

## (De)verbal Modifiers in Attribute + Noun Collocations and Compounds: Verbs, Deverbal Nouns or Suffixed Adjectives?

Radek Vogel

**Address:** Masaryk University, Faculty of Education, Department of English Language and Literature, Poříčí 9, 60300 Brno, Czech Republic. [vogel@ped.muni.cz](mailto:vogel@ped.muni.cz)

**Abstract:** English as an analytic language particularly poor in inflections and relatively poor in derivational suffixes does not often mark word classes by specific morphemes. On the contrary, one form of a word can be used in several grammatical functions and an identical word form can even have several meanings in several word classes. The frequent occurrence of conversion between word classes thus allows one form, often the base or simplest one, to perform several roles, and, at the same time, makes identification of its grammatically and semantically defined word class difficult, especially in multiword phrases functioning as a whole. The most frequent type of a noun phrase, Attr+N phrase, can thus be realised in several ways, with different word classes performing the function of syntactic attribute. This paper looks into a less frequent subtype of this phrase in English, one which uses semantically (de)verbal attribute, and tries to establish rules governing the choice between the two main options, using either the base form or a derived one (e.g. *call centre* vs. *writing paper*). Shedding light on this issue has practical application in mastering appropriate formation as well as correct understanding of English multiword phrases or terms (mostly nominal), which is an important skill in non-native environment (especially in EAP) where English is used as a *lingua franca*.

**Keywords:** argument; attribute; base; compound; modifier; noun phrase; semantic roles; verb

### 1.1. Premises

English syntactic structures functioning as noun phrases differ from their equivalents in inflectional languages (e.g. Czech, Russian, and to a lesser degree German) both formally and semantically. The attributive word does not often possess any typical or visible marker of attributiveness, such as adjectival suffixes or at least genitival/possessive inflections. Although these are also frequent in English, they are employed non-systematically. Attributes in noun phrases express such relations as description, possession, purpose, material, provenance, origin, etc. The lexical forms used to correspond to these functions can be derivational adjectives with adjectival suffixes, sometimes analogical to those used in verbal participles (*-ing*, *-ed*) or with purely adjectival suffixes (*-al*, *-ic*, *-ish*, *-ous*, etc.), denominal (or

genitival/possessive) forms of nouns, or unchanged, base forms of nouns and even verbs used as attributes to other nouns. Similarly, Huddleston and Pullum (2002, 444) state that “internal modifiers in pre-head position are realised by DPs, AdjPs, VPs with past participle or gerund-participle heads, and nominals in plain or genitive use.”

Particularly interesting among these is a group of fixed noun phrases, i.e. collocations, but rather compounds, which include the attribute derived from a verb. Having such dynamic properties, the verb may be transformed into a deverbal adjective, expressing either the activity performed by the agent or instrument referred to by the head noun, or the activity to which the head noun is exposed as an affected object, recipient, experiencer, location, etc. A more complex case is when the activity is transformed into a deverbal noun, such as in *cooking apple* (which can be paraphrased as “apple for cooking”). In other cases just the base form of the verb (or should it be interpreted rather as a noun converted from the verb?) functions as the attribute, not taking any adjectival suffixes. In short, virtually all the above-mentioned combinations are used when the attribute derives from a dynamic verb.

Collocations and compounds are an effective method of integrating and/or modifying meaning for the purposes of naming complex concepts. Compounding is also a very productive process as far as formation of terms or other complex neologisms is concerned. Numerous examples of relatively recent coinages using verbal attributes can prove it, such as *break-dance, catchphrase, checklist, drive range, helpdesk, touchpad, pay-phone, shareware, watchdog*; also the names of products and services, such as *Clickpad, Pay Pal, PlayStation, Savenet, Readlog*, etc.

The question then is what rules there exist, if any, that explain the choice of the form of such an attribute in NPs. If there are some rules, are they strict or only very rough? Are the potentially existing rules reliable enough to guide users of English (particularly non-native ones) when they want to express a new complex meaning and therefore need to create a naming for it (in our case a noun phrase formed from a predicate and its argument)? Does the form chosen for such an attribute reveal more precisely the dominant semantic traits incorporated in the meaning of the whole noun phrase?

## **1.2. Methodology**

When a semantically dynamic verb gives rise to an attribute to the head noun in a conventionalised noun phrase (i.e. one that is accepted as a multi-word expression referring

standardly to some concept) and such an attribute in different phrases occurs in several morphological forms, these variants are compared and analysed. The properties subject to comparison are the form, the meaning and the syntactic function

The results of analysis focused on the three above-mentioned characteristics are then summed up and conclusions are drawn as to the relevant correlations between their individual variants. It is assumed that some rough rules can be identified that govern the choices underlying the formation of attributes based on dynamic verbs.

The hypotheses can be formulated as follows:

1. There exists a correspondence between the forms of (de)verbal attributes functioning as premodifiers in lexicalised NPs and the semantic roles of the arguments of predicate (syntactically its complements and adjuncts).
2. The most frequent type of premodifier is morphologically marked (i.e. it has an adjectival suffix or participial/gerundial inflection).
3. The choice of morphologically unmarked type (i.e. the base form of verb) is semantically explainable.
4. Despite easy conversion in English, the verbal rather than nominal status of deverbal attributes is distinguishable.

