

# ADJECTIVE HIERARCHY

## Comparing the Order of Adjectives in the prenominal field in English and Czech

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**Abstract:** The paper discusses the ordering of prenominal modifiers in Czech. Surveying first several traditional proposals of existing universal or English specific hierarchies it concentrates on the proposal presented in Scott (2002) and attested also for Russian by Pereltsvaig (2007). The study searches for the data in Czech national corpus to demonstrate that the orderings inside Czech nominal complexes is as restricted as the one in English and Russian and it follows the same specific hierarchy. The Czech data also confirm the distinction between the strict orderings of elements in the functional domain and the more relaxed orderings in the modifier domain. The semantic hierarchy of syntactic adjuncts is therefore proposed as more suitable for the adjective premodifiers than the analysis assuming a string of universally ordered syntactic functional heads.

**Key Words:** Czech nominal phrase, Hierarchy of Adjectives, word-order.

### 1. The DP Analysis of a Nominal Phrase

English and Czech are typologically distinct languages although they both belong to the same Indo-European group.<sup>1</sup> The distinction, however, is not so striking when a closer look is taken on the structure of individual phrases in more abstract terms. As for the noun complexes, the two languages are clearly distinct with respect to the morphological realisation of the nominal grammatical categories: e.g. morphological Case is obligatorily present in Czech nouns while it is not present in English. On the other hand, determination is obligatorily represented in English NPs while it remains lexical and arbitrary in Czech. The realisation of the referential characteristics of nouns is related to the analysis of a nominal phrase as a more structured complex headed with a specific functional category D. A presence of DP is uncontroversial in English and the reasons for accepting the DP analysis for Czech as well are also several. They can be briefly summarised as in the list below:<sup>2</sup>

#### (1) Interpretation

- a. Both languages are able to express the same semantics w.r.t. specificity, definiteness, and mapping of the semantic features to the structure is to be preferably the same, too.
- b. Both languages show a parallel semantic hierarchy of positions related to the V and N heads including the position of external Argument able to bind an anaphor

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<sup>2</sup> For full discussion of the alternative present day alternatives see e.g. Bašić (2004) or Caruso (2012).

- (2) **Lexical entries** for the position of the functional head above NP, i.e. demonstratives and quantifiers and other elements related to the functional projection (with the exception of articles) are attested in Czech as well as in English.<sup>3</sup>
- (3) The **Linear order** of the constituents inside the nominal projection suggests the existence of several separate projections.

For the topic discussed in this paper the linear order mentioned in (3) is the most important and therefore it is going to be mentioned in more detail below in the sections concentrating on the prenominal field of the NP/DP structures.

### 1.1 The D and N field

Traditionally, the premodification of the nominal head is divided into two distinct fields. In e.g. Quirk et al. (1985) the prenominal elements are divided into the Determination field and Modification field.<sup>4</sup> The distinction is given in terms of semantics, but we can as well say that the determination field contains a strictly given list of mostly grammaticalized items (with the exception of possessives), while the modification field contains the lexical entries belonging to the open class categories. The relevance of the linear order within NP/DP mentioned in (3) follows from the fact that the linear order within the two fields of nominal premodification is subject to two distinct kinds of restrictions. The determination field not only contains a restricted number of slots (positions), but it also requires a strict ordering and does not tolerate many changes. A violation of the order is perceived as ungrammatical (\*).

- |     |     |    |                         |              |                         |                |
|-----|-----|----|-------------------------|--------------|-------------------------|----------------|
| (4) | CZ  | a. | <i>všichni (*čtyři)</i> | <i>ti</i>    | <i>čtyři (*všichni)</i> | <i>chlapci</i> |
|     | ENG | b. | <i>all (*four)</i>      | <i>those</i> | <i>four (*all)</i>      | <i>boys</i>    |

On the other hand, the order of adjectival pre-modifiers is not restricted in number depending on salience and parsing economy only, and their order seems to allow individualised re-orderings related to interpretation. In (5) the alternative order is not marked as ungrammatical but as less salient (?) only.

- |     |     |    |                       |                       |            |
|-----|-----|----|-----------------------|-----------------------|------------|
| (5) | CZ  | a. | <i>velký (?černý)</i> | <i>černý (?velký)</i> | <i>pes</i> |
|     | ENG | b. | <i>huge (?black)</i>  | <i>black (?huge)</i>  | <i>dog</i> |

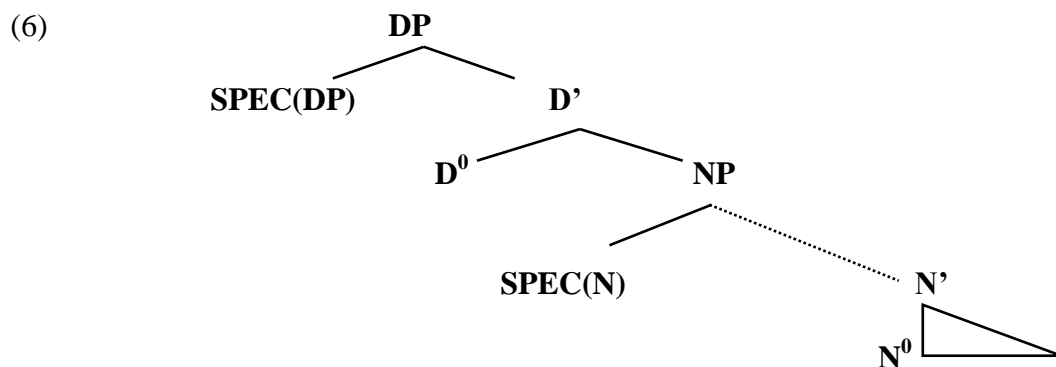
In the structural description, the distinction between determination field and modification field is respected in the DP analysis of a nominal projection, i.e. introducing a specific functional (grammaticalized) head D above the NP projection as in (6) below where the DP projection provides positions for both a D head and some phrasal elements attested in the DP field, i.e. at the very left periphery of a complex NP/DP.

The DP-analysis, i.e. the structure of noun phrase as in (6), explains why the mixing of the elements belonging to the Determination and Modification field is perceived as a violation of grammatical rules (and why the position is able to influence the interpretation) but it is not enough to explain the ordering of pre-modifiers, which cannot be analysed as determiners. The

<sup>3</sup> In IP/VP projections, in both languages realise the functional projection in either a lexical entry in a canonical position or as a kind of inflection on the lower lexical head. In the nominal projection the alternative realisation on the lower lexical head is richer in a synthetic Czech.

<sup>4</sup> Determiners are discussed as a distinct category from modifiers also in Biber et al (1999, 574) and Huddleston and Pullum (2002, 329-333). The latter use also a term peripheral modification. See also sections 2.1-2.4 below.

string of APs (the "light APs", which do not have a complement of their own and therefore are located in prenominal position in both Czech and English) appear in between determiners and a head noun. In the structure in (6) they can be adjoined to both NP and N' in (6).<sup>5</sup> The ordering of such adjuncts will influence the scope of individual APs but no other clear restriction on some specific order seems to follow from a structurally recursive adjunction (or multiple SPEC). If some order is attested, however, the analysis may require some more complex analysis explaining the hierarchy.



