and drunk are both s-level but differ in their gradability properties and in the internal structure that they impose on the temporal trace of their state.

Marin (this volume) argues that at least three aspectual classes of adjectives have to be distinguished for Spanish, based on the distribution of the copulas ser and estar and distribution of semi-auxiliaries such as acabar de + infinitive / seguir + gerund.

3. The syntax of adjectives

As is well-known, adjectives can appear in two main types of syntactic contexts: as attributive adjectives directly modifying a noun (15) and as predicative adjectives in the complement of a copula (16a) and as secondary predicates (16b):¹⁷

\[(15)\] Attributive adjectives
\[a.\] The blue car came down the avenue.
\[b.\] Das blaue Auto kam die Strasse entlang. (German)
DET blue.NOM.MSG.WK car came DET road along
‘The blue car came along the road.’

\[(16)\] a. Predicative adjectives (copula)
\[i.\] The car is blue.
\[ii.\] Das Auto ist blau. (German)
DET car is blue
‘The car is blue.’

b. Predicative adjectives (secondary predication)²⁸
\[i.\] John painted the house blue.
\[ii.\] Sie streicht das Haus blau. (German)
she paint.PRES3SG DET house blue
‘She is painting the house blue.’
As the contrast between (15b) and (16a/bii) illustrates, the two contexts can differ in terms of their morphological properties: in German attributive adjectives show agreement in gender, number and case with their head noun (the form of the agreement depending also on the type of determiner) while predicative adjectives in (16) are invariant.

An analysis of the syntax of adjectives therefore should aim to address the following three questions:

(i) What is the syntax of **attributive** adjectives: how are nouns and adjectives combined in the syntax?
(ii) What is the syntax of **predicative** adjectives?
(iii) What is the relationship between attributive and predicative adjectives?

In what follows, I will review the analyses proposed for attributive and predicative adjectives separately (sections 3.1 and 3.2). Section 3.3 then addresses the question of the relationship between attributive and predicative adjectives. I review well-studied semantic differences between attributive and predicative adjectives and then discuss some syntactic differences with respect to multiple modification.

### 3.1. The syntax of attributive adjectives

In what follows I will give a brief overview over the different analyses that have been proposed. As the discussion will show, there is no consensus in the literature as to the analysis of the syntax of attributive adjectives cross-linguistically.

In the second and third subsections I will come back to two empirical problems, namely prenominal adjectives with complements (3.1.2) and languages with two syntactically different types of adjectives (3.1.3).

#### 3.1.1 Analyses of attributive adjectives: an overview

Two main approaches to the syntax of attributive adjectives can be found in the literature: adjectives are analysed as either heads or specifiers.

According to the first type of approach, adjectives are heads that take the NP as a complement (Abney 1987) or as a specifier (Bhatt 1990, Delsing 1993).\(^9\) The first analysis of adjectives as heads was proposed in Abney (1987). This analysis treats adjectives as heads that are selected by D and take an NP complement:

\[(17) \quad [\text{DP} \ D \ [\text{AP} \ A \ [\text{NP} \ N]]]\]

The main argument for this analysis was the observation that in English pre-nominal adjectives cannot have complements. If the analysis is taken to be an analysis of adjectives cross-linguistically, however, this argument loses its forces since many languages do allow prenominal attributive adjectives to take complements (see discussion in section 2.1.4 below). Based on the observation that prenominal adjectives do admit complements in Mainland Scandinavian and in German, Delsing (1989) and Bhatt (1990) propose an alternative analysis, according to which the adjective is a head but the NP is the (right-hand) specifier of N, while the complement of the adjective is in complement position of the adjective (see Svenonius 1992 for a critical evaluation of this proposal).
In the second type of approach, adjectives are phrases that are either adjoined to NP ((18a), see Jackendoff 1977, Valois 1991) or specifiers of dedicated functional projections in the extended projection of the noun ((18b), Cinque 1994)\textsuperscript{10}

(18) a. \[[DP D [NP AP NP]]\] (left-adjoined AP)
\[[DP D [NP NP AP]]\] (right-adjoined AP)

b. \[[DP D [FP AP F [FP AP F [NP N]]]]\] (AP in spec FP)

Delsing (1993), citing Cinque (1994), further distinguishes between adjectives in nominalisations which have equivalents in the clause (either the external theta-role or an adverb) and adjectival modification of un-derived nouns.

