

BRIDGING THE GAP: ZOONYMS AS PART OF PHRASEOLOGICAL UNITS AND TECHNICAL TERMS  
(CORRELATIONS IN IMAGES)

Research article

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**Abstract**

The present paper delves into the repertoire of zoomorphic images reflected in the phraseological fund of the English language and the ways they are represented in the technical experiences of the nation. Prototypical symbols, concepts and images embodied in phraseological units containing zoonymic component are embedded in the consciousness of a particular nation. Phraseology exhibits the individual, specific, even “national” nature of a language and is deeply rooted into its history and culture. Phraseological units tend to reveal the whole palette of national features in the language world picture. Phraseological units as well as technical terms with zoonymic components are often of a metaphorical character; zoonymic terms are integrated into specific technical vocabularies. The comparative and cognitive analysis of phraseological units and technical terms with zoonymic components provides insights into the complex mechanism of national conceptualization, figurative productivity of technical language, explains misunderstanding and facilitates cross-cultural communication introducing language learners to a foreign culture, mentality, and peculiarities of language world picture vs. technical world picture.

**Keywords:** zoonyms, phraseology, technical world picture, technical terms, comparative and cognitive analysis.

**ТОЧКИ ПЕРЕСЕЧЕНИЯ: КОМПОНЕНТЫ-ЗООНИМЫ В СОСТАВЕ ФРАЗЕОЛОГИЗМОВ И  
ТЕХНИЧЕСКИХ ТЕРМИНОВ (ВЗАЙМОСВЯЗЬ ОБРАЗОВ)**

Научная статья

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**Аннотация**

В данной статье исследуется репертуар зооморфных образов, отраженных во фразеологическом фонде английского языка, и способы их представления в техническом опыте нации. Прототипы, понятия и образы, воплощенные во фразеологических единицах с компонентом-зоонимом, внедрены в сознание конкретного народа. Фразеология демонстрирует индивидуальную, специфическую, даже «национальную» природу языка и глубоко укоренена в его истории и культуре. Фразеологические единицы, как правило, раскрывают всю палитру национальных особенностей в языковой картине мира. Фразеологические единицы, а также технические термины с анималистическим компонентом часто носят метафорический характер; термины-зоонимы интегрированы в специальные технические словари. Сравнительный и когнитивный анализ фразеологических единиц и технических терминов с компонентом-зоонимом дает представление о сложном механизме национальной концептуализации, образной продуктивности технического языка, объясняет непонимание и облегчает межкультурную коммуникацию, знакомя изучающих язык с иностранной культурой, ментальностью и особенностями языковой и технической картины мира.

**Ключевые слова:** зоонимы, фразеология, техническая картина мира, технические термины, сравнительный и когнитивный анализ.

**Introduction**

Every language, like a mirror, reflects the worldview of the people who speak it. A language is of vital importance in comprehending human cognition, i.e. how people think and understand (acquire, store, and retrieve knowledge for later use); it accumulates people's history and culture and reveals a nation's soul and memory. Every language is a code to the consciousness of a particular nation; ‘spirit of the nation’, according to W. von Humboldt [2]. Linguistic facts are reflected in our consciousness: “the internal form of words and phraseological units, rudimentary phenomena in idioms, perceptions of the world in paremias” are used by scientists to investigate “national character and mentality” [12, P. 76]. Contemporary works consider phraseology as the way to decode cultural authenticity via language structure [5], [6], [9], [10]. It should be pointed out that the very definition of a “phraseological unit” is a disputable issue among linguists. Many researchers propose that

phraseological units are stored and retrieved in a speaker's mental lexicon as semantically indivisible items; they are figurative, ready-made, reproducible units with fixed content and form. The present research considers phraseological fund as a verbalized reflection of the national character, mentality, history and culture. The paper takes a broad approach to the phraseology and includes idioms, proverbs and sayings.