Selection of the noun phrases for this research was determined by the level of their lexicalisation, i.e. whether they have established a phraseological status. Therefore, primarily those NPs were chosen which are included in some basic dictionaries, namely *Anglicko-český / česko-anglický slovník* by Josef Fronek (1999), *Cambridge International Dictionary of English* (1995) and *New Shorter Oxford English Dictionary* (1973, 1993). Also, some nominal compounds and collocations containing (de)verbal attributes which are commonly used were added although they are not included in the chosen authoritative dictionaries.

As there is ambiguity between compounds (particularly the open, multiword type) and collocations, this criterion has been considered as secondary to the dominant lexical one. However, the distinction between (active) gerundial-particles and verbal passives on the one hand (i.e. those in a collocation, syntactic combination with the head of an NP) and active and passive deverbal adjectives or nouns as premodifiers in NPs on the other hand is, if possible, respected, with the focus on the latter, lexical, type. Apart from this, a type of NP using a base form of verb as a modifier, whether this occurs in solid or open (multi-word) compounds, has been identified as a distinctive type of the lexical combination.

Determination of the verbal character of (de)verbal attributes was complicated by differences in tagging in individual sources, if any at all was provided. Referring to concordancers (such

as *Sketch Engine*) browsing through the British National Corpus did not prove to be useful either, since tagging in the case of suffixed words often applies formal methods only (e.g. whatever word derived or inflected from a verb by suffixes or inflectional endings *-ing* or *-ed* is by default labeled as a verb).

## 2.1 Previous research

The dominant type of noun compounds in English are N+N compounds (Biber et al. 1999, 326). The share of compounds with premodifying nouns is estimated at 30-40% (Ibid., 589) and in some formal written styles, such as the styles of newspapers and science, the share of N+N compounds even reaches 1/2-2/3 (Ibid.). The Adj+N type is also frequent (though difficult to distinguish from syntactic combinations, i.e. collocations), but pure V+N compounds are rare.

Before possible conversion of verbs into adjectives or rather keeping their verbal status is discussed, some attention should be paid to the phenomenon of English conversion in general, utilising a parallel with the relationship between substantives and adjectives. Dušková et al. claim that a complete conversion of a substantive into an adjective is rare in English (compared with the opposite direction, substantivisation of an adjective by conversion) (1988, 26-27). The adjectives then behave as other adjectives, e.g. can be intensified and graded.

Dušková et al. (1988, 27) also say that using substantives in adjectival function as a pre-modifier of another noun is very frequent in English. It is also an example of partial conversion, which is only realised syntactically, i.e. by the position of the word. The adjectival character of the substantive is only revealed by its position before another substantive (and conversely, an adjective used substantively is revealed by an article). The morphological markers of a word class are absent.

As Dušková et al. point out (1988, 27), adjectivisation of a substantive (used as a pre-modifier) is marked by loss of the contrast in number (e.g. *passenger list*, *child labour*), but this is not always the case (e.g. *goods train*, *sports ground*). What is relevant to the question postulated in this paper, is Dušková's observation (1988, 28) that if there exist at the same time an adjectivised (converted) substantive and a derived (suffixed) adjective with the same base, the forms are semantically differentiated (*dirty road* vs. *dirt road*).

As Dušková et al. aptly say in relation to modification by several concatenated nouns (or adjectives), the mutual relations between individual components of such phrases are determined by their semantic relations, since formal indicators of the dependences are absent

(1988, 28). Logically, if there are several possible interpretations of the relationships, it results in semantic ambiguity. Thus, semantic relations between the attribute and the head noun in a noun phrase is the key to solving our question of distinguishing between different morphological types of deverbal and verbal attributes.

Biber et al. (1999, 530) state that, “Both *-ing* and *-ed* participle forms can be used as participial adjectives.” However, they claim that sometimes they can be analysed as being derived from verbs (*working, leading, prepared*), but sometimes rather from nouns (*interested, crowded*) (Ibid.). Also, they “vary greatly in how far they possess all the defining characteristics of adjectives” (Ibid.), namely gradability and attributive vs. predicative use (where they are very close to main verbs when combined with the copula *be*).

## 2.2 Distinction between compounds and composite nominals

As has been stated earlier, pre-modifying attributes in English NPs can be determiner phrases, adjective phrases (where adjectives are either words suffixed by adjectival suffixes such as *-al, -ic, -ish, -ous*, or by suffixes shared with verb participles or VPs, such as *-ing* and *-ed/-en*), verb phrases (present participle/gerund ending in *-ing*, past participle ending in *-ed/-en*, and the base/plain form) and nominals. Nominals can occur either in a plain or a genitive form. as deverbal nouns derived by nominal suffixes (*reaction time*), suffixes shared with verbal nouns (=gerunds) (*singing lesson, working hours*) or converted, i.e. identical with base form (*sleep deficit, playtime*). This category is the particular focus of this paper.

