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## MEDICAL TERMINOLOGY AS A PART OF THE MATRIX OF SCIENTIFIC KNOWLEDGE (IN VIEW OF ENGLISH AND BULGARIAN ACADEMIC LANGUAGES)

Theory and practice questions of terminology are becoming increasingly relevant. On the one hand, researchers focus on specific issues related to the creation and improvement of numerous "private" terminologies and on the other hand, they attach great importance to the general theory of this issue, to the principles and methods developed by linguists in this field.

The increased role of science nowadays transforms the study of terminological units and their development prospects in essential linguistic issue. In the 1930s and 1940s the emergence of research, carried out by Russian and German linguists, laid the foundations of terminology as an independent scientific discipline (Lotte, Vinokur, Reformatsky, Wuster). At the end of the 20th and beginning of the 21st century, a new generation of eminent linguists continues to study terminological matters, deals with the classification and systematization of terms and declares increased interest in the study of systemic connections and relations in specialized lexis (Gak, Danilenko, Tatarinov, Leichik, Superanskaya, Kubryakova, Baranov, Boulanger, Gaudin, Cabre, Temmerman, Kerremans, Faber, etc.). Bulgarian researchers who work in the field of terminology and have contributed to its development are Popova, Pencheva, Alexiev, Pacheva, etc.

### PURPOSE AND OBJECTIVES OF THE STUDY

Therefore, the objectives we have set ourselves in the present research are as follows:

1. To summarize the basic postulates of the last three theories of terminology.
2. To pay particular attention to the mechanisms and perspectives for the development of medical terminology.
3. To consider the conceptual aspects of formation and expansion of the medical terminology base in English and Bulgarian.
4. To give a practical focus to the research – A. to be applied in the process of teaching and learn-

ing English and Bulgarian in the medical faculties of medical universities, in giving lectures and conducting seminars on general linguistics and applied terminology; B. to increase the linguistic medical competence of medical doctors, nurses.

The present study is realized from a nominative-cognitive perspective using the following methods:

1. Method of definition analysis;
2. Method of conceptual integration and Method of cognitive analysis (allowing language to be considered as a mental entity generated by human thought and as one of the most important systems of representation of human knowledge);
3. Method of component analysis (the linguistic meaning of semantic markers (components) is divided, a formula with the structure of meanings is constructed and the objectivity of the individual components of meaning is checked);
4. Method of metaphorical modelling;
5. Etymological method of analysis.

### MATERIALS AND METHODS

The materials we have used and the examples that illustrate the current linguistic research are in English and Bulgarian medical academic languages. 132 monosyllabic and compound English-language and Bulgarian-language terminological units (including synonymous variants of both languages) have been collected at random from monographs, articles, textbooks, terminological dictionaries, encyclopedias, reference books, Internet catalogues, specialized dental magazines, issued in France, Great Britain, Germany, as well as from official documents, international classifications, etc.

### RESULTS AND DISCUSSION

The most recent three theories of terminology are extremely ambitious, where specialized knowledge is multidimensional and considered in the

light of cognitive, linguistic, socio-communicative and psychological perspective.

1. Communicative theory of terminology (CTT). The founder of the theory is Cabre (1998 – 2003). Terminological units are considered as “sets of conditions” derived from their specific field of knowledge, conceptual structure, meaning, lexical and syntactic structure, valence and communication context of specialized discourse. Cabre’s “Theory of the Doors” is a way to analyze and understand terminological unit. Term is regarded as a polyhedron – a three-dimensional figure with various images. Terminological unit can be stated to have three dimensions: cognitive, linguistic and communicative. Each dimension is a communicative door that can be reached. Moreover, the choice of one door does not reject the other two perspectives – they serve as a background [1-4].

2. Socio-cognitive theory of terminology (SCT), proposed by Temmerman, is based on the cognitive potential of terminology in the respective domain and terminological variability [10]. It focuses on the categorical structure and the level of knowledge of both text-sender and receiver while describing a concept and forming a term. The theory studies the terms and concepts in a diachronic (historical) perspective, tracing the evolution of terminological unit, history of term meaning, its use in different cultural groups and availability in common and specialized language [8, 9].

