

## Confrontational analysis of motivation in medical terminology

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### Konfrontačná analýza motivácie v tvorbe lekárskej terminológie

#### Abstract

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The work was directed to emphasize the role of motivation in the process of term formation in medicine. The authors present a confrontational analysis of a sample of medical terms. The aim of analysis is to show motivation in term formation in six different languages, that is in English, German, Russian, Slovak, Spanish and Latin. It is emphasized that there is a broad influence of ancient Greek and Latin terms, the basic source of much of our medical terminology.

As for the motivation, terms are divided into three groups: the terms with direct, indirect and neutral motivation. The groups show different portions of motivation in the formation of the terms. The result of the analysis is the discovery that in the six compared languages, there are applied the same motivation elements, which are expressed by means of the same language elements. (Ref. 22.)

**Key words:** medical terminology, motivation, confrontational analysis.

Motivation is often spoken about in linguistic literature in connection with terminology. Motivation is the first and basic quality of the term that can be easily proven by an analysis of terms in different scientific fields. Motivation leads us to understand the semantic connection between the derived, the special and the primary meaning of a given word. Slovak terminologist Ivan Masár defines motivation as follows: *It is a feature of a term that refers to the motive (stimulation) and to the path of its formation from the time point of view.* (Masár, 1989, p. 203)

The aim of our article is to show what historically was, and continues to be the role of motivation in term formation, specifically for the field of medicine. To this aim, we have made a confrontational analysis of a sample of medical terms.

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#### Abstrakt

**Poláčková G., Dzuganová B.:**  
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Cieľom práce je zdôrazniť úlohu motivácie v procese tvorenia lekárskej terminológie. Autori uvádzajú konfrontačnú analýzu vzorky lekárskeho termínov. Účelom analýzy je poukázať na motiváciu pri tvorbe termínov v šiestich rozličných jazykoch — v angličtine, nemčine, ruštine, slovenčine, španielčine a latinčine. Zdôrazňuje sa rozsiahly vplyv gréckych a latinských termínov, ktoré sú základným zdrojom našej lekárskej terminológie.

Z hľadiska motivácie sa termíny delia do troch skupín: termíny s priamou, nepriamou a neutrálnou motiváciou. Skupiny ukazujú rozdielny podiel motivácie v tvorbe termínov. V -sledkom analýzy je zistenie, že v šiestich porovnávaných jazykoch sa uplatňujú tie isté motivačné prvky, ktoré sú vyjadrené prostredníctvom tých istých jazykových prostriedkov. (Lit. 22.)

**Kľúčové slová:** lekárska terminológia, motivácia, konfrontačná analýza.

Medical terminology has always reflected, to some extent, the state and development of medicine in specific time periods. Today, medicine uses many historical terms whose origins are clear only after historical explanation; or, vice versa, the linguistic analysis of some terms helps to explain the previous opinion on illness. Medical terminology has been created through the efforts of international doctors and scientists who wanted to learn about all facets of human existence, about the structure and function of the human organism, and about the causes of diseases and treatment.

Basic medical and biological terminology has become internationally established and organized, primarily due to broad influence that the ancient Greek and Latin languages have had on medical terminology. Greek and Latin are traditionally considered the basic

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sources of medical terminology; and they have penetrated into the terminology of various national languages, after some modification according to phonetic and morphological qualities of these languages. Now, these terms have become internationally adopted.

Latin and Greek are not the only sources of medical terminology. In each of six compared medical terminologies, there exist terms that are of indigenous origin, but current in usage. They are mainly one-word anatomical terms. To illustrate, we have compared two Germanic languages (English and German), two Slavic languages (Russian and Slovak), and finally Spanish and Latin.

English	German	Russian	Slovak	Spanish	Latin
head	Kopf	голова	hlava	cabeza	caput
eye	Auge	глаз	oko	ojo	oculus
ear	Ohr	ухо	ucho	oreja	auris
chin	Kinn	борода	brada	mentón	mentum
nose	Nase	нос	nos	nariz	nārēs
mouth	Mund	рот	ústa	boca	os
tongue	Zunge	язык	jazyk	lengua	lingua
tooth	Zahn	зуб	zub	diente	dens
neck	Hals	шея	krk	cuello	collum
arm	Arm	плечо	rameno	brazo	bracchium
hand	Hand	рука	ruka	mano	manus
leg	Bein	нога	noha	pierna	pes
knee	Knie	колени	kolenó	rodilla	genū
liver	Leber	печень	pečeň	hígado	hēpar
lung	Lunge	легкие	plúca	pulmones	pulmo
heart	Herz	сердце	srdce	corazón	cor

In all three pairs of compared languages, you can feel the old origin of the terms, either Anglo-Saxon in English or Foreslavic in Russian and Slovak, or Latin in Spanish. In addition to above-mentioned examples, we can find comparable terms borrowed from other languages: French, Italian, Spanish, Dutch, German, Chinese and so on.

