Philology Matters / ISSN: 1994 – 4233 / E-ISSN: 2181–1237
Uzbekistan State World Languages University
2026 Vol. 1 No. M 2
LINGUISTICS
DOI: 10.36078/987656173

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CHALLENGES OF TRANSLATING POLYSEMOUS PHARMACOLOGICAL TERMS FROM ENGLISH INTO UZBEK: ENSURING ACCURACY IN MEDICAL DISCOURSE

Abstract. This article examines the issues of polysemy in English pharmacological terminology and its impact on achieving accurate translation of English-Uzbek texts. Pharmacological terms play an important role in medical discourse, where precision is crucial for effective communication and patient safety. However, most of the terms exhibit polysemy, functioning in both general and specialized contexts, which makes it difficult for translators to interpret medical texts. The study aims to analyze the semantic variability of pharmacological terms and to identify the main challenges they pose for accurate translation into Uzbek. The research is based on comparative, contextual, and semantic analysis of selected pharmacological texts. The findings demonstrate that polysemy is a frequent phenomenon in pharmacological terminology and often leads to mistranslation when context is ignored. The study demonstrates that reliance on primary dictionary meanings may lead to semantic distortion, while contextual-semantic analysis and terminological consistency significantly improve translation accuracy. The results reveal the importance of linguistic competence and subject-matter knowledge in medical translation. The article contributes to translation studies by emphasizing the role of context in resolving polysemy and ensuring precise cross-linguistic transfer of pharmacological knowledge.

Keywords: pharmacological translation, accuracy, polysemy, terminological competence, contextual analysis, equivalent effect, semantic dynamism.

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KO‘PMA’NOLI FARMOKOLOGIK TERMINLARNI INGLIZ TILIDAN O‘ZBEK TILIGA TARJIMA QILISH MUAMMOLARI: TIBBIY DISKURSDA ANIQLIKNI TA’MINLASH

Annotatsiya. Ushbu maqolada ingliz farmakologik terminologiyasidagi ko‘pma’nolilik muammolari va uning ingliz-o‘zbek matnlarning aniq tarjimasiga erishishga ta’siri ko‘rib chiqiladi. Farmakologik atamalar tibbiy nutqda muhim rol o‘ynaydi, bu yerda aniqlik samarali muloqot va bemorlar xavfsizligi uchun juda muhimdir. Biroq, atamalarning aksariyati umumiy va ixtisoslashgan kontekstda ishlaydigan ko‘pma’nolilikni aks ettiradi, bu esa tarjimonlarning tibbiy matnlarni sharhlashini qiyinlashtiradi. Tadqiqot farmakologik atamalarning semantik o‘zgaruvchanligini tahlil qilish va ularni o‘zbek tiliga to‘g‘ri tarjima qilishda yuzaga keladigan asosiy qiyinchiliklarni aniqlashga qaratilgan. Tadqiqot tanlangan farmakologik matnlarning qiyosiy, kontekstual va semantik

tahliliga asoslangan. Topilmalar shuni ko‘rsatadiki, ko‘pma’nolilik farmakologik terminologiyada tez-tez uchraydigan hodisa bo'lib, kontekst e’tiborga olinmasa, ko‘pincha noto‘g‘ri tarjimaga olib kelishi mumkin. Tadqiqot shuni ko‘rsatadiki, asosiy lug‘at ma’nolariga tayanish semantik buzilishlarga olib kelishi mumkin, kontekstual-semantik tahlil va terminologik izchillik esa tarjimaning aniqligini sezilarli darajada yaxshilaydi. Natijalar tibbiy tarjimada lingvistik kompetensiya va mavzu bo‘yicha bilimlarning ahamiyatini namoyon etadi. Maqola ko‘pma’nolilikni hal qilishda kontekstning rolini ta‘kidlab, farmakologik bilimlarning tillararo aniq uzatilishini ta'minlash orqali tarjimashunoslikka hissa qo‘shadi.

Kalit so‘zlar: farmakologik tarjima, aniqlik, ko‘pma’nolilik, terminologik kompetensiya, kontekstual tahlil, ekvivalent effekti, semantik dinamizm.

