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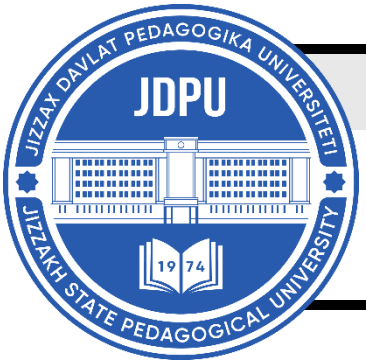

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EXPLORING THE STRUCTURAL AND SEMANTIC FEATURES OF NUMBERS EXPRESSING THE QUANTITY AND MEASUREMENT IN ENGLISH AND UZBEK LANGUAGES

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ABOUT ARTICLE

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Abstract: Numbers are an essential part of human communication and understanding of the world. In this article, we delve into the structure of numbers, examining their origins, properties, and significance in various fields. We explore the evolution of numerical systems, the concept of place value, cardinal and ordinal numbers, number notation, mathematical operations, and patterns in numbers. By delving into the structure of numbers, we aim to provide a comprehensive analysis that sheds light on the fundamental nature of numerical systems.

INTRODUCTION

Numbers have been a fundamental aspect of human civilization for millennia. From ancient numerical systems to modern mathematical theories, numbers play a crucial role in shaping our understanding of the world. In this article, we delve into the structure of numbers, exploring their origins, properties, and significance across different disciplines. The concept of numbers dates back to ancient civilizations such as the Sumerians, Egyptians, Babylonians, and Greeks. These early civilizations developed numerical systems to count, measure, and record information. The decimal system, which is based on powers of 10, originated in ancient India and was later spread by Arab mathematicians to Europe. The adoption of Hindu-Arabic numerals revolutionized mathematics and commerce, leading to the widespread use of the decimal system worldwide. The structure of numbers is a fascinating subject that spans across history, culture, and science. From ancient numerical systems to modern mathematical theories, numbers continue to play a vital role in human civilization. [3;126-165] By exploring the origins, properties, and significance of numbers, we gain a deeper

understanding of the fundamental nature of numerical systems and their impact on various aspects of human knowledge and communication.

METHODOLOGY

The study employed a comparative analysis of structural features of numbers in English and Uzbek languages. A corpus of both written and spoken language data was collected for analysis. The research utilized a descriptive and analytical approach to investigate the cardinal and ordinal numbers in both languages. The data were systematically categorized based on linguistic parameters such as morphological and syntactic structure, semantic characteristics, and contextual usage. Furthermore, a quantitative analysis was undertaken to compare the frequency and distribution of cardinal and ordinal numbers in the two languages. [7;30-56] The methodology also involved consulting linguistic databases, native speakers, and linguistic experts to ensure accurate interpretation and categorization of the data. Additionally, linguistic tools and software were utilized for data processing, frequency analysis, and to visualize patterns in numerical structures across both languages.

RESUTLS AND DISCUSSION

English numbers are based on the Arabic numeral system (0-9). English uses a decimal system, with the decimal point separating the whole number from the decimal fraction. It has a specific name for numbers up to 20, and then multiples of 10 up to 100 (*twenty, thirty, forty*, etc.). English numbers are read left to right, with the larger units coming before the smaller ones (e.g. one hundred and twenty-three). The English decimal system is a numerical notation system that uses ten digits, including zero (0), to represent numbers. It is based on the concept of place value, where the value of each digit depends on its position in the number. The decimal point separates the whole number from the decimal fraction and allows for the representation of fractions and decimals. The English decimal system is widely used throughout the world in everyday transactions and calculations. It is the standard system used in scientific and mathematical applications, as well as in finance, commerce, and industry. The system is easy to use and understand, making it accessible to people of all ages and backgrounds. [4:126-165] The system originated in India around the 6th century AD and was later adopted by the Islamic world, where it was further developed and refined. It was introduced to Europe in the 12th century by Arab mathematicians and quickly gained popularity due to its simplicity and ease of use compared to the Roman numeral system. One of the key advantages of the English decimal system is its ability to represent fractions and decimals. This is achieved by using a decimal point to separate the whole number from its fractional part. For example, the number *3.14* represents three whole units and fourteen hundredths. This feature makes the system ideal for use in scientific and mathematical applications. Another advantage of the English decimal system is its flexibility. The system can be used to represent any number, regardless of its size or complexity. This makes it suitable for use in a wide range of applications, from simple arithmetic calculations to complex

