

## Secondary Nomination as the Way of English Environmental Term-Formation

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**Abstract.** The present paper deals with one of most productive way of formation new Environmental Protection terms – semantic way, which in our case has been presented in metaphorical and metonymical transfers. Some lexical units are selected from the generally used words and undergo specific semantic changes in meaning thus forming new Environmental terms. Three ways of metaphorical transfer have been analyzed: 1) appearance, 2) functional similarity and 3) simultaneous functional and external similarities. The most productive model of metonymical transfer is “the process – the result”.

**Keywords:** term, terminological phrase, metaphorical transfer, metonymical transfer.

**Introduction.** Semantic way of term-formation performs an essential function in the evolution of professional terminological language and allows to detect a genetic connection between the terms and words of general vocabulary.

V. Tatarinov defines the following stages of terms' semantic development:

1) full transfer of semantics of the word into the coined term or its specialization – generalisation, expansion; 2) partial use of semantics of the word, namely use of its motivational and semantic feature (tropeic terminology); 3) conventional accretion of semantics of the term, its idiomatization [14, p. 188].

Semantic way of term-formation is also regarded by the researchers as secondary nomination, i. e. “the use of the existing in the language nominative means in their new function – nomination” [10, p. 161]. According to T. I. Panko, before entering the terminological system, the common word creates a new lexical-semantic variant, it goes through some kind of rethinking in the new system and forms new formal relationship with other lexical-semantic variants. It enters the sphere of a certain terminological field and acquires some terminological meaning [10, p. 63]. Thus, with the emergence of new concepts the words for their nomination are selected from general vocabulary and are attributed some new, additional or special meanings. Some words are borrowed from other spheres and in a new one they obtain the new or related meaning [11, p. 9].

**A brief review of publications on the subject.** Semantic way of term-formation is a typical means of the formation of the English environmental terms.

Secondary nomination was studied by: M. Black, M. Johnson, J. Lakoff, V. Danylenko, R. Tsagolova, N. Arutyunova, D. Lotte, V. Hak, V. Petrov, V. Telia, N. Chernyshova, M. Alekseeva, A. Hayutin and others. Secondary nomination – a dynamic process of formation of new terms, based on narrowing or transferring the meaning of a word. With its help language vocabulary is enriched without new significates, corresponding to the principle of linguistic economy.

**The goal.** The aim of the article is to identify and characterize semantic processes that take place in the English Environmental terminology, clarify the role of metaphor and metonymy in the formation and development of the researched terminology. Therefore, our tasks are: to determine the nature of metaphorical and

metonymical transfers as semantic processes and reveal their productive models in environmental protection.

**Materials and methods.** For our research 2565 Environmental terms have been selected from Journal of Environmental Protection (2010 – 2016 years). Using of componential analysis which became the most widely-used method for researching semantic meaning of terms.

**Results and discussion.** The majority of researched terms, formed by semantic way, are formed on the basis of two processes – metaphorical and metonymical transfer.

Terminology often arises from the general vocabulary, so it can not completely get rid of features of primary meaning. This suggests that the main factor underlying the terminological nomination is polysemy of lexical units, i.e. the possibility of one and the same word to convey several meanings.

We distinguish such processes as terminologisation, determinologisation and transterminologisation. V. Tatarinov considers that terminologisation is the process when the terms are formed by semantic rethinking/transfer of the general vocabulary. Thus, it is such a way of linguistic nomination when the semantic development of the word becomes the main means of formation of a new term [15, p. 274].

In terms formed on the basis of common words, information is encoded twice. For the first time general information is encoded in a lexical unit, for the second time – terminological information. This fact gives all the reasons to refer to terminological nomination as secondary. Thanks to terminological nomination lexical unit becomes the bearer of new information – terminological one.

For example, the word *pipe* is used to describe a musical instrument made of wood with a cavity inside. Over time, new semes such as “size”, “function”, etc. started to actualize and intensify in the meaning of the term resulting in its specialization on the basis of external resemblance – *a long tube through which a fluid or gas flows from one place to another* [5, p. 163]. Thus, there is semantic transfer (specification / narrowing of the meaning) of existing terminological or lexical units.

