ТЕОРЕТИЧЕСКАЯ, ПРИКЛАДНАЯ И СРАВНИТЕЛЬНО-СОПОСТАВИТЕЛЬНАЯ ЛИНГВИСТИКА/THEORETICAL, APPLIED AND COMPARATIVE LINGUISTICS

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COMPARATIVE ANALYSIS OF MORPHOLOGICAL PECULIARITIES AND LEVEL OF USAGE OF SOME MEASURE WORDS QUANTIFYING TIME AND DISTANCE IN TAJIK, CHINESE AND ENGLISH

Research article

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Abstract

The given article dwells on the morphological peculiarities and level of usage of classifiers and measure words used to quantify time and distance in Tajik, Mandarin Chinese, and English. While all three languages employ mechanisms for quantifying these domains, they differ significantly in their typological approaches. In Chinese, a robust classifier system requiring specific measure words for various nouns based on semantic peculiarities is utilized. In English, a more limited set of measure words, often optional and less grammatically obligatory, is used. Tajik occupies a middle ground with a smaller set of measure words than Chinese, but a greater reliance on inflectional morphology than English. The analysis reveals the diverse strategies languages use to express quantification and highlights the interplay between semantic categorization and grammatical encoding in these fundamental semantic domains.

Keywords: measure words, time, distance, Tajik, Mandarin Chinese, English, linguistic typology, morphology, semantics.

СРАВНИТЕЛЬНЫЙ АНАЛИЗ МОРФОЛОГИЧЕСКИХ ОСОБЕННОСТЕЙ И УРОВНЯ ИСПОЛЬЗОВАНИЯ НЕКОТОРЫХ СЧЕТНЫХ СЛОВ, КОЛИЧЕСТВЕННО ИЗМЕРЯЮЩИХ ВРЕМЯ И РАССТОЯНИЕ В ТАДЖИКСКОМ, КИТАЙСКОМ И АНГЛИЙСКОМ ЯЗЫКАХ

Научная статья

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Аннотация

В данной статье рассматриваются морфологические особенности и уровень использования классификаторов и счетных слов, используемых для количественной оценки времени и расстояния в таджикском, китайском и английском языках. Хотя все три языка используют механизмы для количественной оценки этих доменов, они существенно различаются по своим типологическим подходам. В китайском языке используется надежная система классификаторов, требующая определенных счетных слов для различных существительных на основе семантических особенностей. В английском языке используется более ограниченный набор счетных слов, часто необязательных и менее грамматически обязательных. Таджикский язык занимает промежуточное положение с меньшим набором счетных слов, чем китайский, но большей зависимостью от флективной морфологии, чем английский. Анализ выявляет различные стратегии, используемые языками для выражения квантификации, и подчеркивает взаимодействие между семантической категоризацией и грамматическим кодированием в этих фундаментальных семантических доменах.

Ключевые слова: счетные слова, время, расстояние, таджикский, китайский, английский, лингвистическая типология, морфология, семантика.

Introduction

It is known that a series of numeratives, or measure words, are observed to be used for calculating the quantity of both discrete and non-discrete objects. Over time, some of them have disappeared, while others are still resorted to in modern literary languages under comparison. Measure words also known as classifiers are used in conjunction with numerals to specify the quantity of an object or objects [2, P. 167], [8, P. 195], [10, P. 90].

It is noteworthy that in these languages several related units are observed. These are used alongside numerals with nouns denoting school supplies, newspapers and magazines, food, clothing, and transportation, as well as with discrete and non-discrete nouns; that is, for counting time, area and space, geographical names, and also for counting and calculating quantity, size, volume, weight, width, and length of objects [7], [9]. They, in turn, have their own specific function and status in the formation of this syntactic phenomenon, each individually playing a key role in fulfilling this function. In reference to it, it can be added that in Mandarin Chinese, such units are quantitatively more numerous than the corresponding units in English.

