TERMINOLOGIYA VA TERMINLAR BAZASI TUSHUNCHASI: LINGVISTIK VA TEXNOLOGIK YONDASHUVLAR

Tadjibayev Muzaffar Turamirzayevich
Senior Lecturer at Kimyo International
University in Tashkent, Namangan Branch
Email: abdugaffor16@gmail.com

Abstract: This study presents a comparative analysis of linguistic and technological approaches to terminology and term bases. The article examines the theoretical foundations of terminology, as well as the semantic, morphological, and pragmatic properties of terms. It also clarifies the definition, structure, and distinction of term bases from conventional dictionaries. The findings indicate that while the linguistic approach ensures in-depth semantic analysis of terms, the technological approach enables rapid management through automated systems. The integrated (hybrid) approach combines the advantages of both paradigms to enhance the efficiency of modern terminological systems. Practical examples from translation, education, medicine, and law confirm the strategic importance of terminological resources.

Keywords: terminology, term base, linguistic approach, technological approach, standardization, NLP, CAT tools, multilingualism

Аннотация: Данное исследование посвящено сравнительному анализу лингвистических и технологических подходов к терминологии и базам терминов. В статье рассматриваются теоретические основы терминологии, а также семантические, морфологические и прагматические характеристики терминов. Кроме того, освещаются определение, структура и отличие базы терминов от традиционных словарей. Результаты исследования показывают, что лингвистический подход обеспечивает глубокий семантический анализ терминов, тогда как технологический подход позволяет оперативно управлять ими посредством автоматизированных систем. Интегрированный (гибридный) подход объединяет преимущества обеих парадигм и повышает эффективность современных терминологических систем. Практические примеры из областей перевода, образования, медицины и юриспруденции подтверждают стратегическую значимость терминологических ресурсов.

Ключевые слова: терминология, база терминов, лингвистический подход, технологический подход, стандартизация,

INTRODUCTION. In the development of modern linguistics, terminology plays an important role, as it is the main tool for systematizing and accurately expressing scientific knowledge. Terms ensure communicative precision by expressing concepts in science, technology, and other fields in a single, unambiguous meaning. With the rapid development of information technologies, terminology has become not only an object of linguistic research but also an integral part of fields such as artificial intelligence, machine translation, and corpus linguistics. The process of globalization has further intensified scientific and technical exchange between different languages and cultures, which requires the rapid emergence of new terms and their international standardization. Digital technologies, particularly terminological corpora and specialized databases, allow systematic management of this process.

The main aim of this research is to analyze linguistic and technological approaches to terminology and termbases and to determine their role in modern scientific processes. The objectives of the article are as follows:

- to study the theoretical foundations of terminology;
- to analyze the creation and management processes of termbases;
- to compare linguistic and technological approaches;
- to examine issues of term standardization in the context of globalization.

The object of the research is terminological systems and termbases used in modern linguistics and information technologies. The subject of the research is the formation, development, and linguistic and technological approaches used in managing these systems.

LITERATURE REVIEW AND METHODOLOGY. The study used the following main theoretical sources: Wüster's (1979) General Theory of Terminology, works by Cabré (1999), Sager (1990), and Temmerman (2000), as well as technological studies by Bowker (2003), Bowker and Fisher (2010), Ahmad (1999), and Kilgarriff (2005).

The normative framework was based on ISO standards: ISO 704:2009, ISO 1087-1:2019, and ISO 12620:2019. Practical examples were analyzed using terminological projects such as EuroTermBank, IATE (European Union), and MeSH (National Library of Medicine).

The following research methods were used in this article:

- Descriptive analysis — for studying theoretical foundations of terminology and structures of termbases;
- Comparative analysis — for identifying advantages and disadvantages of linguistic and technological approaches;
- Systematization and generalization — for classifying types of terminological resources and their applications.

In addition, content analysis of scientific literature and examination of practical terminological databases were applied.

RESULTS. Terminology is an independent linguistic field that studies units expressing specialized concepts within systems of scientific knowledge. Its theoretical foundations trace back to the General Theory of Terminology developed by E. Wüster in the early 20th century. According to Wüster, terminology should ensure a one-to-one correspondence between concepts and the terms representing them (Wüster, 1979). Later studies by L. Cabré describe terminology as a multi-layered system in which linguistic, cognitive, and communicative aspects interact (Cabré, 1999).