In this paper I am not going to argue in detail in favour of specific analysis of AP adjunction or AP functional projections as in e.g. Cinque (1994). I will only compare the corpus data from two languages - English and Czech - checking the level of validity of some more or less universal and more or less predictable orders of adjectival premodifiers in the prenominal field. The conclusions may be suggestive but yet awaiting for a conclusive diagnostics which would take into account also other Adj. characteristics..

## 2. Adjectival hierarchy

Considering the left to right order of adjectival premodifiers, let's first look at the phenomena, as it is described for English in the most standard English grammar manuals, e.g. in Quirk et al: (1985), Biber (1999), Huddleston and Pullum (2002) and some more. Although verbally non-prescriptive, these grammar manuals describe the language without citing any individual (or more controversial) linguistic analysis and do not discuss specific issues in much detail. Still, all of them describe multiple pre-modification and mention the ordering of individual adjectives.

### 2.1 Quirk et al (1985)

Discussing the relative sequence of multiple pre-nominal modifiers, Quirk et al (1985, 1337-1345) first separate the determinative field which they treat as a separate issue preceding the discussion of the modifiers. Even with those, the authors find it "helpful to divide the territory" into several zones. The authors state, that the best way to generalise it is to refer to a **subjective/objective polarity**. In the following citation the stress is mine.

- (7) "That is, modifiers relating to properties which are (relatively) **inherent**... visually **observable**, and objectively **recognizable** or assessible, will tend to be placed nearer to the head and be preceded by modifiers concerned with what is relatively a matter of **opinion**, imposed on the head by the observer, not visually observed, and only **subjectively** assessible.... there is plenty of room for difference of opinion."  
 Quirk et al (1985, 1337-1345)

<sup>5</sup> or in multiple SPECs of N, if the field allows such positions.

The following (8) gives the brief summary of the discussion:

(8) **The order of pre-modifiers** : Quirk et al (1985)

a. **subjective** → **objective**

b. **precentral** (peripheral non-gradable Adj) → **central** (gradable, nonderived Adj) → **postcentral** (particular, colour, participles) → **prehead** (nationality, relational Adj)

Thus, for Quirk et al (1985), the general principle for the ordering of pre-modifiers is "the **natural** order of recursive qualification", based on factual, not linguistic information.

## 2.2 Biber et al (1999)

Biber et al (1999) grammar manual is based on corpora and discusses the linearity of several noun premodifiers in terms of frequency of attested combinations in their data corpora. The authors state that though there are no absolute rules, there are still many strong tendencies. They describe the tendencies as depending on **meaning** and **form**.

(9) "The order of forms in the premodification is dictated in the first place by the intended meaning. However, the order is also strongly influenced by the structural type of the premodifiers.... First, there is an overall tendency for the most noun-like modifiers to occur closest to the head noun... This structural tendency has a semantic correlate: positions closest to the head noun will be filled by modifiers describing attributes that are more integral to identification, classification, or description of the head noun referent" (Biber et al 1999, 598-9)

The authors state the descriptive generalisation (with a 95 p.c. probability) as follows in (10).

(10) **The order of pre-modifiers** : Biber et al (1999)

**adverb** → **adjective** → **colour adjective** → **participle** → **noun**

Notice that with the exception of colour, the authors provide the scale more in terms of form than referring to the individual meaning (i.e. they do not say much about the order of potentially more than one adjective).

## 2.3 Huddleston and Pullum (2002)

Discussing the ordering of elements inside the NP, Huddleston and Pullum (2002, 452) do not separate the determiners but deal with them together with the adjectival and other premodifiers. On the other hand they do explicitly distinguish between **rigid** and **labile** constraints on ordering. The rigid ones, the violation of which results in ungrammaticality, apply in fact only on determiners, which the authors call "*external*" modifiers and divide them into more groups as suggested in (11a) below. The latter - less strict constraint - is more liable to individual choice - and such a labile constraint applies on (11b/c), which represent the main bulk of adjectival "*internal*" modifiers, further subdivided into early and residual (defined vaguely semantically). Representing the basic order with the use of those terms (labelling a *rigid* constraint as >> and *labile* as >) Huddleston and Pullum's (2002:452) propose the following basic order of elements

(11) **The order of pre-modifiers** : Huddleston and Pullum (2002)

a. **External modifiers:**

Peripheral external modifiers >> predeterminer external modifiers

b. **Internal pre-modifiers:**

Early pre-head modifiers > Residual pre-head modifiers

c. **Residual pre-modifiers:**

Evaluative > general property > Age > Colour > Provenance > Manufacture > Type

## 2.4 Dušková (2013)

Libuše Dušková et al. in her *Electronic grammar of modern English* (based on the previous printed version of her *English grammar on the background of Czech* is following Quirk et al (1985) in claiming that

- (12) "The rule about the position of predeterminers and determiners is absolute. The heavier is lexical content of attributes the more difficult it is to state their order... The problem of the order of multiple preposed adjectival attributes is not solved yet, there are several different proposals. It seems, however, that the decisive primary criterion is semantic." <sup>6</sup>

Relating the phenomena to the universal sentence dynamism, she provides the order in three formats

- (13) **The order of pre-modifiers** : Dušková (2013)

- a. **inherent** (close) semantic features > **adherent** (arbitrary) semantic features
- b. **permanent** features (colour, nationality, age, size) > **relative** properties (size, shape)
- c. evaluative, **subjective** > **objective**

## 2.5 Other authors

The above grammar manuals share the notion that the determination field is significantly distinct from the modification field. As for the modifiers, the authors spend paragraphs discussing the more precise definitions of each of the labels they use to categorise the adjectival premodifiers. The fact that they choose distinct terminology signals that there is no common agreement. This feeling is supported by the following scales (14) a/b/c including determiners as well as modifiers). As the grammar manuals mentioned above, also the authors cited in (14) a/b/c use terms mixing subjective evaluative terms together with concrete concepts.

- (14) The Order of Adjective premodifiers (universal)

- a. **Halliday** (1985): **numerative** > epithet 1 (evaluative/attitudinal) > epithet 2 (objective/experiential) > classifier
- b. **Sproat & Shih** (1991): **possessive** > **cardinal** > **ordinal** > quality > size > shape > colour > provenance/nationality

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<sup>6</sup> "Absolutně platí pravidlo o postavení predeterminátorů a determinátorů; s přibývajícím vahou na lexikálním významu přívlasků je pořadí stále obtížněji stanovitelné... Problematika určování pořadí několikanásobných preponovaných adjektivních přívlasků není dosud definitivně vyřešena, existuje řada různých koncepcí, zdá se však, že rozhodujícím a primárním faktorem je přitom hledisko sémantické." See <http://emsa.ff.cuni.cz/13.52.12>

- c. **Cinque (1994): possessive > cardinal > ordinal > speaker-oriented > subject oriented > manner > thematic**

What makes the authors above distinct from the grammar manuals mentioned before, is that the former assume a more universal value to their constraints on the word-order.