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ПРОБЛЕМЫ ПЕРЕВОДА МНОГОЗНАЧНЫХ ФАРМАКОЛОГИЧЕСКИХ ТЕРМИНОВ С АНГЛИЙСКОГО ЯЗЫКА НА УЗБЕКСКИЙ: ОБЕСПЕЧЕНИЕ ТОЧНОСТИ В МЕДИЦИНСКОМ ДИСКУРСЕ

Аннотация: В данной статье рассматриваются вопросы полисемии английской фармакологической терминологии и её влияние на достижение точного перевода англо-узбекских текстов. Фармакологические термины играют важную роль в медицинском дискурсе, где точность имеет решающее значение для эффективного общения и безопасности пациентов. Однако большинство терминов обладают многозначностью, функционирующей как в общем, так и в специализированном контексте, что затрудняет интерпретацию медицинских текстов переводчиками. Целью исследования является анализ семантической вариативности фармакологических терминов и выявление основных проблем, которые они создают для точного перевода на узбекский язык. Исследование основано на сравнительном, контекстном и семантическом анализе избранных фармакологических текстов. Результаты показывают, что полисемия является частым явлением в фармакологической терминологии и часто приводит к неправильному переводу, когда контекст игнорируется. Исследование показывает, что опора на первичные словарные значения может привести к семантическим искажениям, а контекстно-семантический анализ и терминологическая последовательность существенно повышают точность перевода. Результаты показывают важность лингвистической компетентности и знания предметной области в медицинском переводе. Статья вносит вклад в исследования перевода, подчёркивая роль контекста в разрешении многозначности и обеспечении точной межъязыковой передачи фармакологических знаний.

Ключевые слова: фармакологический перевод, точность, полисемия, терминологическая компетентность, контекстуальный анализ, эквивалентный эффект, семантический динамизм.

INTRODUCTION

Pharmacological terminology constitutes a fundamental component of medical discourse, as it ensures precise communication between healthcare professionals, academics and patients. The correct use and interpretation of pharmacological terms is vital for describing drugs, their composition, mechanisms of action, dosage and therapeutic effects. In this context, translation plays an essential role in transferring medical knowledge across languages and cultures, especially in multilingual healthcare environments (Batirova, 2022). Any inaccuracy in the translation of pharmacological terms may lead to mis-

understanding, improper medication uses and even serious health risks.

One of the main principles governing medical and pharmacological translation is the principle of accuracy, which requires the translator to convey the exact meaning of the source text without distortion or ambiguity (Newmark, 1988). However, achieving accuracy is often complicated by linguistic phenomena inherent in natural languages, among which polysemy occupies a prominent place (Bréal, 1900). Many pharmacological terms in English possess multiple meanings that vary depending on context, disciplinary usage or level of specialization. While terminology is normally expected to be monosemous, real medical texts demonstrate that pharmacological terms frequently develop additional meanings, both within professional discourse and at the intersection of general and specialized language (Shonazarov, 2023).

The problem of polysemy becomes particularly relevant in the translation of pharmacological texts from English into Uzbek. As English functions as a dominant language of medical science, many pharmacological terms enter Uzbek through translation (Khakimova, 2025). In a large number of cases, Uzbek equivalents may be absent, insufficiently standardized or influenced by general-language meanings, which increases the risk of inaccurate or inconsistent translation. Therefore, the thorough study of polysemy in pharmacological terminology and its impact on translation accuracy is of special importance for English-Uzbek medical translation (Baker, 2011).

The aim of this paper is to analyze the polysemy of pharmacological terms in English and to examine the difficulties it poses to ensuring accuracy in their translation into Uzbek. This aim is encouraged by the growing complexity of medical field, where polysemous terms lead to ambiguity and misinterpretation if contextual factors are not taken into consideration.

LITERATURE REVIEW AND METHODOLOGY

The research employs comparative, contextual and semantic analysis methods, which not only help to identify multiple meanings of pharmacological terms and evaluate the adequacy of their translations in different contexts, but also give a chance to evaluate translation adequacy in discourse conditions. Using these methods allows translators and learners to reveal systematic patterns of translation challenges and to determine effective strategies for resolving ambiguity caused by polysemy.

1. Theoretical Approaches to Polysemy in Linguistics

Polysemy is a term used to describe words which can be associated with several meanings different from each other (Bréal, 1900). In other words, the polysemy is a word that has many meanings connected to each other to some extent. When translating from the source language into the target language, translators and researchers face problems, because polysemy makes it challenging to get the precise meaning (Shonazarov, 2023).

The term *polysemy* first appeared in Michel Bréal's *Essai de Sémantique* (1897), stemming from πολύς, -numerous, and σημειον, - signification (Bréal, 1900). According to Bréal, "The new meaning of a word, whatever it may be, does not make an end of the old. The same term can be employed alternately in the strict or in the metaphorical sense, in the restricted or in the expanded sense, in the abstract or in the concrete sense. In proportion as a new signification is given to a word, it appears to multiply and produce fresh examples, similar in form, but differing in value. We shall call this phenomenon of multiplication Polysemia" (Bréal 1990).

