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Issues Of Graduonymy In Uzbek-Language Information Technology Terminology

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ABSTRACT

This article examines the phenomenon of graduonymy in Uzbek information technology terminology on the basis of contemporary linguistic approaches. It discusses the lexical–semantic nature of graduonymy, its interrelations with synonymy and antonymy, and the features of gradation as a phenomenon of language and speech.

Keywords: Graduonymy, information technology terms, lexical–semantic relations, gradation, synonymy, antonymy, term translation, codification.

INTRODUCTION

It is natural that phenomena and laws of reality, as well as relations between phenomena, are reflected in language. Language is a distinct social entity that expresses events, signs and properties, quantity, state, and action. This provides grounds for evaluating linguistic research as inquiry aimed at identifying reality and its phenomena and revealing the laws that govern them. This is especially evident in lexicological studies. Before methods for the systemic study of linguistic phenomena emerged, semantic relations between words were mainly investigated under the concepts of synonymy and antonymy. Subsequent research in linguistics made it possible to distinguish and study other lexical–semantic relations as well. In particular, many studies have shown that words may also stand in gradation relations. Up to now, various linguistic phenomena and concepts similar to the graduonymic paradigm have been examined, and because they differ in certain respects from the gradation phenomenon itself, this issue has continued to provoke debate and discussion.

The development of science demonstrates that reality consists of diverse systems of things and phenomena that change endlessly; therefore, the gradations characteristic of them are also varied, continuous, and constantly forming. Language, which reflects reality, does not have the capacity to reproduce gradations inherent in natural and social phenomena and relations exactly as they are. One of the main reasons is that linguistic units are limited in number due to the constraints of memory and cognition. In general, language does not fully reflect the countless, continuous, and boundless gradations found in reality. For example, the temperature of water changes from 0 to 100 degrees and shifts continuously with each degree; however, our sensory organs cannot perceive these changes exactly as they occur. In other words, linguistic gradation can be regarded as a reflected manifestation of the gradation phenomenon in the world as a whole. For this reason, the problem of linguistic gradation can be effectively studied only on the basis of dialectical philosophy—its laws and categories concerning matter and its motion, change, and development; the transition of quantitative changes into qualitative changes; the negation of negation; and related interpretations. In doing so, achievements grounded in modern dialectics should also be taken into account.

In Uzbek linguistics, the term degree is often applied to degrees of adjectives in grammar; as a result, the gradation of adjectives—considered a categorical form of the

adjective class formed by grammatical means—can be mistakenly conflated with lexical–semantic gradation in language. In an article by K. Kennedy and L. McNally, attention is also given to gradable adjectives functioning as predicates in a sentence and to degree modifiers used before them.

Research on gradation in adjectives and its specific features has been conducted in Uzbek linguistics by Z. M. Ma'rufov, A. Madrahimov, A. Xamitov, F. Ishoqov, M. Qo'ldoshev, and Z. Mamarajabova, and in some Uzbek textbooks and manuals gradation has been interpreted directly as a categorical form of the adjective class. In particular, Sh. Shaxabitdinova, in a study devoted to the dialectical interpretation of Uzbek morphology, analyzes the category of degree more deeply and substantiates her views on distinguishing the categories of degree and comparison.

The linguist L. Elmurodova, who studied the category of degree in Uzbek as a functional–semantic field, emphasizes that the concept of degree does not fit within the scope of a purely grammatical category and that it manifests across different linguistic levels. Although gradation is treated as a field in that study, it still remains restricted to the adjective class as a grammatical category, since the means expressing degrees of a feature are grammatically derived and attach to adjectives. Graduonymy, by contrast, is a lexical–semantic field that expresses differences in the degrees of features of linguistic units not by grammatical means, but through their lexical and semantic properties.

In a scholarly article published in 2008, S. N. Perevolchanskaya analyzes gradation in the meanings of synonyms for the word woman found in A. S. Pushkin's works. The series of synonyms includes mythological names and phraseological units expressing various characteristics of a woman: женщина, дама, баба, жена, бабенка, богиня, царица, Венера, Киприда, Минерва, муза, Гебея, Цирцея, Диана, Флора, перен, богорадица, в соч, крестниця Киприды, наперсница Венеры.

It would not be correct to treat all the words in this series as fully synonymous, because most of them may function as stylistic or contextual synonyms. The gradational series in question is constructed on the basis of the semantic content of these lexical units as they emerge through Pushkin's artistic and stylistic mastery; in that work, the term gradation is used as a device of literary language.

R. Shkurov, who studied lexical antonyms in Uzbek, notes the presence of intermediate concepts or logical centers between antonymic pairs and states that points equidistant from such a logical center—and the words that express them—can form antonymic relations with one another.