National and cultural peculiarities of phraseological units with animalistic element have been studied more than once, with diverse approaches being applied: contrastive, cognitive, linguo-cultural, cross-cultural, etc. [1], [7], [14]. Zonyms (i.e., names for animals) represent one of the oldest layers of any language. Beliefs in sacred animals were widespread among our ancestors; Gods were believed to have theriomorphic (animal) manifestations. Human qualities and natural phenomena are ascribed to and associated with particular animals: lion or bull with strength, dog with fidelity, owl with wisdom, etc. What is more, myths express a close kinship between human beings and the animal world. Archaic tribes frequently took their names from the animal and had their own totems (animal symbols) to worship. That is why zonyms do not simply nominate objects; rather they are culturally specific linguistic elements entitled with symbolic meanings that express peculiarities of the people's world outlook since real-world phenomena are firstly perceived and fused by underlying human cognition mechanisms and then expressed in linguistic form.

Phraseological units as well as technical terms with zoonymic constituent element have been coined throughout the language existence, thereby allowing to explore past events and make connections to the present. They are often of a metaphorical nature as they are metaphorized in part or as a whole; besides, the meanings of many of them are motivated. Zonyms like cat, dog, bull, horse, pig, monkey, fish, donkey, snake, etc., and their compounds are integrated into phraseological units and specific technical vocabularies. For example, the imagery of a large animal is used both in the English idiom 'like a bull in a china shop' and in the construction industry bulldozers represent giant machines. Nowadays, metaphorical nominations are extensively studied in scientific and technical discourse within the frameworks of cognitive, psycholinguistic, and cultural studies. Modern theories of metaphor regard metaphor not only as a form of ornamentation, a poetic device, but also make a significant contribution to the understanding of metaphor as a conceptual process. Metaphors in this sense are the products of the mental process in which two concepts are compared and co-related. According to Lakoff and Johnson, metaphors permeate the conceptual system, which governs the way people think and act [11, P. 3]. The metaphor is a cognitive mechanism based on associations that exist between concepts in terms of similarity, analogy or contiguity. Thus, the visualization of technical discourse allows to see the likeness in spite of and through differences in term-metaphors. The phenomena of different subject domains are correlated through the act of nomination. In this connection, E.A. Lapinya states that metaphorization in the language of science is initially a semantic process of choosing a name based on the similarity or likeness of two heterogeneous objects. A new term originates from a common word, which is preceded by a special kind of mental (cognitive) activity of a specialist, who is in search of the most suitable word in common vocabulary. As a result, the word loses its lexical meaning and no longer requires an interpretation, but a definition [4, P. 135]. Cognitive linguistics today is widely applied to the study of scientific and technical language formation and development, with metaphor playing an essential role: "metaphor is central to scientific language and thought, not only on an exegetical or explanatory basis, but also on a constitutive basis. This goes in line with previous Cognitive Theory of Metaphor studies, which claim that metaphor is primarily a matter of cognition" [8, P. 11].

The identification, comparative and cognitive analysis of phraseological/idiomatic expressions (stereotyped comparisons, metaphors, proverbs and sayings) and technical terms with zoonymic constituent element makes it possible through their imagery space to relate life experiences to technological advances. Thus, the objective of the present paper is to establish correlations in images between zonyms integrated into specific technical vocabularies and phraseological units stored in human memory. The study of zonyms as part of phraseological units and technical terms places at our disposal a bewilderingly rich material for the expansion of knowledge about stereotypes, perception, attitudes, and beliefs in national cultures. Metaphoricity of technical terms presents a special interest: generally treated as non-figurative technical terms tend to reveal nationally specific features, concepts in a language. Furthermore, analysis of phraseological units and technical terms with zoonymic components in terms of correlations in their images has not been the object of in-depth enquiry.

### **Research methods and principles**

The research is based on methods of comparative and contrastive investigation of phraseological units related to fauna (zonyms) and technical terms with animalistic component. The study also employs descriptive-interpretative, statistical and continuous sampling methods. The primary emphasis is on correlations in images, in order to reveal prototypical symbols, concepts, national and common stereotypes in the linguistic world picture vs. technical world picture. Phraseological units are considered in the light of cognitive, contrastive as well as cross-cultural approaches. The material allows to unveil cultural aspects and national peculiarities of phraseological units with zoonymic component, correlate images in different world pictures (linguistic and technical) to clarify their motivation in the light of national traditions. The aim of the paper is to systematize and reveal similarities, caused by national and cultural peculiarities, and possible distinctions, which are reflected in the zoonymic component of the phraseological units and technical terms under consideration.