More specifically, e.g. Sproat & Sikh compare English and Chinese arguing that there exist two kinds of multiple adjectival modifiers and they propose the distinction between **parallel** and **hierarchical** modification. In the parallel modification, the adjectives assign their  $\theta$ -roles directly to the head noun independently of one another. In the hierarchical modification - which according to Sproat & Sikh analysis appears in the two languages they discuss (English and Chinese) - each adjective assigns its  $\theta$ -role directly to its sister and the whole structure is thus **hierarchical**. The central claim of the paper is that restrictions on the ordering of multiple adjectival modifiers obtain only if the adjectives involved are hierarchical direct modifiers. Based on the comparison of genetically and typologically distinct English and Chinese, the authors propose that with the hierarchical modification the ordering hierarchy seems to be universal.

The reason for the universal nature of the phenomena is not addressed directly, but one can assume that it can follow from either

- (15) a) **universal semantic hierarchy**, or  
b) a string of universal **functional head projections** related to the head N.<sup>7</sup>

The string of fixed ordered functional heads would be certainly reflected by a relevant interpretation as well, so it seems that the two reasons mentioned above are equivalent. However, the semantic hierarchy which is not grammaticalized to the form of a string of functional heads would most likely be less strict than the string of functional heads.

In the following section I will very briefly summarise the word order constraints mentioned w.r.t. Czech.

## 2.6 The Order of Adjectives (in Czech)

In an influential syntactic handbook Šmilauer (Nauka o českém jazyku, 1969) the author states that the unmarked word order of the Czech hierarchical attributes preceding the noun is

- (16) *all/every/whole/demonstratives* → possessives → numerals → **quantitative/qualitative adjectives** → **determining adjectives** → **adjectives idiomatically related to the noun**<sup>8</sup>

In the Academic Czech Grammar (Mluvnice češtiny, MČ3, 1987), in the third volume which deals with syntax, the ordering of prenominal attributes is characterized as depending on the variety of adjectives combined. According to the authors, the ordering tendency can generally be characterized as follows: the closer is the relation of the attribute to the head noun, the closer is its position to the head.

- (17) As for the ordering of individual attributes, the relevant lexical semantic properties are

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<sup>7</sup> *Projection Hierarchy (see Adger, 2003) is the principle which requires a ordering of functional heads. It is a descriptive rule which lacks independent motivation but is at the moment probably necessary. The same result would be achieved by stating that functional heads have a highly restricted (or unique) c-selection.*

<sup>8</sup> *“(1) všechny, každý, celý; zájména ukazovací; (2) přivlastňovací adjektiva a zájména; (3) číslovky; (4) adjektiva, nejprve kvantitativní a kvalitativní, pak rozlišující; přímo u substantiva ta, která s ním tvoří sousloví.” See Šmilauer (1969, 311).*

traditionally labelled as “objective,” “subjective” and “relational”. See MČ3 (p. 164).<sup>9</sup>

The authors provide a number of not always clearly defined combinations and mention a high level of freedom. The ordering they mention can be summarized as follows:

(18) Academic Czech Grammar 3 (MČ3, 1987, 160-166)

relational (pronouns, numerals, temporal/local/contextual adjectives → **subjective adjectives** → **close objective adjectives** → **distant objective adjectives** → **idiomatic adjectives**

The Encyclopaedia of Czech Language (2002, 426) state the order of embedded agreeing attributes preceding the noun as follows :

(19) determiner → quantifier → **adj. quality (evaluative)** → **adj. relative (restrictive, classifying)** → **other adj. relational.**

Recalling sentence dynamism, the dictionary states that in case of more relative adj., those closer to the noun are closer also semantically.

The order of multiple premodifiers does not seem to be much of an issue in students Czech grammars and more popular manuals. They discuss above all the distinction between the parallel multiple (několikanásobný) attributes and multiply embedded (postupně se rozvíjející) attributes because only the former is divided by commas in Czech. As for the ordering, the multiple attributes are said to have a free word order and the multiple embedded attribute order cannot be violated. Which order it is, however, they do not specify.<sup>10</sup>

### 3. Examining the order of adjectives

The citations given in the above chapter signal that there is no general agreement about the ordering of adjectives, not even about the concepts which should be relevant for their classification. In this section I am going to summarise in more detail a comparative study of adjectival modifiers based on data collection and corpora search.

Asya Pereltsvaig’s careful analysis of the structure of Russian noun phrases (Pereltsvaig 2007) compares Russian data with the English ones and the ordering of adjectival premodifiers is one of the arguments she provides to argue for the universal DP hypothesis. She shows that in Russian adjective modifiers are distinct for demonstratives, possessives and cardinality expressions with respect to all linguistic levels, i.e. their meaning, format (morphology) and distribution. In her Chapter 2, while discussing the relative ordering of adjectival modifiers Pereltsvaig recalls a very detailed hierarchy of adjective types taken from Scott (2002, 102).

(20) **The order of pre-modifiers : Scott (2002:102):**

Subjective Evaluation → Size → Length → Height → Speed → Depth → Width →

<sup>9</sup> *Pokud jde o vzájemné postavení složek přívlastku u postupně rozvíjejícího, jsou pro ně relevantní lexikálněsémantické vlastnosti tradičně označované pomocí charakteristik “rozlišující,” “hodnotící” a “relační”.* See MČ3 (p. 164).

<sup>10</sup> See e.g. the first references one can get on web asking for the order of multiple attributes: <http://korekturyjazykove.webnode.cz/pravopisne-vychytavky/privlastkek-a-carka/postupne-rozvijejici-nebo-nekolikanasobny-/>, or <http://www.diktatorek.cz/Scholasticus/Cesky-jazyk/Skladba/Vetneceny/Privlastek-help.html>, or [http://cs.wikipedia.org/wiki/P%C5%99%C3%ADvlastek#Typy\\_p.C5.99.C3.ADvlastku](http://cs.wikipedia.org/wiki/P%C5%99%C3%ADvlastek#Typy_p.C5.99.C3.ADvlastku), or <http://pentcestina.ic.cz/index.php?sec=ling&inc=skola&obor=ling&akce=uc&year=3&lect=1#2>.

Weight → Wetness → Age → Shape → Colour → Nationality/origin → material

Pereltsvaig conducted a survey of both Russian and English speakers to compare their judgements about relative ordering of pre-modifiers in a complex NP. Her test consisted of 30 pairs of adjectives followed by a compatible noun. All the adjectives were the first matching types on the frequency list (all belong to the top 500 items) and the noun was chosen which represented a possible collocation choice. In the test both options of adjective order were proposed and the speakers were asked to give their preferred order or indicate that both orders are equally acceptable. The pairs occurring in the test were e.g. as follows in (21). The numbers in broken brackets refer to the numbers used in the Figures 2-3 below in Pereltsvaig's tests.

