УДК 811.111’373.46:51
DOI: 10.24144/2617-3921.2020.18.158-167

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Terminological Nomination in English and Ukrainian Dental Terminology

Анотація. Науково-технічна революція призводить до радикальних змін у структурі концептуального апарату у багатьох галузях науки. Виникнення нових наукових понять висуває вимоги до реалізації номінативної функції природних мов – вербалізації результату пізнання реальності. Таким чином, позначення наукових понять призводить до розвитку нових термінологічних систем. Саме такою є сучасна стоматологічна терміносистема. Протягом останніх років, завдяки швидкому впровадженню нових технологій та методів лікування пацієнтів, мова стала поповнюватися новими термінами та словосполученнями. Велика кількість нових термінів проникає у міжнародний словник стоматологічної терміносистеми, але завдяки своїм специфічним структурним характеристикам, у більшості випадків, вони залишаються зрозумілими для кожного члена професійної стоматологічного товариства. Актуальність нашого дослідження визначається недостатнім вивченням стоматологічної термінологічної системи, яка, перебуваючи в постійному розвитку, зазнає структурно-смислових перетворень з метою адаптації до потреб сучасності. Важливість статті підсилюється зіставним аналізом англійських та українських термінів стоматології. Мета нашого дослідження полягає у порівняльному аналізі засобів термінологічної номінації в англійській та українській стоматологічній термінологічній системі. Матеріалом для дослідження слугували термінологічні одиниці, відібрані із сучасних англійських та українських стоматологічних словників. У науковій розвідці ми зосереджуємо увагу на морфологічних та синтаксичних способах термінологічної номінації в сучасних англійській та українській терміносистемах стоматології. Зокрема проводимо аналіз особливостей всіх видів афіксації у термінології стоматології двох мов. Вивчення синтаксичного способу термінотворення здійснюємо шляхом аналізу термінологічних словосполучень у досліджуваних мовах. Порівняння отриманих результатів здійснюється з метою встановлення домінуючих тенденцій термінотворення в у англійській та українській стоматологічній термінології.

Ключові слова: термін, терміносистема, морфологічний спосіб термінотворення, синтаксичний спосіб термінотворення, стоматологія, афіксація, термінологічне словосполучення.

Abstract. The present article deals with the study of structural peculiarities of dental terms in English and Ukrainian. The emergence of new scientific notions raises the requirements for implementation of the nominative function of natural languages. Contemporary dental terminological system is an example of rapid development of a special language. Within the past years, due to the introduction of new technologies and methods of treating patients, the English and Ukrainian dental terminologies have become replenished with new terms. A lot of them have penetrated into the international glossary of dental terminological system, but, due to their specific structural characteristics, in the majority of cases they remain intelligible to the dentists throughout the globe. The relevance of our research is determined by insufficient study of dental terminological system, which, being in constant development, undergoes structural and semantic transformations in order to adapt to the demands of the contemporary world. The comparative approach to the study of term formation is an extremely important aspect of our study. The objective of our investigation is to conduct a comparative analysis of structural means of terminological nomination in English and Ukrainian dental terminological system. The material for the research is represented by the selection of terminological units extracted from contemporary English and Ukrainian dental dictionaries. In our research we focus on morphological and syntactic ways of terminological nomination in modern English and Ukrainian dental terminology. The article is aimed at the study of the types of affixation in the terminology of dentistry of two languages. The investigation of the syntactic method of term formation is carried out by analyzing terminological word-combinations in the studied languages. The obtained results are compared in order to establish dominant tendencies in dental terminology.

Keywords: term, terminological system, morphological way of term formation, syntactic way of term formation, dentistry, affixation, terminological word combination.

Introduction.

Within the past years, due to the rapid progress of science and technology, the widespread introduction of foreign technologies and methods of treating patients, languages become replenished with new terms and word-collocations. Despite the availability of extensive literature, problem of analysis and optimization of the formal structure of the term cannot be considered as resolved. Primarily, because there still are modern ways of term formation to be examined. Second reason - because the exclusive application of linguistic analysis methods is not sufficient to provide comprehensive models of the optimal structure of the term.

Contemporary terminology displays different structural patterns. In terminology studies, according to an integrated classification schema, suggested by the leading domestic and foreign scholars, in terms of their structural peculiarities, semantic, morphological, syntactic and morphological-syntactic ways of term formation may be identified [2, p.123].