Phraseological units are viewed as "cultural signs", following M.L. Kovshova [3, P. 115]. Thus, they are analyzed in the search for the presence of a culturally salient component (rich in connotations and evoking associations), which can be either universal or nationally specific. Cultural connotations are further extended to encompass term-metaphors with zoonymic component.

Our data originate from multifarious English phraseological dictionaries [19], [20], [22], [23], specialized technical dictionaries [16], [17], [18], [21] and online dictionaries and glossaries [24], [25]. Firstly, we identified and compiled a corpus of English phraseological units related to fauna for the analysis. The main criterion for selecting the units was the presence of a zoonymic constituent element in the phraseological unit. Secondly, we analyzed technical terms with animalistic component, scattered throughout specialized technical dictionaries and online glossaries (a corpus for the analysis was also compiled). Thirdly, we examined the correlations in zoomorphic images reflected in phraseological fund of the English language and the ways they are represented in the technical experiences of the nation to find out the extent of their coincidence and explain the similarities and differences on the basis of cognitive and cultural specificity.

## Main results

The research revealed about 460 English phraseological units that are animalistic in nature; 82 zoonyms served as the basis for their formation. The excerpted zoonyms were counted and further classified into 5 groups according to the dominant zoonym and its reference to a particular zoological class. The results are shown in the Table 1 below.

Table 1 - Zoonyms as part of phraseological units

Groups	Zoonymic component
<b>Animals</b> (domestic and wild)	Domestic animals: dog (28), cat (26), horse (18), cow (17), bull (15), sheep (12), pig (11), ram (3), donkey (2), rabbit (2) Wild animals: wolf (15), lion (14), rat (12), hare (10), mouse (8), monkey (6), ape (6), bandicoot (6), fox (6), bear (5), tiger (5), elephant (4), bat (3), beaver (2), deer (2), badger (1), coon (1), gazelle (1), hyena (1), jackdaw (1), kangaroo (1), leopard (1), panther (1), possum (1)
<b>Birds</b> (domestic and wild)	Domestic birds: cock (7), duck (7), hen (8), pigeon (6), dove (4), chicken (5), goose (5), turkey (4), canary (2) Wild birds: bird (35), crow (6), hawk (5), lark (5), owl (5), peacock (4), eagle (3), cuckoo (1), nightingale (1), ostrich (1) fish (26), crab (1), herring (5), frog (4), oyster (3), lobster (2), eel (1), flounder (1), grampus (1), gudgeon (1), minnow (1)
<b>Sea animals and amphibians</b>	
<b>Insects and arthropods</b>	fly (11), flea (6), bee (5), butterfly (4), cricket (3), beetle (2), bug (2), ant (1), bedbug (1), cockroach (1), gnat (1), leech (1), limpet (1), locust (1)
<b>Reptiles</b>	snake (9), lizard (2), adder (1), crocodile (1)

## Discussion

The qualitative approach used for the analysis of the phraseological units (PUs) and technical terms in the present study was based on the theory of conceptual metaphors [11]. The relevant data collected was investigated and compared to spot the similarities and differences of PUs and technical terms with zoonymic components from a lexicological and cognitive perspectives. The comparative analysis shows the difference in using zoonyms in technical terms and PUs. In metaphorical PUs, some definite species of birds like hen, duck, cock, pigeon, turkey, crow, lark, owl etc. are used as a semantic motivation of particular qualities of these birds with the aim of comparing them with the human behavior and traits of character. For example: ducks can swim and quack, their body repels water; turkeys cannot fly; cocks can crow, pigeons carry messages, larks rise early, etc.