The expression of quantity is a fundamental aspect of human language, and languages employ diverse grammatical mechanisms to quantify entities and notions. One such mechanism, particularly prominent in many East and Southeast Asian languages, is the use of classifiers (also known as "measure words" in some contexts). Classifiers are grammatical morphemes that categorize nouns based on semantic features, such as shape, size, function, or animacy. They typically appear in conjunction with numerals or other quantifiers. While English has measure words (e.g., a piece of cake, two sheets of paper),

their usage is less grammatically obligatory and semantically restricted than in classifier languages like Chinese. Tajik presents a different system, employing a more limited set of measure words and relying more on inflectional morphology [3], [4], [5], [6].

The objective of the study is to compare and contrast the systems of classifiers/measure words used for quantifying time and distance in Tajik, Mandarin Chinese, and English. These semantic domains are chosen because they are universally relevant and often require precise quantification. The typological differences between the compared languages provide a valuable framework for understanding the variation in grammatical encoding of these notions.

Materials and methods

The corpus of our study conducts a comparative linguistic analysis approach, drawing on both qualitative and quantitative methods. Data were collected from a variety of sources, ensuring a comprehensive representation of each language`s system of time and distance quantification:

1. Identification: classifiers/measure words for time and distance were identified in the comparative languages by dint of a systematic search of dictionaries and grammars. Initial lists were compiled and then refined through cross-referencing multiple sources.

2. Morphological Analysis: the morphological structure of each identified classifier/measure word was considered. This included determining whether the item was a free morpheme, a bound morpheme, or a compound. Any derivational relationships to other lexical items being taken into account as well.

3. Semantic Analysis: the semantic criteria governing the selection of each classifier/measure word were determined. This involved analyzing the range of nouns with which each classifier/measure word could co-occur and identifying the common semantic features of those nouns. Factors such as shape, size, dimensionality, animacy, function, and cultural conventions were considered. Instances of polysemy and synonymy were documented and analyzed.

4. Comparative Analysis: the systems of the three languages were compared and contrasted across multiple dimensions:

Inventory Size: the number of classifiers/measure words for time and distance in each language was dwelt on;

Morphological Complexity: the relative proportions of free morphemes, bound morphemes, and compounds were contrasted;

Semantic Specificity: the degree of semantic specialization of classifiers/measure words was canvassed;

Grammatical Obligatoriness: the extent to which classifiers/measure words are grammatically required in different contexts was carried out.

5. Translation Analysis: a parallel corpus of sentences containing time and distance expressions was formed using literary texts and their translations across the comparative languages. Translation shifts (e.g., additions, omissions, substitutions of classifiers/measure words) were identified and categorized. The frequency and types of shifts were studied to determine systematic patterns in reference to the typological differences between these languages.

Main results

3.1. Tajik

In Tajik, a relatively limited set of measure words for time and distance were discussed. These are typically free morphemes preceding from the noun they modify. Crucially, Tajik nouns also often show number agreement (singular/plural) through suffixes.

Time: sol — year (e.g., du sol — two years); moh — month (e.g., se moh — three months); hafta — week (e.g., yak hafta — one week); rūz — day (e.g., panj rūz — five days); soat — hour (e.g., chor soat — four hours); daqiqa — minute (e.g., dah daqiqa — ten minutes); soniya — second (e.g., bist soniya — twenty seconds).

Distance: metr — meter (e.g., sad metr — one hundred meters); kilometr — kilometer (e.g., du kilometr — two kilometers); santimetr — centimeter (e.g., ponzdah santimetr — fifteen centimeters); millimetr — millimeter (e.g., panj millimetr — five millimeters); farsakh — farsakh (a traditional unit of distance, approximately 6 kilometers) (e.g., yak farsakh roh — one farsakh of road)

Designing on the premise of the above-adduced examples one can assert that the influence of Russian on modern Tajik, particularly in the adoption of metric units is clearly noticed. As well as, nouns in these constructions often take plural suffixes when modified by numerals greater than one.

3.2. Mandarin Chinese

Mandarin Chinese possesses a rich and complex system of classifiers. Classifiers are obligatory in noun phrases involving numerals and many quantifiers. They are typically bound morphemes that follow the numeral and precede the noun.