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The problem of many works on the formal structure of the term lies in the mixed application of synchronic and diachronic approaches [3, p. 48]. Studies showed that the same laws of formation of items of general lexicon of natural language apply in the sphere of terminology formation, however in term formation some word formation methods prevail, whereas others are fading into the background [7, p. 49].

In terms of the formal structure in any sphere of terminological elements, two main groups of terms can be distinguished: words (monolexical terms) and word-combinations (polylexical terms). Various studies showed that word-combinations constitute 60-80% of the total number of terminology glossary in majority of European languages. The composition of monolexical terms is heterogeneous; however, three main structural terminology types may be distinguished: simple, derivational, and complex terms. Simple terms are constituted by one lexeme, the stem of which coincides with the root. Derivatives i.e. terminological units formed by means of affixation, thus their stem is composed of a root morphemes and affixes. Complex terms contain at least two root morphemes [2, p.121].

Morphological method of term formation includes affixation, conversion, reduction and phonetic-morphological patterns, whereas by means of syntactic - terminological word-combinations are formed. Morphological-syntactic mode of formation implies composition, ellipsis and abbreviation [2, p.123]

The **relevance** of our research is determined by the following factors: 1) the dynamic character of dental terminological system, which being in constant development undergoes structural and semantic changes in order to adapt to the demands of the contemporaneity; 2) insufficient study of the problem of types of terminological nomination in English and Ukrainian dental term systems; 3) the comparison of the data obtained in the course of the investigation of English and Ukrainian dental terminology.

The main **aim** of the research is to study morphological and syntactic ways of formation of terminological units.

The following objectives have been put forward for the better achievement of the aim: 1) to select dental terms from contemporary English and Ukrainian dental terminological dictionaries; 2) to analyze the structural means of terminological

nomination in English and Ukrainian dental terminology; 3) to compare the results obtained in the course of analysis of the phenomena under study in each language.

Methodology of investigation.

Analysis of terminological systems of certain fields of knowledge and activity shows the complex structure of these terminological systems. Complex terminological systems include various groups of terms, distinguished by their relation to the designated concepts by formal features and place within the term system which presents the subject of the analysis. Accordingly, at least three approaches can be applied in the analysis of terminological systems: logical, linguistic and terminological [4, p. 11].

Logical approach to the study of term system enables the identification of terms denoting main, derived and complex concepts of the respective conceptual system. This differentiation is determined by the objects of certain sphere and theory underlying the system of concepts [3, p.148]. Application of linguistic methods in the study of terminology allows an insight into the system from both: the perspective of its linguistic peculiarities, and from the point of view of their terminological specificity. Linguistic approach to the investigation allows identifying lexical units by means of which the elements of terminological system are expressed. Two approaches of the linguistic method can be distinguished: the study of the formal and semantic structure of individual terms, and further identification of their common features; exploration of the terms from the standpoint of their systemic relations identifying the peculiarities of their contentual and formal relations. Thus, the method of induction and deduction can be used [3, p.142]. The third approach towards the investigation of the terminological system can be considered as "terminological." It is a synthesis of logical and linguistic approaches. The essence of the terminological approach to the analysis of terminological system lies in the demonstration of the relations of terms within the terminological system, and the identification of the place of a particular unit within the corresponding system.

In the process of term analysis a complex of methods is used in contemporary terminology. In particular, these are methods applied in the analysis of the structure and organization of the terminological systems, identification of terminological elements, and identifying components in terminological combinations; linguistic methods; logical classification methods; mathematical and statistical methods in order to determine the frequency of occurrence of the units; methods of the theory of variability, complex logical-linguistic-terminology methods (revealing the facts of the combinability of terms with non-terms and general scientific terms, the study of term combinations and terms-non-term combinations in the text).

Analysis of English and Ukrainian dental terminology is a complex, multi-dimensional process broken down into stages. Every stage presupposes acquisition of specific information about one aspect of the studied object. Thorough analysis requires application of a complex of scientific and linguistic methods.

Thus, at the first stage methodological is formed, as well as extraction and inventarization of terms. Extraction of terminological units is performed by means

of random sampling method from Ukrainian and English terminological dental dictionaries. Theoretical prerequisites are based on the application of general scientific methods, namely: descriptive, observational method, generalization. This enables identification of the most significant theoretical data regarding the object of the study.