- (21) [1] *čornyj staryj botinok* - *an black old shoe*  
 [2] *glavnyj ruskyj poet* - *a major Russian poet*  
 [3] *znakomyj vysokij špil* - *a familiar tall spire*  
 [4] *seryj strašnyj barak* - *a grey hideous cabin*  
 [5] *mělkij bystryj ručej* - *a shallow fast creek*  
 [6] *karotkij prostoj otvět* - *a short simple answer*  
 [7] *zdarovyj ryžij kot* - *a huge red cat*  
 [8] *prijatnyj vzroslyj razgovor* - *an nice adult conversation*  
 [9] *goluboj tonkij svitěř* - *a blue thin sweater*  
 [10] *plochoj anglijskij čaj* - *a bad English tea*  
 [11] *staryj bělyj taburet* - *an old white stool*

The tested speakers were repeatedly instructed to work with neutral and no comma intonation and with no focus or contrastive stress reading of any of the adjectives. Although the prozodic requirements are not easy to guarantee, the speakers of both languages (34 Russian and 26 native English) were subject to the same conditions. The speakers' responses were then evaluated as to whether they were contradicting Scott's hierarchy in (20).<sup>11</sup>

The findings were as follows: the overall rate of disagreement with the proposed hierarchy was 11,5 p.c. with the Russian and 11,4 p.c. with the English speakers. Moreover, the Russian speakers judged both orders possible with 3,2 p.c. of the tokens, while the English speakers allowed both orders to even 10 p.c. of the tokens. In both groups the closeness of the two adjectives on the Scott's hierarchy played a role, too – i.e. those adjectives which appear close to each other were evaluated as allowing a higher level of freedom. When the two adjectives were far apart in the hierarchy, the restrictions of their order were much stronger than when the two adjectives were close to each other on the hierarchy and the fact, that the distance on the hierarchy makes a difference it another argument in favour of Scott's list.

(22) The results of English - Russian comparison (Pereltsvaig 2007, test)

	English	Russian
rate of <i>dis</i> agreement of the “wrong” pair	11,4 %	11,5 %
both orders possible	10 %	3,2 %
closeness of the adjs on the scale and the fixed ordering are correlated	yes: ↑↑	yes: ↑↑
higher frequency of the adj forces more fixed ordering	yes: ↑↑	yes: ↑↑

<sup>11</sup> Evaluation of a no preferred order were taken as not discordant the hierarchy.



The author concludes that when prosody, stress and relative length of the adjectives were made comparable,<sup>12</sup> both Russian and English speakers exhibited a fully comparable degree of sensitivity to the hierarchy given in (20).

In her study Asya Pereltsvaig mentions also a survey of corpus search which was checking the occurrence of the orders corresponding to what is expected from Scott's hierarchy with the number of occurrence of the order which are not predicted. Her test, however, was done for Russian data only and the study does not give exact numbers, giving Figures only. The Figures demonstrate that the number of expected orderings substantially exceed the number of unexpected orderings and that this distinction is more striking with the high frequency pairs.

### 3.1 Research proposal

In this study I am going to present the results of a comparable test of the preferred ordering in chosen pairs of adjectives in English and in Czech. I was testing the Scott's hierarchy to be able to compare the results with the data given in the above study by Asya Pereltsvaig. Because the Czech native speakers' evaluation proved to be difficult to obtain, I decided to look for the data in corpus only.<sup>13</sup>

The questions in (23) were addressed in the test. (23a-d) have already been proposed for English and therefore the main value is in contrasting the results between the two languages, i.e. (23e), which can be used to argue for the universal NP/DP hypothesis.

(23)

- a. Do Czech/ English respect any Adj. hierarchy - i.e. are their NPs "hierarchical"?
- b. Do Czech/ English respect the Adj. Hierarchy proposed by Scott (2002)?
- c. Is the preference influenced by the distance of the adjectives on the scale?
- d. Is the preference influenced by the frequency of the adjectives in a specific pair?
- e. Are the answers on (a)-(d) above comparable in English and Czech?

### 4. The Data

The following table provides the examples (in both Czech and English) of adjectives representing the individual categories (prototypes) of the hierarchy used in Scott (2002). The most frequented types were chosen - based on the frequency lists – according to SYN2010 and COCA for English.<sup>14</sup>

(24) Corpora

	<b>CZECH</b>	<b>ENGLISH</b>
<b>Corpus</b>	<b>Syn2010</b>	<b>COCA</b>
<b>Description</b>	<b>Synchronic representative</b>	<b>Corpus of Contemporary American</b>

<sup>12</sup> A prosodic effect requiring a short element to precede the long element was attested for e.g. coordination structures in English. Phrases like ‚salt and pepper‘ or ‚men and women‘ are more likely than ‚pepper and salt‘ and ‚women and men‘. The traditional explanation refers to the general preference in English for the beats organised into a trochaic foot structure. The only prosodic explanation, however, need not be the right one, as far as no similar effects (shorter-before-longer requirement) was attested in either English or Russian combinations of adjectives tested in Pereltsvaig's test.

<sup>13</sup> The discrepancy between what the Czech speakers believe is acceptable and what they productively use is huge, lowering thus the relevance of their evaluations. After being told repeatedly that Czech has a free word order language only very few of them can abstract from pragmatically marked constructions and they seem to be unable to ignore stress and focus criterion, especially with written language.

<sup>14</sup> I am highly indebted to my research assistant Monika Pitnerová for her careful dealing with the corpora data collection. Without her help this paper would not be possible.

	<b>corpus</b>	<b>English</b>
<b>Size</b>	<b>121 667 413 positions</b>	<b>425 million words (1/5 of the size is spoken)</b>

#### 4.1 Types of Adjectives

The following table (25) provides the choice of adjectives which were combined into pairs. The table also gives the frequency of the adjective and the absolute number of its occurrences in the corpus.