(19) a. thematic adjectives in nominalisations
the Italian invasion of Albania
b. adverbial adjectives in nominalisations
the constant nagging about taxes
c. modifying adjectives
the red house

Cinque (1994:86-89) analyses thematic adjectives as specifiers of N, while modifying adjectives are specifiers of other functional projections selected by D.\textsuperscript{11}

(20) a. \[[DP D [NP Adj-th [N' N XP]]]\]
b. \[[DP D [FP Adj [FP Adj [NP [N' N XP]]]]]\]

A third type of approach is proposed by Sigurdsson (1993:178) based on Icelandic: according to this analysis attributive adjectives are head-adjoined to nouns.\textsuperscript{12}

(21) \[[QP Q [DP D [NP [A N]]]]\]

In analyses that associate each adjective with a specific head be it an adjective-head A or a functional project F that takes the adjective in its specifier, the relative order of adjectives can be attributed to the relative order of the respective heads:

(22) a. \[[DP [AP A [A P [A [N ]]]]]\]
b. \[[DP [FP AP F [FP AP F [N ]]]]\]

Under an analysis that takes adjectives to adjoin to the nouns they modify, adjective order is expected to be essentially free (see Bouchard 2005 and Svenonius 2008 and references cited there for a detailed discussion of adjective ordering).

Languages such as Modern Greek and Albanian that allow multiple occurrences of the definite determiner (polydefinites) add a further complicating factor to the analysis of attributive adjectives since the appearance of multiple determiners has an impact on adjective ordering (see Androustoupolou 1995, 2001, Alexiadou & Wilder 1998, Kolliakou 2004 for discussion).

3.1.2 Prenominal adjectives with complements
One problem for the analysis of pre-nominal adjectives as heads is the fact that in many languages (German, Modern Greek and Swedish) prenominal adjectives can take complements other than the head noun:

(23) a. i [periphani ja to jo tis] mitera (Gk)
    the proud for the son her mother (ex 43a, Alexiadou & Wilder 1998:219)
    b. die auf ihren Sohn stolze Mutter (Ge)
    the on her son proud mother
    c. den över sin dotter stolt-a mamma-n (Sw)
    the of her daughter proud-DEF mother-DEF

These examples also show that the no-complement restriction on prenominal adjectives in French and English (Emonds 1976, Williams 1982, DiSciullo & Williams 1987, Bouchard 2002) has to be linked to specific properties of the syntax of French and English:

(24) a. *une fière de sa fille mère (Fr)
    *a proud of her daughter mother
    b. une mère fière de sa fille
    a mother proud of her daughter (ex 153 in Bouchard 2002:140)

Notice that it is not sufficient to pose a type of head-final filter for English and French: it also has to be explained why the order complement+adjective is not possible in prenominal position. This switch in word-order depending on the syntactic environment is attested in Scandinavian (examples from Swedish). As the following examples show, the adjective can appear with a preposed complement in prenominal position, even though Swedish is like English in that in predicative use with a copula (25b) and in secondary predication (25c) the order is adjective+complement:

(25) a. de sin fiende överlägsna hären (Sw)
    the REFL enemy superior army
    ‘the army that is superior to its enemy’
    b. Hären var överlägsen sin fiende.
    army-the was superior REFL enemy
    ‘The army was superior to its enemy.’
    c. Det nya vapnet gjorde hären överlägsen sin fiende.
    the new weapon made army-the superior refl enemy
    ‘The new weapon made the army superior to its enemy.’
    (Delsing 1993:121 ex 33/34)

