

COMPARATIVE STUDY OF LENGTH MEASUREMENT IN THE ENGLISH AND UZBEK LANGUAGES

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ABSTRACT

This article is intended to identify the usage of length measurement units in the English and Uzbek languages. It expresses huge importance of studying the units of distance measurement by giving citations from the famous linguists' opinions. Moreover, it includes several examples used in both languages to make the ideas more clear, which can be found in fictional books as well. Comparative and descriptive methods were used in this work. At the end of this article all ideas are considered and conclusion as, the aspect of length measurement in linguistics is very broad topic and should be studied as a crucial part of linguistics in both languages, is stated summarizing key points.

Keywords: measurement, length, distance, English, Uzbek, national units.

INTRODUCTION

Speaking about measurements at the initial stage of the development of human society, it should be emphasized that we are talking about objects that are commensurate with the size of the person himself. Fingers and toes were the first counting instrument for humans. The same arms, legs and the dimensions of some other parts of the body (palms, spans, finger joints) and their movements - step, arm span - served as examples of the first measures of length as Depman mentioned in the book named "Measurement and metric system" [1].

All modern science relies on measurements of observable properties of specific events or objects. Typically, a single measurement yields a number associated with a unit: for example, the number-unit pair "10" meters could be the result of a distance measurement. A number-unit pair produced by making a measurement is called a datum; when there is more than one datum, they are called data. The numerical part of a datum records unique information, while the unit tells what sort of phenomenon the information refers to: in the datum "10 meters," the "10" is information, while "meters" tells us how to interpret that information. ("10 feet" is interpreted differently from "10"



meters; the units tell us that it describes a shorter distance.) Data produced by measurements usually have some degree of uncertainty. For example, if a ruler that is only accurate to the nearest centimeter is used to measure a distance, then it is not enough to report “10 meters”; a scientist must record that the distance is 10 meters give or take 1 centimeter. Without precise measurements whose uncertainties are well-understood, science could not disentangle the web of cause and effect that is the physical world. And although science is far more than the mere accumulation of measurements, without measurement science could not exist. Millions of phenomena are measured throughout all scientific fields: the weight of a mouse, the response time of a human subject, the brightness of a star, the temperature of a breeze.

METHODS

The concepts of length, volume, weight, mass, which are the most important in life practice, are universal in nature. They originated in people in ancient times and have come a long way of development and improvement before they became scientific terms. According to I.P. Zemskova, “some scientific, including mathematical, concepts have a cultural background” [2]. The measurement of distance is one of the most fundamental tools of science. Around 2000 BC, the Sumerians began using a cubit as a standard measurement for length. A Sumerian cubit was the distance from a person's middle finger to the elbow, and a “foot” equaled two-thirds of a cubit. In the ancient Near Eastern city of Nippur, a copper bar was a standard measurement tool around 1900 BC. At 3.62 ft (110.35 cm) long (converting to today's measurements), the bar was divided into 4 “feet,” each with 16 “inches”.

RESULTS

There are some units of length measurement that are commonly used and recognized, at the same time there are some units referring distance that are utilized abnormally. Although they were widely used in the past, nowadays some people just knows about their existence. First we will analyze frequently applied Customary units of length and distance, which belong to English linguistics, then we will move to the seldom used ones.

Inch is a unit of linear measure equal to one twelfth of a foot 2.54 centimeters. The name inch is derived from the English name for the thumb joint. Even today, this unit of measurement is used in some cases. For example, the diagonal of a television, computer, laptop, cell phone, smartphone monitor is measured in inches. The abbreviation for inches is in or

". The inch was originally defined as 3 barleycorns. It was finally standardized in the International Yard and Pound Treaty in 1959¹.

Inch is also used to refer a very small amount or distance, but it often carries a negative meaning.

*The toy train is four inches long; eighteen inches of thread
I had no intention of budging an inch*

This unit of leisure measurement is also used to express other quantities, in particular:

- (As a unit of rainfall) a quantity that would cover a horizontal surface to a depth of one inch.