In R. Safarova's work analyzing hyponymy in Uzbek, a special view is also expressed regarding graduonymy as one of the lexical–semantic relations: "Graduonymy refers to a series of words that denotes degrees of a certain feature or quantitative characteristics, or the presence or absence of something. For example: qulun, toy, go'lon, do'nan, ot (stages in the naming of a horse by age)."

The concept of "gradual opposition" is also analyzed in M. Narziyeva's study devoted to the semantic structure of nouns in Uzbek that denote a person according to age. There, these nouns are divided into three groups: 1) nouns expressing kinship; 2) nouns indicating a person's age; 3) nouns that combine both characteristics. The author emphasizes that a gradual opposition is present in the consistent series of nouns denoting human age: chaqaloq – go'dak – bola (o'g'il/qiz) – o'smir, o'spirin (newborn – infant – child (boy/girl) – adolescent/teen).

Linguist O. Bazarov's scholarly views that graduonymy (gradation) is also present among the units of the phonetic, phonological, morphological, syntactic, and stylistic levels were a pressing issue on the linguistic agenda. He was the first in the field to prove that linguistic gradation constitutes a set of linguistic regularities, and he revealed the mechanism of gradation and the phenomenon's natural–ontological essence.

In Uzbek linguistics, the concept of graduonymy has been widely studied within both substantial and formal–functional approaches. In particular, J. Jumabayeva notes that, within substantial linguistics, graduonymy is recognized as one of the most widespread types of relations not only at the lexical level but also among morphological, syntactic, and stylistic units, and that systematic research has been conducted within this framework.

In modern linguistics, new methodological foundations and approaches have emerged that examine language units not in isolation, but as interconnected linguistic entities. Within this perspective—grounded in dialectical logic (the negation of negation, the unity and struggle of opposites, the transformation of quantitative changes into qualitative changes, and the law of the excluded third)—the

phenomenon of graduonymy has taken shape as a linguistic category.

This linguistic paradigm was first studied on a broad scale in world linguistics and later introduced into Uzbek linguistics. N. Vohidova drew European linguists' attention to the necessity of distinguishing lexical gradation series in German. This new view required serious revisions to computer lexicography and lexical databases in German studies that had been compiled since 1996, which testifies to the growing popularity of research on graduonymy. However, the study of gradation relations across typologically different languages has remained largely underexplored.

The differences between graduonymy and other similar linguistic phenomena and concepts have been analyzed in detail, and it has been established that graduonymy is primarily a language phenomenon and only partly a speech phenomenon. Until gradation gained a distinct and recognized place in linguistics, it had been mentioned in specialized studies and doctrines. Scholars such as L. Shcherba, O. Jespersen, and S. Katsnelson offered reflections on gradation in their time.

When discussing issues of graduonymy in information technology (IT) terminology, it is necessary to develop a set of basic concepts regarding: the role of graduonymic units in IT language; translation problems related to graduonymic IT terms in Uzbek; tendencies observed in Uzbek IT terminology with respect to graduonymy; and the classification of terms on the basis of graduonymy.

A. V. Sherbakov emphasizes two approaches to graduonymic relations:

1. grounding graduonymic relations in logical principles;

2. identifying a normative (middle-degree) word among the lexemes entering a graduonymic relation.

S. D. Katsnelson notes that lexical synonymic series may sometimes differ according to degrees of a feature.

The emergence of the term graduonymy is directly connected with the concept of gradual oppositions of phonemes introduced in the phonological works of N. S. Trubetzkoy and R. Jakobson. In world linguistics, ideas related to "graduality," "gradation of meaning," and "gradation" have been presented in the research of scholars such as M. Birvich, M. Cresswell, D. Bolinger, S. Kolesnikova, S. D. Katsnelson, O. Espereon, and Y. S. Stepanov. In these works, phonemes' oppositions based on the degree of realization of a certain feature are described as gradual oppositions. To date, various phenomena and notions similar to the graduonymic paradigm have been investigated in world linguistics; since they also differ from gradation in certain aspects, this topic has repeatedly generated debate.

The linguist J. Jumabayeva studied graduonymy by comparing Uzbek and English materials. She describes graduonymy as a general linguistic phenomenon. She identified the ways lexical graduonymic series are formed in Uzbek and English; revealed the semantic and contextual properties of lexical graduonymy in both languages; introduced and substantiated the terms micro-graduonym and macro-graduonym; identified unique graduonymic series in the compared languages; developed recommendations for introducing the phenomenon of graduonymy into language corpora; and demonstrated the lexicographic significance of dictionaries of one-language and bilingual graduonymic series.