3. Frame-based theory of terminology (FBT). This theory, introduced by Faber, grew out of Fillmore’s semantics frames, but focused on a) concept organization on the basis of templates; b) multidimensional nature of terminological units; c) extraction of semantic and syntactic information. Each field of knowledge has its own template. General categories are configured in a prototype domain event or action interface environment. This provides a template at all levels of information structuring. A structure is obtained, facilitating and increasing the acquisition of knowledge, due to the fact that the information in the term is internally and externally coherent. The specific concepts in each category are organized in a network, where they are connected vertically (in a hierarchical order) and horizontally (in a non-hierarchical order) [5-7]. According to Faber’s scheme, for greater clar-

ity, we present the information about the concept “tooth erosion” in dental medicine terminology:

“tooth erosion” → occur (predicate) → erosion (process) → tooth (location)

By definition, modern medical terminology is an international unified and codified system based on Greek and Latin languages and presented in writing in Latin. The following areas are traditionally formed within its frames: Anatomical and Histological Nomenclature, Multidimensional Clinical Terminology and Pharmacological Terminology.

Anatomical and Histological Nomenclature involves terms associated with the names of anatomical and histological formations (fig. 1.).

Multidimensional Clinical Terminology (fig. 2.) includes terminological units referring to: pathoanatomy, pathophysiology, operative surgery, therapy (names of diseases, syndromes and symptoms; of operations or methods; of examination and treatment; of medical technical devices – equipment, apparatus, instrumentarium, materials).

Pharmacological Terminology encompasses names of medical plants, chemical; nomenclature, medicine products, dosage forms (fig. 3.).

Medical education is a continuous process of mastering the basic biological, biochemical and physiological processes occurring in normal structures of human organism. On this basis, pathological processes in human body are studied. In specialist’s integral thinking such processes should find a synthetic approach for implementation of appropriate treatment. Based on this concept, current terminological training is a must for any specialist in the field of medicine. Respectively, this could be easily realized after one’s involvement in the basic mechanisms and development prospects of medicine terminology.

**English medical terminology – mechanisms and developmental perspectives**

The presence and influence of English from German language group of Indo-European language family in modern medical terminology is of great significance. As one of the recognized international language standards in science, it plays the role of a mediator language between classics and modernity. A large number of scientific papers are written by authors for whom English is a native language.

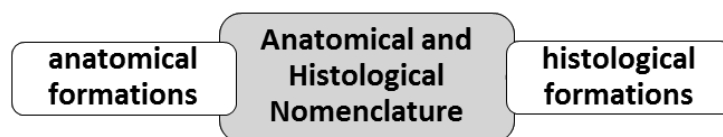


Fig.1. Anatomical and Histological Nomenclature

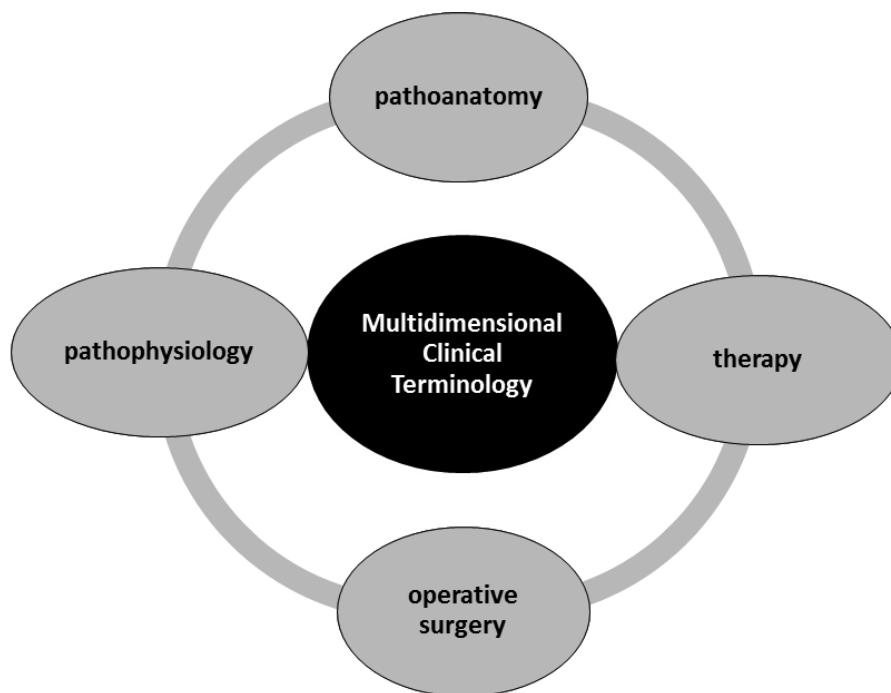


Fig. 2. Multidimensional Clinical Terminology

Terms-neologisms are constantly being coined in English and they are predominantly in medicine, science and technology. The flexibility of this language in terms of vocabulary and partly of grammar, derivational and word-forming potential, the quality of being metaphorical provoke the influential position of English medical vocabulary internationally. More and more medical terms (Greek and Latin) undergo particular alterations according to the word-formation regulation of English and thus they are becoming part of the international terminology fund.