Structural peculiarities of the studied terms are analyzed at the next stage of our study. At this stage productive and non-productive ways of term formation in English and Ukrainian dental terminology are observed and interpreted. In order to group linguistic material according to its peculiarities, method of classification and generalization is used. At the third stage of our research quantitative analysis is applied in order to establish the quantitative-correlation of observed and identified phenomena in each terminological system. Comparative method and method of generalization are used at the final sixth stage of our study. By means of this method identification of distinctive or similar features in two and more languages can be performed.

Results and discussion. Description of the formal types of terminology remains a traditional component of the majority of terminological research. However, synchronic investigations of the structural types of terms provide an insufficient amount of reliable information on the productivity of certain models of term formation. This can be explained by the fact that different patterns of terminology formation can result into one type of terms and, at the same time, different structural types of terminology can be achieved by means of one common model of term formation [7, p. 122]. The analysis of terminology structure requires the consideration of the notion of term-element. This idea of term-element presupposes term composition constituted by several elements, each of them being correlated with a concept or one of its qualities of a certain conceptual system.

Within the past years, due to the rapid development of dental practice, science and technology, the widespread introduction of foreign technologies and methods of treating patients, languages become replenished with new terms and word-collocations. Numerous of them, introduced to the international glossary of dental terminology are referred to as anglicisms, i.e. of English origin. However, dental vocabulary is constituted by generally accepted medical dental terms intelligible to every member of dental discourse community.

Large quantity of dental terminology is formed by means of affixation i.e. formation of the words by adding derivational affixes to different types of bases resulting into new self-dependent meaningful lexical units. Morphology of medical and dental terminology is rather of a regular character, hence the same set of highly productive affixes are used to add meanings to different roots, thus creating new terms. Majority of the affixes applied in the formation of medical terms is of Latin and Classical Greek origin. The composition of affixes applied in different terminological systems is of heterogeneous character. Various investigations showed that certain classes of affixes reflect relations to various categories [2, p.123]. In general, affixation, in comparison to semantic means of term formation,

has the advantage of reflecting the category (processuality, instruments, qualities) of the term in its structure.

Medical term may be structurally broken down into smaller component parts, i.e. root-morpheme – the lexical nucleus of the word, suffix and prefixes –carrying the grammatical meaning, combining vowel – connecting roots to suffixes [6, p. 4].

However, an important identifying characteristic of medical affixes is their *classifying function* grouping the words into various classes of notion, e.g.: suffixes *–al, -ic, -ar, -ary* as in: *gingival, orthodontic, mandibular, maxillary* are defined as adjective forming suffixes creating terms with identifying denotation. Suffix *–itis* refers to "inflammatory process", as in *mucositis*. Terms denoting condition are formed due to the attachment of the bound-morpheme *–ism*, like in *prognathism.*

The results of the study showed that the following suffixes are the most productive in the process of dental term formation: *–al (e.g. lingual, occlusal, cervical, buccal, mesial), -er (e.g. burnisher, cadaver, chamfer, occluder), -ism (e.g. cherubism, embolism, mercurialism, bismuthism), -itis (e.g. cheilitis, glossitis), -sis (e.g. ankylosis, candidiasis, cheilosis, gomphosis), -osis (e.g. ecchymosis, halitosis), -plakia (e.g. erythroplakia, erythroplakia), -genic (e.g. cariogenic, calculogenic*), *-oma (e.g. cylindroma, cementoma, fibroma,granuloma,hemangioma, odontoma).*

The analysis of suffixation in our investigation displayed high productivity in the formation of dental terminology in the English language.

Prefixation as a way of creation of dental terms is conducted by means of the following productive morphemes attaching additional meaning to the dental terms: *anti-* with the meaning of "against," "opposite of," "antiparticle of" like in *antiseptic*; *bi-* meaning "two" as in *bilateral; e* – forming adjectival terminology with the sense of lacking something *(e.g. edentulism); extra-* indicating "outside," "beyond" *(e.g. extraalveolar); infra-* with the meaning of "below": *infraocclusion; intra-* of the sense of within or inside, as in *intraoral* and many others: *mal- (*"bad" *malocclusion), pre-* ("prior to, in advance of" *premolar), peri-* ("surrounding" *periapical), ortho- (*"straight", "upright", "right" *orthodontic).* Prefixes attached to the root-morpheme add components indicating localization *intra-, pre-;* direction *ad-, apo-;* timing *ante-, prae-;* presence *con-, sym-, syn-* and absence *a-, an-, e-* of something without heavily affecting the original lexical meaning. For example: *mal- (e.g. malocclusion, malposition, malpractice, malrelation), dys- (e.g. dysgnathia dysarthria); meso- (e.g. mesodontia, mesognathic, mesonephros, mesostomia), hypo- (e.g. hypocalcemia, hypochondria, hypoglycemia, hypoplastic, hypopnea), hyper- (e.g. hypercalcemia,hyperalgia,hyperalcinuria,hyperchloremia, hyperpnea), macro- (e.g. macrocheilia, macrodontia, macrosomia,macroglossia, macrognathia), micro- (e.g. microcyte, microdontia, microstomia microabrasion), muco- (e.g. mucobuccal, mucoepidermoid, mucostatic).*