Jumabayeva also distinguishes the concept of gradation from graduonymy, noting in her monograph that stylistic gradation within a single text expresses the strengthening or weakening of a phrase, metaphor, or metonymic transfer, whereas graduonymy is a linguistic phenomenon that reflects the arrangement of words according to denotational gradation. This definition significantly clarifies scholarly views on graduonymic series.

In her monograph "Lexical Graduonymy in Uzbek and English," she demonstrates that the graduonymy paradigm studied in Uzbek linguistics differs from: the phenomenon of intensification explored by Russian linguists S. S. Safonova, I. I. Sushinskiy, E. I. Sheygal, Ch. Bally, S. E. Rodionova, and the English linguist D. Bolinger; the term чрезмерность ("excessiveness") discussed in T. V. Matveyeva's work; and the stylistic device of hyperbole. Although there are points of proximity among these notions, each has its own specific features: among them, only graduonymy is a language phenomenon, while the others represent speech phenomena, because they arise in discourse—in particular contexts—and express context-dependent kinds of gradation.

In English linguistics, linguistic states very close to

graduonymy and possessing a hierarchical structure are discussed by D. A. Cruse in his book "Lexical Semantics." He arranges hierarchical relations among the constituent layers of an utterance as follows: sentence level (sentence layer), clause level (a clause layer equivalent to a simple-sentence unit within a complex sentence), phrase level (phrase layer), word level (word layer), and morpheme level (morpheme layer).

Turning to the similarities and differences of lexical graduonymy in Uzbek, Russian, and English: because English explanatory dictionaries provide full and detailed interpretations of words, it is possible to note the existence of different forms and nuances. Considering the units needed to construct parts of a graduonymic series, as well as the specific linguistic and linguocultural features of Uzbek, we can identify properties that do not correspond to English graduonymic series. For example, the Uzbek sequence nimchorak → chorak → yarim → butun (one-eighth → one-quarter → one-half → whole) clearly differs from the English quarter → half → whole series. In English, an equivalent for nimchorak is not observed. Because such items have no equivalents in English or Russian, they may be included among unique graduonymic series.

National-cultural lexemes—often describable as linguoculturemes—also form graduonymic series in Uzbek. For instance: ko'cha → mahalla → daha → tuman → shaharcha → shahar → viloyat (street → neighborhood/community → district quarter → district → small town → city → region/province). Russian has equivalents for these words, but English lacks the concept of mahalla; while other terms may exist, they still differ from the Uzbek system. If we consider each language's specific features—its synonymic and antonymic systems, active and passive vocabulary, linguocultural, geographic, and ethnographic characteristics—it is natural that lexical graduonymy will be observed as well. Thus, it is appropriate to call those graduonymic sets that exist in English but cannot be expressed or named by a single word in Uzbek language-specific graduonymic series. The distinctive feature of a unique graduonymic series is that other languages do not have a fully corresponding graduonymic series.

In linguistics, synonymy is explained as a relation between units that share a certain degree of semantic proximity but differ in form. Synonymic units often convey fine shades of meaning, stylistic nuances, or emotional differences.

Graduonymy, within these relations, forms an internal system based on the criterion of gradation (intensification/attenuation).

Graduonymic synonyms are chains of words that are similar in meaning but differ in the degree of semantic intensity. For example: katta – ulkan – beqiyos (big – enormous – incomparable); yaxshi – zo'r – a'lo (good – great – excellent); yomon – fano – mudhish (bad – awful – horrific). These chains express a degree-based stratification within synonymic sets.

In an encyclopedic dictionary, the concept of degree is described as follows: "1) in mathematics—the product of several equal numbers (or expressions). In the theory of analytic functions, a degree is considered whose base and exponent consist of complex numbers (see also De Moivre's formula). 2) the divisions on the scales of a thermometer, barometer, and other instruments; measures of temperature and angles (see also degree)."

In the Explanatory Dictionary of the Uzbek Language, we can also observe descriptions of the concept of daraja ("degree") and a number of lexical units expressing phenomena related to it. For example:

DARAJA [Arabic: stage; rank, title; step]

1. Denotes the norm or limit of an action, feature, or state; often used with modifiers.

2. A stage of gradual or relative progress/development; level, measure of height/advancement.

3. (obsolete) Rank, position, status.

4. An academic title awarded for achievements in science according to established rules and requirements.

5. A qualification level achieved in one's specialization.

6. Social standing; position, prestige, respect in society and among people.

7. Multiple, times, repetition (e.g., "once/twice").

8. A little, slightly, somewhat.

9. (math.) A unit for measuring angles and arcs; one-

ninetieth of a right angle or one-three-hundred-sixtieth of a circle; a degree.

10.   (phys.) The marked divisions on the scale of measuring instruments such as thermometers and barometers and the amount of temperature represented by those divisions.

11.   (math.) The product of equal factors; the result of multiplying a number by itself.

