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COMPARATIVE ANALYSIS OF MOST PRODUCTIVE AFFIXES AND SUFFIXES IN ENGLISH AND UZBEK PHYSICS TERMS

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Abstract

The morphological productivity of affixes, especially suffixes and prefixes, in Uzbek and English physics lexicons is analyzed and compared in this article. In a specialized field like physics, productivity is the extent to which a morphological process may produce new concepts. We show both similarities and differences by combining examples from scientific vocabulary formation with insights from morphological studies of English and Uzbek languages. Affixation patterns in English scientific terminology (*e.g., -logy, -meter*) and their equivalents or analogies in Uzbek physics words (*e.g., -lik, -chi*) are specifically examined. The findings shed light on typological distinctions, semantic transparency, and consequences for computational linguistics, scientific communication, and education.

Keywords

affixation, suffixation, vocabulary formation, typological distinction, semantic transparency, compounding, conversion, morphotactics.

Introduction

A crucial component of scientific language expansion is morphological productivity, or an affix's ability to create new words. Productive affixes in physics terminology enable the effective development and modification of terms to characterize novel ideas, tools, and fields. In scientific coinages, English, a Germanic analytical language, uses a variety of Latin and Greek prefixes and suffixes. As can be seen from our analysis, suffixation is the primary method of term construction in Uzbek, a Turkic agglutinative language with a high level of semantic transparency. These typological variations affect the development, adaptation, and instruction of physics vocabulary in each language.

Theoretical Background

Along with compounding and conversion, English affixation is one of several important word-formation processes. Among the most fertile suffixes in general vocabulary are derivatives like *-ness, -er, -ism,* and *-able*, which attach to a variety of bases and can be found in both established terms and neologisms. Additionally important in creating new lexical objects across registers are prefixes like *un-, re-,* and *self-*. Frequency of use, lexical openness of affixes, and semantic regularity are used to measure productivity.[1]

English sometimes uses neo-classical affixes with Greek or Latin roots in scientific applications. When combined with Greek-derived roots, suffixes like *-logy* indicate "the study of" a field, resulting in names like astrology or electrology. The suffix *-meter* or *-metry* indicates measurement (*e.g., speedometer, spectrometry*) while *-graphy* indicates representation or recording (*e.g., radiography*).

Affixation in Uzbek

[1] Kasimova, X. (2025). The productivity of affixes in modern english. Modern Science and Research, 4(6), 1462–1466. Retrieved from https://inlibrary.uz/index.php/science-research/article/view/119181

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Due to its agglutinative nature, Uzbek mainly creates words by joining suffixes to a root. Because each suffix usually serves a distinct semantic or grammatical purpose, morphological structure is extremely regular and obvious. According to comparative linguistic study, Uzbek relies nearly entirely on suffixation rather than prefixation and has a larger collection of suffixes than English.[2] In scientific or academic fields, derivative suffixes such as *-lik* (*zichlik* (density), *elastiklik* (elasticity), *o'tkazuvchanlik* (conductivity)) are frequently employed, but *-chi* can indicate an expert or practitioner (e.g., *o'qituvchi* "teacher"). Scholars point out that internal derivational processes in Uzbek are crucial for producing terms for science and technology that are both linguistically and culturally appropriate.[3]

Affix Productivity in Physics Terminology

English Scientific Affixes

Affixes are used in physics to construct tools or procedures as well as to categorize fields:
• *-ology/-logy:* An extremely useful suffix in English for naming fields of study (such as cosmology and radiography). Its semantic contribution is consistent and well-known in many scientific fields because it is a borrowed Greek suffix.

• *-meter / -metry*: Often used to indicate a distinct morphological pattern for measuring processes (thermometry, spectrometry) and measurement devices (ammeter, voltmeter).
• In physics, prefixes like *micro-, milli-, kilo-,* etc. are effectively used to indicate scale (micrometer, kilometer). The International System of Units (SI) teaches these traditional combining forms, which are still quite productive.

Because they attach to wide lexical classes and produce predictable denotational shifts—two essential requirements for morphological productivity—such affixes are productive. Morphologists use native speaker acceptance and corpus utilization to differentiate between realized and potential production.

Uzbek Scientific Affixation

Scientific terms in Uzbek physics vocabulary are frequently formed by suffixation that reflects both native morphotactics and borrowed roots:
• *Issiq+lik → issiqlik*, which means "related to heat / thermal property" is an example of a nominalizing suffix that can produce abstract nouns and field names.
• *-Chi:* An agentive suffix that designates a subject-matter expert (*o'qituvchi,* "teacher").
• When borrowed notions are fully incorporated, other suffixes like *-shunos* (expert/ -ologist) also occur in more general academic terminology that apply to physics. Uzbek is able to create phrases with strong semantic transparency because of its emphasis on suffix chains. In activities involving education or natural language processing, for example, this transparency helps with both lexical comprehension and morphological analysis.

Comparative Analysis

Typological Differences

Flexible affixation patterns and extensive borrowing of ancient elements (Greek, Latin) are made possible by English's analytical structure. Both general vocabulary expansion and

[2] Bobokulova Z. Distinctive features of word building process. Final Qualification Work. Records № "9" 20 of May 2014.
[3] Nizomova M.B., & Safarov G'.M. (2025). Structural-Semantic Analysis of Scientific Terminology in English And Uzbek Languages. European International Journal of Philological Sciences, 5(01), 21–26. Retrieved from https://inlibrary.uz/index.php/eijps/article/view/65153

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specialized scientific terms benefit from its prolific suffixes. English affixation offers several morphological routes to terminology development by interacting with compounding and conversion.

On the other hand, regular suffix concatenation with great semantic clarity is prioritized in Uzbek's agglutinative morphology. The affixation process is nonetheless suffix-centric and typologically coherent despite incorporating several loan roots, particularly from Russian or English in scientific contexts. In Uzbek, English prefixation is rather uncommon.

Productivity in Physics Contexts

Although there are groups of extremely useful affixes in physics terminology in both languages, their personalities are different:

• English: Borrowed classical affixes (*e.g., -logy, -meter*) that attach to a broad lexical range and preserve consistent meaning contributions are the source of productivity.
• Uzbek: Regularly using native suffixes across morphological chains to produce discipline-specific terms with distinct semantic components is the source of productivity.

These differences influence how new physics terms are coined and taught. English speakers leverage classical combining forms, whereas Uzbek uses a system of derivational suffixes that conform to its morphotactic rules.

Conclusion

The typological tendencies of English and Uzbek are reflected in the different affix production patterns in physics terminology. Productive affixes in English that promote a broad scientific lexicon include *-logy* and *-meter,* which have classical roots. With its agglutinative morphology, Uzbek produces clear scientific phrases using a predictable system of suffixes. Comprehending these morphological mechanisms improves computer processing of scientific texts, terminological standardization, and cross-linguistic teaching.

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