Formally, most nominal premodifying attributes in English NPs show ambiguity with adjectives and verbs. Another ambiguity concerns the distinction between compounds and composite nominals. Huddleston and Pullum suggest five tests to distinguish between syntactic constructions (collocations) and compounds (2002, 449). In this respect, they also offer an overview of functions and semantic roles of noun pre-head dependents. Passing the first test, i.e. possible **coordination** of the first element, proves the constructions as syntactic. Relations such as composition (*vegetable salad*), purpose (*cooking apples* = “for cooking”), instrument (*ink printer*) are syntactic constructions with the first component functioning as a **modifier**, whereas the relations of inherent part (*television screen* = “screen of a television”) and theme (*microfilm reader* = “device for reading microfilms”) have the modifier in the role of a complement. (449)

If there is some semantic unpredictability in the relation of denotation of the whole to the denotation of its parts, the combination is rather a compound, and it fails the coordination test.

(2002: 450). However, some semantically clear N+N combinations fail the coordination test as well. What makes them compound nouns is thus a syntactic, not a semantic difference. As Huddleston and Pullum note (2002: 450), “the semantic relations involved in composite nominals and compound nouns may be exactly the same: for example, *cutlery box* denotes a box for cutlery, and a *matchbox* denotes a box for matches.” However, *matchbox* does not pass the coordination test. Even the orthography reflects that one is a syntactic construction, while the other a compound.

Showing that an evident compound *washing-machine* fails the coordination test thanks to a different morphological make-up of similar machines, but theoretically is able to pass it with an invention of a descriptively called *washing-, drying- and pressing-machine*, Huddleston and Pullum conclude that such tests “do not yield a sharp division between composite nominals and compound nouns. A good deal of the apparent blurring of the distinction, however, is attributable to reanalysis (...).” (2002: 450) Treating all N+N combinations as composite numerals or, conversely, regarding them all as compounds is not a solution. The other approach would even weaken the distinction between syntax and morphology, accepting as compounds phrases with very long coordinations. As Huddleston and Pullum say: “Both approaches, moreover, raise the problem of the relation between N+N combinations and Adj+N combinations: the coordination and modification tests (...) apply to both.” (2002: 451).

Also non-syntactic criteria are suggested for differentiating between composite nominals and compound nouns, namely those based on **stress**, **orthography**, **meaning** and **productivity** (2002: 451). As far as stress is concerned, the composite nominal carries primary stress on the second element (*working 'hours*), but in the compound it is the first element which is stressed (*'workplace*). Orthographically, the compound is written as one word, while the composite nominal as two. The meaning of the composite nominal can be directly predicted from the meanings of its parts, whereas the meaning of the compound cannot, as the relations between the parts are not so obvious, the compound is thus not so transparent and its denotation is specialised. In terms of productivity, the modifier in the composite nominal can be substituted by a collocate that can combine semantically with the head noun, but chances of such an easy substitution are highly restricted in the compound. (2002: 451)

However, these criteria and syntactic tests of coordination and modification do not match very perfectly, as there are composite nominals with primary stress on the second element (*cooking 'apple*, *income 'tax*) and vice versa, there exist alternative forms in orthography (solid, hyphenated, open compounds), the semantic specialisation can also be found in composite

nominals and conversely, many compounds are perfectly transparent (*backache*). Concerning productivity, Huddleston and Pullum note its gradient character, saying that, “Syntactic processes are overall more productive than morphological ones within the lexicon, but this is a tendency, not a matter of productive vs. non-productive.” (2002: 451)

### 2.3 Comparison with synthetic languages

It is likely that synthetic languages, conveniently represented by Czech, possess a larger variety (compared with English) of synthetic, i.e. inflectional and derivational means to express shades of meaning, but a comparably smaller number of analytic ways, epitomised by compounding. The ease of compounding, assisted by conversion of word class, is a characteristic analytic property of English. Czech attribute should be, with very few exceptions (usually based on foreign patterns), an adjective. As such, it is also clearly distinguished morphologically from a close form, verb participle, despite their semantic proximity. The participles in English most closely correspond to the Czech *přechodník* (transgressive) or a verbal participle (which are not identical), but they differ from a deverbal adjective, which in English has the same form as the participle. On top of these forms, there exists a range of adjectival derivational suffixes, possibly wider than in English. Thus, for example, an active participle *míchající* (*mixing*) is a transitory form between a verb (semantically) and an adjective (formally) in Czech, distinguished both from the present transgressive *míchaje/míchajíc/míchajíce* (*mixing*) and the proper deverbal adjective, e.g. *mícháčí*. Similarly, the Czech passive participle *míchán/a/o/i/y* (*mixed*) is morphologically distinguished from the past transgressive (*na/za/etc.*) *míchav/míchavši/míchavše* as well as from the deverbal adjectives (*na/za...*) *míchany/á/i/é*. Only the last mentioned forms can function as attributes in noun phrases in Czech, unlike English where the word class is not expressed specifically, or, in other words, the suffixes *-ing* and *-ed* have each several distinct functions, namely as a gerundial/participial inflection in verbs and as a derivational suffix. Moreover, English can also use the unchanged base form of the verb or one derived by noun suffixes in the attributive sense, which is impossible in Czech (at least in a premodifying function). If the use of *mixing* and *mixed* seem to be quite universal equivalents to different Czech verbal and adjectival forms, when is it possible then to use attributively only the forms *mix* or *mixture*?