Notice that for some speakers of Swedish the inverted order is possible for bare DP complements with predicative adjectives (26) – the basic argument here remains unaffected since with PP-complements the inverted order is excluded in predicative uses but the only possibility in pre-nominal position (27):

(26) Adjective +NP complement:
    a. den sina vänner trogn-a mann-en (Sw)
    DET-COM his friends faithful-DEF man-DEF
    ‘the man who is faithful to his friends’
    b. Mannen är trogen sina vänner
    man-DEF is faithful his friends
    ‘The man is faithful to his friends.’
c. **Mannen är sina vänner trogen**  
man-DEF is his friends faithful (archaic)  
‘The man is faithful to his friends.’

(27) Adjective +PP complement  

a. **den över sin dotter stolt-a mamma-n**  
DET-COM of her daughter proud-DEF mother-DEF  
‘the mother that is proud of her daughter’

b. **Mamman är stolt över sin dotter.**  
mother-DEF is proud of her daughter  
‘The mother is proud of her daughter.’

c. ***Mamman är över sin dotter stolt.**  
Mother-DEF is of her daughter proud

As pointed out by Svenonius (1992:112), the position of pre-adjectival modifiers such as *very* supports the assumption that the complement has been preposed to the AP: if the adjective had changed headedness we would expect the complement to intervene between the N and the pre-adjectival modifier in (28).

(28) **en av sin bror meget beundret mann**  
a by his.REFL brother very admired man  
‘a man that is very much admired by his brother’ (ex 29a in Svenonius 1992)

Cinque (2010, chapter 4) shows that pre-nominal adjectives can be followed by adjuncts in Bulgarian and in Greek:

(29) a. **glavnata po znacenje pricina**  
main.the in significance reason  
‘the main reason for importance’

b. **o kírios kata protereótita logos**  
the main by priority reason  
‘the main reason in terms of priority’ (exs in Cinque 2010: chapter4)

Notice that in both examples the pre-nominal adjective is *glavna/kírios*, “main”, an adjective that cannot be analysed as a relative clause.

The data reviewed here show that the complementation possibilities of prenominal adjectives are not uniform cross-linguistically. Consequently, these data cannot provide a decisive argument in favour of an analysis of adjectives as heads in the extended projection of the noun.

### 3.1.3. Languages with different types of adjectives

The analyses of the syntax of attributive adjectives reviewed here differ substantially in their structure and draw on different languages for empirical evidence. Furthermore, the analyses of long and short form adjectives in Russian by Babby (this volume) and in SerboCroatian by Aljović (this volume) support the conclusion that different types of syntactic analyses in fact correspond to different types of adjectives within the same language, since both analyses assign different syntactic structures to long and short adjectives.

It is therefore possible that the syntax of adjectives varies cross-linguistically, with different types of syntactic analyses in fact corresponding to different types of adjectives, possibly even within the same language.
Cinque (2010: chapter 3-4) suggests an alternative interpretation of the variation observed in the syntax of attributive adjectives. According to Cinque’s 2010 analysis, attributive adjectives have two sources: direct modification adjectives are specifiers of functional heads while indirect modifiers are reduced relatives clauses that are generated in the specifier a higher functional projection. If this analysis is essentially correct, prenominal adjectives fall into two domains: the direct modification domain is subject to ordering restrictions, while the ordering between reduced relatives is free. The freer word-order among prenominal adjectives observed in some languages can then be attributed to an alternation between a reduced relative and a direct modifier analysis of the prenominal adjective.

3.2 The syntax of predicative adjectives

The syntax of predicative adjectives seems much less controversial than the syntax of attributive adjectives. It is widely assumed that predicative adjectives (and nouns) combine with a functional category PRED, that introduces the subject of the predication above the AP/NP proper (Bowers 1993).

Baker (2003:39) argues in detail that English be should not be analysed as a lexical manifestation of PRED, since be need not appear in untensed small-clause contexts (see (30)) where PRED is still needed, by hypothesis, to introduce the subject of nouns and adjectives:14

(30) a. The poisoned food made Chris sick/ an invalid.
   b. I consider Chris intelligent/ a genius.
   c. With Chris sick/ an invalid, the rest of the family was forced to work harder.
   