- (Also inch of mercury as a unit of atmospheric pressure) an amount that would support a column of mercury one-inch high in a barometer (equal to 33.86 millibars, 29.5 inches being equal to one bar)

In the sentence this unit can serve as a verb, more specifically followings can be outlined:

- (no object, with adverbial of direction): move slowly and carefully in a specified direction: *The 2,000 mourners inched along narrow country lanes; The worm inched along; The value of the stock inched up toward its all-time high.*

- (figurative) *the stock market inched ahead today;*

- (with object and adverbial of direction) cause (something) to move in this manner: *he inched the car forward.*

Some phrases with inch are given in The World Book Dictionary [3]:

- **By inches** 1 only just: *the shot missed her by inches.* 2 very slowly and gradually; bit by bit: *you can't let him die by inches like this.*

- **Every inch** 1 the whole surface, distance or area: *between them they know every inch of the country.* 2 entirely; very much so: *he's every inch the gentleman.*

- **Give someone an inch and he (or she) will take a mile** – proverb: once concessions have been made to someone they will demand a great deal.

- **Inch by inch** gradually; bit by bit: *inch by inch he crept along the wall.*

- **Within an inch of** very close to: *her mouth was within an inch of his chin*

- **(to) within an inch of one's life** almost to the point of death: *he was beaten within an inch of his life.*

The Origin of inch belongs to the late Old English ynce, from Latin uncia “twelfth part”, from unus “one” (probably denoting a unit) [4].

¹The international yard and pound are two units of measurement that were the subject of an agreement among representatives of six nations signed on 1 July 1959. The agreement defined the yard as exactly 0.9144 meters and the pound as exactly 0.45359237 kilograms.



The foot is a unit for measuring length equal to 12 inches or 30.48 centimeters (0.3048 meter): *shallow water no more than a foot deep*. The shortest way of writing the unit "foot" is by the abbreviation "ft" (or "ft.") or by a prime symbol ('), 5 feet = 5 ft. = 5'. It is called a foot, because it was originally based on the length of a foot.

1 foot = 12 inches;

1 yard = 3 feet or 36 inches;

1 meter = 3.28 feet or 39.37 inches.

In the past the foot was a common unit of measurement throughout Europe. It often differed in length not only from country to country but from city to city. Because the length of a foot changed between person to person, measurements were not even consistent between two people, often requiring an average. Henry I of England was attributed to passing the law that the foot was to be as long as a person's own foot. This was one of the first times a standard unit of measurement was put into place. In 1959, the United States, Canada, New Zealand, South Africa, Australia and the United Kingdom all signed a treaty known as the 'International Yard and Pound Agreement'. This standardized the avoirdupois² weight and length of all nations. Those standards are still officially used in both the Imperial system and U.S customary units.

Followings are the examples of foot utilized as a verb and as a phrase:

- **To foot** informal pay (the bill) for something, especially when the bill is considered large or unreasonable;
- **Foot it** cover a distance, especially a long one, on foot: *the rider was left to foot it ten or twelve miles back to camp*; it has an archaic dance meaning as well: *the dance of fairies, footing it to the cricket's song*.

Nowadays Road signs with height restrictions in the United Kingdom are measured in feet and inches. In the United Kingdom people usually measure a person's height in feet and inches. If a person is "five foot eleven", this means that person is 5 feet and 11 inches, or about 180 centimeters. The height is written 5' 11" [5].

Yard is a unit of linear measure equal to 3 feet or 36 inches in the United States Customary System or 0.9144 meter in the International System of Units; abbreviated as yd. Moreover, there is a cloth yard, used to measure cloth, is 37 inches long. Yard was also the standard length for arrows. The term, yard derives from the

² The avoirdupois system is a system for measuring weight. It is based on a pound of 16 ounces or 7,000 grains (453.59 grams). It is the system used in the United States. It is still used by many people in Canada, United Kingdom, and Ireland.



Old English *gerd*, *gyrd*, which was used for branches, staves, and measuring rods.