In Czech, the distinction between a derived (deverbal) adjective and an active participle form can also be expressed by a subtle difference in vocalic quantity. However, this distinction

affects only a certain verb class and sometimes is only reflected in spoken language (short pronunciation of [balitsi:] and [lepitsi:] in *Kup balící papír / lepící pásku* compared with the canonical long [i:] in *dívka balící dárky / lepící obálky* etc. The distinction is reflected in spelling in, for example, *holící strojek* x *holící se muž*, *kropící vůz* x *kropící vůz*. Another marker of the distinction is the presence of a reflexive pronoun (and a clitic) *se/si*: *vařící voda* (Adj+N) vs. *vařící se voda* (Vpart+N). In most cases the adjective differs from a verb form by absence of a typically verbal suffix, although the final adjectival/participial suffix is shared (*koupací* vs. *koupající (se)*, *sedací* vs. *sedající/sedící*, *houpací* vs. *houpající (se)* etc.). In *spací* vs. *spící*, *sedací* vs. *sedící*, *přací* vs. *přející* the difference in the vowel in the suffix is based on the fact that adjectival suffixes use the past stem endings of respective verbs, whereas active participles are derived from the present stem forms.

No.	English form using suffix or inflection <i>-ing</i>	Grammatical function of an expression ending in <i>-ing</i>	Status of <i>-ing</i>	Czech equivalent translation
(1)	a <b>singing</b> policeman	deverbal suffixed <b>adjective</b> (a permanent property)	suffix	zpívající policista
(2)	I saw a <b>singing</b> girl.	deverbal suffixed <b>adjective</b> (a temporary property)	suffix	Viděl jsem zpívající dívku.
(3)	The girl was <b>singing</b> .	<b>verb</b> : present (active) participle in a finite VP	inflect.	Dívka zpívala.
(4)	<b>Singing</b> , I went home.	<b>verb</b> : present (active) participle in a non-finite VP	inflect.	Zpívaje, šel jsem domů. / Šel jsem domů a zpíval jsem si. / Šel jsem domů se zpěvem.
(5)	She likes <b>singing</b> (carols).	<b>verb</b> : gerund	inflect.	Ráda zpívá (koledy).
(6)	a <b>singing</b> lesson	deverbal suffixed <b>noun</b> – as a pre-modifier in NP	suffix	hodina zpěvu
(7)	The <b>singing</b> of the anthem is banned.	deverbal suffixed <b>noun</b> – as the head of NP	suffix	Zpívání hymny je zakázáno.

**Tab. 1.** Overview of grammatical functions expressed by the (de)verbal suffix or inflection *-ing*. Structures (1), (2) and (6) are Attr+N phrases; only (6) is subject to analysis in this research.



According to Huddleston and Pullum (2002), attributes of the V-ing (*the gleaming showroom*) and V-en (*the defeated army*) types are **VPs, not clauses**, apart from other possible attributes formed by determinatives, adjectives and nouns (including those in possessive case).

The latter type of attributes (*their employment policy*) are nominals, not NPs.

As Huddleston and Pullum (2002, 540) point out:

Primary forms of verbs, and also the plain form, are clearly distinct from adjectives: it is only with the gerund-participle and past participle forms that problems arise, for there are many adjectives that are homophonous with these forms of verbs. We need to consider two cases, one where the verb or adjective follows the verb *be*, and one where it modifies a noun.

In the former case, the *-ing* and *-ed/-en* forms of verbs follow *be* as an auxiliary of progressive aspect or passive voice (*He was speaking. We were invited.*) Adjectives are used after *be* in the function of a copula (*He is amusing. We were dissatisfied.*) The adjectival status can be tested by replacing *be* by another copula (i.e. a complex intransitive verb), modifying the adjectives by *very* and *too*, and a semantic distinction. (2002, 541) Also, gerund-participles in transitive verbs take objects, which participial adjectives do not do. So, when a noun is modified, at least the criteria of semantic difference and modification by intensifiers can be used to distinguish a verb participial form in e.g. *a sitting boy* from the adjective in *this sitting room*. Huddleston and Pullum (2002, 541-542) suggest:

In general, we will take the form as a verb if it cannot function as a predicative adjective. (...) Again, past participles and corresponding adjectives in attributive position are usually interpreted passively: a rarely heard work is a work which one rarely hears. But here too there are a fairly small number of exceptions: fallen rocks, a failed businessman, the escaped prisoner, a grown man, the recently departed guests. The category status of these items is rather problematic, but since they cannot occur as predicative adjectives, they are perhaps best regarded as verbs.