   (ex 40, Baker 2003:40)

This means that the functional category PRED need not be overt. However, as argued in Baker (2003), assuming this null element implies that verbal and non-verbal lexical categories differ with respect to the nature of their specifier: while the specifier of adjectives and nouns is introduced by PRED and therefore external to the AP/NP, the specifier is part of the lexical projection of V. This difference can then be used to explain the contrast between adjectives and nouns on the one hand and verbs on the other hand regarding tense-aspect morphology and causative morphemes (Baker 2003:46-59).

3.3 The relationship between attributive and predicative adjectives

Since many adjectives have predicative and attributive uses, it is tempting to reduce attributive and predicative adjectives to a single case. One possibility of doing this is to view attributive adjectives as derived from predicative adjectives via a relative clause (following the Port Royal grammarians). This type of analysis squares well with the observation that in many languages, predicative adjectives are morphologically simpler than attributive adjectives: in German, e.g. predicative adjectives are invariant while attributive adjectives have agreement morphology, in Russian, predicative adjectives but not attributive adjectives can appear in the short form that marks fewer features.15

Unfortunately, an analysis that reduces attributive adjectives to predicative adjectives encounters several empirical problems (see also the discussion in Cinque 2010, section 4.1.3). First, many adjectives can be attributive but not predicative (31). Inversely, many adjectives can be predicative but not attributive (30)

(31) the main idea vs. *The idea is main.
Introduction

Adjectives

Notice, that the possibility of appearing in attributive or predicative position can change when adjectives are modified (Huddleston & Pullum 2002:559):

(33) a. a wide-awake patient
    b. their still awake children (examples from Huddleston & Pullum 2002:559).
    c. a ready-to-use website

A final problem for analyses deriving attributive adjectives from predicative ones it the fact that the attributive use and the predicative use of an adjective need not have the same meaning (Bolinger 1967). More generally, only attributive adjectives can have non-intersective meanings.

(34) a. the old director (= former) a’. The director is old. (= elderly)
    b. the responsible man b’. the man responsible (for the contract)

If attributive adjectives were uniformly derived from predicative adjectives, we would expect them to have the same meaning.

Based on this evidence against a unifying analysis of attributive and predicative adjectives, Siegel (1980) concluded that adjectives can be of two semantic types. Some adjectives were analysed as having the semantic type $<e,t>$, which is the type for intersective attributive and for predicative adjectives, while other adjectives are of type $<e,t>, <e,t>$, a modifier, which is the type for non-intersective attributive adjectives (for the distinction between intersective and non-intersective adjectives see section 2.2 above). This approach then has to account for the fact that a large proportion of adjectives allows intersective and non-intersective and attributive and predicative uses, it is therefore necessary to characterise the adjectives that only allow one semantic type.

It has further been observed that attributive adjectives show a distinction that seems related to the attributive/predicative distinction (Bolinger 1967, Sproat & Shih 1988). Sproat & Shih (1988) propose that attributive modification can be either direct or indirect modification: direct modifiers are simple APs while indirect modifiers are reduced relative clauses. Sproat & Shih argue that this syntactic distinction is reflected in two properties: while direct modification is open to intersective and non-intersective modifiers and subject to ordering restrictions, indirect modification is limited to intersective modifiers and not subject to ordering restrictions, resembling relative clauses. If this analysis is correct, attributive adjectives cannot be generally reduced to predicative adjectives (i.e. to reduced relative clauses), supporting the conclusion that two types of adjectives have to be distinguished.

A further property distinguishing attributive and predicative adjective is multiple modification. In English, attributive adjectives can be stacked without coordination (35a), while predicative adjectives cannot: multiple predicative modification requires coordination (35b):

(35) a. the big red ball
    b. *the ball is big red vs. the ball is big and red

There are languages that do not allow stacked modification by attributive adjectives, however. According to Simpson (2005:834) Thai, Nung and Indonesian only allow a single adjective to

(32) a. *the asleep man a’. The man is asleep.  
    b. *the ready woman b’. The woman is ready.