Still, our findings testify that in metaphorical proverbs that employ archaic imagery and/or vocabulary (e.g. from the farm or the household in pre-industrial days) the largest number of corpus cases is associated with the word bird. In PUs bird does not specify any class of birds. This might be explained by the speaker's intention to use general characteristics of a bird in metaphorical proverbs as collective traditional knowledge and folk wisdom. In these metaphorical PUs some specific features of a bird are likely to be excessive. So, bird in proverbs is a creature that (1) is covered in feathers and has a beak – Fine feathers don't make fine birds; Birds of a feather flock together; The early bird cleans its beak while the late one's half asleep; (2) is able to fly – One can tell a bird by its flight; The bird who has eaten cannot fly with the bird that is hungry; (3) eats worms and bugs – The early bird catches the worm; (4) has a nest (builds a nest) – Every bird likes its own nest; It is a foolish bird that soils its own nest.

These four features of a bird seem to be sufficient to be exploited as the like-element, pairing them with a proverbial analogy. In the proverb "One can tell the bird by its flight" there is a bird mentioned that can be described the way it flies. The proverbial analogy helps decipher the code of the proverb – one can tell what kind of a person it is by their actions.

The same preference of generalized words fish and fly to their species herring, eel, gudgeon, minnow and bee, flea, butterfly accordingly tends to be observed in metaphorical PUs. As for the PUs containing domestic animal zoonyms here one can observe the tendency to the increasing number of zoonyms like dog (28), cat (26), horse (18). This can be explained by the closeness of these domestic animals to people that has existed for quite a long period of time to be reflected in a great number of proverbs, idioms, sayings and quotations.

In technical terms containing zoonymic components we observe the opposite phenomenon as compared to the usage of zoonyms in PUs. In technical vocabulary, the number of specific species of bird cases to name a tool/process either dominates over the general word bird or is approximately equal to the frequency of the occurrence of bird in technical terminology: crane (80) vs. bird (8), swan (9) / cock (12) / crow (8) / goose (3) vs. bird (8). The explanation may be found in the need of a user to express peculiar properties of an object/tool, thus nominating it applying specific properties of animals. As an example, let's analyze the term crowbar. A crowbar is a steel bar, usually flattened and slightly bent at one or both ends, used as a lever. The tool is so called because one end is beak-shaped; moreover, this part of the crowbar looks like a beak of a particular bird – a crow, but not like a beak of a crane or canary or duck or hawk. We can also suppose that the name of the bird (crow) was chosen to nominate the tool that appeared in America at the end of the 18th century as crows are one of the common birds found throughout much of the North America widely inhabiting wilderness, farmland, parks, open woodland, towns and major

cities. That means that these birds, their appearance and behavior were easily recognized and known to the people who lived on those territories. So, that was not surprising that the word crow was chosen to name a crowbar a crowbar. In metaphor, the transference occurs on the basis of the two objects being similar to each other. Thus, the likeness of a bird (crow) and a tool (crowbar) is based on the likeness of the appearance of the crow's beak and the part of the tool, a small fissure, used for removing nails or prising two materials or objects apart.

In the next set of examples the animal – tool similarity seems to be grounded not on the appearance concordance but on the functional similarity of a dog as an animal and dog component of the following technical terms: (1) dog spike is a large nail that is used to fasten/secure rails to a sleeper; (2) log dog is used in hewing or sawing to hold the timber in place; (3) chainsaw dog provides stability and serves as a sort of fulcrum for swinging the bar through the item being cut; (4) door dog is a door allowing passage through bulkheads between compartments inside a ship, it can be closed in case of emergency to seal off one compartment from another, isolating flooding, smoke and heat from other adjoining compartments; (5) clutch dog is a device for gripping/locking up a rotating mechanism; etc. These all five examples of technical terms, though belonging to different spheres of engineering, have one thing in common. In their function description one can easily see the guard/protection sense in the verbs denoting the function of the tools – fasten, secure (1), hold (2), provide stability (3), close, isolate (4), lock up (5). In engineering, a dog is a tool or a tool part that prevents/imparts movement via physical engagement. It holds another object in place by blocking, clamping, or obstructing its movement. The dog zoonymic component in the examples is used to express the function of the tools to prevent some physical action to happen. Here it is quite easy to draw an analogy between the function of a dog as a domestic animal to perform the function of guarding its territory and the same function of the tools with dog component to fix or fasten something somewhere, so that it cannot move.