The concept of a "term" generally refers to a word or phrase that has a precise and fixed meaning within a specific scientific or professional field. Sager (1990) defines a term as a lexical unit used in a monosemous way in specialized communication. "Terminology" has a dual meaning: it refers both to the set of terms of a specific field and to the discipline that studies them (Cabré, 1999). A "terminological system" is a structured set of interrelated concepts and their corresponding terms, reflecting the conceptual structure of a scientific domain (Temmerman, 2000).

The semantic aspect of terms is related to their precision and monosemy, meaning that each term should clearly represent a specific concept (ISO 704:2009). Morphologically, terms are often formed through derivation, compounding, or abbreviations, ensuring systematization and conciseness (Cabré, 1999). Pragmatically, terms depend on their field of use and communicative context, and are fully understood mainly within professional environments (Temmerman, 2000).

A termbase is considered a digital resource designed for storing, managing, and using specialized terminology in modern linguistics and information technologies. According to ISO 12620, a terminological database is an electronic system for managing terminological data, ensuring standardization and consistent usage of terms (ISO 12620:2019).

Terminological resources are divided into three main types:

1. **Glossary** — a small list containing limited terms and their brief explanations (ISO 1087-1:2019);
2. **Termbase** — a larger, structured database containing terms, their equivalents, definitions, and contexts (Bowker and Fisher, 2010);
3. **Ontology** — a complex knowledge system representing semantic relations between terms (hierarchy, causality, relationships) in a formal model (Gruber, 1993).

In the linguistic approach, terms are studied as a special lexical layer of the language system. The analysis shows that this approach is strong in ensuring semantic precision and theoretical grounding of terms. Term formation methods include existing word usage, derivation, compounding, and abbreviations (Sager, 1990). According to

ISO 704, term formation must ensure a clear correspondence between a concept and its linguistic representation.

In multilingual contexts, accurate translation of terms is a key factor influencing translation quality. Terminological databases help ensure equivalence of terms across languages (Bowker and Pearson, 2002).

In the technological approach, terminology is viewed as a resource integrated with digital databases and algorithmic processes. Computer-Assisted Translation (CAT) tools such as SDL Trados Studio and memoQ improve translation consistency by ensuring terminological coherence (Lagoudaki, 2008).

Artificial Intelligence (AI) and Natural Language Processing (NLP) technologies enable automatic term extraction from large corpora, frequency analysis, and detection of semantic relations. Modern transformer-based models achieve high accuracy in context-based term identification (Ahmad et al., 1999; Kilgarriff, 2005).

DISCUSSION. Linguistic and technological approaches constitute two main paradigms in the study and management of terminology. The linguistic approach analyzes terms as semantic and cognitive elements of the language system, while the technological approach is based on managing them through digital data and automated systems (Cabré, 1999; Bowker, 2003). Temmerman (2000) interprets the linguistic approach as a more "concept-based" model and the technological approach as a "data-based" model.

The main advantage of the linguistic approach lies in its deep semantic analysis, which allows for a detailed interpretation of the meaning and context of terms (Sager, 1990). However, its limitation is the need for manual processing and its slowness when dealing with large volumes of data. The technological approach, on the other hand, is characterized by automation, speed, and the ability to process large corpora, but it may suffer from semantic ambiguity and limited contextual understanding (Ahmad et al., 1999).

In modern terminological research, integrated (hybrid) approaches are widely used. This approach combines linguistic theory with NLP, corpus linguistics, and artificial intelligence technologies (Bowker & Pearson, 2002). Hybrid systems combine algorithmic detection with human expert editing in the process of automatic term extraction, thereby ensuring higher accuracy and reliability (Ahmad et al., 1999).

In the field of translation, termbases are a key tool for improving translation quality and ensuring terminological consistency. In education, terminological databases help standardize teaching materials and unify scientific concepts. In medicine, international terminological systems (ICD and MeSH) ensure global information exchange. In the legal field, the precise use of terminology ensures the correct interpretation of legal documents (Mattila, 2013).

The effectiveness of large-scale terminological projects can be observed in practice through examples such as EuroTermBank (a multilingual terminological database for European languages), IATE (the official terminology database of the European Union), and MeSH (a system for standardizing medical terminology).

The process of globalization requires the rapid emergence of new terms and their international standardization. According to ISO 1087-1 (2019), standardization defines the unified official form of terminological units and regulates their use in official documents. Wright and Budin (1997) describe terminological standardization as one of the key factors ensuring global scientific cooperation.