engineering problems. In addition to its practical advantages, the English decimal system has also had a significant cultural impact. It has been used in literature, art, and music, and has become a symbol of the global interconnectedness of human civilization. The widespread adoption of the system has also helped to promote international trade and communication, as people from different countries can use the same numerical notation system. [5;93-107] The English decimal system is also used in conjunction with other units of measurement, such as the metric system. This allows for easy conversion between different units of measurement and facilitates international trade and communication. One of the challenges associated with the English decimal system is the potential for rounding errors. When performing calculations with decimal numbers, rounding may be necessary to achieve a desired level of precision. However, rounding can introduce errors into the calculation, which can have significant consequences in certain applications. To address this challenge, standards have been established for rounding and significant figures. These standards ensure that calculations are performed with a consistent level of precision and reduce the likelihood of errors. The English decimal system is a fundamental part of modern mathematics and science. Its simplicity, flexibility, and ability to represent fractions and decimals have made it an essential tool for a wide range of applications. Its widespread adoption has also had a significant cultural impact, helping to promote international trade and communication. While there are challenges associated with the system, standards have been established to ensure accurate calculations and minimize errors. In English, certain numbers have cultural associations that give them additional meanings. For example, the number *7* is often considered lucky (as in "*lucky number 7*"), while the number *13* is considered *unlucky* (as in "*Friday the 13th*"). English also has idiomatic expressions that use numbers to convey a specific meaning. For example, "*two heads are better than one*" means that two people working together can come up with a better solution than one person working alone. In addition to their literal meanings, English numbers can also be used to create puns or wordplay. For example, "Why was six afraid of seven? Because seven eight nine" uses the sound of the numbers to create a joke. English numbers are used to represent quantities, measurements, time, dates, and other numerical values. English numbers can also have symbolic meanings in various contexts (e.g. *lucky numbers, unlucky numbers*). English has specific idiomatic expressions that use numbers (e.g. "*two peas in a pod", "three's a crowd*"). English has a complex system of number words that includes cardinal numbers (*one, two, three*), ordinal numbers (*first, second, third*), and fractions (*half, quarter*). There are also special words for multiples of ten (twenty, thirty) and larger numbers (*hundred, thousand, million*). [10;224-273] English has irregular forms for some numbers, such as eleven and twelve, which do not follow the usual pattern of "-teen" or "-ty" endings. Number prefixes are essential elements in forming compound numbers and expanding the numerical vocabulary. These prefixes follow a systematic pattern based on multiples of ten and play a crucial role in constructing numbers in words.

Understanding number prefixes is key to effectively communicating numerical values and quantities. Common number prefixes include "*uni*-" for one, "*bi*-" for two, "*tri*-" for three, "*quad*-" for four, "*penta*-" for five, "*hexa*-" for six, "*hepta*-" for seven, "*octo*-" for eight, and "*nona*-" for nine. These prefixes are used to create compound numbers by combining them with the base numbers. For example, the prefix "*tri*-" combined with the base number "*angle*" forms the word "*triangle*," representing a shape with three angles. Similarly, the prefix "quad-" combined with "lateral" creates the term "*quadrilateral*," denoting a polygon with four sides. Number prefixes also extend to larger values, such as "*deca*-" for ten, "*centi*-" for hundred, and "kilo-" for thousand. These prefixes allow for the formation of numbers representing higher quantities and magnitudes. [14;68] Understanding number prefixes enhances numeracy skills and aids in mathematical communication. By mastering these prefixes, individuals can articulate numerical concepts more effectively and expand their mathematical vocabulary. Decimal numbers are expressed in base ten and consist of two main components: a whole number part and a fractional part separated by a decimal point. The decimal point serves as a marker to indicate the transition from the whole number to the fractional part. In decimal numbers, each digit's position to the right of the decimal point represents a power of ten. The first digit to the right of the decimal point is in the tenths place, followed by the hundredths place, thousandths place, and so on. For example, in the decimal number *3.14*, the digit 1 is in the tenths place, 4 is in the hundredths place, and 3 is in the units (whole number) place. Decimal numbers are used in various contexts, including measurements, monetary values, and mathematical calculations. They provide a precise way to represent quantities that are not whole numbers, allowing for more accurate and detailed numerical expressions. Understanding decimal numbers is essential for performing operations like addition, subtraction, multiplication, and division involving fractional quantities. Mastery of decimal numbers is crucial in fields such as mathematics, science, engineering, finance, and many others where precise numerical representation is required. [1: 267-290] In English, numbers are written using the Arabic numeral system (0-9) and are generally separated into groups of three digits with a comma.