English	German	Russian	Slovak	Spanish
(from French)				
cretin	Kretin	кретин	kretén	cretino
grippe	Grippe	грипп	chripka	gripe
tampon	Tampon	тампон	tampón	tampón
cannula	Kanüle	канюла	kanyla	cánula
pipette	Pipette	пипетка	pipetka	pipeta
(from Italian)				
belladonna	Atropa belladonna	белладонна	beladona	belladonna
pellagra	Pellagra	пеллагра	pelagra	pelagra
scarlatina	Scharlach	скарлатина	šarlach	escarlatina

From the linguistic point of view, it is most interesting to observe terms with clear motivation in the terminology of different languages. The clearest is the motivation found during the period of formation of the term, or during a period in which the colloquial word took on (added) a special meaning. Later, when the term was widely used, the motivation was often lost, e.g.

E: chickenpox G: Windpocken R: пак S: ovčie kiahne Sp: viruela benigna

The Slovak name for the pediatric disease *ovčie kiahne* probably arose because this disease had first been observed in sheep. In this case, pustules erupted on mucous membranes and udders. The human pediatric disease called *ovčie kiahne* in Slovakia is a modification of the pox once spread on the sheep (according to the verbal explanation of Slovak medical historian J. Junas). The

*wind*, as a way of disease transmission, is emphasized in German and Russian names of this disease.

There are three ways of expressing motivation – direct, indirect and neutral:

**1. Direct motivation** will directly records an important quality of the word. The following list of words arose in all five languages from the same motivation, that is a need to combine different qualities into one idea.

English	German	Russian
gastroplasty	Magenplastik	гастропластика
deaf-mutism	Taubstummheit	глухонмота
mediastinum	Mediastinum	средостение
blood-circulation	Kreislauf	кровообращение
mental-deficiency	Geistesschwäche	слабоумие
afterbrain	Hinterhirn	задний мозг
longsightedness	Weitsichtigkeit	дальнозоркость
Slovak	Spanish	
plastika žalúdka	plástica del estómago	
hluchonemota	sordomudez	
medzihrudie	mediastino	
krvný obeh	torrente sanguíneo	
slabomysel'nost'	imbecilidad	
zadný mozog	cerebro posterior	
d'alekozrakost'	presbicia	

**2. Terms arising from indirect motivation**, i.e. by means of different associations, are based on metaphors and similes, i.e. they are formed from words of nonmedical origin. This large group is undoubtedly the most interesting from the point of view of confrontation as well. **The names of animals** are recorded in these terms:

E: cancer (crab) G: Krebs R: рак S: rakovina Sp: cáncer L: cancer

This tumor disease was named after the crab (Latin) for the first time by Hippocrates. Galenos, a famous physician of ancient medicine, presented a more detailed explanation of the disease. He described the shape of a breast tumor, noting that the tumor blood vessels were configured like crab legs. Paul of Aegina reinforced the name when he described that the tumor is spread into surrounding tissues like crab claws. (Junas, 1992, p. 10).

It is also possible to discover the animal names, weapons, names of musical instruments, household or artisan's articles and/or agricultural products, as elements of motivation in naming diseases (see the following table).

English	German	Russian	Slovak	Spanish	Latin/Greek
<b>Animals:</b>					
<i>lupus</i> (wolf)	Lupus	волчанка	lupus (vlk)	lupus	L: lupus
<i>ichthyosis</i> (fish)	Ichthyosis	ихтиоз	ichtyóza	ictiosis	G: ichthys
<i>harelip</i>	Hasenscharte	заячья губа	zajačí pysk	labio leporino	L: labio leporinum
<b>Weapons:</b>					
<i>xiphoid cartilage</i> (sword)	Schwertfortsatz	мечевидный отросток	mečovitý výbežok	xifoides	G: xiphos
<i>vagina</i> (shieft)	Scheide	влагалище	pošva	vagina	L: vagina
<i>thyroid gland</i> (shield like)	Schilddrüse	щитовидная железа	štíttna žľaza	glándula tiroides	G: thyroides