Time: 年 (nián) — year (e.g., 两年 - liǎng nián — two years); 月 (yuè) — month (e.g., 三个月 — sān ge yuè - three months); 星期 (xīngqī) / 礼拜 (lǐbài) — week (e.g., 一个星期 - yī ge xīngqī — one week); 天 (tiān) — day (e.g., 五天 — wǔ tiān — five days); 小时 (xiǎoshí) — hour (formal) (e.g., 四小时 - sì xiǎoshí — four hours); 钟头 (zhōngtóu) — hour (informal) (e.g., 一个钟头 — yī ge zhōngtóu — one hour); 分钟 (fēnzhōng) — minute (e.g., 十分钟 — shí fēnzhōng — ten minutes); 秒 (miǎo) — second (e.g., 二十秒 - èrshí miǎo — twenty seconds); 点 (diǎn) — o'clock (for telling time) (e.g., 三点 — sān diǎn — three o'clock).

Distance: 米 (mǐ) — meter (e.g., 一百米 — yībǎi mǐ — one hundred meters); 公里 (gōnglǐ) — kilometer (e.g., 两公里 — liǎng gōnglǐ — two kilometers); 厘米 (límǐ) — centimeter (e.g., 十五厘米 — shíwǔ límǐ — fifteen centimeters); 毫米 (háomǐ) — millimeter (e.g., 五毫米 — wǔ háomǐ — five millimeters); 里 (lǐ) — a traditional Chinese unit of distance (about 500 meters) (e.g., 一里路 — yī lǐ lù — one li of road); 尺 (chǐ) — a traditional Chinese unit of length (about 1/3 of a meter)

(e.g., 三尺 - sān chǐ — three chi); 寸 (cùn) — a traditional Chinese unit of length (about 1/30 of a meter) (e.g., 五寸 — wǔ cùn — five cun).

Seemingly, the majority of other classifiers exist, such as 段 (duàn) for a period of time or a stretch of road, 阵 (zhèn) for a brief period (e.g., of rain), and general classifiers like 个 (ge), which can sometimes be used with time words in informal speech.

3.3. English

In English, a great deal of measure words for time and distance are used, but these are not grammatically obligatory in the same way as Chinese classifiers. They are typically free morphemes (separate words) that precede the noun. English nouns do not inflect for number when used with measure words (except for irregular plurals).

Time: year (e.g., two years); month (e.g., three months); week (e.g., one week); day (e.g., five days); hour (e.g., four hours); minute (e.g., ten minutes); second (e.g., twenty seconds).

Distance: meter (e.g., one hundred meters); kilometer (e.g., two kilometers); centimeter (e.g., fifteen centimeters); millimeter (e.g., five millimeters); mile (e.g., ten miles); yard (e.g., five yards); foot/feet (e.g., one foot, two feet); inch (e.g., six inches).

While English can use phrases like *a period of two years*, the *of* is a preposition, not a classifier. English relies heavily on the inherent meaning of the measure word itself.

3.4. Examples and analysis

It is recognized that the number of measure words in Chinese is significantly greater than English ones. In Chinese, there is a series of related measure words are used specifically for counting nouns expressing time, periods, and seasons of the year, such as: 倍 bèi, 遍 biàn, 次 cì, 点 diǎn, 段 duàn, 分 fēn, 分钟 fēnzhōng, 届 jiè, 局 jú, 刻 kè, 列 liè, 轮 lún, 秒 miǎo, 年 nián, 派 pài, 期 qī, 起 qǐ, 日 rì, 所 suǒ, 趟 tang, 天 tiān, 微米 wēimǐ, 系列 xìliè, 下 xià, 宿 xiǔ, 夜 yè, 匝 zā, 载 zǎi, 阵 zhèn:

Example 1:

Tajik: Ba`d az in voqea, to Bukhoro raftan, rohi mazkur qarib du *farsakh* bud [1, P. 60] – *Chinese:* 在那件事之后，到布哈拉去，那条路大约有两波斯里 (zài nàjiàn shì zhīhòu, dào Bùhālā qù, nà tiáo lù dàyuē yǒu liǎng *bōsīlǐ* (cháng) - *English:* After that event, to go to Bukhara, that road was approximately two *farsakhs* / After that event, the road to Bukhara was approximately two *farsakhs* long [translated by the author].

