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DERIVATIVE COMPOUND TERMS-NOUNS AS A SPECIAL TYPE OF COMPOUND IN SCIENCE AND TECHNICAL TEXTS ON ELECTRICAL ENGINEERING

In recent decades technological progress has gained new rapid turns, resulting in various technical innovations that improve and facilitate human existence on the Earth. Such inventions include various gadgets, devices, appliances, mechanisms and part of them (e.g., air-distributor – повітродозподільник, antenna-indicator – індикатор антени, battery-inverter – перетворювач живлення батареї). The latest technological advances have led to the formation of scientific and technical terminology, particularly in electrical engineering, including derivative compound terms-noun to convey information in accurate and concise form. The article aims to analyze, systematize, and unify derivative compound terms-noun in electrical engineering by structural aspect. Moreover, it is relevant to study derivative compound term-nouns as specific lexical content of English electrical engineering texts. The article’s scientific novelty is in integrated and systematic research of derivative compound term-nouns in electrical engineering, in analyzing productive, less productive and nonproductive word-building models. Analysis of derivative compound terminological units in the English language shows that this method of word-building is characterized by high productivity in the science and technical literature, according to the result of the study. Having separated 675 derivative compound terms-nouns from various genres of English science and technical texts on electrical engineering: textbooks, manuals, scientific articles, contracts and instructions, it was determined that derivative terminological units occupied the first place between other ways of formation (word-building, stem-building and conversion). For detailed analysis, all chosen terminological units were divided into 33 word-building groups, due to the quantity of units, within which, in turn, each word-building model was analyzed. Borrowed element is the main feature in the structure of most word-building models in electrical engineering. Based on the research, we can say that productive word-building models are $V + V(\text{suf}) = \text{CN}$ (155 units), $N + V(\text{suf}) = \text{CN}$ (118 units), less productive are $V(\text{suf}) + V(\text{suf}) = \text{CN}$ (53 units), $\text{auto} + V(\text{suf}) = \text{CN}$ (49 units), $\text{micro} + V(\text{suf}) = \text{CN}$ (48 units) and nonproductive are: $\text{phono} + V(\text{suf}) = \text{CN}$ (2 units), $\text{aero} + V(\text{suf}) = \text{CN}$ (2 units), $\text{poly} + V(\text{suf}) = \text{CN}$ (2 units), $N + \text{Prep.} + V(\text{suf}) = \text{CN}$ (1 unit).

Key words: derivation, derivative compound-noun, science and technical text, electrical engineering, denotative criterion, significate criterion, structural criterion, emotional and connotative criteria, pragmatic criterion.

Formulation of the problem. The research in electrical engineering is endless, since endless are the development and improvement in science and technology. Such active process of technological development has led to the formation of science and technical terminology and the appearance of derivative compound terms-noun in English texts on electrical engineering. As a result, scientists and linguists were in need of such terminological units which would be able to transmit the information in accurate and concise form such as derivative compound terminological units. The topicality of the research is in arranging, analyzing and unifying

derivative compound terms-noun in electrical engineering in the English language on structural level. All achievements are reflected in the language, that is why is vital to penetrate into the rules of the language, ways of word-formation, particularly in electrical engineering in Modern English.

Analysis of the latest researches and publications. Over the years, both Ukrainian and foreign linguists have studied derivative compound terminological units as constituent parts of scientific and technical texts. Modern linguistic studies focus on structural and semantic peculiarities of terminological units, the main works are: L. E. Azarova, N. Akulshyna,

I. V. Andrysiak, I. V. Arnold, Dz. Arthur, L. S. Barkhydarov, O. Berezhna, M. V. Boychuk, O. P. Vynnyk, E. M. Enikeeva, P. M. Karashchyk, A. A. Kulinich, O. Kurbatova, O. A. Lytvynko, A. Mattiello, O. D. Mieshkov, T. O. Mysyn.

Formulation of goal and tasks of the research.

The goal of the research is to analyze derivative compound terms-noun, extracted from texts in electrical engineering and concern productive, less productive and nonproductive word-building models within this way of formation.

Formulated object led to the task solving, such as:

– focus on such concepts as “word-building”, “word-building model”, “derivation”, “derivative compound term-noun”;

– analyze productive, less productive and nonproductive word-building models of derivative compound terms-noun in electrical engineering in the English language.