(25) Types of Adjectives (and their frequency<sup>15</sup>)

	category	CZECH			ENGLISH			
		type	frequency	absolute number	type	frequency	absolute number	
1	subjective evaluation	a	<i>dobrý</i>	6.	113 354	<i>good</i>	3.	271 653
		b	<i>špatný</i>	29	30 855	<i>bad</i>	23.	113 642
2	size	a	<i>velký</i>	1.	186 500	<i>big</i>	6.	192 554
		b	<i>malý</i>	7.	89 884	<i>small</i>	8.	189 213
3	length	a	<i>dlouhý</i>	19.	46 469	<i>long</i>	16.	139 673
		b	<i>krátký</i>	69	18 859	<i>short</i>	60.	58 970
4	hight	a	<i>vysoký</i>	9.	74 547	<i>tall</i>	167.	27 080
		b	<i>nízký</i>	51	22 868	<i>low</i>	24.	111 782
5	speed	a	<i>rychlý</i>	99.	14 952	<i>quick</i>	181.	25 634
		b	<i>pomalý</i>	487.	3 738	<i>slow</i>	240.	20 823
6	depth		<i>hluboký</i>	118.	12 463	<i>deep</i>	96.	41 883
7	weight	a	<i>těžký</i>	44.	25 068	<i>heavy</i>	104.	39 570
		b	<i>lehký</i>	164	9 563	<i>light</i>	140.	31 475
8	temperature	a	<i>studený</i>	261	6 751	<i>cold</i>	88.	44 348
		b	<i>horký</i>	279.	6 454	<i>hot</i>	68.	54 909
9	dempness		<i>suchý</i>	286.	6 254	<i>dry</i>	178.	25 835
10	age	a	<i>nový</i>	3.	141 358	<i>new</i>	2.	413 125
		b	<i>starý</i>	10.	71 596	<i>old</i>	5.	227 651
11	shape		<i>kulatý</i>	598.	2 930	<i>round</i>	457.	10 833
12	colour	a	<i>bílý</i>	31.	29 744	<i>white</i>	17.	127 823
		b	<i>červený</i>	95.	15 177	<i>red</i>	46.	69 531
13	origin/nationality	a	<i>český</i>	8.	77 158	<i>American</i>	9.	183 524
		b	<i>evropský</i>	26.	34 290	<i>European</i>	138.	31 781
14	material	a	<i>dřevěný</i>	178.	9 005	<i>plastic</i>	??	??
		b	<i>železný</i>	413	4 406	<i>rubber</i>	794	5 396
15	type attribut		<i>jižní</i>	135.	11 308	<i>southern</i>	121	34 947

#### 4.2 Data collection and analysis

From the list above, two kinds of combinations (pairings) were searched in corpus: one following the Scott's hierarchy and the other opposite. The two tables below, (26) and (27), give in detail the numeric values of the corpora search first for English and then for Czech.

The tables provide numbers of occurrences of the combinations which are predicted by Scott's hierarchy in the A column and the number of occurrences which represent the violation of the hierarchy the B column. The last two columns give a minimalized ratio between A and B

<sup>15</sup> The (a) example is the one with a frequency higher as the (b) example.

numbers. If Scot's hierarchy is valid, we expect the A in the ratio to be (substantially?) higher than 1.

(26) The predicted (A) and unpredicted (B) order of chosen adjectives (English)

...	A - OK - combination		tokens	B - *?? - combination		tokens	A	B
[1]	1a-3a	<i>good – long</i>	149	3a-1a	<i>long - good</i>	21	7	1
	1a-3b	<i>good - short</i>	17	3b-1a	<i>short - good</i>	1	17	1
	1b-3a	<i>bad – long</i>	4	3a-1b	<i>long - bad</i>	6	0,7	1
	1b-3b	<i>bad – short</i>	3	3b-1b	<i>short - bad</i>	0	3	0
[2]	3a-5a	<i>long – quick</i>	0	5a-3a	<i>quick - long</i>	0	0	0
	3a-5b	<i>long – slow</i>	73	5b-3a	<i>slow - long</i>	0	73	0
	3b-5a	<i>short - quick</i>	5	5a-3b	<i>quick - short</i>	8	0,6	1
	3b-5b	<i>short – slow</i>	2	5b-3b	<i>slow - short</i>	1	2	1
[3]	5a-7a	<i>quick - heavy</i>	1	7a-5a	<i>heavy - quick</i>	0	1	0
	5a-7b	<i>quick - light</i>	4	7b-5a	<i>light - quick</i>	1	4	1
	5b-7a	<i>slow - heavy</i>	4	7a-5b	<i>heavy - slow</i>	0	4	0
	5b-7b	<i>slow – light</i>	0	7b-5b	<i>light - slow</i>	0	0	0
[4]	7a-10a	<i>heavy – new</i>	8	10a-7a	<i>new - heavy</i>	11	0,7	1
	7a-10b	<i>heavy – old</i>	25	10b-7a	<i>old - heavy</i>	6	4	1
	7b-10a	<i>light – new</i>	9	10a-7b	<i>new - light</i>	51	0,2	1
	7b-10b	<i>light – old</i>	2	10b-7b	<i>old - light</i>	11	0,2	1
[5]	10a-12a	<i>new – white</i>	142	12a-10a	<i>white - new</i>	38	3,7	1
	10a-12b	<i>new – red</i>	107	12b-10a	<i>red - new</i>	17	6	1
	10b-12a	<i>old – white</i>	276	12a-10b	<i>white - old</i>	23	12	1
	10b-12b	<i>old – red</i>	106	12b-10b	<i>red - old</i>	0	106	0
[6]	12a-14a	<i>white – plastic</i>	220	14a-12a	<i>plastic - white</i>	6	37	1
	12a-14b	<i>white – rubber</i>	23	14b-12a	<i>rubber – white</i>	0	23	0
	12b-14a	<i>red – plastic</i>	135	14a-12b	<i>plastic – red</i>	4	34	1
	12b-14b	<i>red – rubber</i>	48	14b-12b	<i>rubber - red</i>	0	48	0
[7]	2a-8a	<i>big – cold</i>	4	8a-2a	<i>cold - big</i>	1	4	1
	2a-8b	<i>big - hot</i>	16	8b-2a	<i>hot - big</i>	10	1,6	1
	2b-8a	<i>small – cold</i>	10	8a-2b	<i>cold - small</i>	0	10	0
	2b-8b	<i>small – hot</i>	14	8b-2b	<i>hot - small</i>	3	5	1
[8]	2a-13a	<i>big - American</i>	115	13a-2a	<i>American - big</i>	21	5,5	1
	2a-13b	<i>big - European</i>	18	13b-2a	<i>European - big</i>	2	9	1
	2b-13a	<i>small - American</i>	85	13a-2b	<i>American - small</i>	27	3	1
	2b-13b	<i>small - European</i>	43	13b-2b	<i>European - small</i>	5	8,6	1
[9]	1a-8a	<i>good – cold</i>	3	8a-1a	<i>cold - good</i>	0	3	0
	1a-8b	<i>good – hot</i>	38	8b-1a	<i>hot - good</i>	1	38	1
	1b-8a	<i>bad – cold</i>	4	8a-1b	<i>cold - bad</i>	0	4	0
	1b-8b	<i>bad – hot</i>	1	8b-1b	<i>hot - bad</i>	0	1	0
[10]	1a-13a	<i>good - American</i>	43	13a-1a	<i>American - good</i>	11	4	1
	1a-13b	<i>good - European</i>	5	13b-1a	<i>European - good</i>	1	5	1
	1b-13a	<i>bad - American</i>	11	13a-1b	<i>American - bad</i>	0	11	0
	1b-13b	<i>bad - European</i>	3	13b-1b	<i>European - bad</i>	0	3	0
			1776			287	6	1

Notice that the tables in (26) and (27) provide results for the pairings which the couples of Adjs. in all possible combinations, i.e. they check the frequent and infrequent pairings separately. Moreover, [1]-[6] pairs combine Adjs. which are not very distant on Scott's scale, while [7]-[10] search for the pairs which are more distant.