The linguistic processes that occur during changes in the process of differentiation of some clinical terms such as English words are truly interesting. However, some of them fully preserve Latin

term spelling. Terms with fully preserved spelling are those that express disease states and processes (osteochondrosis – non-inflammatory degenerative disease of bone and cartilage; omarthrits – inflammation of shoulder joint; haemangioma – a benign tumor of a blood vessel; arachnophobia – irrational fear of spiders. The terms with altered spelling are usually complex with ending -ia, which changes in -y in English and are most frequent in English medical language (histologia – histology – tissue science, nephropathia – nephropathy – unspecified kidney disease; laparotomia – laparotomy – operative abdominal cavity opening; tracheostomia – tracheostomy – creating an artificial trachea opening. Duplicate forms by simplifying diphthongs are frequently allowed (glycaemia / glykaemia – glyc(a)

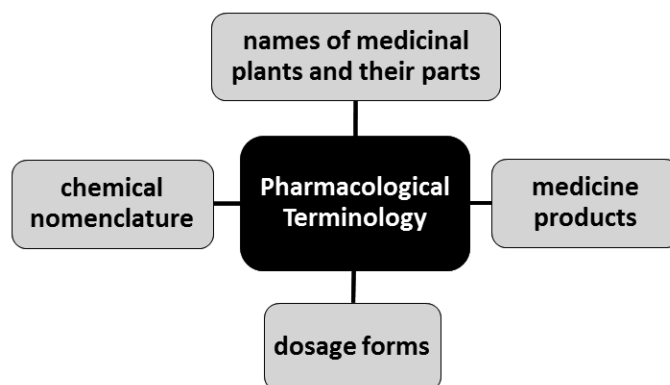


Fig. 3. Pharmacological Terminology

emia / glyk(a)emia – blood sugar). There is a tendency to simplify endings, as well (phlebogramma – phlebogram – graphic recording of venous pulse; bronchospasmus – bronchospasm – tightening of muscles lining the airways (bronchi) in lungs).

The degree of internationality within English medical nominative units is high – fontanelles (Italian) ; commando operation (Spanish) – radical removal of malignant tumors of the lower jaw and neck; en coup de saber lesion, (ECDS) (French) – cutaneous lesions over the skull (linear scleroderma), resembling a sword blow, located unilaterally, most often – in women and children; luckenschadel (German) – malformation, ossification of the fetal skull, fenestrated skull – with openings resembling small windows).

On the other hand, the increase in the number of native English medical terminology testifies to the aspirations of the language to become a terminology foundation for all, especially for emerging trends in medicine (bio – tooth; stem cell; braces / brackets; blackout (short-term loss of vision and consciousness); brainpan (skull); cell pellets (bio-engineering method for tooth regeneration).

**Bulgarian medical terminology – mechanisms and developmental perspectives**

Bulgarian medical terms are subjected to formal and grammatical assimilation in Bulgarian medical texts and presented in written form in Cyrillic. The active term formation processes in Bulgarian medical terminology are lexico-semantic, lexico-morphological, lexico-syntactic and word borrowing (loanwords). Word borrowing is regarded as the basic term-forming way.

In lexico-semantic term formation a change in the semantic side of lexemes from commonly used language is observed. Taking into account the qualitative essence of this change, two linguistic term-forming phenomena are distinguished: specialization of commonly used vocabulary and transfer of meaning (metaphorization and metonymization of generally used vocabulary). Typical examples of such linguistic phenomena are the following commonly used nouns being used as terms in Bulgarian medicine terminology:

1. Body parts nouns: бедро, буза, бъбрек, глава, глезен, далак, жлеза, китка, кост, небце, пищял (thigh, cheek, kidney, head, ankle, spleen, gland, wrist, bone, palate, shin).

2. Relief and surface nouns: бразда, връх, гънка, кухина, отвор, ямка (groove, peak, crease, cavity, hole, pit).

3. Items nouns: вретено, капаче, кука, наковалня, сърп, торбичка, чашка, чукче, юзда (spindle, cap, hook, anvil, sickle, bag, cup, hammer, bridle).

4. Plants and their parts nouns: грах, грозде, корен, круша, леща, маслина, пшеница, сусам, шишарка, ябълка (peas, grapes, root, pear, lentils, olive, wheat, sesame, pine, apple).