Farsakh: this word is borrowed from Persian into Tajik and is a historical measure word used to quantify distance. In Tajik, *farsakh* is a common noun, inanimate, and countable, and its plural form is *farsakhho* (although the singular form is used in this sentence because it is preceded by the numeral two. In the sentence in question, *farsakh* participates as a predicative complement following the verb *bud (was).*

波斯里 (bōsīlǐ): this word is a phonetic transliteration of the Persian word *farsakh* into Chinese. That is, it is not an original Chinese word, but rather an attempt to pronounce the foreign word using Chinese characters. In Chinese, *波斯里 (bōsīlǐ)* is used as a noun. The former in question does not strictly conform to any traditional Chinese grammatical category (such as measure words). It is understood only as a measure word in this context. Pluralization of nouns is not explicitly marked in Chinese, so there is no plural form of *波斯里 (bōsīlǐ).* In Chinese sentence, this measure word follows the numeral *两 (liǎng)* and performs the function of a noun, the quantity of which is specified by *两 (liǎng).* The use of *两 (liǎng)* instead of *二 (èr)* indicates a standard measure word.

Farsakhs: in English, the relevant measure word functionates as a countable noun. Its plural form is created by adding the suffix *-s* (farsakhs). In the English sentence, *farsakhs* serves as a predicative complement following the verb *was*, just as in Tajik.

Thus, all three languages are dealing with a foreign measure word. Tajik and English have directly borrowed the word, while Chinese uses a phonetic transliteration.

Grammatical Adaptation: Tajik has fully incorporated the word *farsakh* into its grammatical system. English has also adapted it, applying its own pluralization rule. Chinese, due to its structure with measure words faces greater challenges and is forced to use a non-standard solution (using *两 (liǎng)* and potentially an implicit understanding of a measure word). This shows how different languages interact with foreign words, which are an important part of linguistic and cultural systems properly.

Example 2:

Tajik: ...devore, ki takhminan yak *gaz* balanid dosht… [1, P. 90] – *Chinese:* ...一堵约一厘米高的墙... Yī dǔ yuē *yī límǐ* gāo de qiáng… — *English:* ...a wall that was approximately *one gaz* high... [translated by the author].

Gaz: it is a historical measure word quantifying length that has Persian roots and is used in various cultures with slightly different ones. In Tajik, *gaz* is a common noun, inanimate, and countable. In the sentence in question, it is used in the singular form. *Yak gaz (one gaz)* occurs as a quantifier for height. The numeral *yak (one)* directly precedes *gaz,* which is a common structure in Tajik (similar to *du farsakh — two farsakhs*).

厘米 (límǐ): the word being compared means *centimeter,* which is a metric measure word and is not related to *gaz* in any way, and *厘米 (límǐ)* consists of two characters (morphemes):

–厘 (lí): One-hundredth part of a basic unit (in this case, meter), while the translation notes say *lí* represents one ten-thousandth, it's more commonly one-hundredth, especially in the context of centimeters.

–米 (mǐ): meter.

This structure is common for metric units in Chinese. *厘米 (límǐ)* is used as a noun. In the Chinese sentence, *一厘米 (yī límǐ)* serves as a quantifier for 高 (gāo), which means *high or height*. The measure word is not explicitly visible here, but *一 (yī)* implies its presence.

Adaptation Instead of Borrowing: unlike the *farsakh* example, where Chinese used transliteration *(波斯里 (bōsīlǐ),* here the translator has chosen a metric equivalent. This is a common strategy in translation: instead of introducing an unfamiliar unit, a familiar unit from the target measurement system is used. This shows that the translator has tried to make the original meaning understandable by using a measure word familiar to the Chinese reader.

Gaz: Like Tajik, English has retained the word *gaz*. It is likely that this word also entered English from Persian (or through other languages). In English, *gaz* is resorted to as a countable noun. In the sentence, it is used in the singular form. *One gaz* acts as a quantifier for *high (height).* Similar to Tajik and unlike Chinese (in this example), a measure word is not required.