The survey demonstrated that terms formed by means of attaching prefix and suffix simultaneously is a frequent occurrence in dental terminology. Due to the results of the research, this way of word formation displayed the highest productivity in creation of English dental terms, denoting different phenomena, processes and

qualities: *e-+-ism (e.g. edentulism), peri-+-it is (e.g. periimplantitis), ex-+-ion (e.g. extirpation), e-+-ulous (e.g. edentulous), intra-+-al (e.g. intraarticular), ortho-+-ic (e.g. orthodontic).*

The results of the analysis enabled us to state that method of affixation is the most productive in the formation of English terms in the field of dentistry. Derived terms comprise 47% out of the total number of the studied terminological units, among them 30,7% were formed due to suffixation, 23,3% of terms – by prefixation and 45,9% of all terminological units were created by means of both prefixation and suffixation.

Analysis of dental terminology showed that affixation is a highly productive way of term formation in the Ukrainian language. Since most of the medical term elements (structural morphemes) are of classical Greek and Latin origin, when penetrating a new language, they undergo the process of adaptation in order to suit the lexical system of the respective language. The analysis of Ukrainian dental terminology showed that the following suffixes participate in the process of dental term formation: *-ація (e.g. аберація), -генез (e.g. амелогенез, онтогенез), -ція (e.g. ампутація), -иви (e.g. абразиви), -оз (e.g. галітоз, анкілоз), -отомія (e.g. гінгівотомія), -ія (оклюзія, аплазія, аномалія, абразія, агнатія), -ор (e.g. оклюдатор), -ім (e.g. папілім),-тоз (e.g. папіломатоз).*

Terms formed by means of suffixation constitute 32,4% of the total number of the derivatives in Ukrainian dental terminological system.

Term formation by means of prefixation in Ukrainian was conducted by means of the following prefixes: *anti- (e.g. антисептика), а- (e.g. асептика), гемі- (e.g. гемісекція), мікро- (e.g. мікрогеня), опісто- (e.g. опістогнатія), орто- (e.g. ортодонтія), остео- (e.g. остеотом).*

The results of the research showed, that 19% of all the derivatives in Ukrainian dental terminological system were formed my means of prefixation.

The last and the most prevalent is the group of terms formed by adding prefixes and suffixes simultaneously. The following patterns were detected in the course of the analysis: *ад-+-ція (e.g. адсорбція), а-+ія (e.g. аглоссія, адентія, акаталазія), аеро-+-алгія (e.g. аеродонталгія), біо-+- ція (e.g. біоінтеграція), дис-+-оз (e.g. дисбактеріоз), мікро-+-изм (e.g. мікродентизм), орто-+-оз (e.g. ортокератоз), остео-+-ія (e.g. остеотомія, остеоінтеграція).*

Creation of terms by means of prefixal-suffixal way appeared to be the most productive mode in the system of Ukrainian dental terminology. The study showed that 68, 9% out of all the terms formed by means of affixation were created due to the abovementioned method.

Syntactic mode of term formation is the second most productive way of the replenishment of terminological system. The principle of semantic creation of terms is based on the transformation of regular free word-combinations into complex "word equivalents" [1, p 135]. Terminological word-combinations are characterized by sustainability (integrity of nomination) caused by the function of nomination of one concept.

Word-combinations may be further divided into *simple* two-component and *complex* constituted by three-, four-, five- etc. compositional elements. Attributive two-component word-combinations consist of one main, denoted by a noun and an attributive (noun/adjective/ non-finite verb etc.) identifying element. Two-component word-combinations can be modeled in accordance with various patterns and their proportion prevails in the system of terms formed by syntactic means. The difference between types of two-component terminology is based on the formal manifestation of the identifying element. As a rule, two-component word-combinations serve as the basis for the formation of three-, four-, five-component terminological structures. They are characterized by tight structurally-semantic relations [5, p. 43].