**Musical instruments:**

<i>salpinx</i> (trumpet) (Fallopian tube)	<i>Eileiter</i> (no instrument)	<i>маточная труба</i>	<i>vajíčkovod</i>	<i>trompa de Falopio</i>	G: salpinx
(auditive tube)	<i>Ohrtrompete</i>	<i>евстахиевая труба</i>	<i>sluchový kanál</i>	<i>canal auditivo</i>	L: tuba auditiva
<i>fistula</i> (whistle)	<i>Fistel</i>	<i>свищ</i>	<i>fistula</i>	<i>fistula</i>	L: fistula
<i>tympanum</i> (drum)	<i>Trommelfell</i>	<i>барабанная полость</i>	<i>bubienok</i>	<i>tímpano</i>	L: tympanum

**Household and artisan's articles:**

<i>shoulder blade</i> (shovel)	<i>Schulterblatt</i>	<i>лопатка</i>	<i>lopatka</i>	<i>escápula</i>	L: scapula
<i>pelvis</i> (pan)	<i>Becken</i>	<i>таз</i>	<i>panva</i>	<i>pelvis</i>	L: pelvis
<i>infundibulum</i> (funnel)	<i>Trichter</i>	<i>воронка</i>	<i>lievik</i>	<i>embudo</i>	L: infundibulum
<i>hammer</i>	<i>Hammer</i>	<i>молоток</i>	<i>kladívko</i>	<i>martillo</i>	L: malleus
<i>anvil</i>	<i>Amboß</i>	<i>наковальня</i>	<i>nákovka</i>	<i>yunque</i>	L: incus
<i>stirrup</i>	<i>Steigbügel</i>	<i>стремя</i>	<i>strmienok</i>	<i>estribo</i>	L: stapeda

**Agricultural products:**

<i>sesamoid</i>	<i>Sesambein</i>	<i>сесамовидная кость</i>	<i>sezamská kostička</i>	<i>sesamoideo</i>	G: sesamon
<i>Adam's apple</i> (larynx)	<i>Adamsapfel</i>	<i>Адамово яблоко</i>	<i>Adamovo jablko</i>	<i>nuez de Adán</i>	L: prominencia laryngea
<i>hordeolum</i> (barley)	<i>Gerstenkorn</i>	<i>ячмень</i>	<i>jačmeň</i>	<i>orzuelo</i>	L: hordeum

Some terms are motivated by the **name of literary or mythological hero** known for certain personality traits or for life destiny, e.g.: Marquis de Sade (1740 – 1814) the author of many novels depicting perverted sexual practices. Narkissos (Greek) or Narcissus (Latin), according to Greek mythology was a handsome young man who fell in love with himself while staring at his reflection in the river.

English	German	Russian	Slovak	Spanish
<i>sadism</i>	<i>Sadismus</i>	<i>садуизм</i>	<i>sadizmus</i>	<i>sadismo</i>
<i>narcissism</i>	<i>Narzißmus</i>	<i>нарциссизм</i>	<i>narcizmus</i>	<i>narcisismo</i>

In some cases, it is difficult to specify the motivation of a certain term, because several explanations regarding the origin of the word exist. For instance a few versions exist regarding the originating of the new-Latin term “*syphilis*”. Fracastoro, the 16th-century writer, wrote about syphilis for the first time. According to the second version it is derived from a Greek word *syphillasyphlos* (shameful), and according to the third the term is formed by connecting a Greek “*sys*” (swine) and “*philos*” (friend, lover). Syphilus was the name of the hero, a swine shepherd, in one Fracastoro's poem who personified this disease.

Versions explaining the etymology of words sometimes contradict each other, as in the case of the new-Latin term “*section caesarea*” or “*caesarian section*”. According to one version, the word *caesarea* comes from the name of Gaius Julius Caesar, supposedly born by this method. The second version holds that the word is derived from the Latin word *caedere* (cut). The third version which is considered to be the most convincing indicated that the word “*caesarea*” is derived from the noun “*caesar*” (an emperor), because to one of these ancient Roman rulers was attributed a law which required removal of the fetus from the womb of dead pregnant woman. (Petrovskij, 1984, p. 418; Stedman, 1972, p. 1132, and 1245).

**3. Neutral motivation** can be demonstrated in terms where there is no allusion regarding the essential qualities of an idea. This group of terms contains those which are derived from surnames of scientists or physicians who first described the concepts, or patients who suffered the diseases/disorders (eponyms), then terms which are derived from geographical location (toponyms), and finally those derived from novel heroes or artists.

