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# ON SYNONYMY IN ADJECTIVES OF FOREIGN AND NATIVE ORIGIN IN ENGLISH BOTANICAL TERMINOLOGY AND THEIR EQUIVALENCE IN SLOVAK

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***Abstract:*** *Synonymy within scientific vocabulary is an undesirable phenomenon. It contradicts the basic definition and characteristics of a scientific term which are dealt with in the present paper. There are, however, pairs or sets of scientific terms used in written English botanical texts which appear to be synonymous. The paper further summarises results of the analysis of 39 terminological adjectives grouped into 13 sets each comprising a foreign origin term and two domestic terms of the type substantive+shaped and substantive+like. The relationship between the respective terms is described from the point of view of the (dis)agreement in denotation, stylistic markedness, frequency of occurrences and distributional differences. In addition, suitable Slovak equivalents are provided for all examined terms.*

***Key words:*** *terminological synonyms, scientific botanical vocabulary*

## 1. Introduction

Synonymy is basically defined as the identity of meaning. Traditionally, Slovak linguists distinguish between semantic (lexical) synonyms which possess different shades of meaning, and stylistic synonyms which vary in terms of dissimilar stylistic use (Horecký et al., 1989). The English linguist Lyons discriminates between absolutely, completely and incompletely synonymous lexemes. He maintains that absolute synonyms are almost nonexistent in English. If there are pairs or even sets of complete synonyms in natural languages, then, as Lyons puts it, they are most likely to occur in "highly specialised vocabulary that is purely descriptive" (Lyons, 1981, 148). However, as the author further explains, even then one term is accepted by specialists as standard and other terms either cease to be used or obtain a new meaning. In contrast, Lipka (2002) claims that synonymy does not hold between lexical items (lexemes) but between lexical units. He adopts the term "lexical unit" as defined by Cruse who maintains that a lexical unit is "the union of a lexical form and a single sense" and a lexeme is "a family of lexical units" (Cruse, 1986, 49, 76).

Terminological synonyms, though undesirable, are not uncommon within the field of scientific vocabulary. They are often represented by such pairs as a

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loanword and domestic word (e.g. Slovak terms *lingvistika* and *jazykoveda – linguistics*), a one-word term and two-(more) word term (e.g. Slovak *vŕtačka* and *vŕtací stroj – drilling-machine*), or so called syntactic synonyms, characteristic of Slovak rather than English, differing in the position of an attribute (e.g. Slovak *percento prírastku* and *prírastkové percento – increment percent*), etc. (Horecký, 1954).

There are several pairs or sets of adjectives in English botanical terminology that are of foreign (Graeco-Latin) and native origin which when used in scientific discourse appear to be synonymous. In written texts they are often introduced by means of the conjunction *or*, a linking word, such as *is* or *means*, or by parenthesizing of terms (either a loanword after native, or vice-versa), as illustrated in examples (1) and (2):

(1) "Several specific three-dimensional shapes are widely used. ... Lenticular means lens-shaped, disk-shaped with two convex sides, ... fusiform is spindle-shaped, narrowly ellipsoid with two attenuate ends" (Simpson, 2006, 390).

(2) "Leaves of conifers are linear, acicular (needle-like), or subulate (awl-shaped)" (Simpson, 2006, 110).

There are also implicit indicators of the synonymous relationship of terms, e.g., the fact that they occur in content-identical or related contexts, for instance:

(3) "In Welwitschia, two enormous, strap-shaped leaves grow from a circular zone of cell division that surrounds the short stem above the carrot-shaped root, the cone-bearing branches also form in this zone" (Raven and Johnson, 1996, 732).

(4) "This plant [Welwitschia mirabilis] has two large strap-shaped leaves that trail across the ground and blow in the wind, plus a huge, carrot-like taproot that penetrates several feet deep in the sandy soil of the Namib and can store gallons of water" (Hopson and Wessells, 1990, 400).