Thus, this example shows a key difference in the approach of Chinese and English (and Tajik) to uncommon measure word. Tajik and English have a notable peculiarity of being able to borrow these units directly (even if they are rare). Chinese, on the other hand, prefers to replace them with familiar units from the metric system to ensure the text`s comprehensibility for the Chinese reader.

The translator`s choice in Chinese (using 厘米 (límǐ) instead of a transliteration of gaz) depends on the purpose of the translation. In the case of *farsakh*, Chinese used transliteration (波斯里 (bōsīlǐ), although this caused grammatical difficulties. In the case of *gaz*, the translator chose a different strategy.

Overall, this example shows how different languages deal with the uncommon measure word and how the translator`s choices can affect the understanding and accuracy of the text.

Example 3:

Tajik: ...yak vajab zamin.. [1, P. 180] – *Chinese:* 一拃地... (...yī zhǎ dì...) - *English:* ...a handspan of land...; *Tajik:* U baroi kurta *yak qarich* mato` kharid – *Chinese:* 他买了一拃布做衬衫 (Tā mǎile yī zhǎ bù zuò chènshān) – *English:* He bought *a handspan of cloth* to make a shirt [translated by the author].

The above-mentioned sentence provides a clear point for comparing how quantification of nouns is expressed in Tajik, Chinese, and English. The sentence, which in Tajik is U baroi kurta *yak qarich* mato` kharid and in Chinese is 他买了一拃布做衬衫 (Tā mǎile yī zhǎ bù zuò chènshān) reveals a distinct difference from the morphologico-semantic perspectives of the relevant notion in the comparative languages.

Similarly, *zhǎ* is a morpheme that cannot stand alone as an independent word in Chinese. Therefore, to fulfill its syntactic function, it must always be used together with the numeral *yī (一).* This dependency is a defining feature of Chinese measure words. Under the angle of morphological perspective, *zhǎ* is a single and invariable Chinese character. This lack of inflection is an important feature that distinguishes Chinese numeratives from the morphology found in many Indo-European languages. Many Chinese measure words, including *zhǎ,* originated from nouns. Historically, *zhǎ* referred to the hand itself.

In Tajik, *qarich* is also considered to be a relatively rare measure word. It is important to keep in mind that both the numeral *yak (one)* and *qarich* are free morphemes. *Qarich* is a noun that means *span* (a traditional unit of length). Both can exist as independent words. Importantly, *qarich,* unlike the Chinese *zhǎ* does not have the status of a grammatical classifier. This linguistic element serves as a measure word within the noun phrase *yak qarich mato' (one qarich of cloth)* acting as a measure word. Unlike Chinese, *qarich* being a noun can be inflected. It can take the plural suffix *-ho: qarichho — spans,* or it can be used with the *izofat* construction in a noun phrase, for example: *qarichi man - my span.* This phenomenon is one of the salient features of the corpus of our study.

In English, the relevant term is *handspan*. *Handspan* is a compound noun formed by combining two free morphemes: *hand* and *span*. It acts as a lexicalized measure word, directly modifying the noun *cloth.* It is not resorted to a grammatical classifier in this construction. The measure word is incorporated directly into the noun phrase. *Handspan* can be pluralized to *handspans.*

Thus, the morphological analysis reveals significant differences in how these languages handle quantification with a measure word based on the word under study. In Chinese is used the grammaticalized, bound morpheme classifier *zhǎ,* which is single and invariable. In Tajik is resorted to the free morpheme noun *qarich,* which serves as a measure word within the noun phrase and retains the potential for inflection. In English, on the other hand, the compound noun *handspan* is used, which is lexically descriptive and not obligatory. These differences illustrate the various ways languages categorize and quantify the world around them.

Example 4:

Tajik: Mo diruz *panj qadam* durtar az maydoni varzishi guzashtem [1, P. 100] – *Chinese:* 昨天我们走出了运动场五步之遥 (Zuótiān wǒmen zǒuchūle yùndòngchǎng wǔ bù zhī yáo) – *English:* We walked *five steps* away from the sports field yesterday [translated by the author].