Mother bought three yards of blue cloth for curtains.

The football player ran 40 yards for a touchdown.

There are some cases in which the unit yard carried out an informal meaning:

- One of them is “**yards of**” it is an informal unit that means a great length:

Yards and yards of fine lace;

He could talk by the yard of what little he did know. (Wat Bradwood)

He had a lace a yard long. (Henry James)

- There is another informal phrase with yard as “**by the yard**” that means in large numbers or quantities: *golf continues to inspire books by the yard.*

- **The whole nine yards** is also an example for yard carrying out the meaning everything that pertains to something; the whole series; the works: A 1983 Lincoln on Interstate 66 ... had “smoked windows, antennas, the whole nine yards,” Richard reports (Washington Post) [6].

- There is a slang as well with the word yard that means 100 dollars in the context: “*Would you like to make an easy five yards, Eddy?*” asks the driver. (Maclean’s)

- In casual speech, a yard may refer to a cubic yard or a square yard, especially of sand or other building materials as concrete, gravel, or topsoil.

The mile is a measure of distance equal to 5,280 feet; statute mile: *After running out of gas we walked two miles to the filling station.*

Mile or a statute mile is a unit of distance equal to 1,760 yards or 5,280 feet (1.609 km), it is abbreviated as mi. The history of this measurement unit goes back to the Old English *mil* < Latin *milia* (*passuum*) a thousand (Roman paces), plural of *mille*; *passuum*, genitive plural of *passus*, -us the legionary’s double pace. It originated from the Roman *mille passus*, or “*thousand paces*,” which measured 5,000 Roman feet. About the year 1500 the “old London” mile was defined as eight furlongs. At that time the furlong, measured by a larger northern (German) foot, was 625 feet, and thus the mile equaled 5,000 feet. During the reign of Queen Elizabeth I, the mile gained an additional 280 feet—to 5,280—under a statute of 1593 that confirmed the use of a shorter foot that made the length of the furlong 660 feet. Elsewhere in the British Isles, longer miles were used, including the Irish mile of 6,720 feet (2.048 km) and the Scottish mile of 5,952 English feet (1.814 km).

A nautical mile was originally defined as the length on the Earth’s surface of one minute (1/60 of a degree) of arc along a meridian (north-south line of longitude). Because of a slight

flattening of the Earth in polar latitudes, however, the measurement of a nautical mile increases slightly toward the poles. For many years the British nautical mile, or admiralty mile, was set at 6,080 feet (1.85318 km), while the U.S. nautical mile was set at 6,080.20 feet (1.85324 km). In 1929 the nautical mile was redefined as exactly 1.852 km (about 6,076.11549 feet or 1.1508 statute miles) at an international conference held in Monaco, although the United States did not change over to the new international nautical mile until 1954. The measure remains in universal use in both marine and air transportation. The knot is one nautical mile per hour.

Except the meaning of distance measurement equal to 5,280 feet, the Mile or the Statute mile conveys the following explanations:

- A measure of length equal to about 6,080 feet, used especially at sea. It is theoretically equal to the distance traversed along one minute of a degree of a great circle of the earth: The fishing boats were several miles out at sea.
- An international unit of linear measure for sea and air navigation, equal to 1,850 kilometers.
- The ancient Roman mile, equal to 4,860 feet.
- The modern Swedish mile, equal to 10 kilometers.

Now we will analyze some units of distance and length that have mostly fallen out of use. However, we have to mention that they are still commonly used in distilled drinks and drinking games.

Point (0.3528mm) - a point approximately equal to the width of the point that we put on the letter

Barleycorn is thought to be equal to a grain of barley; The barleycorn is a former English unit of length equal to $\frac{1}{3}$ of an inch. It is still used as the basis of shoe sizes in English-speaking countries.

Line (2.1mm) - a line (6 points) that is close to the traditional 2 millimeters

A finger (sometimes fingerbreadth or finger's breadth) is any of several units of measurement that are approximately the width of an adult human finger, including: The digit, also known as digitus or digitus transversus (Latin), dactyl (Greek) or dactylus, or finger's breadth — $\frac{3}{4}$ of an inch or $\frac{1}{16}$ of a foot.