According to the results of the conducted analysis word-combinations constitute the second most significant percentage of the analyzed dental terms in the terminological systems of both languages. In accordance with the results of the analysis attributive two-component terms appeared to be the most prevalent type of complex terminological units accounting for 66% of the total number of the analyzed English dental terms: e.g. *edentulous arches, removable dentures, transitional abutments; maxillary arch; dentinal tubules; prosthetic space; partial edentulism.*

Two-component word-combinations is also a common phenomenon within the Ukrainian dental terminology accounting for 80,9% out of the total number of the studied terms. For example: *адгезія волога, аксесуар стоматологічний, альвеола зуба*, *антенатальний період***,** *апікальний уступ.* Two-component terms are used to denote different phenomena related to the field of dentistry including procedures, conditions, applications and instruments.

English and Ukrainian dental terms may also be formed by means of complex three-component word-combinations of various patterns comprised of different word classes. In the course of our research only 26% of the total number of analysed terminological units were identified as three-component terms. The majority of them follow the Adj+N+N pattern: *surgical guide sleeves.* The following patterns were also detected: Adj+Adj+N *(e.g. fixed orthodontic appliances),* A+A+Ving *(e.g. intraoral digital scanning*), N+Adj+N *(e.g. infection-related resorption).*

In the Ukrainian language the following models were detected, uniting 15, 3% of the examined elements: N+Adj+N (e.g. *біомеханіка кінцевого сідла, ефект наскрізного просвічування, зондування каріозної порожнини, інстиляція пародонтальних кишень),* N+ N+Adj (e.g. *екстирпація пульпи вітальна).*

Four-component English dental terms constitute the lowest percentage of the language material 7,8%. For example: *computer guided implant placement* (N+Adj+N+N), *hard tissue-borne templates* (Adj+N+Adj+N), *open tray impression technique* (Adj+N+N+N), *destructive periodontal gum disease* (Adj+Adj+N+N).

The analysis showed that Ukrainian four-component dental terms constitute only 3,7% of the studied language material. The following models of multicomponent terms were detected: Adj+N+N+N *(e.g. консервативний метод*

лікування пульпиту), N+Adj+N+N (e.g. *оболонка слизової порожнини рота),* N+Adj+Adj+N
(e.g. оболонка слизова твердого піднебіння).

Terminological word-combinations are formed to designate and specialize complex concepts. Component elements of word-combinations are grammatically arranged and stable. Based on the results of the conducted research this syntactic pattern of word-formation displays the highest productivity in the process of dental term formation. Comparison of the results of the study of English and Ukrainian terminological word-combinations proved that in Ukrainian syntactic way of term formation is more productive than in English.

Conclusions. The comparative study of structural peculiarities of dental terms in English and Ukrainian revealed that derivatives i.e. terms formed by means of affixation constitute the prevailing majority within dental terminology in both languages. The analysis enabled us to determine the most productive suffixes and prefixes in the studied terminological systems. The research demonstrated that terms formed by means of attaching prefix and suffix simultaneously is the most spread mode of term formation in both systems of English and Ukrainian dental terminology.

Syntactic mode of term formation is the second most productive way of the replenishment of terminological system, being more productive in Ukrainian than in English. We distinguish between simple and multi-component word-combinations. Attributive two-component terms appeared to be the most prevalent type of complex terminological units both in English and Ukrainian dental terminology. Thus, terminological word-combination of different models and quantity of component parts occupy the second position on the scale of productivity. The study shows that two-component terms are used to denote phenomena of different dimensions and categories, including procedures, conditions, applications, instruments related to the field of dentistry.

To sum it up, contemporary dental terminological system has a set of various ways of its replenishment. The results of the research showed that the productivity of available word-formation modes in many cases differ across languages.

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УДК 81’22 (811.161.2+811.111): 81’37
DOI: 10.24144/2617-3921.2020.18.167-178

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Специфіка семного складу іменників на позначення моральності в сучасних українській та англійській мовах

Анотація. У статті досліджується семний склад іменників на позначення моральності в сучасних українській та англійській мовах із застосуванням матричного методу. Ідентифіковано вказівки на морально-етичні характеристики в лексикографічних тлумаченнях слів на позначення цінностей в двох мовах. Введено в науковий обіг терміни генералізована сема (ГС) та сема комбінованої функціональності. Розрізнено ГС за типами їхньої функціональності: багатофункціональні, однофункціональні та семи комбінованої функціональності. Визначена здатність сем комбінованої функціональності виступати компонентами лексичних значень слів на