5. Animals nouns: куче, мида, охлюв, петел, червей (dog, shell, snail, cock, worm).

Lexico-morphological term formation includes the linguistic processes of affixation and composition. During affixation prefixes and suffixes are added to the initial bases of the words – thus, Bulgarian prefixes and suffixes acquire the character of term elements. This perspective of medical terminology development in Bulgarian can be illustrated by the following examples: над- надкостница; под- подезичен; пред- предмишница, предкитка; зад- задстомашна жлеза (above- periosteum; sub- sublingual; fore- forepit, forearm; behind- pancreas). Composition (word formation by combining two or more initial bases of full words in one complex derivative word) leads to formation of a large number of terms – nouns and adjectives (стомашно- диафрагмен, чернодробно-бъбречен, тибιο-фибуларен, белодробен, чернодробен, гръбнач-номозъчен, горночелюстен, дъговиден, сигмоиден, пръстовиден/ gastro-diaphragmatic, hepato-renal, tibio-fibular, pulmonary, hepatic, spinal, maxillary, arc-shaped, sigmoidal, finger-shaped).

Lexico-syntactic term formation (formation of term word combinations) is regarded as the most productive way of forming terminological units. The number of components varies from two to six full lexemes (бедрена кост, мускул дъвкач, ос на таза, решетъчна пластинка и отвори, връх на главата на фибулата / femur, masticatory muscle, pelvic axis, ethmoidal plate and apertures, top of the fibula head).

Word borrowing is essential developmental perspective to address the needs of coining medical terminological units in Bulgarian. Basic medical terms are usually borrowed from classical Greek-Latin terminology. Most frequently the process is realized in two ways: word borrowing by translation and word borrowing of ready-made terms (direct borrowing). Typical examples of borrowing medical terminology in Bulgarian academic language are: полуканал (semicanalis), гръбначен стълб (columna vertebralis), сънна артерия (a. carotis, free translation accepted under the influence of Russian – carotid artery), епифиза (epiphysis), диафиза (diaphysis), метафиза (metaphysis), синдесмоза (syndesmosis).

The introduction of English medical terms is a modern trend that Bulgarian medical language is trying to accept based on the rules and regularities of Bulgarian literary language. Today, however, the penetration of English medical terminology is still largely unregulated. The following examples from

section "Cytology", topic "Function and structure of proteins in the cell membrane" serve as proof of this statement – вратички на йонните канали, промяна на волтажа, механично въздействие, свързване с определени лиганди, чрез трансмитер, чрез йон, чрез нуклеотид, трансмитерно-повлияни канали (ion channel gates, voltage-gated channels, mechanically gated channels, ligand-gated channels, transmitter-gated channels, ion-gated channels, nucleotide-gated channels, transmitter-gated ion channels).

### Two additional developmental term – forming perspectives in English and Bulgarian medical terminology

1. One of the promising ways of term creativity is the formation of eponymous terms in English and Bulgarian. As a concrete example of the contribution of both languages – English and Bulgarian – to medical term formation can also be added the presence of eponymous terms called by the name of a person (real, mythological or fictional) – Black's sidewalks / тротуарите на Блек (cavity preparation), Filatov flap, tubed flap / стъбло на Филатов (V.P. Filatov's method in reconstructive surgery); Apgar score / Апгар скор (Apgar score test, named after its creator – American anesthesiologist Virginia Apgar – 1952); Epstein-Barr virus / Епщайн-Бар вирус (first described by English virologist Sir Michael Anthony Epstein and his student Yvonne Barr), etc. Such terms, give conciseness and expressiveness to medical terms, and, undoubtedly, perpetuate the memory of the great minds in medicine first described a syndrome or a disease. Along with that, serving as mnemonics, they tend to create difficulties in teaching and medical students' preparation. There is a tendency to replace them with descriptive terminological units.

2. Interdisciplinarity of medical terminology is a particularly perspective developmental trend. The domain of Medicine is mapped on a number

of fields of science: ecology, automotive engineering, economics, politics, etc. Novel expressive terminology is being formed, which is another proof that medical terminology is an important component of the matrix of scientific knowledge. For instance, within ecology, medicine is the most productive domain:

a) Body parts – head/глава, neck/врат, arm/ръка, shoulder/рамо, toe/пръст на крак, finger/пръст на ръка, mouth/уста (river mouth, low-head dam, western shoulder).

b) Human activity (field of conflict) – defense/защита (immune defense), attack/атакувам (immune cells attack the organism), battle/битка (immune battle), invade/нахлувам (virus invades), etc.