(27) The predicted (A) and unpredicted (B) order of chosen adjectives (Czech)

	A-OK	combination	tokens	ipm	ARF	B	combination	tokens	ipm	ARF	A	B
[1]	1a-3a	<i>dobrý - dlouhý</i>	1	0,01	1	3a-1a	<i>dlouhý - dobrý</i>	0	0,0	-	1	0
	1a-3b	<i>dobrý - krátký</i>	11	0,09	6	3b-1a	<i>krátký - dobrý</i>	0	0,0	-	11	0
	1b-3a	<i>špatný - dlouhý</i>	0	0,0	-	3a-1b	<i>dlouhý - špatný</i>	0	0,0	-	0	0
	1b-3b	<i>špatný - krátký</i>	0	0,0	-	3b-1b	<i>krátký - špatný</i>	0	0,0	-	0	0
[2]	3a-5a	<i>dlouhý - rychlý</i>	4	0,03	2	5a-3a	<i>rychlý - dlouhý</i>	1	0,01	1	4	1
	3a-5b	<i>dlouhý - pomalý</i>	7	0,06	2	5b-3a	<i>pomalý - dlouhý</i>	1	0,01	1	7	1
	3b-5a	<i>krátký - rychlý</i>	7	0,06	4	5a-3b	<i>rychlý - krátký</i>	2	0,02	1	3,5	1
	3b-5b	<i>krátký - pomalý</i>	1	0,01	1	5b-3b	<i>pomalý - krátký</i>	1	0,01	1	1	1
[3]	5a-7a	<i>rychlý - těžký</i>	0	0,0	-	7a-5a	<i>těžký - rychlý</i>	0	0,0	-	0	0
	5a-7b	<i>rychlý - lehký</i>	1	0,01	1	7b-5a	<i>lehký - rychlý</i>	1	0,01	1	1	1
	5b-7a	<i>pomalý - těžký</i>	2	0,02	1	7a-5b	<i>těžký - pomalý</i>	0	0,0	-	2	0
	5b-7b	<i>pomalý - lehký</i>	0	0,0	-	7b-5b	<i>lehký - pomalý</i>	0	0,0	-	0	0
[4]	7a-10a	<i>těžký - nový</i>	2	0,02	1	10a-7a	<i>nový - těžký</i>	8	0,07	6	0,25	1
	7a-10b	<i>těžký - starý</i>	3	0,02	2	10b-7a	<i>starý - těžký</i>	3	0,02	2	1	1
	7b-10a	<i>lehký - nový</i>	0	0,0	-	10a-7b	<i>nový - lehký</i>	4	0,03	2	0	4
	7b-10b	<i>lehký - starý</i>	0	0,0	-	10b-7b	<i>starý - lehký</i>	2	0,02	1	0	2
[5]	10a-12a	<i>nový - bílý*</i>	29	0,24	16	12a-10a	<i>bílý - nový</i>	0	0,0	-	29	0
	10a-12b	<i>nový - červený</i>	12	0,10	7	12b-10a	<i>červený - nový*</i>	1	0,01	1	12	0
	10b-12a	<i>starý - bílý*</i>	22	0,18	11	12a-10b	<i>bílý - starý*</i>	1	0,01	1	22	1
	10b-12b	<i>starý - červený*</i>	22	0,18	10	12b-10b	<i>červený - starý</i>	0	0,0	-	22	0
[6]	12a-14a	<i>bílý - dřevěný</i>	14	0,12	6	14a-12a	<i>dřevěný - bílý</i>	1	0,01	1	14	1
	12a-14b	<i>bílý - železný</i>	0	0,0	-	14b-12a	<i>železný - bílý</i>	0	0,0	-	0	0
	12b-14a	<i>červený - dřevěný</i>	2	0,02	1	14a-12b	<i>dřevěný - červený</i>	0	0,0	-	2	0
	12b-14b	<i>červený - železný</i>	0	0,0	-	14b-12b	<i>železný - červený</i>	0	0,0	-	0	0
[7]	2a-8a	<i>velký - studený*</i>	8	0,07	4	8a-2a	<i>studený - velký</i>	0	0,0	-	8	0
	2a-8b	<i>velký - horký</i>	1	0,01	1	8b-2a	<i>horký - velký*</i>	11	0,09	1	0,1	1
	2b-8a	<i>malý - studený*</i>	7	0,06	3	8a-2b	<i>studený - malý</i>	0	0,0	-	7	0
	2b-8b	<i>malý - horký</i>	6	0,05	2	8b-2b	<i>horký - malý</i>	0	0,0	-	6	0
[8]	2a-13a	<i>velký - český</i>	413	3,39	169	13a-2a	<i>český - velký</i>	4	0,03	2	103	1
	2a-13b	<i>velký - evropský*</i>	344	2,83	139	13b-2a	<i>evropský - velký*</i>	4	0,03	2	86	1
	2b-13a	<i>malý - český</i>	110	0,90	57	13a-2b	<i>český - malý</i>	3	0,02	2	37	1
	2b-13b	<i>malý - evropský</i>	14	0,12	7	13b-2b	<i>evropský - malý</i>	0	0,0	-	14	0
[9]	1a-8a	<i>dobrý - studený</i>	0	0,0	-	8a-1a	<i>studený - dobrý</i>	0	0,0	-	0	0
	1a-8b	<i>dobrý - horký</i>	4	0,03	2	8b-1a	<i>horký - dobrý</i>	0	0,0	-	4	0
	1b-8a	<i>špatný - studený</i>	0	0,0	-	8a-1b	<i>studený - špatný</i>	0	0,0	-	0	0
	1b-8b	<i>špatný - horký</i>	0	0,0	-	8b-1b	<i>horký - špatný</i>	0	0,0	-	0	0
[10]	1a-13a	<i>dobrý - český*</i>	525	4,32	197	13a-1a	<i>český - dobrý</i>	3	0,02	1	175	1
	1a-13b	<i>dobrý - evropský</i>	116	0,95	51	13b-1a	<i>evropský - dobrý</i>	1	0,01	1	116	1
	1b-13a	<i>špatný - český*</i>	11	0,09	4	13a-1b	<i>český - špatný</i>	0	0,0	-	11	0
	1b-13b	<i>špatný - evropský</i>	0	0,0	-	13b-1b	<i>evropský - špatný</i>	0	0,0	-	0	0
			1699				51				32	1

Comparing the last two columns in the two tables (26) and (27), we can see that in the ratio between (A) a number of predicted occurrences with (B) a number with occurrences which do not comply with the hierarchy as proposed by Scott (2002) and Pereltsvaig (2007), the first of the numbers is (with the exception of one pair [4] *weight* → *age*) the amount of predicted examples is always higher than the number of the examples not complying with the Scott's hierarchy.