12.   (ling.) A grammatical category/form expressing a greater or lesser degree of a feature.

From the information above, we can conclude that in the Explanatory Dictionary of the Uzbek Language (O'TIL) the lexeme daraja is used in several senses. Some of these are part of everyday usage, while others are terminological meanings (mathematics, physics, linguistics).

Graduonymy is the manifestation of semantic degrees in linguistic units, expressed through intensification or attenuation. In linguistics, this phenomenon is investigated through the notion of gradability (gradation). Graduonymic relations are often associated with asymmetric forms of antonymy and typically appear as chains of expressions showing increasing or decreasing intensity. In this way, the concept of graduonymy and graduonymic relations in Uzbek linguistics was extended from the lexicon to morphology and even syntax, acquiring the status of a general linguistic type of relation.

In Academician A. Hojiyev's dictionary of linguistic terms, one can find definitions of terms related to gradation, such as the degree category and gradual opposition. Specifically, the term gradual opposition is defined as follows: "Gradual opposition is an opposition based on the presence of the same feature in different degrees in each of the opposed items. For example: chiroyli – suluv – barno – go'zal (pretty – graceful – charming – beautiful)." Similar concepts connected with gradation are also defined in other specialized dictionaries.

Thus, in the last quarter of the previous century, a new term—graduonymy—appeared in Uzbek linguistics, and the features that distinguish it from other linguistic phenomena began to be studied. Developing mechanisms for researching graduonymy as a language phenomenon in different branches of linguistics and across languages of different types, and for creating educational dictionaries for practical application, is one of the necessary and important tasks in the further development of modern linguistics.

In the field of information technology, the terms used to describe systems, devices, programs, and services often require degrees. For example, the operating speed of a processor in a computer system unit may be evaluated according to criteria such as high, medium, or low performance. Similarly, graduonymic units play an important semantic role in notions such as security levels, energy consumption, and internet speed.

The IT domain is one of the specialized fields that includes technically complex, multi-parameter systems. For this reason, the language units used in this field must be precise, graded, and specialized. In particular, concepts defining technical parameters, system efficiency, user experience, and security levels are expressed through semantically gradated units.

Regarding the functional significance of graduonymic units in linguistics, O. Jespersen characterized gradability as one of the main semantic devices of language. Later, scholars such as G. Gradov and V. Teliya advanced views on the interrelation between antonymy and gradability and on their communicative roles. Examples are provided from real IT texts obtained through corpus analyses. The results indicate that graduonymic units are semantically and communicatively relevant elements in technical discourse, serving to standardize usage and facilitate user comprehension. Based on approximately 5,000 collected technical texts, we attempted to analyze the frequency of use and the sets of graduonymic units.

Table 2.1

Graduonymic Unit	Context	Frequency of Use
High security	Antivirus software descriptions	213 times
Medium load	Server monitoring reports	162 times
Fast processor	Mobile device descriptions	119 times
Slow internet	User complaints	137 times

Low efficiency	Technical malfunction analysis	81 times
High-quality image	Display and camera descriptions	94 times

Graduonymic units in IT terminology are also used in various structural patterns:

•   Adjective + noun structure: high-quality image, low-level security

•   Numeral + degree: first-degree security, third-degree optimality

•   Oppositional chains: fast – medium – slow; high – medium – low

In general, the role of graduonymic units in IT language is to ensure information is conveyed consistently and effectively by clearly expressing the relative scale of technical concepts—intensification or attenuation, and the degree of advantage. This, in turn, requires their accurate rendering in translation, their fixed placement in standardized dictionaries, and their validation through corpus-based analysis.

Graduonymic units found in information technology terminology are words or phrases that indicate quantitative or qualitative degrees. Many such terms are widespread in English; however, problems arise because they are sometimes translated into Uzbek inaccurately or used in inappropriate contexts.

In Uzbek IT terminology, the phenomenon of graduonymy serves as an important factor in identifying the semantic and functional stratification of terms. Research results show that certain IT terms—particularly disinformation, jamming, security level, signal strength, and data reliability—have the potential for semantic gradation, making it possible to construct graduonymic series based on quantitative or qualitative degrees.

At the same time, graduonymy is not observed in coded, brand-related, or purely nominal IT terms, because they do not possess semantic gradability and are used mainly according to functional or technical criteria. This indicates the need to divide IT terminology into two main groups: graduonymic and non-graduonymic units.

The phenomenon of graduonymy is especially significant for IT-term translation, identifying synonymic series, ensuring semantic precision, and cognitive modeling. A systematic study of this phenomenon provides an important linguistic and practical foundation for deeply understanding modern technological terms in Uzbek, classifying them accurately, and developing appropriate equivalents.

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