DIACHRONIC SHIFTS IN SCIENTIFIC TERMINOLOGY: IMPLICATIONS FOR TRANSLATORS

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Annotation: *This article explores diachronic semantic shifts in scientific terminology and their implications for translators. By analyzing changes in key scientific terms such as gender, climate change, and artificial intelligence, the study identifies how meanings evolve over time due to technological, ideological, and sociocultural developments. It discusses the risks of semantic misalignment and the need for translators to maintain both terminological fidelity and contextual relevance in their work.*

Keywords: *diachronic change, scientific terminology, semantic shift, translation theory, contextual equivalence*

Annotatsiya: *Ushbu maqola ilmiy terminlarning vaqt o‘tishi bilan ma’no o‘zgarishi — diaxronik siljish — va tarjimonlar uchun bu jarayonning oqibatlarini tahlil qiladi. Gender, sun’iy intellekt va iqlim o‘zgarishi kabi asosiy terminlar misolida ularning semantik evolyutsiyasi texnologik, ijtimoiy va madaniy omillar ta’sirida qanday o‘zgargani ko‘rib chiqiladi. Shuningdek, tarjima jarayonida noto‘g‘ri ekvivalent tanlanish xavfi va kontekstual moslikni saqlash zarurati haqida fikr yuritiladi.*

Kalit so‘zlar: *diaxroniya, ilmiy terminologiya, semantik siljish, tarjima nazariyasi, kontekstual ekvivalentlik*

Аннотация: *В данной статье рассматриваются диахронические изменения в научной терминологии и их последствия для переводчиков. На примерах таких терминов, как гендер, искусственный интеллект и изменение климата, анализируется, как значения терминов эволюционируют под воздействием технологических и социокультурных факторов. Отдельное внимание уделяется риску семантического несоответствия и необходимости*

соблюдения контекстуальной точности при переводе.

Ключевые слова: *диахрония, научная терминология, семантический сдвиг, теория перевода, контекстуальная эквивалентность*

Scientific terms are not static. Over time, they shift in meaning due to developments in technology, society, and discourse. This process, known as **diachronic semantic change**, creates significant challenges for translators, who must remain aware of both the original and the contemporary connotations of terms.

As Newmark (1988) argued, "scientific terms tend to be among the most stable linguistic units, but even they undergo shifts when the concepts they represent are redefined" [1, p. 122]. Thus, understanding these shifts is essential for accurate and contextually faithful translation.

Theoretical Background

Diachronic Linguistics

Diachronic linguistics studies how language and its elements change over time. In the context of terminology, it refers to the **semantic evolution** of specialized terms.

Koller (1989) distinguishes between **referential equivalence** (maintaining the same referent) and **contextual equivalence** (maintaining the same function in discourse) [2, p. 153]. Translators must balance both in light of diachronic changes.

Case Studies: Shifting Terminology

Gender

In the early 20th century, *gender* was primarily a **grammatical category** (e.g., masculine, feminine). Today, it encompasses complex **social and identity constructs**.

- **Past usage**: "Gender in nouns like *he* and *she*"
- **Current usage**: "Gender identity, gender fluidity"

Translation challenge: If a translator uses a traditional grammatical equivalent in Uzbek (*jins*), they risk losing the sociopolitical nuance now attached to the term.

Artificial Intelligence (AI)

The concept of *AI* in the 1950s referred to symbolic machine problem-solving. Today, it includes **machine learning, deep neural networks, and generative AI**.

- **1950s**: Logical machines imitating human thought
- **2020s**: Neural-based large language models (e.g., ChatGPT)

Translation issue: Earlier Uzbek equivalents like *sun'iy aql* now sound insufficient. Newer expressions like *sun'iy intellekt* better capture the expanded scope.

Climate Change

Originally a **neutral climatological term**, *climate change* now carries **political, environmental, and activist connotations**.

Original meaning: Natural long-term shifts in climate

Modern meaning: Human-induced global warming and its socio-political effects

Translators must consider the term's **loaded meaning** in modern discourse. Using *iqlim o'zgarishi* in a neutral context may misrepresent activist narratives unless properly contextualized.

Implications for Translators

Term	Diachronic Shift	Risk for Translators
Gender	From grammar to identity/social theory	Misrepresentation or cultural misalignment
Artificial Intelligence	From logic to generative deep learning	Obsolete terms in target language
Climate Change	From neutral to politicized	Under or over translation of discourse strength

As Vinay and Darbelnet (1995) emphasize, "ignoring historical context in terminology results in distortion of meaning and function" [3, p. 84].

Translators must not only be bilingual, but also **bitemporal** — sensitive to

how meanings have evolved. Translation memory systems and terminology databases are often **synchronous**, lacking diachronic metadata.

Machine translation tools like Google Translate frequently default to **dated equivalents**, further complicating human understanding. As Baker (1992) notes, "The translator must fill the knowledge gaps that machines cannot" [4, p. 101].

Diachronic shifts in scientific terminology are a subtle but powerful influence on meaning. For translators, they pose both **linguistic and conceptual challenges**. The examples of *gender*, *AI*, and *climate change* demonstrate how deeply terms can evolve and why constant updating of terminological knowledge is vital.

Translators who fail to track such evolution risk producing translations that are inaccurate, outdated, or culturally irrelevant. Ongoing corpus analysis, terminological updating, and critical reading are indispensable tools for professional scientific translators in the 21st century.

REFERENCES

1. Newmark, P. (1988). *A Textbook of Translation*. Prentice Hall. — p. 122
2. Koller, W. (1989). *Einführung in die Übersetzungswissenschaft*. Quelle & Meyer. — p. 153
3. Vinay, J.P. & Darbelnet, J. (1995). *Comparative Stylistics of French and English*. John Benjamins. — p. 84
4. Baker, M. (1992). *In Other Words: A Coursebook on Translation*. Routledge. — p. 101
5. Sager, J.C. (1990). *A Practical Course in Terminology Processing*. John Benjamins. — p. 66
6. Temmerman, R. (2000). *Towards New Ways of Terminology Description*. John Benjamins. — p. 97