Қадам: Qadam (Қадам): It is a measure word quantifying distance, equivalent to the length of a typical human step. This word has Arabic roots and is widely used in Tajik. *Qadam* is a common noun, inanimate, and countable. Its plural form is *qadamho,* but in this sentence, its singular form is used after the numeral *panj* (five). In this sentence, *panj qadam* functions as a prepositional phrase, specifying the distance from the sports field (durtar az — further from/away from). Within this phrase, *panj* is the quantifier for *qadam*. The numeral *panj* directly precedes *qadam,* which is the usual structure in Tajik.

步 (bù): means *step* and is used both as a measure word used to quantify distance and as a verb (to step). This is a native Chinese word. *步 (bù)* can be both a noun and a verb. In this sentence, it is used as a noun. Like most Chinese nouns, it does not have a specific plural form. In the Chinese sentence, 五步 (wǔ bù) means *"five steps."* 五 (wǔ) is the numeral five, and 步

(bù) is a measure word. 之遥 (zhī yáo) is a suffix that means "at a distance of." Thus, 五步之遥 (wǔ bù zhī yáo) means "at a distance of five steps." This structure corresponds to the Tajik structure (panj qadam durtar). 五 (wǔ) directly precedes 步 (bù), which is the standard structure of numeral + measure word in Chinese. 步 (bù) itself acts as a kind of measure word for steps. This is an example of how some words in Chinese have both lexical meaning and the grammatical function of a measure word.

Steps: has both the meaning of *step* as a measure word and the action of stepping. This word has Germanic roots. Step can be both a noun and a verb. In this sentence, it is used as a plural noun (steps). The -s suffix indicates the plural. In the English sentence, five steps functions as a prepositional phrase that specifies the distance from the sports field (away from). Five is the quantifier for steps.

Unlike the examples of farsakh and gaz, which were uncommon measure word (for Chinese and English), *step* is a common measure word in all three languages. Therefore, all three languages have their own words for this concept and do not need translation or transliteration.

In this example, the Chinese language again shows its characteristic with measure words. 步 (bù) not only means *step* but also functions as a measure word for steps. This demonstrates the Chinese language's preference for using measure words, even for common concepts.

Tajik and English have a simpler structure in this case. All three languages use a similar structure to express quantity: numeral + measure word. However, Chinese has an additional feature by adding the suffix 之遥 (zhī yáo) to express distance.

This example shows that even for universal concepts, such as *step*, languages can have different ways of grammatical expression, which depends on the structural characteristics of each language.

Example 5:

Tajik: Az Khujand to Konibodom *yak soat* roh bud [1, P. 78] – *Chinese:* 从胡占德到科尼博多姆需要一个小时的车程 (Cóng húzhàndé dào kēníbóduō mǔ xūyào *yīgè xiǎoshí* de chēchéng): - *English:* It was *an hour's* drive from Khujand to Konibodom [translated by the author].

– *个 (gè):* General measure word (classifier) for common objects. Here, it is used for *hour.* This is a crucial characteristic of Chinese, which requires measure words for almost all nouns.

– *'s:* Possessive marker. In this case, it is used to indicate that the distance is equivalent to one hour of driving *an hour's drive*. Alternatively, one could say *one hour of driving*, but *an hour's drive* is more common.

Here, the main difference between the languages is seen. Chinese always requires a measure word *(个, gè)* for *hour (小时, xiǎoshí).* In contrast, Tajik and English do not need this.

The usage of *'s* in English *an hour's drive* is specific for expressing the relationship between time and distance. In Chinese, the particle *de 的* would be used for a similar purpose. In Tajik, this relationship is expressed through the construction *yak soat roh (one hour road/path).*

All three languages express the notion of *an hour's drive/journey*, but in different ways. Chinese stands out with its obligatory use of a measure word. English stands out with the use of the possessives on the word *hour.* Tajik uses a simpler, yet common, structure. Each language uses its own grammatical features to express this concept.