The given definition demonstrates that polysemy is not an accidental phenomenon but a natural and systematic process of semantic development. Looking from a translation perspective, this implies that meanings coexist inside one lexical unit and become active depending on context and pragmatics. Therefore, the translator's role is not only to opt a dictionary equivalent, but to identify the function of the term withing a specific discourse. In domains such as pharmacology, this is especially important, because scientific information can be distorted when choosing an inappropriate meaning. As a consequence, analysis of polysemy requires a contextual-semantic approach, where meaning is interpreted through its usage rather that in isolation (Baker, 2011).

2. Accuracy and Equivalence in Translation Studies

The term "*accuracy"* can be understood as "faithfulness to the target text", "correct transfer of information" and "complete comprehension" (Newmark, 1988). The key aspects of accuracy include:

1. *Semantic accuracy* - when the meaning of words, phrases and sentences is transferred correctly;

2. *Terminological accuracy* - crucial in spheres such as medicine, law and pharmacology;

3. *Grammatical and logical accuracy* - when relationships like time, cause-effect, modality and negation are reserved;

4. *Pragmatic accuracy* - when the communicative intention of the text is maintained.

The principle of *equivalent effect* - also termed *equivalent response* or Nida's *dynamic equivalence* - has often been presented as the primary aim of translation, understood as producing the same or a closely similar impact on the target-language (TL) readership as on the source-language (SL) audience (Nida, 1964). However, it is more accurately viewed as a desirable outcome rather than a universal goal, since it is unlikely to be achieved when the communicative purposes of the SL and TL texts differ (for example, when one aims to inform and the other to persuade), or when there is a significant cultural gap between the two languages.

From an analytical approach, this limitation can be especially noticeable in scientific and pharmacological texts, where the primary function is to interpret precise information rather than to evoke a specific reaction. In contexts like this, the priority changes from achieving equivalent effect into ensuring semantic and terminological accuracy. That said, in communicative translation of vocative texts, such as notices, instructions, advertising, propaganda, persuasive discourse, and even popular fiction equivalent effect becomes essential and serves as the main criterion for evaluating translation quality, as the success of such texts depends on eliciting a specific reader response, which can even be measured quantitatively.

In contrast, for informative texts, equivalent effect is relevant only to their minimal emotional impact and is often unattainable across distant cultures, where cultural references must be neutralized or explained, content simplified, and difficulties clarified; while the TL reader may engage with the text at a similar level of interest as the SL reader, the impact inevitably differs, though any persuasive elements embedded in informative texts should still be rendered with close attention to the target readership and an awareness of equivalent effect.

3. Pharmacological Terminology and Challenges of Medical Translation

According to the research of V.F. Novodranova and E.V. Bekisheva, the language of medicine possesses several distinctive features.

First, it is characterized by internationality. Modern medical terminology in English, German, Russian, Uzbek, and many other languages is largely based on vocabulary of Greek and Latin origin. For example, the term *virus* appears in similar forms across languages: *virus* (English), *Virus* (German), and *virus* (Uzbek), demonstrating the shared classical foundation of medical lexis. While significantly facilitating cross-linguistic communication, this international character may as well create a false sense of equivalence. Therefore, not only must translators count on formal similarity, but also review semantic equivalence within a specific context.

Second, medical language actively incorporates terminology from other scientific disciplines such as *biology* (biologiya), *chemistry* (kimyo), and *physics* (fizika), as well as from related medical branches including *genetics* (genetika), *psychology* (psixologiya), and *psychiatry* (psixiatriya). This interdisciplinary borrowing reflects the conceptual and semantic complexity of medical discourse. From a tarnslation approach, such overlaps increase the likelihood of polysemy, since terms can carry different meanigns depending on the context. As a result, translation accuracy requires not only linguistic skills, but also interdisciplinary competence.

Another important feature of medical terminology is its semantic dynamism. The meanings of medical terms evolve as scientific knowledge develops, and new terminological units emerge when one conceptual framework is replaced by another. For instance, *pneumonia* may develop into atypical *pneumonia* (pnevmoniya - atipik pnevmoniya), influenza into bird flu or *swine flu* (gripp - parranda grippi, cho'chqa grippi), and *virus* into more specific expressions such as *human immunodeficiency virus*

(inson immunitet tanqisligi virusi). Thus, the meaning of medical terms is shaped by the broader context of medical knowledge and transforms in response to scientific progress and clinical practice.

RESULTS AND DISCUSSION

Medical terminology also demonstrates a strong orientation toward Latin. Although Latin ceased to function as a living language, it continued to exist in a specialized, professional capacity within medicine. Over time, a unique relationship developed between classical Latin and the language of medical science, ensuring the preservation and further development of Latin-based terminology within the medical field. Thus, many difficulties are faced when adapting them to Uzbek, whose phonological and morphological systems are completely different. Consequently, translators should choose between several translation methods, such as transliteration, adaptation and descriptive translation, each of which may influence the clarity and standardization of terminology.