English	German	Russian
<i>Botkin's disease</i>	<i>Botkin' Krankheit</i>	<i>болезнь Боткина</i>
<i>Eustachian tube</i>	<i>Eustachio' Tube</i>	<i>евстахиевая труба</i>
<i>Widal's reaction</i>	<i>Widal' Reaktion</i>	<i>реакция Видяля</i>
<i>Koch's bacillus</i>	<i>Koch' Bazillus</i>	<i>бактерия Коха</i>
<i>African trypanosomiasis</i>	<i>Trypanosomiasis</i>	<i>трипаносом африканский</i>
<i>Congo red fever</i>	no data in German	<i>лихорадка Конго</i>
<i>Goodpasture syndrome</i>	<i>Goodpasture' Syndrom</i>	<i>синдром Гудпасчера</i>
<i>Hartnup syndrome</i>	<i>Hartnup' Syndrom</i>	<i>синдром Хартнупа</i>
<i>Hageman syndrome</i>	<i>Hageman' Syndrom</i>	<i>синдром Хагемана</i>
<i>Pickwickian syndrome</i>	<i>Pickwick' Syndrom</i>	<i>пиквикский синдром</i>
<i>Ahasverus syndrome</i>	<i>Ahasverus' Syndrom</i>	<i>синдром Агасфера</i>
<i>Van Gogh syndrome</i>	<i>Van Gogh' Syndrom</i>	<i>синдром Ван Гога</i>

**Slovak**

*Botkinova choroba*  
*Eustachova trubica*  
*Widalova reakcia*  
*Kochov bacil*  
*tripanozóma africká*  
*zimnica Kongo*  
*Goodpasterov syndróm*  
*Hartnupov syndróm*  
*Hagemanov syndróm*  
*Pickwickov syndróm*  
*Ahasverov syndróm*  
*Van Goghov syndróm*

**Spanish**

*hepatitis epidémica de Botkin*  
*trompa de Eustaquio*  
*reacción de Widal*  
*bacilo de Koch*  
*tripanosomiasis africana*  
no data in Spanish  
*síndrome de Goodpasture*  
*síndrome de Hartnup*  
*síndrome de Hageman*  
no data about these  
names of syndromes in Spanish dictionaries

Goodpasture was an American pathologist; Hartnup and Hageman are family names of the patients who suffered from inborn disorders. Pickwickian syndrome is after the hero of the novel “*Pickwick's Club*” by Charles Dickens. Ahasverus was a biblical person. Vincent Van Gogh (1853-1890), the Dutch painter, suffering from mental disease cut off his ear during a fit.

It is not always easy to explain the origin of eponyms, that is the terms derived from proper names; and although they do not reflect the essential quality of the names, and do not inform us about the content of term clearly, they are frequently used in medical terminology as names of symptoms and syndromes. Frequent usage of some of them leads to the loss of the proper name from the term and replacement by a more general term.

English	German	Russian
<i>Bartolin's gland</i> greater vestibular gland	<i>Bartholini' Drüse</i> –	<i>Вартолинова железа</i> –
<i>Eustachian tube</i> auditory tube	<i>Eustachio' Tube</i> <i>Ohrtrompete</i>	<i>евстахиевая труба</i> <i>слуховая труба</i>
<i>antrum of Highmore</i> maxillary antrum	<i>Highmore' Höhle</i> <i>Kieferhöhle</i>	<i>Гайморова пазуха</i> <i>верхн ч люстная пазуха</i>

**Slovak**

*Bartoliniho žľaza*  
*predsieňová žľaza*  
*Eustachova trubica*

**Spanish**

*glándula de Bartolini*  
*glándula vestibular*  
*trompa de Eustaquio*

sluchový kanál                      conducto auditivo  
*Highmarova dutina*                *cavidad de Highmore*  
 čeľustná dutina                    cavidad maxilar

The presented examples of motivated medical terms represent only a small study of medical term motivation. The result of the analysis is that in six compared languages, the same motivation elements are applied; and, very often they are expressed by means of the same language elements. It is very interesting that motivation elements are the same, not only in two Slavic languages (Slovak and Russian), but they are parallel to motivation elements in the English language, as well as in German and in the Spanish language. This fact proves that motivation exists as an objective linguistic fact, and its existence proves the necessity to treat it in terminology as one basic criterion. (Masár, 1989, p. 203).

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### EVOLVING ISSUES IN ONCOLOGY: WHAT IS THE 'OPTIMAL' HEMOGLOBIN LEVEL?

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