Verb participles	Deverbal adjectives
After the verb <i>be</i> : <i>-ing</i> and <i>-ed/-en</i> forms are used as auxiliaries of progressive aspect or passive voice.	After the verb <i>be</i> : they are used as a copula (complement) ( <i>He is amusing</i> ).
Take objects (in transitive verbs).	Do not take objects.
Semantic difference (dynamic m.: <i>a sitting boy</i> ).	Verb <i>be</i> can be replaced by another copula

	( <i>seem</i> ), modified ( <i>very, too</i> ); semantic distinction (stative m.: <i>the sitting room</i> ).
When the forms are not used as predicative adjectives, they are taken as verbs (Huddleston and Pullum 2002, 541-542).	

**Tab. 2.** Differences between verb participles and (suffixed) deverbal adjectives

### 3. Researched verbs used in compounds

The research involved compounds including dynamic verbs as pre-modifying attributive components. Such lexemes were included that can be considered as compounds, i.e. single lexemes denoting a single concept. 35 common dynamic verbs used as premodifiers were selected as a representative s, namely *bath, blow, break, close, cook, cry, cut, draw, drink, drive, fly, fry, jump, kill, look, live, melt, paint, pay, play, read, rock, send, shave, sing, sit, sleep, stop, swear, swim, swing, think, touch, wait, walk*. Altogether, 290 such compounds structured as NPs were found. The type V+N, where V is a base form of a verb, contains 168 expressions (58%). However, in some doubtful cases several expressions were counted here as V+N although they are marked as N+N by *NSOED* (or not specified) (*playtime, playhouse, playground, playlist, plaything, ...*). The reason is that the modifier rather denotes an action than a person, object, property or similar concept (“a time during which st. is played“, “a ground where sb. plays“, etc.), which enables a paraphrase using a finite verb form. The morphologically marked type, V-ing+N, was identified in 122 expressions (42%).

Some of the expressions were counted as V+N or V-ing +N although their attributes are probably rather deverbal nouns. Cf. *paintbox* (“a box of paints“) x *paintbrush* (“a brush for applying paint/ for painting“), *walking race* (“a competition in walking“) x *walking stick* (“a stick carried in the hand when walking“ x *walking leg* (“a limb used for walking“) x *walking corpse*; *reading room, reading-glass, reading age* = all of them refer to the ability or activity of reading. However, the dynamic verbal character of the attributes was given priority here. It is also in compliance with a similar approach by Biber et al. (1999, 327), who classify as **verb/noun + noun compounds** those “cases of compounding where one of the elements of the compound could be either a verb base or a noun, but where the underlying relationship is more appropriately expressed by a verb.“

An interesting finding made during the research is that when only the commonly used compounds were assembled, the marked type of premodifier (*-ing*) slightly prevailed over the base form. After adding less frequently used compounds, mostly terms from various areas of technology or other professional terminologies, the overall ratio gradually reversed. The preference for unmarked forms of (de)verbal premodifier thus seems to characterise technical and professional terms (most evident in compounds using the bases *draw* and *stop*, but also *pay*, *cook*, *swing*, etc. - compare Tab. 3 below).

Verb	List of compounds with the verb as a modifying base
break	break-bone, break-crop, break-dance (L20), break-even, breakfast, break-front, break-line, breakneck, break-point, breakstone, breakwater, breakwind (Aus), breaking news, breaking-point, breaking strength
cook	cook book, cook-chill, cook-camp (NA <sub>m</sub> ), cook-room/cookhouse, cook-shack, cookshop, cookstove (NA <sub>m</sub> ) / cooking stove, cooktop / cooking top, cookware, cooking apple
drive	drive-belt /drive shaft /driving belt, drive system, driving box, driving course, driving iron, driving licence, driving seat, driving school, driving test, driving range, driving force, driveway (M19 NA <sub>m</sub> ), driving-wheel
play	playbox, playing-card, play-centre, play clothes, play-day, play-debt, play-dough, play face, playing field, playfield (1883), playground (L18), playboy (E19), playgirl (M20), playhour, playland, play-material, play-pen, PlayStation (L20), playtime (E17), playlist (M20), playgroup (E20), playhouse (LOE), play school, play-suit, playstreet, play-table, plaything  <b>Note:</b> Compounds such as <i>play-acting</i> , <i>playbook</i> , <i>playfellow</i> , <i>playfighting</i> , <i>play therapy</i> , <i>playwriter/playwright</i> , etc. were not included since their first base is rather nominal (cf. a paraphrase “book of plays“, analogy with <i>story book</i> , <i>schoolfellow</i> , <i>speech therapy</i> , etc.).
stop	stopbank (Aus/NZ), stop bath, stop bead, stop-block, stop-butt, stop-button, stopcock, stop chords, stop chorus, stop-cylinder, stop-dog/stop-hound, stop-drill, stopgap, stop-gate, stop-handle, stop-knob, stop lamp, stop lights (20), stop list, stop-lock, stop log, stop-net, stop-order, stop-press, stop-ridge, stop-seine, stop sign, stop signal, stop-thrust, stoptime, stop-valve, stop volley, stop-water, stopwatch (M18), stopway, stop word, stop-work (20), stopping ground, stopping house (Can), stopping mixture, stopping place, stopping rule, stopping station, stopping train

**Tab. 3.** List of Attr+N compounds with verb or deverbal adjective as the premodifier. An example: compounds using verbs *break, cook, drive, play, stop*.