### CONCLUSIONS

1. Medical terminology is an integral component of the matrix of scientific knowledge.

2. The developmental perspectives of medical terminology base in English and Bulgarian are as follows: lexemes transition from generally used language into medical terminology field; word borrowing from classical Greek-Latin terminology; secondary terminological nomination by means of metaphors, metonyms, verbal nouns; artificial creation of medical terms using the word-formation means in English and Bulgarian.

3. The following modern trends in expansion of medical terminology are outlined: introduction of English medical terms in Bulgarian medical language; formation of eponymous terms in English and Bulgarian; high degree of internationality within English and Bulgarian medical terminology.

4. Cognitive, linguistic, socio-communicative and pedagogical aspects prove multidimensional nature of medical terminology.

5. Interdisciplinarity of medical terminology as a tendency for entering other scientific fields.

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### МЕДИЦИНСКАЯ ТЕРМИНОЛОГИЯ КАК ЧАСТЬ МАТРИЦЫ НАУЧНОГО ПОЗНАНИЯ (С УЧЕТОМ АНГЛИЙСКОГО И БОЛГАРСКОГО АКАДЕМИЧЕСКИХ ЯЗЫКОВ)

В статье рассматривается медицинская терминология и ее современные перспективы развития на английском и болгарском академических языках на основе обширного иллюстративного материала. В центре внимания исследования следующие активные терминологические процессы: лексико-семантический, лексико-морфологический, лексико-синтаксический, заимствования слов и связанные с ними языковые явления – специализация, метафоризация, метонимизация, аффиксация, композиция, образование медицинских терминов-

словосочетаний, буквальный перевод, свободный перевод, ввод английской медицинской терминологии в болгарскую и др. Подтверждена многомерность медицинской терминологической базы в когнитивном, лингвистическом, социально-коммуникативном и педагогическом аспектах. Обобщены основные постулаты последних трех современных терминологических теорий.

**Ключевые слова:** английская/болгарская медицинская терминология, перспективы развития, формирование терминов, терминологическая единица.

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The article discusses medical terminology and its contemporary developmental perspectives in English and Bulgarian academic languages based on extensive illustrative material. The research focus is on the following active term-forming processes: lexico-semantic, lexico-morphological, lexico-syntactic, word borrowing and related linguistic phenomena – specialization, metaphORIZATION, metonymization, affixation, composition, formation of medical terms-word combinations, direct trans-

lation, free translation, introduction of English medical terminology into Bulgarian, etc. Multidimensionality of medical terminology base in terms of cognitive, linguistic, socio-communicative and pedagogical aspects has been proved. The basic postulates of the last three modern theories of terminology are summarized.

**Key words:** English/Bulgarian medical terminology, developmental perspectives, term formation, terminological unit.

**REFERENCES**

1. Cabré M. T. Hacia una teoría comunicativa de la terminología: Aspectos metodológicos. In Cabré, M. T. La Terminología: Representación y Comunicación. Elementos para una teoría de base comunicativa y otros artículos. Barcelona: Universitat Pompeu Fabra. 1999; 129-150.
2. Cabré, M. T. Elements for theory of terminology: Towards an alternative paradigm. Terminology. 2000; 6 (1): 35-57.
3. Cabré, M. T. Consecuencias metodológicas de la propuesta teórica (I). In La terminología científico-técnica: reconocimiento, análisis y extracción de información formal y semántica (DGES PB96-0293). Barcelona: Institut Universitari de Lingüística Aplicada. Universitat Pompeu Fabra. 2001; 27-36.
4. Cabré, M. T. Theories of terminology: their description, prescription and explanation. Terminology. 2003; 9 (2): 163-199.
5. Faber, P., Márquez Linares, C., Vega Exposito, M. Framing terminology: a process-oriented approach. META. 2005; 50 (4): CD-ROM.
6. Faber et al., Process-oriented terminology management in the domain of coastal engineering. Terminology. 2006; 12 (2): 189-213.
7. Faber et al., Linking images and words: the description of specialized concepts. International Journal of Lexicography. 2007; 20: 39-65.
8. Temmerman, R. Questioning the univocity ideal. The difference between Sociocognitive Terminology and traditional Terminology. Hermes. Journal of Linguistics. 1997; 18: 51-91.
9. Temmerman, R. Towards New Ways of Terminology Description. The sociocognitive approach. Amsterdam/Philadelphia: John Benjamins. 2000.
10. Temmerman, R., Kerremans, K., Vandervoort, V. La terminographie en contexte(s). Actes des Septièmes Journées Scientifiques du Réseau Lexicologie, Terminologie, Traduction, Brussels, Belgium. 2005.