In the process of formation of Environmental terminological system common words with the help of terminologisation were included into terminological system, thus acquiring specialized meaning, e.g. *pollution, coffin, pond* etc.

A reverse process – determinologisation also takes place in the terminology. The transition of certain specialized terms into general use is accompanied by the loss of scientific accuracy and expansion of the sphere of their use [12, p. 5].

According to researchers, determinologisation takes place in such cases:

1) when term in the form of a word with terminological meaning enters the general language; and 2) when the meaning of specialized word transfers (usually by metaphorical transfer) to a new unit of general vocabulary [13, p. 134].

Transterminologisation – a process when the terms of one sphere move to and begin to function in another sphere with full or partial transfer [4, p. 79].

A prerequisite of any semantic change is some connection between the original and new meanings. Typically two kinds of associations are used: 1) similarity of meanings; and 2) contiguity of meanings.

Thus, the basic ways of terminologisation, due to which semantic transfer of common word's meaning and enrichment of terminological corpus take place, are metonymical and metaphorical transfers.

According to the definition from literary encyclopaedia, metaphor – is a type of trope, which involves transfer of properties from one object (phenomenon or aspect of life) to another on the basis of their similarity or contrast [6, p. 218].

There are not so many one-word terms formed by metaphor in the researched terminology. Obviously, it is explained by the fact that the environmental terminology is closely connected with the common lexicon which nominates the environment. We meet metaphorized terms as the part of terminological word-combinations that reveal their semantic features. 898 terms formed with the help of metaphorical transfer have been defined in the researched terminological corpus (2565 terms).

To confirm the expressed above we can take the example of metaphorized term. A common word *coffin* – a long box in which a dead person is buried or burnt [7, p. 254] in the process of metaphorical transfer based on external and functional similarities appears with special meaning – *container for transporting radioactive substances*, where such integrated semes are actualized – 1) (general) “box”; 2) (special) “container used for storage”.

It should be noted that the basis for the metaphorical transfer is:

1) similarity to the nominated object in *appearance*. Researching the English environmental protection terms it has been found out that the transfer of common words into the terms based on similarity of shape, size, arrangement of parts takes place in such terms: *ozone hole, fireball, food chain, adsorption plate column, adsorptive bubble separation, bowl desilter, bucket elevator, looping plume, river channel*.

The word “hole” which functions in general vocabulary with the meaning – *a hollow place in a solid body or surface* [3], is part of terminological word-combination *ozone hole*, and has a meaning “*a region of marked thinning of the ozone layer in high latitudes, chiefly in winter, attributed to the chemical action of chlorofluorocarbons and other atmospheric pollutants. The*

*resulting increase in ultraviolet light at ground level gives rise to an increased risk of skin cancer* [3] – where, in fact, the ozone hole is not actually a hole in the ozone layer, but only is the part of ozone layer with low content (50%) of ozone. Therefore, sparse and thin ozone layer resembles hole, and this fact led to the formation of the term “hole” and realization of the seme “cavity”.

2) *the functional similarity*. The process of terminological metaphorization takes place on the basis of functional similarity of completely different objects, their features or properties. For example, the word *rabbit* – a gregarious burrowing plant-eating mammal, with long ears, long hind legs, and a short tail [3] in the process of metaphorization forms the term *rabbit* – special thing, used for cleaning pipes [2, p. 204]. At first glance, to find an association between these very different concepts is difficult. However, taking into the consideration the fact that rabbits are rodents, this feature is fixed to the term as “cleaning method” where the seme “breakage” fully actualizes in the new term.

Terminological phrase *orphan site* (abandoned land) uses the common word *orphan* – a child whose parents are both dead [7, p. 1001]. Therefore, like orphans deprived of parental care, the land is similarly deprived of hosts, and analogically stays in uncultivated and abandoned condition.