#### 4. Semantic roles of bases in compounds

After the approaches to distinguishing compounds (i.e. semantic combinations) from composite nominals (i.e. syntactic combinations, including also collocations) were discussed and applied in section 2.2 and after the collected lexical units were analysed in terms of their morphological structure (sections 2.3 and 3), the underlying semantic principles explaining the variety of types found in (de)verbal attributes of lexicalised NPs will be sought. Specifically, the question is whether the forms of (de)verbal attributes correlate to some degree with the semantic roles they assumed as arguments of predicate in a clause.

Quirk, Greenbaum, Leech and Svartvik (1985) propose a comprehensive classification of semantic roles of clause elements. The most typical role of a subject is agentive, the role of the direct object is that of the affected participant, and that of the indirect object is typically the recipient participant. (1985, 741) Syntactic complements function as semantic attributes. However, a more subtle division of the roles of subject is necessary, so it can perform, apart from the agentive role, also the roles of external causer, instrument, affected, recipient, positioner, locative, temporal and eventive subject (Ibid., 743-748). Direct objects, in addition to functioning normally as the affected participant, can be also locative, resultant, eventive, cognate and instrumental (Ibid., 749-752), whereas indirect objects perform the role of recipient as well as affected participant (Ibid., 753). These roles are closely connected with the meaning of the verb used in predication of the underlying clause or phrase and complementation ensuing from the meaning.

The grammar by Huddleston and Pullum (2002) recognises similar semantic roles, but it characterises the relationship between the syntactic and semantic roles more generally, which seems to suit better the needs of the present study. In their outline, the propositional meaning of a clause involves a semantic predicate and at least one argument of the predicate. Huddleston and Pullum (2002, 226) define the concepts thus: “The semantic predicate represents some property, relation, process, action, etc., and the arguments represent the entities involved – the bearer of the property, the terms in the relation, etc.” There normally exists correspondence between the semantic predicate and the verb functioning as the predicator syntactically, and between semantic arguments and syntactic complements. The semantic predicate normally has several arguments upon which it imposes selection

restrictions and these arguments perform various roles in a given situation. (Ibid., 227) These roles do not simply correspond to the syntactic roles, e.g. the agent (performer of an action) is not always the syntactic subject nor is the patient (undergoer of an action) always the direct object (cf. Huddleston and Pullum 2002, 227).

The semantic roles of arguments remain relatively constant, but the syntactic functions associated with the arguments obviously depend on their presentational status, i.e. on the semantics of the lexical verb functioning as the predicator and on the arrangement of the clause. Huddleston and Pullum (2002, 230-233) suggest the following major semantic roles of arguments.

**Causer** – a semantic role which “involves direct or immediate causation of an action or event”. (Ibid., 230)

**Agent** – a subtype of causer, typically animate and acting “consciously, volitionally” (Ibid., 230-231). The role of an agent is heavily dependent on the verb and how precisely the action is performed by the causer.

**Instrument** – an entity used by an agent when performing an action (Ibid., 231); it is sometimes identical with the causer.

**Patient** – defined as an entity “affected by an action performed by some causer, especially an agent – the agent (or causer) does something to the patient.” (Ibid., 231)

**Experiencer and stimulus** – these roles appear in situations connected with “emotional feeling or sensory perception” (Ibid., 231), as well as cognition, and reflect the relation between two arguments, subject and internal complement.

**Theme** – it is rather a wide role, particularly associated with movement and location in space where “the theme is the entity that moves or is located” (Ibid., 232). The role of theme can be assigned also to temporal meanings, transfer and possession, change and having properties.

**Primary and secondary theme** – two themes appear in situations of transfer where the secondary theme presupposes a primary one. (Ibid., 232)

**Factitive theme** – such a theme “comes into existence by virtue of the process expressed, and cannot be simultaneously agent or patient” (Ibid., 233). (*He made a fold on the paper.*)

**Path, source, goal, and location** – “in the central case where the theme moves (...), the starting-point is the source, the endpoint is the goal, and the intermediate point is the path.” (Ibid., 233) These roles apply to space, possession as well as to the ascription of properties or states.

**Recipient** – a subtype of goal which is used in the semantic field of possession. (*Tom gave the ball to Jack* – the goal (Jack) is more specifically identified as a recipient.)

**Beneficiary** – the role of an (usually animate) argument “that something is obtained for or done for”. (Ibid.: 233).

## 5. Analysis of the possible types of attributes

### 5.1 Suffixed by *-ing*

Dušková et al. state: “The English participle corresponds either to Czech verbal adjective or a transgressive.” (1988: 580) (“Anglickému participiu v češtině odpovídá jednak přídavné jméno slovesné, jednak přechodník.”) The attributive function can be performed by both the present and past participle (Ibid.). It can be expected that the *-ing* attribute expresses either the action which the head performs or experiences as an agent, causer or experiencer, whereas the *-ed* attribute expresses an action which the head is or was affected by.