Object of the research are derivative compound terms-noun in the modern texts on electrical engineering.

Subject of the research are structural peculiarities of derivative compound terms-noun in the texts on electrical engineering in the English language.

The **material** of the research are 675 derivative compound terms-noun, taken from modern texts on electrical engineering by quantitative analysis. Main sources of the material are: science and technical literature (15 manuals, 9725 pages), 15 scientific articles (160 pages), 15 technical contracts (70 pages) and 15 technical instructions (341 pages).

Main material. The discussion of the derivative compound terms-noun as one of the types of compound terminological units is debatable today, as we have not found an unambiguous interpretation of it in the modern lexicology of the English language. According to the opinion of some scientists (I. V. Andrusiak [1], N. A. Zboykova [3]), derivative compound terms-noun cannot be considered as a separate part of compound terminological units, because, by definition, the components of the compound word, in contrast to derivative, cannot exist as free forms. However, another group of scientists (I. V. Arnold [2], G. K. Kyrchenko [6], I. Nazarenko [7]) insisted on opposite, pointing out that the compound and derivative terminological units are correlated according to the criteria of their formation of the denotative, structural, grammatical, syntactic and criterion of word-forming regularity) and can be considered as a special type of compound terminological unit.

Denotative criterion is conditioned by the need for a word, the need of individual to name objects,

phenomena and processes of extra linguistic reality (denotations) and is connected with the description of accurate phenomena and with nominative fixing on these phenomena of a set of noticeable characteristic features. However, all the features do not include into the meaning of the word that allow us to “recognize” the denoted object and distinguish a particular word from other, close in semantics, words in the process of ordinary, everyday communication. Thus, denotative component characterizes the correlation of a word with the object it denotes. In other words, the connection of the phonetic shell of the word with things of objective reality, and the denotations of compound terms-noun are the names of devices, phenomena, processes and actions, particular in electrical engineering.

Significant or conceptual-semantic component is used to denote the relation of a word to a concept, generalization of the mental idea of a class of subject that is simply called the meaning of a word. Significant meaning is a ration of a verbal sign to a signification (concept). The meaning of the lexical unit cannot be reduced only to recognizable nominal features. Significance is an abstraction of general features of a denotation, their ideal speech-thinking essence, a set of those basic features that a denotation must possess to be nominated by a certain word. Thanks to the signification, we can remind the name of the object that we can see. Set of noticeable features of the denotation in the significant component of lexical meaning of the word is expressed through the concept. The concept is one of the main forms of thinking, through which the reality is reflected in the human mind. It is a combination of content and scope. Content defines the class of certain concepts; scope defines the list of essential features of this concept. The content and the scope regulate the law of inverse relationship: the wider the content of the concept, the narrower its scope and vice versa. The content and the scope, as integral constituents of the concept, are in the relationship of independence, which are based on associations. Thus, the class of certain concepts (the scope of the concept) can actualize a set of their essential features (the content of the concept) in the human’s mind. The correlation between the words and concept is primarily revealed in the dependence of the content of words on the features that make up the content of the concept. The word and the concept form an inseparable unity, so the existence of any of them is impossible without interaction. The word is related to the concept by its meaning; the concept is becoming active in the word and can be transmitted by the word in the process of communication.

Emotional and connotative component is associated with emotional, expressive and evaluative reflection of an objects, subjects, processes and phenomena in the world. Connotative component is usually stylistically marked, that is revealed through the emotional expression of the speaker's attitude to a particular object, subject or phenomena of the reality. Scholars note that connotation – is an additional meaning of the word, phrase or expression, its accompanying semantic or stylistic coloring that is imposed on the main meaning and serve to express deferent emotional and evaluative features in the word.

Lexical meaning of the word is influenced by various factors of its formation: objects of reality, mental processes that accompany the nomination (feelings, the peculiarity of world perception, its evaluation) and certain linguistic relations between words (paradigmatic, syntagmatic and epidegmatic), at the same time defining the structural component of the lexical meaning of the terminological unit.

Structural meaning of the word is a relative meaning that indicates the relation of the word to others words in the language with which it can enter into syntagmatic and paradigmatic relationships. This component helps us to define the place of the word in the lexical system of the language by contrasting it with other words of this system. It can help to establish its role and relationship with all other lexical units of the language [4, p. 216].