Similarly, the feature for comparison is the functional similarity between the agricultural term *greenhouse* – a glass building used for growing plants that need warmth, light and protection [7, p. 624] and the term of environmental protection *greenhouse effect* – the problem caused by increased quantities of gases such as carbon dioxide in the air. These gases trap the heat from the sun, and cause a gradual rise in the temperature of the Earth's atmosphere [3]. The feature “thermal effect”, which belongs to the term of agriculture, and is not indicated by separate sign, but is implicitly present in the composition of the word *greenhouse*, is a structural component of its meaning as a feature for comparison. In the term *greenhouse effect* thermal effect takes place in the inner layers of the atmosphere.

3) *Simultaneous functional and external similarity*. The process of metaphorization based on simultaneous functional and external similarity is found in such terms: *molecular sieve, flame curtain, acid egg, sedimentation basin*.

Terminological phrase *atmospheric radioactive window* contains a common word *window* with the meaning – *an opening in the wall of a building or vehicle that lets in light and air, and is usually covered with glass* [7, p. 1640], which became crucial for the formation of metaphorized term. Here such integral semes for the word and for the term are defined: the seme of similarity – “hole” and the seme of function – “emission or intake” (air – in a word, radiation – in a term).

We offer such classification of thematic groups of common words on the basis of which the researched metaphorized terms are formed and function in lexicographical sources and scientific texts:

1) *natural phenomena, environment* – absorbent lagoon, algal pond, atmospheric pond, cooling pond, disposal pond, point source, sediment pond, urban stream; 2) *household items* – bed, absorption bed, adsorption plate

column, confining bed, seabed, atmospheric radioactive window, bowl desilter, bucket elevator, coffin, fireball, flame curtain, food chain, molecular sieve, plate tower counterflow, safe, sink, tar balls, thermal blanket, threshold dose, resin beads, natural sink, agitated drier thin film evaporation, artesian well, detention basin; 3) *structures, buildings, their parts* – greenhouse effect, adsorption packed column, cooling tower, cooling tunnel, rod deck absorber, step aeration; 4) *animals* – rabbit, pig; 5) *food* – acid egg; 6) *clothes* – jacket, skirt; 7) *parts of the body* – body of water, headwater, landfill cell.

Thus, the classification of common words into certain thematic groups is the basis for the nomination of scientific concepts and demonstrates the systematic nature of the formation of terminological meanings of the researched field.

The analysis of terms gave us an opportunity to define two most numerous thematic or lexical-semantic groups, which are the basis for metaphorization of environmental terms, namely a group of *household items* and of *the environment*, which obviously indicate creative thinking.

The peculiarity of secondary nomination through metonymical transfer lies in the fact that it characterizes a certain object through its correlation with the principal one. Transfer of nomination from one object or phenomenon to another one by contiguity is called metonymical nomination.

Metonymical transfer was researched by Yu. Apresian, C. Bally, E. Ginzburg, A. Kubriakova, A. Taranenko, D. Shmelev, Jakobson and others.

In our opinion, one of the successful definitions of metonymy belongs to N. D. Arutyunova: metonymy – a “trope or mechanism of language, which lies in a regular or occasional transfer of the name of one class of objects or a single object to another object or a class that is associated with it by contiguity” [1, p. 300-301].

Scientists believe that the result of metonymical transfer is semantic derivation. A. V. Paducheva considers that metonymical transfer connects two meanings of the word fixed in the dictionary in the case one meaning derives from another one as a result of transfer of the focus of attention [9, p. 241].

According to D. S. Lotte, there are several types of transfer according to contiguity depending on categories of concepts, among which transfer takes place, namely: property or process – quantitative indicator (*humidity* – *humidity*), object – a unit of measurement, property – object, process – property, material – product, whole thing – part of it [8, p. 52-57].

According to the types of relationships there are various classifications of metonymical transfer, some of which are general, others – detailed.