A nail, as a unit of cloth measurement, is generally a sixteenth of a yard or $\frac{21}{4}$ inches or 5.715 centimeters. The nail was apparently named after the practice of hammering brass nails into the counter at shops where cloth was sold. On the other hand, R. D. Connor states³ that the nail was the 16th part of a Roman foot, or digitus or finger, although he provides no

³ The weights and measures of England, R. D. Connor, page 84

reference to support this. Zupko' states⁴ that the nail was originally the distance from the thumbnail to the joint at the base of the thumb, or alternately, from the end of the middle finger to the second joint.

Following sentences can be example of the nail in literature:

**Oh, monstrous arrogance! Thou liest, thou thread,
Thou yard, three-quarters, half-yard, quarter, nail
Thou flea, thou nit, thou winter cricket thou:—
Brav'd in mine own house with a skein of
thread!**

— **Petruchio, Act. IV, Scene 3, The Taming of the Shrew, Shakespeare**

Explanation: Katherine and Petruchio are purchasing new clothes for Bianca's wedding. Petruchio is concerned that Katharine's dress has too many frills, wonders what it will cost, and suspects that he has been cheated. Katherine says she likes it, and complains that Petruchio is making a fool of her. The tailor repeats Katherine's words: Sir, she says you're making a fool of her. Petruchio then launches into the above-quoted tirade. Monstrous may be a double-entendre for cuckold. The half-yard, quarter and nail were divisions of the yard used in cloth measurement. Nail = 3 digits = 2 1/4 inches = 1/16 yard

Acre is a unit of land measurement in the British Imperial and United States Customary systems, equal to 43,560 square feet, or 4,840 square yards. One acre is equivalent to 0.4047 hectare (4,047 square metres). Derived from Middle English aker (from Old English aecer) and akin to Latin ager (“field”), the acre had one origin in the typical area that could be plowed in one day with a yoke of oxen pulling a wooden plow. The Anglo-Saxon acre was defined as a strip of land 1 × 1/10 furlong, or 40 × 4 rods (660 × 66 feet). One acre gradually came to denote a piece of land of any shape measuring the present 4,840 square yards. Larger and smaller variant acres, ranging from 0.19 to 0.911 hectare, were once employed throughout the British Isles.

Furlong is a measure of distance equal to one eighth of a mile; 220 yards or 201.168 meters. The history of the furlong goes back to the Old English furlang < furh (furrow) + lang (long). It is an old English unit of length, based on the length of an average plowed furrow (hence “furrow-long,” or furlong) in the English open- or common-field system. Each furrow ran the length of a 40 × 4-rod acre, or 660 modern feet. It is abbreviated as fur. The standardization of such linear units as the yard, foot, and inch—begun by government enactment sometime between 1266 and 1303—recognized the traditional sizes of rods,

⁴ A dictionary of weights and measures for the British Isles, Zupko, page 256



furlongs, and acres as fixed and therefore simply redefined them in terms of the newly standardized units. Thus, the furlong, often measured as 625 northern (German) feet, became 660 Standard English feet, and the mile, always 8 furlongs, became 5,280 feet. Today, the furlong is used almost exclusively in horse racing.

DISCUSSION

In medicine and related disciplines (anatomy, radiology, etc.) the fingerbreadth (literally the width of a finger) is an informal but widely used unit of measure. In the measurement of distilled spirits, a finger of whiskey refers to the amount of whiskey that would fill a glass to the level of one finger wrapped around the glass at the bottom. Another definition (from Noah Webster): "nearly an inch. Finger is also the name of a longer unit of length used in cloth measurement, specifically, one eighth of a yard or $4\frac{1}{2}$ inches.