Scholars differentiate two subtypes of structural meaning: syntagmatic structural meaning and paradigmatic structural meaning. The first one characterizes the linear relations of the word, its semantic distribution and valence, in other words, its ability to enter into semantic relations with other lexical units. The second one characterizes vertical relations of the word which belongs to a certain class. The pragmatic meaning can be understood as internal features of the word which it has trough certain words of lexical and semantic system of the language. This meaning indicates the place of the lexical units in the system of relation of “similarity/difference”, that are established on the basis of opposition/comparison of the unit.

Pragmatic component is additional information about the participants and the conditions of communication in the relation subject content. Derivative compound terminological unit is a complex structural and semantic feature of the language that has the relation to the motivated word. Pragmatic component is becoming an integral part in the lexical structure of the terminological units as it defines the pragmatic parameters of the word using and regulates broadening or narrowing not

only the semantics, but also contents of the word [5, p. 79]. In derivative compound terminological unit must an indication of the relationship between the components of this unit, which represent meanings already present in the language, so the meaning of the derivative compound terminological unit can be revealed through the meaning of its structural component. Both components are important in terms of lexical meaning of derivative compound term-noun, because one of its elements can express a broader meaning that defines a certain range of concepts, and the other – narrower, thereby narrowing the meaning of this terminological unit.

The formation of derivative compound term-nous is possible not only by simultaneously combining two or more stems or words with a derivational component, but also without its participation, then the newly formed unit is characterized by its semantic and graphical integrity and this proves again the theory of their correlation.

In accordance with mentioned above, in this paper we will adhere to the dame opinion and consider compound derivative term-noun as a kind of compound.

Under the derivative compound term-noun we mean holistic lexical unit, which is built according to the internal laws of particular language by combining two or more stems or independent words, abbreviation of the word based on the phrase or even whole sentence with or without word-building model, according to already established models in the language, corresponds to a certain part of speech and can act as an essential member in the science and technical text.

In the paper we consider derivative compound terms-noun as the unit that can be formed by adding, more often suffixes, and less often – prefixes to one of the stem of the terminological unit. Simultaneous adding suffixes and prefixes to the stem of the terminological unit are characterized by low productivity. In addition, it is possible to add “pure” compound word-building stems without using any of the derivational elements.

The research was based on 675 derivative compound terms-nouns which were taken from manuals, articles, contracts and instructions. These units were divided into 33 groups, according to the quantity of units, in each group productive, less productive and nonproductive word-building models were pointed out.

Based on quantitate analysis, the most numerous group is represented by word-building peculiarity of the second component of the terminological unit

which are formed by such structural model **V + V (-er, -or, -ment, -ant) = CN**. These terminological units are formed by adding suffixes **-er** to the second component of this unit. Such method is characterized by a high frequency and by forming nouns with the meaning “performer of an action” or “tool with which to perform this action”: *tap-changer – перемикач виходових навиток*; **-or**: *fuse-isolator – запобіжник-роз’єднувач*. Suffixes on the meaning of “object” or “processes” in electrical engineering have lower frequency: **-ment**: *print-equipment – помпове обладнання*; **-ant**: *vacuum stimulant – вакуум-стимулятор*. It should be noted the activity of word-building model where the second component is characterized by adding such derivational suffixes as: **N + V (-er, -or, -ment, -t(s)ion, -ness) = CN**: productive **-er**: *salad-spinner – електричний пристрій для нарізування салату*; **-or**: *piston-compressor – поршневий компресор*, less productive **-ment**: *engine-compartment – моторний відсік*; **-t(s)ion**: *coin-operation – пральня-автомат*; **-ness**: *engine-roughness – нерівномірна робота двигуна*. Word-building model **V (-er, -or, -t(s)ion) + V (-er, -or, -t(s)ion) = CN** is an example, where derivational suffixes are added to both components of the terminological unit: *shaker-washer – пральня машина*. The next is the group where derivative compound terms-noun are formed by adding suffix **-er** to the first component of this unit **V(-er) + N = CN**: *scanner-antenna – антена-сканер*. Within the next group we distinguish terminological units formed by combining the prepositions *under* or *over* with derived verb by such structural model **Prep.+V (-er, -t(s)ion)**: *under-utilization – недостатнє використання виробничого устаткування*. Less productive has structural model **V (-er) + N (-er) = CN**, where derivative suffixes are added to both components of the term-noun: *programmer-engineer – програмувальник*.