Moreover, some medical and chemical textbooks still may rely on Russian-based translations. While modern translators attempt to enforce new Uzbek equivalents, it still creates confusion among teachers and students. For instance, *acid* is translated as *kislota*, a borrowing from Russian, while a native equivalent such as *nordon* theoretically exists but is rarely used. Similarly, *oxidation* is commonly rendered as *oksidlanish*, yet older Uzbek literature sometimes used *kislorodlanish*. Such variations show the issues of terminological instability, which makes both translation practice and the standardization of scientific language challenging.

Polysemy is by far one of the most complicated semantic phenomena which affects the translation of specialized terminology. Even though terminological systems are usually expected to demonstrate semantic precision and monosemy, real medical discourse shows that many pharmacological terms develop multiple related meanings. According to Michel Bréal, the emergence of new meanings does not eliminate older ones; rather, a word acquires additional semantic layers that coexist within the linguistic system. This process of semantic multiplication, which Bréal defined as *polysemia*, is particularly evident in pharmacological vocabulary, where terms often function across both general and specialized contexts (Bréal, 1900).

In pharmacological contexts, polysemy frequently arises from the interaction between general language and technical terminology. For instance, the term ***agent*** may mean a general "*actor*" or "*representative*" in spoken English, whereas in pharmacological discourse it indicates a *biologically active substance producing a specific therapeutic effect*. Similarly, ***solution*** may refer to a *general answer to a problem*, but in pharmaceutical discourse it designates a *homogeneous liquid preparation containing dissolved substances*. The coexistence of these meanings increases the risk of semantic interference during the process of translation, especially when the translator relies on general-language equivalence rather than contextual interpretation (Vinay & Darbelnet, 1995).

The principle of accuracy, which is central to medical translation, requires the precise rendering of the intended meaning within a specific professional context. As Peter Newmark emphasized [1988], technical translation demands semantic exactness and terminological consistency in order to preserve the informational value of the source text. In pharmacological translation from English into Uzbek, failure to distinguish between polysemous meanings may lead to inappropriate lexical choices, distortion of dosage instructions, or misinterpretation of drug properties. Such inaccuracies are not only linguistic problems but may carry practical implications in healthcare communication.

Another issue stems from the partial standardization of pharmacological terminology in Uzbek. While many English medical terms are borrowed or transliterated, others require descriptive translation or contextual adaptation. Without careful semantic analysis, translators may choose an equivalent that reflects the general meaning of a term rather than its specialized pharmacological sense. Therefore, contextual analysis becomes the primary mechanism for ensuring translation accuracy (Sager, 1990). As meaning in translation is constructed through context, and lexical equivalence cannot be determined in isolation from discourse.

The analysis of selected pharmacological texts indicates that polysemy most commonly affects terms that intersect with general scientific

vocabulary, such as ***dose, resistance, compound,*** and ***administration***. In each case, accurate translation into Uzbek depends on identifying the precise semantic scope of the term within the given medical context (Khakimova, 2025). As a consequence, polysemy does not contradict the principle of terminological precision; instead, it demonstrates that accuracy in medical translation is achieved through contextual competence and semantic awareness rather than through mechanical word-for-word substitution (Catford, 1965).

CONCLUSION

The present article has explored the issue of polysemy in English pharmacological terminology and its impact on maintaining the principle of accuracy in English–Uzbek translation. Although specialized terminology is traditionally associated with semantic precision, the analysis shows that pharmacological terms frequently develop multiple related meanings that coexist within professional discourse. This semantic multiplicity creates potential ambiguity and increases the risk of inaccurate translation if contextual factors are not carefully considered.

The findings of the research reveal that the most common translation difficulties stem from the overlap between general-language and specialized meanings of pharmacological terms. The results confirm that contextual-semantic analysis, terminological consistency, and the use of standardized Uzbek medical equivalents significantly contribute to ensuring translation accuracy.

The study highlights the importance of developing terminological competence among translators and translation students working with medical and pharmacological texts. A deep knowledge of semantic variation, combined with knowledge of professional discourse conventions, is essential for preventing inaccuracies that may affect medical communication. In this respect, the study contributes to both translation theory and practical medical translation training.

The practical value of the research lies in its applicability to translation practice, translator education, and the standardization of pharmacological terminology in Uzbek. The conclusions drawn may serve as guidelines for improving the quality of English-Uzbek medical translations.

Future research may focus on a broader corpus of pharmacological texts, comparative analysis of additional language pairs, or the development of specialized bilingual glossaries aimed at reducing ambiguity caused by polysemy in medical discourse.

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