The present paper discusses results of the analysis of 13 sets of terminological adjectives each consisting of a loanword of Graeco-Latin origin, and two terms of native origin, namely substantive+shaped type and substantive+like type (further in the text S-shaped and S-like type, respectively). In botanical texts, these terms commonly denote shapes of [parts of] plant organs and they convey the meaning paraphrasable as "like, resembling, having the form or appearance of, befitting ..." (Marchand, 1960, 290).

The main objective of the analysis was as follows: if synonymous relationship of the terms of respective sets was confirmed with respect to the agreement in denotation, the main focus was put on its description having considered the point of view of stylistic markedness, frequency of occurrences and distributional restrictions of the examined terms. In case of the opposite, an effort was made to discriminate and describe meaning nuances, shades of meaning, or differences between the examined terms. In the final stage the terms were identified with corresponding Slovak equivalents, since this terminological area has not yet been well-defined as regards the English-Slovak equivalence of terms.

## 2. TERM – definition and qualities

As mentioned above, lexical processes including polysemy and synonymy are rather unwelcome within the field of scientific terminology. It stems from the fact that technical and scientific terms are characterised by (or rather should be subject to) certain postulated qualities. There are many definitions that try to explain what a term is, and most of them agree in that a term is a lexical unit which

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makes reference to a specific concept in a limited domain and therefore it is employed in specialized discourses of a scientific style. A term is well-defined, monosemous, it lacks emotional or expressive colouring, it is context independent and characterized by its qualities like motivation, systematic character, stability, definiteness, wide application, international character and transparency, lack of expressivity, translatability, etc.

A term as a linguistic sign is motivated. The degree of motivation varies in different languages and various aspects may be considered the basis for motivation, e.g. apparent qualities like colour, size, habitat of plants and animals, etc. A term denoting a certain concept may be motivated in one language but non-motivated in another one. For example, English words *earthworm*, *tapeworm* are motivated, and so are *dážďovka*, *pásomnica* in the Slovak language, but Czech *žížala*, *tasemnice* are non-motivated.

Systematic character of a term is reflected in the fact that terms are mutually linked so that they fit the system of a respective terminological domain. For instance, in systematic botany the names of families end in *–aceae*, names of orders in *–ales*, etc., so the affiliation is expressed by the same suffix.

Another important feature of a term is its stability. It does not mean, however, that a stable term is invariable, since terminology changes in accordance with the results of scientific research.

Definiteness means that a term must precisely and definitely express a given concept with no misleading interpretation. It must not, however, be confused with monosemy. Definiteness means that a term denotes only one concept within a scientific branch. But one word may be used to denote different concepts in various scientific disciplines.

Wide application of a term is reflected in its suitability to be the word-formation base for subsequent derivation, compounding and formation of complex terms.

International character and transparency are the next important qualities of a term. The application of international terms improves communication and enables easier exchange of information. Graeco-Latin words or morphemes of these languages are frequently used in scientific terminology. In many languages they were orthographically and morphologically adapted and they are not felt foreign anymore.

Finally, scientific terms lack expressivity and emotional colouring. They are formed according to the standards of literary language and they should be translatable into foreign languages.

## 3. Criteria for synonym differentiation

To distinguish synonyms is not an easy task. As Cruse proposes, the problem may be attacked in two ways: “first, in terms of necessary resemblances and permissible differences, and, second, contextually, by means of diagnostic frames,” and he further adds that, except for having “a high degree of semantic overlap,” synonyms “must also have a low degree of implicit contrastiveness” (Cruse, 1986, 226). Several criteria may be used for the differentiation of terminological synonyms. One of them is substitutability, based on which, if two terms are substitutes for each other in all contexts of occurrence, they are synonymous. However, this criterion as the only sufficient one is quite disputable. Kocourek suggests combining it with what he calls a 'definitional' interpretation of synonymy, and arrives at a definition of terminological synonyms: “synonymous to term A is term B which is interchangeable

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with term A in a definiendum of its definition" (Kocourek, 1965, 216) (translation mine). Put differently, if both terms satisfy the same definition they are synonymous, because they name the same thing.