The suffix and prefix method of formation is shown on one of the component of the terminological unit formed by such word-building model **N + V(-t(s)ion, -ment, -or) = CN**: *engine-distributor – розподільний пристрій циліндрів поршневого двигуна*. Similar word-building model is characterized by adding of two verbs **V + (dis-) + V(-or) = CN**, where derivative elements are added to both components: *switch-disconnector – вимикач-роз’єднувач*. Structural model **(de-) V(-er) + V = CN** shows combination of two verbs, but derivational elements *de-*, *-er* are added to the first its component: *decoder-matrix – дешифратор*.

One more word-building model is **V(-or) + (de-) V(-or) = CN**, where both of the components are deriva-

tive: *modulator-demodulator – модем*. Word-building peculiarity of both components of terminological unit is simultaneous adding suffixes and prefixes to them **(en-) V(-er)+(de-)V(-er) = CN**: *encoder-decoder – модем*. It worth noting the existence of such word-building models where “pure” combination of simple and compound word-building stems is observed: **CN + N = CN**, *cutoff-current – знеструмлювання, відтин струму*; **N + CN = CN**, *light-output – світловихід*. Simple example of three-component’s terminological unit is *time-of-arrival – час надходження сигналу* that can be represented by such structural model **N + Prep. + V (-al) = CN**.

The next terminological units are characterized by borrowed stems in their structure **AUTO + N (-or, -er, -t(s)ion) = CN**: *autotimer – автотаймер*, **AUTO + V (-or, -er, -t(s)ion) = CN**: *autocollimator – автоколіматор*. Simple example of three-component terminological units is *autocellcounter – автоматичний лічильник клітин*, that is formed by **AUTO + CN(-er) = CN**.

Structural model **MICRO + V(-or, -er, -y) = CN** represents derivative compound terms-noun where the second stem is characterized by derivation: *microdispenser – мікророзподільувач*, *microdetector – мікродетектор*. Following group united terminological units formed by such word-building model as **RADIO + V (-er, -or, -ment, -t(s)ion) = CN**: *radioreflector – радіопередавач*, *radio-scanner – пристрій для сканування частот радіостанцій*, *автомобільний радар*. The next is the group where analyzed units are formed by adding suffixes to the second their component **PHOTO + V (-or, -er) = CN**: *photoresistor – фоторезистор*, *photoreader – фотоелектричний прилад для зчитування інформації*. Structural model **ELECTRO + V (-er, -or, t(s)ion, -y) = CN** shows the combination of the borrowed stem with derivative verb: *electroshatter – електророздрібноувач*, *electro-detonator – електродетонатор*. The next group represents such terms-noun which are formed due to structural model **STEREO + V(-or, -er) = CN**: *stereoprojector – стереопроектор*. Word-building model **TURBO + V(-or, -er) = CN** is an example of combination borrowed stem with derivative verb: *turborefrigerator – турбоохолоджувач*, *turbodrier – турбосушарка*. Derivative terminological unit *turbosupercharger – турбонагнітач* is characterized by combination of two borrowed *turbo-* and *super-* with derivative verb. The next is the group where terminological units are formed by adding suffixes to the second structural component **STEREO + V(-or, -er, -y, -ent) = CN**: *stereoadapter – стереофонічна*

приставка. Derivative compound terms-noun form the group which are represented by such word-building model **AUDIO + V(-er, -or, -t(s)ion, -ent, -y) = CN**: *audioamplifier – підсилювач частоти звуку; audiorefraction – рефракція звуку*. The next group unites all terminological units that are formed by such structural model **VIDEO + V(-er, -or, -ent, -y) = CN**: *videoequipment – відеотехніка*. Terms-noun in the group are characterized by combination of borrowed stem with derivative verb **HYDRO + V(-er, -or) = CN**: *hydrovibrator – гідровібратор*. Terminological units formed by adding borrowed stem to the derivative verb represent such structural model as **MACRO + V(-er, -or, -y) = CN**: *macroexpander – макророзширювач*. Word-building model **MULTI + V(-or, -er) = CN** represents derivative terminological units formed by **MULTI + Adj. (-or, -er) = CN**: *multiadapter – мультиадаптер, multicooler – багатофункційний охолоджувач*. This group characterizes analyzed units by combination of stem with derivative verb or noun **TELE + V(-er, -or) = CN**: *teleindicator – телеіндикатор* or **TELE + N(-er, -or) = CN**: *telecruiser – пересувна телестанція*.