Discussion

The comparative languages demonstrate distinct approaches to quantifying time and distance. Tajik, with its synthetic morphology, uses a limited set of measure words, but often combines them with noun inflection (number marking). This reflects a greater degree of grammaticalization within the noun phrase itself. Mandarin Chinese, an isolating language, mandates the usage of classifiers with numerals and quantifiers. These classifiers provide a rich semantic categorization of nouns extending beyond simple measure word. English, a largely analytic language, bears measure words, but their usage is less grammatically constrained and less semantically diverse than in Chinese.

4.1. Inventory Size and Types

The most significant difference lies in the size and nature of the inventory. Chinese exhibits a large, productive system of classifiers and unit words functioning as classifiers, obligatory in quantified phrases [Numeral + Classifier + Noun] or [Numeral + Unit Word]. This includes a range of unit words specifically for time and distance (e.g., *分钟, 小时, 天, 年, 米, 公里*) and more general classifiers applicable to spatial segments *(段)* or occurrences *(趟)*. English has a more limited set of measure words, primarily for non-count nouns; standard time and distance units are treated as countable nouns modified directly by numerals. Tajik has the most restricted system regarding specialized measure words for time and distance units, relying almost exclusively on the direct modification of the unit noun by the numeral.

4.2. Morphological Complexity and Status

Morphologically, the systems differ in terms of syllabicity, composition, and bound vs. free status. Chinese classifiers/unit words are either monosyllabic (*个, 段, 趟*) or polysyllabic compounds *(分钟, 小时, 公里)*. They are consistently free morphemes, despite their fixed syntactic position. Tajik unit nouns/measure words are typically polysyllabic free morphemes *(soat, kilometir),* showing no internal morphological complexity in their quantifying function. English measure words and unit nouns are also free morphemes, frequently polysyllabic *(kilometer, minute).* A key morphological contrast is the absence of any form of affixation or cliticization in the quantifying elements in all three languages for standard units of time/distance, contrasting with Tajik's use of enclitics for modal particles, as discussed in the introduction (though not analyzed in results due to scope shift). However, English unit nouns do show plural inflection after numerals (1), a morphological process entirely absent in the quantified nouns/units in both Tajik and Chinese.

4.3. Syntactic Structure and Grammatical Obligatoriness

The syntactic structures employed are fundamentally different, reflecting varying degrees of grammatical obligatoriness for classifiers/measure words.

–*Chinese:* [Numeral + Classifier/Unit Word] (+ Noun, if applicable). The classifier/unit word is syntactically and grammatically obligatory whenever a numeral (or certain quantifiers) modifies a noun (or unit). This rigid structure is characteristic of a classifier language.

–*Tajik*: [Numeral + Noun (Unit)]. The unit noun directly follows the numeral. There is no obligatory slot for a separate classifier or measure word for standard units. The use of generic measure words like *adad* is limited to discrete objects and is generally optional. This system is less grammaticalized in requiring a specific classifying element.

–*English:* [Numeral + Noun (Unit, usually plural)]. Numeral directly modifies the countable unit noun. For non-count nouns, the structure is [Numeral + Measure Word + of + Noun]. Measure words are obligatory only in the latter case.

The high degree of grammatical obligatoriness and the distinct syntactic slot for classifiers in Chinese is a defining typological feature, distinguishing it from both Tajik and English.

4.4. Semantic Specificity

Chinese classifiers and unit words demonstrate a high degree of semantic specialization, categorizing nouns based on shape *(条 tiáo for long thin things)*, function *(辆 liàng for vehicles)*, or representing specific units *(米, 小时)*. Even the general classifier 个 functions within this obligatory system. English measure words are semantically specific (e.g., *slice* implies flatness and being part of a larger piece, *bottle* implies a container) but apply primarily to non-count mass. Standard units of time/distance in English and Tajik are semantically specific by definition (referring to a unit of measure), but the quantifying elements themselves (numerals, absence of mandatory classifiers) do not add further semantic classification.