It is known that the words depicting units of measurement have existed since ancient times and were used in times when units of measurement were not introduced based on the needs of the people. For example, words such as **chaqirim**, **yig'och**, **manzil**, **mil**, **en**, **qari**, **qarich**, **quloch** were used with the compounds such as **ko'z yetar yer**, **ko'z ko'rar yer** to describe length in Uzbek language. According to the historical sources it is known that, in ancient times, people used the human body as a unit of measurement. There are even reports that human hair has been used as a unit of length. For example:

Ahmoqni ahmoq desa **bir qarich** o'sadi;
Ikki dunyo **bir qadam**.

The words **qarich** and **qadam** in these proverbs have long been used as a unit of length. **Qarich** is used to represent the distance between the fingers of the person (the distance between the thumb and the fifth, the smallest finger) and **qadam** was used to represent the distance between the steps of the person. According to the historical sources it is known that, in ancient times, people used **qadam** for land surveying and canal digging. These words are still used today in the vernacular.

Better understanding of the measurement units is very crucial. Because this topic is widely connected with not only astronomy, mathematics or building, but also it has deep connections with history, linguistics and literature. It must be emphasized that we need to give students an idea of units of measurement in the past. This is especially important in literature classes. Because students may not understand the meaning of measurement units as above examples given in their textbooks. For example, a student reading

Navoiy's lyrics is confronted with the word “qadam”. If he knows that the word “qadam” has long been used as a unit of measurement, he can easily understand the value of a poem [7].

*Hamul yerdan o'n ikki ming qadamdir,
Vale har bir qadamda yuz nadamdir.*

There are some phraseological units devoted to units of measurement in the field of linguistics. However not all the time we do understand their importance and start to analyze them as the crucial parts of linguistics. As mentioned above, there are some phrases that are used by people with numbers and parts of body denoting measurement units in Uzbek language. One of them is **jimjiloq**. According to the dictionary meaning it means the fifth, the smallest finger.

➤ (Ma'murjon) jimjilog'i bilan qulog'ini cho'qilay-cho'qilay, u yoq – bu yoqqa yura boshladi. Sh. Xolmirzayev, To'lqinlar.

➤ Chap qo'lining jimjilog'i sirqirab og'rir edi. M. Osim, Karvon yo'llarida.

In the above-given examples the word jimjiloq was used in its real, dictionary meaning, denotational meaning.

However, the word jimjiloq could be used as a measurement unit of height, when something or somebody is described as the smallest one as a conational meaning:

➤ Muallim qo'lga bo'r olib, doskaga jimjiloqdaygina tikka tayoqcha chizdi. P. Tursun, O'qituvchi

➤ Jimjiloqday bo'ying bor kerilishing olamni buzadi. X. Sulton, Odamlardan tinglab hikoya.

➤ Bir muhbir o'rtog'im jinjiloqdek keladigan yon daftarchasiga qarab, filday-filday gaplarni gapirib berdi. “Mushtum”

Arshin is a unit of length used before the introduction of the metric system, equal to 0.71 meters [8]. Arshin is also the name of the measuring instrument of the same length; also named as gaz or gazcho'p. Above-written description is arshin's denotational meaning, while it may also have a connotational meaning that can be seen in the sentence below:

O'z arshini bilan o'lchamoq

In this sentence, the word will not be translated separately from other words. Because as a phraseological unit, the whole sentence serves to denote one meaning: to judge something by one's own point of view, by one's own measure. With the help of following example we can understand the connotational meaning of arshin:

Har holda, kimki kim haqida yozmasin, o'sha odamning o'ziga o'xshashini xohlaydi, boshqacha aytganda, o'z arshini bilan o'lchaydi.
(M.M.Do'st, Lolazor)

CONCLUSION

In this article various units of length measurement in the English and Uzbek languages are analyzed. It was clear that we can see them not only in the mathematical books with concrete numbers but also, they can be found in literature books and folklores. Moreover, several examples of distance measurement units were investigated, in which some measuring words may obtain more than one meanings. The aspect of length measurement in linguistics is very broad topic and can be hardly examined with the help of one article. Therefore, more research in this field is needed.

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