(33) a. a wide-awake patient
    b. their still awake children (examples from Huddleston & Pullum 2002:559).
    c. a ready-to-use website

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    b. *the ball is big red vs. the ball is big and red

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occur in the (post-nominal) adjective position; when two adjectival modifiers appear, they have to be conjoined (in Thai and Nung) or the second modifier has to be expressed in a relative clause (in Indonesian).\(^{17}\)

Somali, a Cushitic language, patterns with Thai and Nung in requiring two adjectival modifiers to be coordinated by either \(oo\) or \(ee\).\(^{18}\)

\[(36) \quad \text{koob-ga weyn } *(oo) \quad \text{cad}
\text{cup-DET big } \text{coord white}
\]  
the big white cup

In Somali this behaviour is a special case of a more general requirement that any two post-nominal modifiers be coordinated, whether they be genitive DPs, adjectives or relative clauses (37) (see e.g. Gebert 1981, Bendjaballah & Cabredo Hofherr 2006 for an analysis of Somali DP-structure).

\[(37) \quad \begin{align*}
a. \quad & \text{q\={a}lin-ka mac\={a}llin-ka oo cus\={u}\=b} \\
& \text{pen-DET.M teacher- DET.M OO new}
\text{‘the new pen of the teacher’} \\
\text{(genitive+adjective)}
b. \quad & \text{w\={i}l-ka yar oo aan ark\={o}} \\
& \text{boy-DET.M small OO I see1SG.SUBJ}
\text{‘the small boy that I see’} \\
\text{(adjective+relative)}
c. \quad & \text{dukaan-ka dhar-ka ee Cali} \\
& \text{shop-DET.M clothes- DET.M EE Ali}
\text{‘Ali’s clothes’ shop’} \text{ (ex in Gebert 1981)}
\text{(genitive+genitive)}
\end{align*}
\]

The languages discussed above do not allow stacked modification without coordination (Thai, Nung and Somali) or subordination (Indonesian). However, even in languages that in principle allow stacking of adjectives the coordination of adjectives may have specific semantic properties. Aljović (this volume) shows that in Serbo-Croatian long and short form adjectives differ in their coordination possibilities: while long form adjectives can be coordinated over a common N, yielding a split reading (38a), short form adjectives cannot (38b) ((38c) shows that coordinated short form adjectives allow a joint reading):

\[(38) \quad \begin{align*}
a. \quad & \text{long form adjectives allow split reading (i.e. reference to two individuals)} \\
& \text{moj biv\=s\=i i sada\=snji mu\=\=z} \text{ (SBC)}
\text{my former and present husband}
\text{‘my former and my present husband’}
b. \quad & \text{short form adjectives disallow split reading} \\
& \text{#jedan nov i star motor}
\text{‘a new and old motorcycle’ (one individual, contradictory)}
c. \quad & \text{short form adjectives allow a joint reading (one individual only)} \\
& \text{jedan spor i star motor}
\text{‘a slow and old motorcycle’} \text{ (exs 15a/17 in Aljović, this volume)}
\end{align*}
\]

The preceding discussion shows that the analysis of multiple adjectival modification is a complex problem going well beyond the widely studied conditions governing adjective ordering (see Bouchard 2005 and Svenonius 2008 for discussion and references). In particular, the
data discussed show that for the analysis of multiple adjectival modification in a language the analysis of multiple modification in general has to be taken into consideration.

As the brief review in this section shows, the syntax of adjectives still poses considerable challenges to linguistic analysis. An adequate analysis has to account for the fundamental differences observed between predicative and attributive adjectives, and also for the syntactic differences between different types of adjectives that may be found within a single language.

4. The contributions to this volume

The first four papers in this volume examine different aspects of the syntax of adjectives cross-linguistically.