### 5.2 Suffixed by *-ed*

The suffix *-ed* is clearly a deverbal passive suffix, denoting that an entity expressed as a head of a noun phrase was, has been or is affected by the action contained in the root of the noun phrase. For example, a *used car* refers to a car which has already been used. This type of NP seems to use the explicit *-ed* attribute very consistently (*boiled eggs, written exam, used car*) and avoid the non-explicit base form. On the other hand, explicitness of such an attribute in fact disables a higher level of semantic and syntactic condensation (i.e. compounding) and the combinations remain syntactic (composite nominals, collocations).

### 5.3 Nominal suffixation

This combination of an attribute and its head noun can be paraphrased as  $N_{attr} + Prep + N_{head}$ . The attribute thus has a semantically clearly defined nominal properties. For example, *driver license* denotes a “license of/for a driver” or a “license issued to a driver”. Driver, the holder of the license, is a semantic beneficiary here.

This type of attribute overlaps with the *-ing* type, since *-ing* is a multi-purpose suffix, used in adjectives, verb participles, deverbal nouns, as well as in the function of verbal inflection (in the progressive aspect and in the gerund).

### 5.4 Nominal suffixation and possessive inflection

Except the often ambiguous *-ing* modifiers, those (de)verbal attributes which are suffixed by nominal suffixes (*-ion, -ance/-ence* etc.) do not meet the criterion of prevalingly verbal

character. Therefore, NPs which contain them were excluded from the set of expressions analysed in this study.

### 5.5. Base form

Using the base form of a word, originally a verb, as an attribute implies that its verbal meaning is still largely kept and a paraphrase should reveal that. For instance, *stopwatch* is a watch than can be stopped when necessary, *bath tub* is a tub in which one bathes or a *walkway* is a way (along) which one walks. Using an *-ing* adjectival or participial form would probably arouse improper associations (*\*stopping watch* would be a watch that (often) stops by itself or is doing it now, *\*bathing tub* probably a tub which (itself) bathes and a *\*walking way* would mean either correctly a way for walking or a way that is walking, which is a nonsense.

However, here lies the biggest problem addressed by this paper. When is the attribute derived semantically from a word denoting an action, activity, state, feeling, etc. (normally expressed by a verb) kept unchanged and when is it subject to some morphological adaptation, i.e. participial, adjectival or nominal suffixation? What makes *bath tub* and *bathing costume* semantically different? Why is there a *swimsuit* but a *swimming pool* (and not a *\*swimming suit* and *\*swim pool*)?

## 6. Correspondences between semantic roles of components and NP structures

### 6.1 The doer of something

This relation between the head and pre-modifier contains the head as “a **person/entity** that **does** something”, i.e. “**the doer** of something”. The semantic causer or, more specifically, the agent (syntactically, the subject in an active sentence) tends to be modified by a participial adjective in the construction **V-ing + N**.

(1) *visiting professor* = the professor visits the institution

(2) *ruling family* = the family rules the country

Unlike the following type, the head noun is formed from a syntactic subject, and the verb is often intransitive, but it can be also transitive or copular.

(3) *stopping train* = a train that (often) stops

(4) *shooting star* = a star that shoots across the sky

(5) *measuring equipment* = the equipment measures (some magnitudes) / sb. measures (magnitudes) with the equipment

## 6.2 The participant affected by doing something

When the relation is “**an object** affected by **doing something**”, expressing the relation SVO, then the modified NP uses the combination **V-ing + N**. The noun expresses a direct object, semantically a **patient**, of the action expressed by the transitive verb (*drinking water*).

(6) *cooking apple* = somebody cooks an apple

(7) *drinking water* = somebody drinks/can drink the water

This type of relation gives rise to a large number of noun phrases (with a few exceptions not regarded as compounds) with **the passive participial adjective or a passive participle** in the premodifying function and the semantic **patient** as the head noun (*baked bananas, closed door, lost time*). Similarly, **themes** perform the role of heads of NPs with such passive premodifiers (*the sold car, the returned money*). The passive/past participles are employed here as the action is seen as finished in the past. As these NPs are usually not very lexicalised (not considered compounds) and they are very regularly formed, they are not studied in detail here.

## 6.3 The tool for doing something

The semantic relation “**a tool for doing something**” is based on the clause type SV(O)A and the NP uses components V-ing (the action) and a noun taken from a prepositional phrase (an instrument for the action): **V-ing+N(<PrepP/Adv)** (*walking stick*). The noun from the prepositional phrase functions as an adverbial in the underlying clause. Semantically, the argument plays the role of an **instrument**. Another frequent type of construction is **Vbase+N(<PrepP/Adv)** (*cookware, swing-chair*). The noun cannot be identified as the agent/causer as it denotes an inanimate entity (so although it is true that “a chair rocks“, an animate agent is implied here: “somebody rocks in/with the chair“).