In the process of synonym differentiation in the present paper the following criteria were considered: 1. substitutability of terms in definienda of their definiens; 2. the presence of a synonymous term either in a dictionary definition or in the explanation/definition of a term in a scientific text; 3. substitutability of terms in collocations and contexts of their occurrence; 4. a common Latin equivalent, when available.

## 4. Data and methodology of analysis

In the first stage the data were obtained from the corpus comprising respective chapters from five different publications in plant biology (altogether 1 036 pages). The contexts and collocations in which the examined terms occurred were examined. Then, referring to nine selected dictionaries, the definitions of examined terms were compared and analysed with main focus on the (non-)correspondence of logical predications reflecting differential marks present in the definitions. Next, the corpus of scientific articles published in The American Journal of Botany and The Annals of Botany (both available online) was gathered and again the collocations and contexts in which the examined terms occurred were compared. Finally, the possibility of mutual substitution of the respective terms was verified using the internet browser Google. In accordance with the results obtained, the examined terms were matched with suitable Slovak equivalents, referring mainly to the publication Flóra Slovenska (1966) and under the supervision of experienced botanists.

Out of 90 terms examined altogether, 39 terms were arranged into 13 sets comprising a loanword and S-shaped and S-like terms, namely:

a) *acicular, needle-shaped, needle-like*
b) *capitate, head-shaped, head-like*
c) *caudate, tail-shaped, tail-like*
d) *clavate, club-shaped, club-like*
e) *conical, cone-shaped, cone-like*
f) *cupulate, cup-shaped, cup-like*
g) *dauciform, carrot-shaped, carrot-like*
h) *discoid, disc-shaped (disk-shaped), disc-like (disk-like)*
i) *flabellate, fan-shaped, fan-like*
j) *infundibular, funnel-shaped, funnel-like*
k) *pinnate, feather-shaped, feather-like*
l) *stellate, star-shaped, star-like*
m) *subulate, awl-shaped, awl-like.*

## 4. Results

The analysis revealed the following results: in sets (a), (d), (f), (g), (i), (j), (k), (l), and (m), the examined terms proved to be synonyms which agree in denotation and stylistic value but vary as regards their distribution and frequency of occurrence in botanical texts. At this point it must be stated that in the sets containing denotatively identical terms no norms or rules were observed that would define which term of a particular set should be used in a particular collocation/context, i.e. no unequivocal distributional restrictions were specified. So, the answer to the question why, for example, *club-shaped* occurs in collocation with *gametophyte* but *clavate* and *club-like* do not despite the fact that all three terms agree in denotation as well as stylistic mark, may be provided by (1) a common usage, i.e. the preferred usage of particular collocations in scientific papers and publications by members of the scientific community, or (2) author´s personal preference for one or other term in a particular context.

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Terms *clavate* (*kyjačikovitý*, *kyjakovitý*) *cupulate* (*čiaškovitý*), *dauciform* (*mrkvovitý*), *pinnate* (*perovitý*), *stellate* (*hviezdicovitý*, *hviezdicový*, *hviezdovitý*), *subulate* (*šidlovitý*) dominate in frequency of occurrence in scientific texts compared to their native counterparts. In contrast, *fan-shaped* (*vejárovitý*), *funnel-shaped* (*lievikovitý*), and *needle-like* (*ihlicovitý*) tend to prevail over the loans and their domestic synonyms in respective sets.