Nadira Aljović’ contribution studies the syntax of long- and short-form adjectives in Serbo-Croatian, drawing particularly on data from the Bosnian variant that marks long- and short-forms by vowel-length and pitch-accent in addition to dedicated morphological suffixes. Based on evidence from ellipsis, noun phrase-internal coordination and ordering of multiple adjectives, she proposes two different structures for attributive long- and short-form adjectives. While attributive long-form adjectives are analysed as occupying the specifier of a functional projection dominating NumP, short-form attributive adjectives are analysed as adjoined to NumP. Aljović shows that this analysis is further supported by the differences in agreement morphology observed between long- and short-form adjectives. An important consequence of Aljović’ analysis is that attributive adjectives do not necessarily involve a single syntactic structure languageinternally, and by extension, cross-linguistically.

Leonard Babby’s paper presents an analysis of the syntax of long- and short-form adjectives in Russian. Babby proposes that the root node of the phrasal projection of long-form Russian adjectives has associated with it the adjective stem’s unlinked external theta role that needs to be bound by a higher DP. The phrasal projection of short-form adjectives is a small clause whose nominative subject is assigned the stem’s external theta role; the subject then raises to the spec-position of the copula projection with which the short-form small clause obligatorily merges. The paper provides detailed evidence that the proposed small-clause and s(secondary)-predicate structures account for the syntactic distribution and meaning of short and long form adjective phrases. The main analytical challenge is posed by examples with a copula, where both LF- and SF-adjecitves can appear. Babby gives detailed empirical evidence that in combination with a copula long-form and short-form adjectives enter into different syntactic configurations. The proposed analysis has consequences for the cross-linguistic analysis of predicative adjectives: since both small-clause structures and secondary predication are available cross-linguistically, the distinction that Russian realizes morphologically by the short and long form suffixes should also have manifestations in other languages.

Hagit Borer and Isabelle Roy argue on the basis of data from English, French, Hebrew and Spanish that (apparent) adjectives which function as nominals belong to two distinct classes. One small class consists of true nouns that are homophonous with adjectives but are not derived from them. The second class consists of true attributive adjectives which modify a null N, and whose range of interpretations cross-linguistically depends on the conditions on the licensing and identification of null Ns in a given structure and in a given language. Borer & Roy claim that the two types of nominals differ in their distribution: while the former group can appear in any context where nouns are typically licensed, the latter group is restricted to strong environments. The restricted distribution of N-ellipsis structures is derived from the properties of the assumed head of N-ellipsis, referential pro which is always definite.

The paper by Waltraud Paul investigates the syntax and semantics of adjectives in Mandarin Chinese. Paul argues that adjectives have to be treated as a separate part of speech
in Mandarin Chinese that cannot be conflated with intransitive verbs (contra McCawley 1992). In particular, Paul shows that adnominal adjectives introduced by de should not be analysed as reduced relative clauses or small clauses, since adjectives that cannot be used predicatively can be used adnominally in conjunction with de. For de-less modification of the noun Paul adduces evidence from N-subdeletion and multiple adjective ordering that shows that the [A N] sequence has to be analysed as a noun phrase, not as a compound. Further evidence for a difference between adjectives and verbs comes from the morphology of reduplication: while disyllabic verbs of the form ‘AB’ reduplicate as AB-AB, disyllabic adjectives reduplicate as AA-BB.

The papers in the second part of this volume are concerned with the semantic analysis of adjectives.

Peter Alrenga examines comparisons of similarity and difference in English involving different, same and like, as exemplified by I am different now than I used to be / I am the same now than I used to be / I am still a great deal like I used to be. The paper addresses two main problems. First, Alrenga examines the relationship between comparisons involving different, same and like and scalar comparisons exemplified by I am taller now than I used to be. Since both constructions are shown to differ only on a few points, Alrenga concludes that comparisons of similarity and difference should be analysed as a subclass of comparative constructions. Secondly, the paper examines the scope of comparisons of similarity and difference and shows that these comparisons are best analysed as comparisons between sets of properties.