<b>V-ing + N(&lt;PrepP used as Adverbial)</b>	<p>(8) <i>walking stick</i> = somebody walks with the stick</p> <p>(9) <i>washing machine</i>, (10) <i>washing powder</i> = somebody washes with the machine/powder</p>
<b>Vbase + N(&lt;PrepP used as Adverbial)</b>	<p>(11) <i>cookware</i> = somebody cooks with the ware</p> <p>(12) <i>swing-chair</i> = somebody swings with the chair / the chair swings?</p>



**Tab. 4.** Constructions of compounds with a (de)verbal premodifier expressing the relation “a tool for doing something”.

#### 6.4 The place or time for doing something

When the relation is “a **place or time for doing something**”, expressing the relation SV(O)A, then the modified NP often uses the combination V-ing+N (<PrepP/Adv) as the noun is included in prepositional phrases expressing a locative adverbial. The semantic role of such an argument is **path, source, goal and location**, which are associated with the location and movement in space and time of the theme, its possession and ascription of properties to the theme (which is often identical with an agent). (Huddleston and Pullum 2002, 233) The head noun typically refers to a spatial (*waiting room, swimming pool*) or temporal (*closing time, opening day*) location. The verb can be both intransitive (*waiting room*) or transitive (*reading room*), but in such cases a multiple membership is possible (*read* can be used as a transitive as well as intransitive verb).

In the latter two semantic relations (place or time, tool), the constructions with V-ing seem to be replaced in more recently formed compound NPs by a simpler, unmarked construction **Vbase + N or Vbase +N (<PrepP/Adv)**, as illustrated in Tab. 5.

<b>V-ing + N(&lt;Adv-PrepP)</b>	<p>(13) <i>waiting room</i> = somebody waits <u>in the room</u></p> <p>(14) <i>sleeping car</i> = somebody sleeps <u>in the car</u></p> <p>(15) <i>closing time</i> = somebody closes something <u>at a certain time</u></p>
<b>Vbase + N or Vbase + N (&lt;PrepP/Adv)</b>	<p>(16) <i>playground</i> = somebody plays <u>in the ground</u></p> <p>(17) <i>paycard</i> = somebody pays <u>by the card</u></p> <p>(18) <i>swimsuit</i> = somebody swims (dressed) <u>in the suit</u></p> <p>(19) <i>bathtub</i> = somebody baths <u>in the tub</u></p>

**Tab. 5.** Constructions of compounds with a (de)verbal premodifier expressing the relation “a place or time for doing something”.

Two notes need to be made here. (i) The semantic type “a place or time for doing something” must be distinguished from the previous types. Although formally identical with the other NPs using a V-ing premodification, the relationship is not so direct. A *singing lesson* is not a lesson for singing, but for learning to sing. The real verb (predicator) is dropped and another is used

instead, functioning originally in fact as an object (learn *what? to sing*). In this type, unlike the previous ones, the V-ing can be interpreted also as an adjunctive **deverbal noun** (cf. a *tennis lesson* = a lesson for learning tennis; *singing lesson* = a lesson for learning singing). The full clause underlying *singing lesson* is that “somebody learns to sing in the lesson”.

(ii) The semantic relation of “characterisation or condition” can be expressed as “something (A) that is characteristic of something (B)” or “something (A) that conditions something (B)”, where the latter noun (B) becomes an attribute of the former one (A). Noun (B) is often expressed by a deverbal noun of the V-ing type, which makes this type of compounds or collocations superficially similar to the previous combinations. However, the attribute may assume many other forms here (noun or adjective), e.g. *gymnastic(s) skills*, *government policy*, etc.

(20) *learning habits* = habits necessary for learning; habits that characterise learning

(21) *reading skills* = skills important for reading (not \*”skills that read”)

(22) *walking distance* = distance that one can walk; distance which is manageable by walking

Also here the modifier has quite a nominal character (a deverbal noun used attributively).

## 7. Conclusions

The research involved 290 English compounds containing premodifiers based on 35 selected dynamic verbs. It has shown that the decisive factor for the choice of a morphological form of (de)verbal attributes in lexicalised noun phrases is quite evidently the semantic role of the argument (which now functions as the head noun of a noun phrase) in an original clause, which expresses the predicate with all its arguments. There seems to exist some correlation between the semantic roles of the nouns and the form of the pre-modifier.

The most frequent type of Attr+N with a premodifying (de)verbal attribute is Vbase+N, but it does not surpass the occurrence of V-ing+N very substantially (their ratio is roughly 3:2). The Vbase+N type seems to be more numerous as it is often found in technical terms and neologisms, as well as in naming units stemming from American English.

The **base form of a verb** (Vbase+N) is typically used in compound NPs with a noun (semantic argument) originally functioning as **instrument** and **location (place or time)** of the predicate. NPs expressing these relations also use the most typical V-ing+N form. On the other hand, the relation with the head functioning as the **doer** uses exclusively the V-ing +N construction type. The relation with an **affected participant (object)** uses V-ing+N type, but

also V-ed+N constructions if the action is seen as finished. However, the latter construction is usually considered to be a collocation, not a semantically condensed compound.

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