The summarised ratio for English is 6:1 and for Czech it is 32:1. Given that [4] provides unpredicted results for both languages, it is perhaps a flout in the hierarchy. Omitting those results not to obscure the others, the ratios are 49,8:1 (1694:34) for Czech and 8,3:1 for English 1732:208. Without [4], the results signal that if English can be taken for a language which has uncontroversially hierarchical NP structure, Czech has such a hierarchical structure as well.

The numbers from the above tables are summarised for each pairing in (28) below which gives the percentage of occurrences of the examples not complying with the Scott's hierarchy with respect to those which followed the hierarchy. The pairing [4] is taken as inverted.

(28) Percentage of acceptability of the unpredicted examples

pair	CZECH			ENGLISH		
	ΣA	ΣB	%	%	ΣA	ΣB
[1]	12	0	<b>0</b>	<b>16</b>	173	28
[2]	19	5	<b>26</b>	<b>11</b>	80	9
[3]	3	1	<b>33</b>	<b>11</b>	9	1
[4]	17	5	<b>29</b>	<b>56</b>	79	44
[5]	85	1	<b>1</b>	<b>12</b>	631	78
[6]	16	1	<b>6</b>	<b>2,3</b>	426	10
[7]	22	11	<b>50</b>	<b>32</b>	44	14
[8]	881	11	<b>1</b>	<b>21</b>	261	55
[9]	4	0	<b>0</b>	<b>2</b>	46	1
[10]	652	4	<b>1</b>	<b>19</b>	62	12
	1711	39	<b>2,3</b>	<b>13,9</b>	1811	252

The percentage of toleration to the counter-hierarchical pairings is 2,3 for Czech and 13,9 for English. Also this result thus confirm that in both English and Czech NPs show a hierarchy among adjective premodifiers and the tolerance for re-orderings is in Czech even lower than in English.<sup>16</sup>

### 4.3 Distance Criterion

If Scott's Adjective Hierarchy is valid, one also expects that the tolerance for reordering will be lower with pairings of adjectives which can be found far from each other on the scale. The table below check this criterion showing the percentage of tolerance for the pairings [1]-[6], which represent pairings close on the scale, separately from the pairings [7]-[10] which are Adj. appearing in a further distance in Scott's scale. (I omitted [4]).

(29) Close and more distant pairings

pair	distance	CZECH	ENGLISH
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<sup>16</sup> The discrepancy between in (22) and (29), i.e. between Pereltsvaig's 11,4 p.c. for English and 16 p.c. resulting from the search in this study, may signal the distinction between the data collected from native speakers' evaluations and from corpora.

	on the scale	$\Sigma A$	$\Sigma B$	%	%	$\Sigma A$	$\Sigma B$
[1]	2	12	0	<b>0</b>	<b>16</b>	173	28
[2]	2	19	5	<b>26</b>	<b>11</b>	80	9
[3]	2	3	1	<b>33</b>	<b>11</b>	9	1
[5]	2	85	1	<b>1</b>	<b>12</b>	631	78
[6]	2	16	1	<b>6</b>	<b>2,3</b>	426	10
		135	8	<b>5,9</b>	<b>9,6</b>	1319	126
[7]	<b>6</b>	22	11	<b>50</b>	<b>32</b>	44	14
[8]	<b>7</b>	881	11	<b>1</b>	<b>21</b>	261	55
[9]	11	4	0	<b>0</b>	<b>2</b>	46	1
[10]	12	652	4	<b>1</b>	<b>19</b>	62	12
		1559	26	<b>1,7</b>	<b>19,9</b>	413	82

Comparing the percentual average acceptability of counter-hierarchy orders with the percentage of acceptability for the pairings closer // more distant on the scale, in Czech the average 2,3 p.c. is contrasted with 5,9 and 1,7 p.c., confirming thus the expectation that the more distant pairs of Adjs. will allow less tolerance and will follow their order more strictly than those which are closer to each other on the scale. However, in English, the average 13,9 p.c. is compared with only 9,6 p.c. for the close pairings and about 19,9 for the more distant one – i.e. the result is not expected. In other words, the results of this comparison suggest that Czech respects the hierarchy more strictly than English and the adjectival order in the premodifying field is more fixed in Czech than in English.

#### 4.4 Frequency criterion

The following two tables compare the levels of acceptability of the counter-hierarchy orderings related to the frequency of the Adjs. used for the pairing. The A column gives the number of occurrences of the more frequent pairings (examples marked as (a) in (25)) with the pairs containing the less frequent examples (examples marked as (b) in (25)).

(30) Tolerance related to a more/less frequent Adjs. pairings

ENGLISH										
more frequent						less frequent				
pairings	A		B	%	pairings	A		B	%	
[1]	1a-3a	149	3a-1a	21	<b>14</b>	1b-3b	3	3b-1b	0	<b>0</b>
[2]	3a-5a	0	5a-3a	0	<b>0</b>	3b-5b	2	5b-3b	1	<b>50</b>
[3]	5a-7a	1	7a-5a	0	<b>0</b>	5b-7b	0	7b-5b	0	<b>0</b>
[5]	10a-12a	142	12a-10a	38	<b>26,8</b>	10b-12b	106	12b-10b	0	<b>0</b>
[6]	12a-14a	220	14a-12a	6	<b>2,7</b>	12b-14b	48	14b-12b	0	<b>0</b>
[7]	2a-8a	4	8a-2a	1	<b>25</b>	2b-8b	14	8b-2b	3	<b>21,4</b>
[8]	2a-13a	115	13a-2a	21	<b>18</b>	2b-13b	43	13b-2b	5	<b>11,6</b>
[9]	1a-8a	3	8a-1a	0	<b>0</b>	1b-8b	1	8b-1b	0	<b>0</b>
[10]	1a-13a	43	13a-1a	11	<b>25,6</b>	1b-13b	3	13b-1b	0	<b>0</b>
		677		98	<b>14,5</b>		220		9	<b>4,1</b>

CZECH										
more frequent					less frequent					
pairings	A		B	%	pairings	A		B	%	
[1]	1a-3a	1	3a-1a	0	<b>0</b>	1b-3b	0	3b-1b	0	<b>0</b>
[2]	3a-5a	4	5a-3a	1	<b>25</b>	3b-5b	1	5b-3b	1	<b>100</b>
[3]	5a-7a	0	7a-5a	0	<b>0</b>	5b-7b	0	7b-5b	0	<b>0</b>
[5]	10a-12a	29	12a-10a	0	<b>0</b>	10b-12b	22	12b-10b	0	<b>0</b>
[6]	12a-14a	14	14a-12a	1	<b>7,1</b>	12b-14b	0	14b-12b	0	<b>0</b>
[7]	2a-8a	8	8a-2a	0	<b>0</b>	2b-8b	6	8b-2b	0	<b>0</b>
[8]	2a-13a	413	13a-2a	4	<b>1</b>	2b-13b	14	13b-2b	0	<b>0</b>
[9]	1a-8a	0	8a-1a	0	<b>0</b>	1b-8b	0	8b-1b	0	<b>0</b>
[10]	1a-13a	525	13a-1a	3	<b>0,6</b>	1b-13b	0	13b-1b	0	<b>0</b>
		994		9	<b>0,9</b>		43		1	<b>2,3</b>

The results show that contrary to Pereltsveig's claim, in this corpora search of English the more frequent examples tolerate more freedom than the less frequent ones. The percentage of tolerance in the left column (for the [a+a] examples) is lower than the percentage in the right column (for the [b+b] examples). In other words, the level of acceptability of the hierarchy violation is higher with the frequent Adj. pairs than the level of acceptability of the violation with the less frequent pairs. Notice that the phenomena is distinct in Czech where the higher frequency results in lower tolerance to the counter-hierarchical pairings.