To answer the question what function the dog zoonym performs in PUs let's look at some metaphorical PUs: (1) work like a dog – to work hard; (2) as crooked as a dog's hind leg – very unscrupulous and deceptive; (3) a dog's dinner – something that is very messy or disorganized; (4) be (as) sick as a dog – to be very ill; (5) let sleeping dogs lie – to leave a situation alone so as to avoid worsening it; (6) beware of a silent dog and still water – a silent dog and still water could still hurt you; (7) every dog has his/her day – even the least fortunate person will have success at some point. In all these cases dog component carries the meaning of an unhappy creature (1), not very attractive by appearance and things that surround it are not attractive either (2, 3), has problems with health (4), it may also cause some trouble (5, 6) but may be sometimes successful (7). So, in the eyes of the people who use these PUs dog is perceived as an animal with negative connotation features associated with its negative character traits. These dog characteristics are extrapolated on people's behavior, within some time the dog-component multi-word utterances (PUs) become deeply entrenched within the culture, they also provide ready-made patterns of interpretation that are absorbed by individuals into their own belief and reasoning systems in the course of developmental socialization.

## Conclusion

Being an inseparable part of everyday interaction, proverbs, idioms and sayings reflect the way we conceptualize, act and think about reality and about our experience. In this article, the effort has been made to trace the correlation between English PUs and technical terminology with zoonymic component. To explore this correlation, we turned to a comparative analysis of zoonyms in PUs and technical terms. The findings of this case study show that despite the similar group of zoonyms of both PUs and technical terms, in PUs animalistic component tends to be expressed by generalized terms (bird, fish, fly), while in technical terminology there is a tendency for the preference of specified zoonyms (crane, ram, seal, etc.). Such a divergence in zoonym usage can be explained as an aim-based perspective of different groups in society. In our case, we referred to the choice of zoonyms in sociocultural and professional groups. The cognitive interpretation of the corpus data in the research made us come to the conclusion that the functionality of zoonyms in PUs and technical terms differs. Though cognitive metaphor is a basement for both PUs and technical terminology, this difference appears as a result of the different cultural worldviews and national or ethnic identities coded in PUs. This codification is grounded on likeness of animal behavior and behavior typical of some people, their emotions, feelings, their attitude towards something or their reactions under certain circumstances. As for the animalistic component of technical terms here, a zoonym component reflects physical abilities of an animal or its appearance that is used for the description of any mechanical tool or its function.

## Конфликт интересов

Не указан.

## Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

## Conflict of Interest

None declared.

## Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

## Список литературы / References

- Гридина Т.А. Зооморфы как основа моделирования фразеологической семантики: русско-польские соответствия. / Т.А. Гридина, Н.И. Коновалова // Русин. – 2019. – 56. – с. 198–212.
- Гумбольд В. Избранные труды по языкоznанию / В. Гумбольд – М.: Прогресс, 1984. – 398 с.
- Ковшова М.Л. Сопоставительный анализ фразеологизмов: лингвокультурологический подход. / М.Л. Ковшова // Филология и Культура. – 2014. – 4 (38). – с. 115–120.
- Лапиня Э.А. Метафора в терминологии микроэлектроники (на материале английского языка). / Э.А. Лапиня // Метафора в языке и тексте ; под ред. В. Н. Телия – М.: Наука, 1988. – с. 134–145.
- Урысон Е.В. Проблемы исследования языковой картины мира: аналогия в семантике / Е.В. Урысон – М.: Языки славянской культуры, 2003. – 224 с.