CONCLUSION. The research results show that at the intersection of modern linguistics and information technology, terminology is emerging as a field of strategic importance. Terms are not only linguistic units but also essential tools for organizing, transmitting, and managing knowledge (Cabré, 1999). Linguistic and technological approaches are not competing systems but complementary ones: the linguistic approach ensures semantic accuracy and theoretical grounding of terms, while the technological approach enables automation, fast processing, and application in large corpora (Temmerman, 2000).

In the future, the development of terminology will be strongly linked to digital transformation and artificial intelligence. Multilingual and real-time updated terminological systems will become an integral part of global communication. As Wright and Budin (1997) note, terminological management is no longer only a linguistic process but an important component of knowledge management. Ontology-based semantic networks will enable a deeper structuring of terminological systems.

Modern transformer-based models are further enhancing the capabilities of context-based term detection and generation. In the future, AI systems may not only identify existing terms but also automatically propose new terms as new scientific concepts emerge. This will transform terminology into a dynamic, self-updating system (Cabré, 1999; Bowker & Pearson, 2002).

REFERENCES:

1. Tadjibayev, M. (2023). ILMIY-OMMABOP MATNLAR TARJIMASINING O’ZIGA XOSLIKLARI. Oriental renaissance: Innovative, educational, natural and social sciences, 3(23), 341-345.
2. TADJIBAYEV, M. (2024). ILMIY-OMMABOP MATNDA MUQIM FRAZEOLOGIK BIRLIKLAR TARJIMASINING O’ZIGA XOSLIKLARI. «ACTA NUUz», 1(1.1), 288-291.
3. Tadjibayev, M. (2024). Pragmatic-functional importance of translation of titles and headlines in popular science texts. Pubmedia Social Sciences and Humanities, 2(1), 8. https://doi.org/10.47134/pssh.v2i1.279

4. Tadjibayev, M. T. (2023). Ilmiy-ommabop matnlar va ularning ilmni ommalashtirishdagi ahamiyati. Konferensiyalar | Conferences, 1(1), 655–660. https://uzresearchers.com/index.php/Conferences/article/view/1266
5. Alimova, M. (2019). SOME THOUGHTS ON PARADIGM SHIFT IN ASSESSMENT IN UZBEKISTAN. Scientific Bulletin of Namangan State University, 1(5), 281-284.
6. Khan, S., & Alimova, M. (2019). Materials and resources review. ISJ Theoretical & Applied Science, 11 (79), 311-315.
7. Alimova, M. A. M. (2021). ASSESSING STUDENT WRITING IN EFL CLASSES BY USING AFL. Журнал иностранных языков и лингвистики, 2(3).
8. Alimova, M. "Cultural Bridges." Course book on Intercultural Competence 16 (2018).
9. Rafikova Fotima. (2022). The Academic Writing Challenges of Undergraduate Students. Eurasian Journal of Humanities and Social Sciences, 9, 62-64. https://geniusjournals.org
10. Alimova, M. H. (2021). Defining the differences between genders in foreign language learning strategies. ACADEMICIA: An International Multidisciplinary Research Journal, 11(3), 464-467.
11. Nabiev, S. (2025). The role of motivation in learning languages: Internal and external factors. Journal of Applied Science and Social Studies, 15(3), 538–543. http://www.internationaljournal.co.in/index.php/jasass
12. Nabiev, S. (2024). Students' time management in academic writing classes in university. International Journal of Scientific Researchers, 3(2), 527–530. http://www.wordlyknowledge.uz
13. Nabiev, S. (2024). The strategies of using intermediate and upper-intermediate vocabulary in academic writing. Journal of International Scientific Research, 1(2), 45–49. https://spaceknowladge.com
14. Nabiev, S. (2024). Problems and solutions in reading comprehension. International Multidisciplinary Journal for Research & Development, 11(1), 364–367. https://www.ijmrd.in/index.php/imjrd
15. Rafikova, F. A. (2021). Effective Usage of Game Activities, Dialogues and Role-Plays in Communicative Language Teaching, The American Journal of Interdisciplinary Innovations and Research, 3, 72-79. doi.org/10.37547/tajiir/Volume03Issue02-14
16. Рафикова, Ф. 2024. Изучение влияния цифровых технологий на выполнение заданий студентами по английскому языку . Зарубежная лингвистика и лингводидактика. 2, 6 (ноя. 2024), 287–293. DOI:https://doi.org/10.47689/2181-3701-vol2-iss6-pp287-293.