All terms-noun that are united in the following group are formed by **THERMO + V(-er, -or, -y, -ance, -t(s)ion) = CN**: *thermoresistance – термоопір, thermoconductivity – теплопровідність*. The group is characterized by adding to borrowed stem derivative verb **VIBRO + N(-er, -or) = CN**: *vibrobatcher – вібродозатор*. The next group unites all terminological units formed by adding borrowed stem to the derivative verb **PNEUMO + N(-or, -er) = CN**: *pneumobooster – пневмонідсилювач*.

And two last groups that are characterized by low quantity are **POLY + V(-er, -or) = CN**: *polyprocessor – багатопроцесорна система* and **AERO + V(-t(s)ion) = CN**: *aeronavigation – аеронавігація*.

Conclusions. Having analyzed word-building peculiarities of derivative compound terms-noun in electrical engineering, we can confirm that the most frequent way to form these terminological units in analyzed area is adding derivative suffixes to the second their component (derivative verb) in the structural model. By method of quantitative analysis it was established that productive suffixes are *-er, -or*, less productive *-ent, -t(s)ion, -ance, -y* and nonproductive *de-, dis-, en-*.

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Карачун Ю. Г., Борковська І. П. СКЛАДНОПОХІДНІ ТЕРМІНИ-ІМЕННИКИ ЯК ОСОБЛИВИЙ ВИД СКЛАДНИХ СЛІВ У НАУКОВО-ТЕХНІЧНИХ ТЕКСТАХ З ЕЛЕКТРИЧНОЇ ІНЖЕНЕРІЇ

За останні роки технологічний розвиток набув нових обертів, у результаті чого з'являються різні технологічні новинки, що полегшують існування людини на Землі. Це різноманітні пристрої, механізми та їхні частини (наприклад, *air-distributor – повітророзподільник, antenna-indicator – індикатор антени, battery-inverter – перетворювач живлення батареї*). Такий активний технологічний розвиток привів до формування науково-технічної термінології, зокрема в галузі електричної інженерії. Однією із причин формування таких термінологічних одиниць є прагнення передавати поняття у стислій та точній формі. Метою цього дослідження є систематизація, уніфікація та аналізування складнопохідних термінів-іменників з електричної інженерії на структурному рівні. Аналіз англомовних складнопохідних термінів-іменників з електричної інженерії дав змогу говорити про те, що такий спосіб словотворення характеризується високою продуктивністю в науково-технічній літературі. Виокремивши 675 складнопохідних термінів-іменників із різножанрових англомовних науково-технічних текстів, а саме навчальних підручників, наукових статей, інструкцій та контрактів, методом кількісного зіставлення

ми визначили, що складнопохідність посідає перше місце серед інших способів словотворення, таких як словоскладання, основокладання та конверсія. Для проведення детального аналізування усі дібрані термінологічні одиниці було поділено на 33 словотвірні групи за кількістю одиниць, у межах яких виокремлено та проаналізовано кожну словотвірну модель. Характерною особливістю словотвірних моделей є наявність запозиченого елемента в структурі всієї одиниці. На основі проведеного дослідження можемо говорити про те, що продуктивними словотвірними моделями, за якими утворено складнопохідні терміни-іменники, є такі: $V + V(suf) = CN$ (155 одиниць), $N + V(suf) = CN$ (118 одиниць), малопродуктивними вважаємо $V(suf) + V(suf) = CN$ (53 одиниці), $auto + V(suf) = CN$ (49 одиниць), $micro + V(suf) = CN$ (48 одиниць), а непродуктивними є: $phono + V(suf) = CN$ (2 одиниці), $aero + V(suf) = CN$ (2 одиниці), $poly + V(suf) = CN$ (2 одиниці), $N + Prep. + V(suf) = CN$ (1 одиниця).

Ключові слова: деривація, складнопохідний термін-іменник, науково-технічний текст, електрична інженерія, денотативний критерій, сигніфікативний критерій, емотивно-конотативний критерій, структурний критерій, прагматичний критерій.