6. Baranov A. Cognitive modeling of actual meaning in the field of phraseology. / A. Baranov, D. Dobrovolskij // Journal of Pragmatics. – 1996. – 25. – pp. 409–429.
7. Canaj K. Phraseologies with animal names in Albanian, German and English: A comparative study / K. Canaj // Folia Linguistica et Litteraria. – 2021. – XI (34). – pp. 245–259. [in German]
8. Cuadraro G. Proposal for a semantic hierarchy of terminological metaphors in science and technology. / G. Cuadraro, P. Durán // International Journal of English linguistics. – 2013. – № 3(4). – pp. 1–15.
9. Goddard C.C. Words and meanings: lexical semantics across domains, languages, and cultures / C.C. Goddard, A. Wierzbicka – Oxford: Oxford University Press, 2014. – 314 p.
10. Issakova S. Cognitive-comparative analysis of phraseological units (on the material of Kazakh-French phraseology). / S. Issakova, K. Sadirova, M. Kushtaeva // Procedia – Social and Behavioral Sciences. – 2015. – 214. – pp. 833–838.
11. Lakoff G. The metaphors we live by / G. Lakoff, M. Johnson – Chicago and London : The University of Chicago Press, 1980. – 256 p.
12. Mushyrovsk N. Comparative phraseological units in the Ukrainian and Italian languages: linguo-cultural aspects . / N. Mushyrovsk // Contrastive phraseology: languages and cultures in comparison; edited by P. Ramusino, F. Mollica. – Cambridge: Cambridge Scholars Publishing, 2020. – pp. 75–87.
13. Wierzbicka A. Understanding Cultures through their key words: English, Russian, Polish, German, and Japanese / A. Wierzbicka – New York : Oxford University Press, 1997. – 317 p.
14. Yusupova L.G. Pejorative Connotation of Proverbs and Sayings with Zoonym in the Russian, German and Tatar Languages. / L.G. Yusupova, O.D. Kuzmina // Journal of Sustainable Development. – 2015. – 4. – pp. 284–291.
15. Zerkina N.N. English phraseology: cognitive, symbolic and terminological aspects (based on idioms with colour adjectives black/white/red). / N.N. Zerkina, Ye.A. Lomakina // Arab World English Journal. – 2017. – 8 (4). – pp. 137–147.
16. Большой англо-русский политехнический словарь: В 2 т. / [С.М. Баринов и др.]. – 2-е изд. – М. : РУССО, 1997.
17. A dictionary of construction, surveying and civil engineering / [Ch. Gorse et al.]. – UK : Oxford University Press, 2012.
18. Dictionary of Architecture and Building Construction / [N. Davies, E. Jokiniemi]. – London : Elsevier, 2008.
19. Longman Dictionary of English Language and Culture. – 3rd edn. – UK, Harlow : Pearson Education Limited, 2005.
20. Macmillan English Dictionary: For advanced Learners. International Student edn. – Oxford : Macmillan Education, 2002.
21. McGraw-Hill Dictionary of Engineering. – 2nd edn. – USA : The McGraw-Hill Companies, Inc., 2003.
22. The Oxford dictionary of idioms. – 2nd edn. – Oxford : Oxford University Press, 2004.
23. The Penguin Dictionary of English Idioms / [D.M. Gulland, D. Hinds-Howell]. – London : Penguin Books, 1994.
24. ABBYY Lingvo Homepage [Electronic resource] - URL: <http://www.lingvo.ru> (accessed: 05.05.2022).
25. Multitran Homepage [Electronic resource] - URL: <https://www.multitran.com> (accessed: 05.05.2022).