The paper by Javier Gutiérrez-Rexach develops a semantic analysis of superlative descriptions as a subclass of definite DPs. The proposed analysis treats the definite determiner in superlatives (and not the superlative itself) as the locus of the contextual restrictions and adduces evidence from presuppositions and from different dependent readings of superlatives for the parallel between superlatives and definites. Gutiérrez-Rexach examines the contextual factors that affect the interpretation of superlatives in detail and introduces a distinction between the context set of the definite and the frame of comparison of the superlative. The paper discusses the role of focus in the comparative reading of superlatives in an array of constructions such as existential sentences and focused quantifiers such as everybody, several X and many X. Finally, Gutiérrez-Rexach shows that the hypotheses introduced in conjunction with several assumptions about the syntax/semantics interface— are sufficient to explain the much debated “upstairs de dicto” reading (Heim 1999).

Petra Sleeman’s contribution proposes an analysis of adjectives that license non-modal infinitival relative clauses as in the following example: He was the youngest child [to have had that operation at that time]. It has been observe that the head of non-modal relatives asserts uniqueness (Kjellmer 1975), and Sleeman analyses the uniqueness constraint on the noun phrase modified by non-modal infinitival relatives as licensing by an identification focus. More specifically, the author argues that the identificational focus has to be a contrastive identificational focus. This condition ensures that the licensing adjectives exclude the existence of a still higher or lower degree, yielding uniqueness by selecting the endpoint of a scale. According to Sleeman’s analysis, superlatives and comparable modifiers are polysemous. In their positive use they assert a positive proposition and entail a negative one, in which case they function as identificational foci; in their negative use, on the other hand, they assert a negative proposition and entail a positive one, in which case they function as contrastive foci. If the negative contribution is the assertion, superlatives and equivalent modifiers license non-modal infinitival relatives, subjunctive relative clauses (e.g. in Romance) and negative polarity items like ever. If the positive contribution is the assertion, superlatives and comparable modifiers do not license non-modal infinitival relatives, subjunctive relative clauses, and negative polarity items, but only indicative relative clauses.
Catherine Léger provides a detailed study of clausal complementation of adjectives in French. Dyadic adjectives selecting a clause as one of their arguments differ with respect to the syntactic realization of their complement; some adjectives introduce both non-finite and tensed complements (in the indicative or in the subjunctive), while others appear exclusively with tenseless complements. Léger proposes an analysis that derives the syntactic realization of the complement from the semantic properties of the matrix adjective. Depending on their meaning, adjectives select a specific ontological category (proposition, event, action), which is mapped to a particular projection in the syntax (following Rochette 1988). Among the adjectives that allow only non-finite complements Léger identifies a class of adjectives that form a complex predicate with the complement they select as their argument. The structures involving these adjectives therefore have to be analysed as monoclausal structures; true subordination is thus not involved in these cases. Léger further discusses one class of apparent counterexamples to the proposed syntax-semantics mapping which she calls “impostor” adjectives: these adjectives appear with clauses that are not selected elements (arguments) but adjuncts.

Finally, the paper by Rafael Marín shows that the compatibility with SER or ESTAR (be vs. be. locative) is not a defining diagnosis for determining the i-level or s-level nature of Spanish adjectives, a distinction that Marín defines in terms of boundedness. For an empirically adequate classification of adjectives, additional criteria for boundedness have to be taken into account, namely the compatibility (i) with certain pseudo-copular verbs, (ii) with adjunct predicates and (iii) with absolute constructions. Marín shows that adjectives like enfermo (‘ill’), which in addition to their compatibility with ESTAR can appear in all these contexts, can be properly considered bounded (i.e. s-level adjectives). Among the ambivalent adjectives (underspecified for i-level/ s-level distinction), at least two types have to be distinguished: adjectives like nervioso (‘nervous’) which are compatible with SER and are also allowed in any of the other s-level-contexts, and adjectives like viejo (‘old’), which allow SER and ESTAR, but do not pass any of the other tests for boundedness. This implies that only nervioso-type adjectives can be considered as properly ambivalent between a (bounded) s-level and an i-level interpretation.