Terms of set (b) agree in denotation but differ in their distribution, frequency and stylistic value. *Head-shaped* is typical of popular scientific style as opposed to strictly scientific *capitate* and *head-like* (all three terms match Slovak *hlavičkatý*, *hlávkatý*, *hlávkovitý*). However, substitution of *capitate* in the complex term *capitate trichome* did not prove possible. The difference in the use of complex terms *capitate inflorescence* (*hlávkovité súkvetie*) and *head-like inflorescence* (*súkvetie hlávka*) in particular contexts and their translation into Slovak is noteworthy, too. The distinction resides in a dissimilar classification of inflorescences in English and Slovak botanical nomenclatures. In the English nomenclature the complex term *head-like inflorescence* is employed to denote the inflorescence which resembles a *head* but lacks a compound receptacle (here the specific botanical term *head* denotes "a crowded group of sessile or subsessile flowers on a compound receptacle, often subtended by an involucre" (Simpson, 2006, 559), it matches the Slovak term *úbor*). To denote such type of inflorescence the term [*súkvetie*] *hlávka* is used in the Slovak nomenclature. While *capitate inflorescence* denotes any inflorescence that in some way resembles a head (here the word *head* refers to a spherical top/uppermost part).

In set (c) the agreement in denotation of both native terms was observed, though not in their distribution, frequency and stylistic value, since *tail-shaped* occurred mostly in popular scientific texts. The corresponding Slovak term is *chvostíkovitý*, i.e."resembling/similar to a tail". The denotative meaning of *caudate*, however, is different and may be paraphrased as "having a tail". The same paraphrase suits its Slovak counterpart *chvostíkatý*.

In set (e) terms *conical* and *cone-shaped* (*kužeľovitý*) share the denotative meaning and stylistic mark; nevertheless, *conical* tends to occur with a higher frequency and succumbs to fewer distributional restrictions. The meaning of *cone-like* is wider. It is accounted for by distinct senses of polysemous *cone* which serves the base for its formation. Usually the context determines the word-formation base of *cone-like* which may either be *cone1* - a solid object that has a flat, round base and narrows to a point at the top - *kužeľ*, or *cone2* - the part that bears the seeds on pine, cedar, fir, and other evergreen trees - *šiška*; strobile - *šištica* (The World Book Dictionary, 1992). Consequently, possible Slovak equivalents of *cone-like* are e.g.: 1. *kužeľovitý*, 2. *šišticovitý*, [*usporiadaný*] *v šišticiach,* 3. *šiške podobný*.

Terms of set (h) are denotatively and stylistically equal. The differences were noted regarding their distribution and frequency of occurrence in botanical texts. The corresponding Slovak terms are *diskovitý*, *terčovitý*. There are, nonetheless, dictionary explanations (definitions) hinting at the difference between *disc-like* – "used also of Compositae when in a capitulum having central and marginal florets distinct the outer female florets do not rise above the disc", and *discoid* - "used also of Compositae with all the florets regular and alike" (Stearn, 1983, 417); yet, no examples of *disc-like* and *discoid* used with reference to the stated differences were found in the analysed corpora.

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## 5. Conclusions

Based on the obtained results it can be stated that in sets comprising denotatively and stylistically equal terms, loanwords tend to dominate in frequency in written botanical texts over their domestic counterparts of the S-shaped and S-like type. Terms *fan-shaped, funnel-shaped* and *needle-like* are exceptions to the above statement. Some S-shaped terms are stylistically marked for popular scientific or even non-scientific texts, as evidenced by *head-shaped* and *tail-shaped*. The meaning of some S-like terms is wider (polysemous) thus determined by context, which does not comply with the need for definite scientific terms (e.g. *cone-like*). Finally, loanwords compared to their domestic counterparts fit much better as regards subsequent derivation or compounding processes as may be evidenced by many examples found in the analysed corpora, e.g.: *bipinnate compound leaf, obconical portion, pinately lobed leaf, subcapitate stigma*, *subclavate mature fruits, capitate-stalked trichome type, cupulate-campanulate floral cup, elongate-clavate asci, ovate-conical calyx, twice-pinnate/two-pinnate leaf,* etc.

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