### **Список литературы на английском языке / References in English**

1. Gridina T.A. Zoomorf' kak osnova modelirovaniya frazeologicheskoy semantiki: russko-pol'skie sootvetstviya [Zoomorphisms as the basis for modeling phraseological semantics: Russian-Polish equivalents]. / T.A. Gridina, N.I. Konovalova // Rusin [Rusin]. – 2019. – 56. – p. 198–212. [in Russian]
2. Gumbol'd V. Izbranny'e trudy' po yazy'koznaniiyu [Selected works on linguistics] / V. Gumbol'd – M.: Progress, 1984. – 398 p. [in Russian]
3. Kovshova M.L. Sopostavitel'nyj analiz frazeologizmov: lingvokul'tkrologicheskij podhod [Comparative analysis of phraseological units: linguocultural approach]. / M.L. Kovshova // Filologiya i Kul'tura [Philology and Culture]. – 2014. – 4 (38). – p. 115–120. [in Russian]
4. Lapinya E.A. Metafora v terminologii mikroelektroniki (na materiale anglijskogo yazy'ka) [Metaphor in the terminology of microelectronics (on the material of the English language)]. / E.A. Lapinya // Metaphor in language and text; edited by V. N. Teliya – M.: Nauka, 1988. – p. 134–145. [in Russian]
5. Ury'son E.V. Problemy' issledovaniya yazy'kovoj kartiny' mira: analogiya v semantike [Problems of the study of linguistic picture of the world: analogy in semantics] / E.V. Ury'son – M.: Yazy'ki slavyanskoj kul'tury', 2003. – 224 p. [in Russian]
6. Baranov A. Cognitive modeling of actual meaning in the field of phraseology. / A. Baranov, D. Dobrovolskij // Journal of Pragmatics. – 1996. – 25. – pp. 409–429.
7. Canaj K. Phraseologies with animal names in Albanian, German and English: A comparative study / K. Canaj // Folia Linguistica et Litteraria. – 2021. – XI (34). – pp. 245–259. [in German]
8. Cuadraro G. Proposal for a semantic hierarchy of terminological metaphors in science and technology. / G. Cuadraro, P. Durán // International Journal of English linguistics. – 2013. – № 3(4). – pp. 1–15.
9. Goddard C.C. Words and meanings: lexical semantics across domains, languages, and cultures / C.C. Goddard, A. Wierzbicka – Oxford: Oxford University Press, 2014. – 314 p.
10. Issakova S. Cognitive-comparative analysis of phraseological units (on the material of Kazakh-French phraseology). / S. Issakova, K. Sadirova, M. Kushtaeva // Procedia – Social and Behavioral Sciences. – 2015. – 214. – pp. 833–838.
11. Lakoff G. The metaphors we live by / G. Lakoff, M. Johnson – Chicago and London : The University of Chicago Press, 1980. – 256 p.
12. Mushyrovsk N. Comparative phraseological units in the Ukrainian and Italian languages: linguo-cultural aspects . / N. Mushyrovsk // Contrastive phraseology: languages and cultures in comparison; edited by P. Ramusino, F. Mollica. – Cambridge: Cambridge Scholars Publishing, 2020. – pp. 75–87.
13. Wierzbicka A. Understanding Cultures through their key words: English, Russian, Polish, German, and Japanese / A. Wierzbicka – New York : Oxford University Press, 1997. – 317 p.

14. Yusupova L.G. Pejorative Connotation of Proverbs and Sayings with Zoonym in the Russian, German and Tatar Languages. / L.G. Yusupova, O.D. Kuzmina // Journal of Sustainable Development. – 2015. – 4. – pp. 284–291.
15. Zerkina N.N. English phraseology: cognitive, symbolic and terminological aspects (based on idioms with colour adjectives black/white/red). / N.N. Zerkina, Ye.A. Lomakina // Arab World English Journal. – 2017. – 8 (4). – pp. 137–147.
16. Bol'shoj anglo-russkij politekhnicheskij slovar' [The comprehensive English-Russian scientific and technical dictionary]: in 2 vols. / [S.M. Barinov and others] – 2nd edn. – M. : RUSSO, 1997. [in Russian]
17. A dictionary of construction, surveying and civil engineering / [Ch. Gorse et al.]. – UK : Oxford University Press, 2012.
18. Dictionary of Architecture and Building Construction / [N. Davies, E. Jokiniemi]. – London : Elsevier, 2008.
19. Longman Dictionary of English Language and Culture. – 3rd edn. – UK, Harlow : Pearson Education Limited, 2005.
20. Macmillan English Dictionary: For advanced Learners. International Student edn. – Oxford : Macmillan Education, 2002.
21. McGraw-Hill Dictionary of Engineering. – 2nd edn. – USA : The McGraw-Hill Companies, Inc., 2003.
22. The Oxford dictionary of idioms. – 2nd edn. – Oxford : Oxford University Press, 2004.
23. The Penguin Dictionary of English Idioms / [D.M. Gulland, D. Hinds-Howell]. – London : Penguin Books, 1994.
24. ABBYY Lingvo Homepage [Electronic resource] - URL: <http://www.lingvo.ru> (accessed: 05.05.2022).
25. Multitran Homepage [Electronic resource] - URL: <https://www.multitran.com> (accessed: 05.05.2022).