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2 See e.g. McCawley (1992) for an analysis of Mandarin Chinese adjectives as intransitive verbs (but see Paul this volume for a different analysis), and the discussion in Baker (2003: 173-188) for languages that have been analysed as neutralising the noun-adjective distinction (Huallaga Quechua, Classical Nahuatl and Greenlandic Eskimo).

3 For Russian not admitting the use of adjectives as resultatives see e.g. Spencer & Zaretskaya (1998:3), Strigin & Demijanov (2001).

4 The *de* appearing with nouns is generally analysed as a case-marker; if this analysis is correct, the difference between *trop + Adj/ V* and *trop + de + N* is not due to *trop* distinguishing between adjectives and verbs on the one hand and nouns on the other, but to a general property of nouns that they need case.

5 It has been proposed that gradable adjectives project an extended functional structure including a degree head (Corver 1990, 1997, Grimshaw 1991, Kennedy 1999). The degree head is generally taken to be filled by the comparative and superlative morphology.

6 In what follows I limit myself to the contrast between intersective and non-intersective adjectives here, since this contrast affects a large proportion of adjectives. For some additional contrasts concerning specific lexical items see the detailed discussion of English /Italian contrasts in Cinque (2010, chapter 2).

7 In the glosses, the following abbreviations are used: F = feminine, M = masculine, SG = singular, PL = plural, NEG = negation, PRES = present, PAST = past, SUBJ = subjunctive, DEF = definite, DET = definite determiner, COM = common gender (Scandinavian). The following abbreviations are used to indicate the languages in the examples: Bul= Bulgarian, Ge = German, Gk = Modern Greek, SBC = Serbocroatian, Som = Somali, Sp = Spanish, Sw = Swedish.

8 The following examples use resultatives to illustrate secondary predication – but see the discussion above that some languages that do have adjective do not admit the use of adjectives as resultatives.

9 Depictives as in *She left the house angry* are also cases of secondary predication.

10 See Svenonius (1992:113-7) for a critical discussion of the proposal that NP is in the (righthand) specifier of A.

11 For adverbial adjectives (Cinque’s *manner adjectives*) Cinque considers two possibilities:

(i) either manner adverbs are in a functional projection outside NP with thematic adjectives in spec NP (Cinque 1994:90)

\[ N[XP AP manner t [NP AP thematic t YP]] \]  

(Cinque’s ex 10)

(ii) or manner adverbs and thematic adverbs both compete for the same NP external position  

(Cinque 1994:92)

\[ [XP APsp-or [YP APsubj-or [XP AP manner / AP thematic t [NP N]]] \]  

(Cinque’s ex 14)

There seems to be a third possibility, that Cinque does not examine:

(iii) manner adverbs and thematic adjectives compete for the position in spec NP

\[ N[NP AP manner / AP thematic t YP] \]

12 Sigurdsson notes that this analysis implies that adverbs modifying adjectives such as *too* and *very* that are analysed as specifiers of adjectives in e.g. Jackendoff (1977) have to be head-adjoined to the adjective, too.

13 I thank Anders Holmberg for discussion of these examples.
Notice that in 17a/c be cannot be inserted.

There are also analyses that take attributive adjectives to be more basic as e.g. in Hengeveld 1992:

(i) “Attributive use is the criterion that most reliably distinguishes adjectives from other word classes. Hengeveld (1992:59)”

(ii) “An adjectival predicate is a predicate which, without further measures being taken, can be used as a modifier of a nominal head. (Hengeveld 1992:58)”

In English many adjectives in a- are of this type: asleep, awake, agog, askew (see Huddleston & Pullum 2002:529).

The conditions governing the choice between ee and oo are poorly understood, see Gebert (1981) and Saeed (1999:189) for diverging generalisations.