4.5. Insights from Translation Analysis

The analysis of translation shifts provides empirical evidence for these structural and obligatoriness differences. Translating from Chinese (N-Cl-N or Num-Unit) to Tajik or English typically involves the omission of the classifier/unit word as a distinct element between the numeral and the noun (e.g., Chinese [Numeral + *小时]* becomes Tajik [Numeral + *soat*] or English [Numeral + *hours*]). Conversely, translating a Tajik or English numeral + unit noun construction into Chinese necessitates the addition of the unit word in the required classifier position. Similarly, an English structure [Numeral + Measure Word + of + Noun] might be translated to a simpler [Numeral + Noun] or [Numeral + Classifier + Noun] in Chinese/Tajik if the noun is countable, or may require a measure word equivalent if the noun functions as non-count in the target language, albeit with different structural realizations. These shifts confirm that the classifier/measure word slot in Chinese is a fundamental, often mandatory, structural requirement absent or significantly different in Tajik and English, driven by their typological characteristics.

4.6. Correlation with Typology

The observed morphological and syntactic patterns strongly correlate with the typological profiles:

–*Chinese (Isolating):* Lack of inflectional morphology leads to reliance on fixed word order and free function words. The obligatory classifier system fits this profile perfectly, with classifiers being invariant free morphemes occupying a fixed position to convey grammatical information (quantification).

–*Tajik (More Analytic Indo-European):* While possessing some inflection (e.g., noun pluralization), it shares some analytic tendencies with English. The limited use of measure words for standard units, combined with direct numeral modification and reliance on noun number marking (for nouns generally, though less so within the quantified phrase itself), aligns with systems where quantification is primarily a function of the numeral and the countable nature of the noun/unit.

–*English (Analytic Indo-European):* Highly analytic for countable nouns, relying on word order (Numeral + Noun) and minimal morphology (plural *-s*). Measure words exist but are structurally distinct (requiring *of*) and primarily for non-count nouns, reflecting a different approach to mass vs. count distinction compared to classifier languages.

Conclusion

Thus, this comparative analysis of the systems used for quantifying time and distance in Tajik, Mandarin Chinese, and English highlights significant typological differences in the grammatical encoding of quantity. The study confirms that while all three languages can express specific quantities of time and distance, they employ distinct morphological and syntactic mechanisms.

Mandarin Chinese utilizes a robust and grammatically obligatory system involving classifiers and unit words that function as classifiers, typically found in a fixed [Numeral + Classifier/Unit Word] structure. These quantifying elements are largely invariant free morphemes, reflecting the language's isolating typology.

Tajik, representing a more analytic Indo-European system, relies primarily on direct numerical modification of the unit noun (e.g., *se soat three hours*). Dedicated measure words are sparse for standard time/distance units and are not grammatically obligatory. The unit nouns themselves are free, generally polysyllabic forms.

English, also an analytic Indo-European language, employs direct numeral modification for countable unit nouns (e.g., *three hours*), which also take plural morphology. Measure words in English are primarily used for non-count nouns in a different structure ([Numeral + Measure Word + of + Noun]) and are obligatory only in that context.

The varying degrees of grammatical obligatoriness, the presence or absence of a dedicated classifier/measure word slot between the numeral and the noun/unit, and the morphological nature (syllabicity, bound/free status, inflection) of the quantifying elements are direct consequences of the distinct typological profiles of the three languages (isolating vs. more analytic). The insights from translation analysis corroborate these structural differences, demonstrating how the requirement for specific grammatical elements in one language necessitates structural adjustments (additions or omissions) in translation into a language with a different quantification system.

This research contributes to the understanding of cross-linguistic variation in the expression of quantity, specifically focusing on the domains of time and distance across genetically and typologically diverse languages. It underscores how

fundamental grammatical structures dictate the form and function of elements used in quantification. Future studies could expand this comparison to other semantic domains, investigate the diachronic development of these systems, or utilize larger corpora to conduct more fine-grained quantitative analyses of usage frequencies and co-occurrence patterns.

Конфликт интересов

Не указан.

Рецензия

Все статьи проходят рецензирование. Но рецензент или автор статьи предпочли не публиковать рецензию к этой статье в открытом доступе. Рецензия может быть предоставлена компетентным органам по запросу.

Conflict of Interest

None declared.

Review

All articles are peer-reviewed. But the reviewer or the author of the article chose not to publish a review of this article in the public domain. The review can be provided to the competent authorities upon request.

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