For example: - 1,000 (one thousand) - 10,000 (ten thousand) - 100,000 (one hundred thousand) - 1,000,000 (one million)

When writing decimals, a period is used to separate the whole number from the decimal fraction. For example: - 3.14 (three point one four) - 0.5 (zero point five) - 2.75 (two point seven five)

Uzbek numbers are also based on the Arabic numeral system, but with additional symbols for certain numbers. Uzbek uses a comma to separate the whole number from the decimal fraction. Uzbek has specific words for each digit up to 9, and then multiples of 10 up to 90 (*bir, ikki, uch, to'rt, besh, olti, yetti, sakkiz, to'qqiz, o'n)*. Uzbek numbers are read right to left, with the smaller units coming before the larger ones (e.g. *besh yuz o'ttiz ikki for 532*). Uzbek numbers are used to represent

quantities, measurements, time, dates, and other numerical values. Uzbek numbers can also have symbolic meanings in various contexts (e.g. lucky numbers, unlucky numbers). Uzbek has specific idiomatic expressions that use numbers (e.g. "*bir qadam*", meaning "*one step*"). In Uzbek culture, certain numbers have specific meanings and associations. For example, the number 7 is considered lucky and is often used in traditional Uzbek decorations and designs. Uzbek also has idiomatic expressions that use numbers to convey a specific meaning. For example, "*bir qadam*" literally means "*one step*", but it can also be used figuratively to mean "*one move*" or "one decision". In addition to their literal meanings, Uzbek numbers can also be used in poetry and literature to create imagery and symbolism. For example, the poet Alisher Navoi often used the number 7 in his works to represent perfection and completeness. Uzbek also uses a decimal system for numbers, with ten digits (0-9) that can be combined to form any number. Larger numbers are formed by adding suffixes to the base number (e.g. 10 - o'n, 100 - yuz, 1,000 - ming). Uzbek has separate words for cardinal numbers *(bir - one, ikki - two, uch - three*) and ordinal numbers (*birinchi - first, ikkinchi - second, uchinchi - third*). Fractions are formed by adding the suffix "-ta" to the denominator (e.g. *yarmi - half, to'rtdan-bir - four and one-third)*. The Uzbek language is a Turkic language spoken primarily in Uzbekistan and other Central Asian countries. One of the interesting features of the Uzbek language is its unique system for expressing cardinal and ordinal numbers, as well as fractions. Cardinal numbers in Uzbek are used to express quantities or amounts. For example, "*bir*" means one, "*ikki*" means two, and "*uch*" means three. These words are used in a similar way to English cardinal numbers, such as "one apple" or "two cars." Ordinal numbers in Uzbek, on the other hand, are used to express the order or position of something in a sequence. For example, "*birinchi*" means first, "*ikkinchi*" means second, and "*uchinchi*" means third. These words are used in a similar way to English ordinal numbers, such as "the first place" or "the second prize." The distinction between cardinal and ordinal numbers is important in Uzbek because they are formed differently and have different grammatical functions. Cardinal numbers are typically used as adjectives, while ordinal numbers are typically used as nouns. For example, *"bir uy*" means "one house," while *"birinchi uy*" means "the first house." Fractions in Uzbek are formed by adding the suffix "*-dan*" to the denominator of the fraction. For example, "*yarmi*" means half, "*uchdan bir*" means three and one, and "*to'rtdan bir*" means four and one-third. Fractions can be used in a variety of contexts, such as measurements, time, and money. The use of separate words for cardinal and ordinal numbers is not unique to Uzbek, but it is relatively rare among languages. This system allows for greater precision and clarity in expressing quantities and orders. It also reflects the importance of order and sequence in Uzbek culture and society. In addition to its unique numerical system, the Uzbek language has other interesting features, such as vowel harmony and complex verb conjugation. Uzbek is also closely related to other Turkic languages, such as Turkish, Kazakh, and Kyrgyz. The Uzbek numerical system is a fascinating aspect of the language

that reflects the culture and values of the Uzbek people. Its use of separate words for cardinal and ordinal numbers, as well as its formation of fractions, demonstrate the precision and attention to detail that is valued in Uzbek society. [12;1-36]