However, looking more closely on the Czech table, we can see that the results are consequence of one single example.<sup>17</sup> Without this one, the frequency in the right column would be 0. Similarly in English, the results depend on 1-3 examples, too. The small number of data therefore does not allow any conclusions and the frequency parameter must remain open in this study.

## 5. Conclusion

In (23) I formulated questions which were addressed using the data collected in the corpora search. The topics are repeated below together with the answers based on the data statistics presented in the preceding sections.

(31)

- a. **Do Czech and English data suggest a word-order hierarchy inside NP**  
- i.e. are their NPs "hierarchical"?  
**Yes.** Both English and Czech prefer one specific order of adjectival premodifiers over the opposite one.
- b. **Do Czech and English respect the Hierarchy proposed by Scott (2002)?**  
**Mostly yes,** though some specific qualities may still require more research.
- c. **Is the preference influenced by the distance of the adjectives on the scale?**  
**Contradictory** results: In Czech the more distant pairs of Adjs. follow the hierarchical order more strictly than those which are closer to each other on the scale.

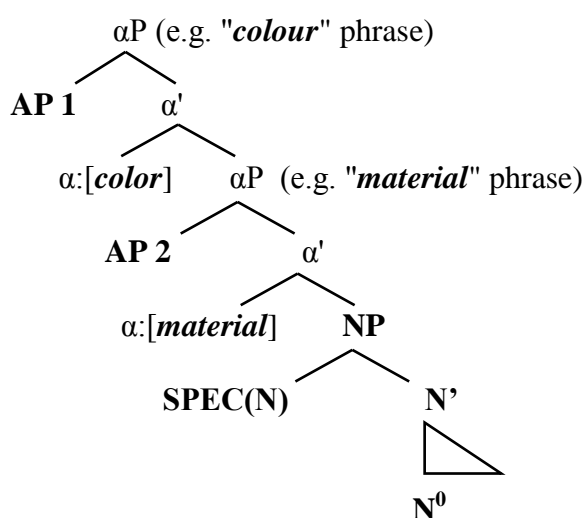
<sup>17</sup> ...odcházela chůzí, na kterou nikdy nezapomenu : *pomalými krátkými krůčky* (Kundera, Žert, Brno 1991).

In English, the result is opposite. The more distant pairs of Adjs. follow the hierarchical order less strictly than those which are closer to each other on the scale.

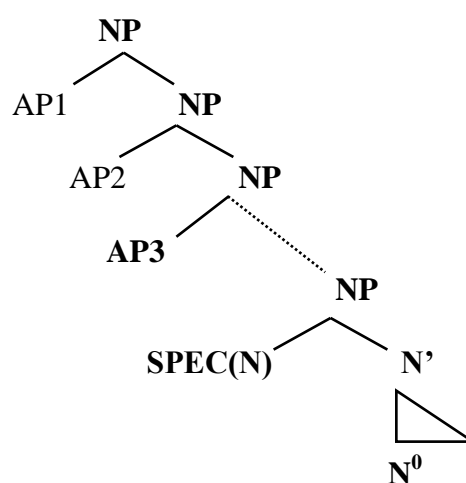
- d. **Is the preference influenced by the frequency of the adjectives in a specific pair?**  
 Pereltsveig (2007) claims that the more frequent Adjs. follow the proposed hierarchy more strictly than the less frequent ones. The results of the corpora search provide opposite data for English. However, given the low numbers of examples, the influence of frequency **cannot be either confirmed or disconfirmed** using this study.
- e. **Are the preferences in English and Czech the same?**  
 Yes, in most aspects they are very comparable even in those details which contradict the expectations. If there is any distinction than it is in favour of **more strict word order in a Czech NP** than in an English NP.

I accepted the methodology used in Pereltsveig's study to allow comparison with her results. However, I do not accept her conclusions and claims. She takes a relatively fixed ordering of adjectives, moreover to a high extend universal, as a proof of the existence of a hierarchically ordered string of functional heads between NP and DP in (6). This kind of layered NP projection is using the framework developed in Cinque (1999) and in the couple of trees in (32) below it is represented by the left one.

(32) a.  $\alpha$ P functional heads



b. Recursive NP adjunction



Pereltsveig (2007),<sup>18</sup> assumes for each adjective a specific functional head(s) Alpha ( $\alpha$ ) which hosts the AP in its SPEC. Each of the probably up to 15  $\alpha$ Ps would carry its own semantic feature and the APs with the same interpretation will be located in its SPEC.

This proposal, however does not respect several characteristics of the adjectival premodifiers which are widely attested cross-language at least one of which had been attested in this study. The relevant characteristics is the distinction between the word order changes inside the D and N fields. Recall that every author dealing with the topic mention the strict ordering within the determiners and more relaxed (though still hierarchical) ordering inside the NP field. I propose that the tendencies (i.e. rules with a serious number of exceptions) are more likely a result of semantic component which allows individual reinterpretation than of a syntactic subcategorization. If there were a string of functional heads above NP their ordering

<sup>18</sup> For more cross language development of the same idea see also Julien, 2002.



would probably depend on strict and unique subcategorization and such a hierarchy is unlikely to be violated. Using the parallel with a VP, the functional projections represented by English auxiliaries and modals would not tolerate 20 p.c. of counter-hierarchical orders - i.e. the same amount of freedom as attested with the prenominal adjectives. Therefore I propose a traditional adjunction analysis as in the following (32) on the right. The adjuncts are imposing their own scopes and this scope probably respects a semantic hierarchy which allows individual speaker's modifications.<sup>19</sup>

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<sup>19</sup> In a more elaborate functional framework Rijkhoff (2002, 332) proposes a very similar Principle of Scope, which requires "an embedded domain ... occur next to the element(s) it has in its scope". The author, moreover, refers also to other principles (Principle of Domain Integrity, Principle of Head Proximity and Principle of pragmatic highlighting) and assumes a language specific (optimalist) hierarchy between the principles.

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