Such models of metonymical transfer are defined in the researched terminology: 1) transfer “*the process – the result*” forms the longest row of terms: *conservancy, abolition, front and recovery, clear-cutting spill, measurement, pollution, deforestation, water treatment, stream sanitation, trash processing, explosion, leakage*. A detailed study of terminological corpus gives reason to believe that this model is the most productive for

environmental terminology, as with the emergence of names for new processes names for the results of such processes also appear; 2) “*the process – the thing*” – *traffic abatement plan – plan of traffic reduction, i.e. planning (as the process) and document (as a thing, effluent (as the process) and treated wastewater (as a thing)*; 3) transfer “*feature – a quantitative indication*” – *transparency, impermeability, solvability, turbidity, humidity, invisibility, crude ecological density*; 4) transfer “*the process – the value*” – *inundation, resistance*; 5) transfer “*quantity – speed*” is found in terms: *decay rate, emission rate, filtration rate*; 6) “*organization – the place of action*” – *hazardous waste management facility, wastewater treatment plant*.

**Conclusions.** When the new object, thing, device, method, equipment, process etc. appears in environmental protection (and it happens very often because of imposing environmental problems and possible ways of their solutions), it should be nominated. But there do not exist as many terms in environmental protection as it is necessary in order to nominate them. Therefore, language has to cope with such a problem by using already existing lexical units. It is a fact because the language cannot produce so many new terms because of phonetical principles and, in addition, the human’s memory is not limitless.

To sort out the problem new terms are formed on the basis of words in general vocabulary. It means that some lexical units are selected from the common generally used words and undergo specific semantic changes in meaning or semantic transfer. Thanks to such changes language is enriched by new terms which are so necessary for nomination new things.

Metaphorization in the English terminology of environmental protection is – a verbal presentation of special pragmatically processed scientific knowledge that reflects the mentality, the foundations of mental activity, professional experience and cultural competence of professionals.

It has been found out that there are only a few cases of functioning of one-word metaphorized terms in the environmental terminology. In most cases only terminological phrases are exposed to metaphorization. There are 898 terms in which metaphor is based on 1) appearance, 2) functional similarity and 3) simultaneous functional and external similarities.

Terminology is enriched with unprofessional common words, therefore, their classification into thematic groups is done: the names of body parts, clothes, buildings, animals, etc., among which the largest group is – the group of household items. Thus, a common word has semantic potential, and gains status of term within the researched environmental protection.

Metonymy is a productive method of formation terminological environmental units because it is based on real, stable relations with concepts, objects and phenomena. The most productive model of metonymical transfer is “the process – the result” because with the emergence of names of new processes also appear the names of their results.

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#### Secondary Nomination as the Way of English Environmental Term-Formation

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**Abstract.** In this article an attempt has been made to do research on secondary nomination as the way of semantic formation of Environmental terms. Semantic changes in the meaning of common words lead to actualization of specific semes in the lexical unit causing the formation of new term. It has been concluded that metaphorical transfers are based on: 1) appearance; 2) functional similarity and 3) simultaneous functional and external similarities. Words which undergo metaphorical transfers and form terms have been divided into several thematic groups. We have also studied several types of metonymical transfers based on contiguity. The most productive model of metonymical transfer is “the process – the result”.

**Keywords:** term, terminological phrase, metaphorical transfer, metonymical transfer.

#### Вторичная номинация как способ формирования английских терминов окружающей среды

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**Аннотация.** В данной статье сделана попытка исследование вторичной номинации как способа семантического формирования терминов охраны окружающей среды. Семантические изменения в значениях общих слов приводят к актуализации определенных сем в лексической единицы и образуют новый термин. Сделан вывод, что метафорические переносы основаны на: 1) внешнему виду; 2) функциональному сходству и 3) одновременному функциональному и внешнему сходству. Слова, которые проходят метафорические переносы и формируют термины, были разделены на несколько тематических групп. Мы также изучили несколько типов метонимических переносов на основе смежности. Наиболее продуктивной моделью метонимического переноса является “процесс – результат”.

**Ключевые слова:** термин, терминологическое словосочетание, метафорический перенос, метонимический перенос.