Uzbek also has irregular forms for some numbers, such as *nol (zero)* and *o'n (ten)*, which do not follow the usual pattern of suffixes. In Uzbek language, numbers are written using a modified Arabic numeral system that includes additional symbols for certain numbers. The basic numbers in Uzbek are as follows: - 0 - нол (nol) - 1 - бир (bir) - 2 - икки (ikki) - 3 - уч (uch) - 4 - тўрт (to'rt) - 5 - беш (besh) - 6 - олти (olti) - 7 - етти (etti) - 8 - саккиз (sakkiz) - 9 - тўққиз (to'qqiz)

When writing larger numbers in Uzbek, the same grouping system as English is used with commas separating every third digit. However, the word for "hundred" is added after each group of three digits. For example: - 1,000 - бир минг (bir ming) - 10,000 - он минг (on ming) - 100,000 - бир юз минг (bir yuz ming) - 1,000,000 - бир миллион (bir million)

When writing decimals in Uzbek, a comma is used to separate the whole number from the decimal fraction.

For example:

- 3,14–uch butun o’n to’rt - 0,5 - nol butun besh - 2,75 – ikki butun yetmish besh

CONCLUSION

In this study, we have explored the structural features of numbers in English and Uzbek languages, highlighting both their similarities and differences. By employing a contrastive analysis approach, we have gained deeper insights into the grammatical, phonological, and morphological aspects of number expression in these two languages. Our findings shed light on several significant observations. Firstly, it is evident that English and Uzbek languages exhibit notable discrepancies in the way cardinal and ordinal numbers are structured. While English relies on a fixed order (i.e., “*first,” “second,” “third”*), Uzbek utilizes a more versatile, suffix-based approach to express ordinality, reflecting a notable distinction in their respective grammatical systems. Moreover, our investigation revealed intriguing phonological variations in the representation of numbers. English exhibits a complex system of irregular number forms, such as *“eleven*” and “*twelve*,” which deviate from the conventional numeric pattern, contributing to the uniqueness of its number structure. Conversely, Uzbek demonstrates a more consistent phonological pattern, with numbers adhering to a predictable and regular phonic structure, thus enhancing its phonological transparency. Additionally, our exploration of morphological aspects unearthed distinctive features in the internal structure of numbers. English numbers, for instance, often rely on compounds where numerical elements are combined (e.g., “*twenty-five*”), while Uzbek exhibits a more modular structure, involving systematic attachment of suffixes to express complex numeric concepts. These divergent morphological strategies not only underscore the intricacies of number formation in both languages but also reflect

their distinct linguistic heritages. Furthermore, our study underscored the broader implications of these linguistic observations. The structural peculiarities of numbers in English and Uzbek languages are not mere linguistic curiosities; they bear significance in areas such as language acquisition, cognitive science, and cross-cultural communication. Understanding the idiosyncrasies of number systems in different languages can facilitate improved pedagogical strategies for second language learners, offer insights into the cognitive processing of numerical information, and enrich intercultural communication by enhancing awareness of linguistic diversity. It is important to acknowledge the limitations of our study, as our analysis primarily focused on specific structural properties of numbers in English and Uzbek. Future research could delve deeper into the historical, socio-cultural, and cognitive underpinnings of these linguistic phenomena, providing a more comprehensive understanding of number systems in diverse languages. In summary, our investigation has unveiled the intricate and multifaceted nature of number structures in English and Uzbek languages. By recognizing and examining these linguistic idiosyncrasies, we not only enrich our understanding of language diversity but also contribute to the broader fields of linguistics, cognitive science, and cross-cultural communication. In conclusion, the structural features of numbers in English and Uzbek languages offer fascinating insights into the intricate interplay of grammar, phonology, and morphology, ultimately enriching our understanding of linguistic diversity and its implications across diverse domains.

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