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## Genetic Layers of Tatar Cosmonyms

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### Abstract

The article presents the results of the research of Tatar cosmonyms with regard to their origins. It is believed that the lexis of any language is heterogeneous in terms of origins and consists of both aboriginal and borrowed words. The language of the modern Tatars traces its roots to the ancient Turkic language, which was influenced by the Indo-European languages. The research revealed that all those lexical layers are reflected in the cosmonyms of the Tatar language. The smallest group is represented by ancient Turko-Tatar cosmonyms. The next group comprises cosmonyms, borrowed from Arabic. One more group is made up of cosmonyms borrowed from Russian and earlier derived from Latin and Greek. In the 20<sup>th</sup> century, many Russian cosmonyms (astrotoponyms, for the most part) were translated into Tatar. Lexemes of the first group are used in everyday speech. Meanwhile, Arabic and Latin names of celestial bodies are employed only in scientific and literary Tatar.

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## 1. Introduction

How language originated has always occupied the minds of scientists. Scientists have made many hypotheses about this, one of which is related to ancient Greece (Steels, 2007). According to this theory, the first words of man were imitations of natural sounds; in other words, the sound of animals or wind and rain or the collision of objects. Prehistoric humans used these sounds to convey the concepts that were relevant to them. They also speculated that the first words came from jumbled cries of fear, panic, joy, or excitement. About 40 years ago, there was a popular hypothesis that arm and hand movements in early humans were accompanied by sounds coming out of the mouth to indicate a certain action, and thus language was created (Huang, 2013). But none of these hypotheses properly explain how the change in these sounds led to the creation of specific and meaningful words and how the emergence of language paved the way for the intellectual development of early humans and evolved speech, which is closely related to intellectual development. The fundamental difference between humans and animals is their ability to speak. Modern science attributes the beginning of human evolution to the beginning of the fourth period of geology, about 1.8 million years ago, and equates it with the emergence of two-legged primates whose soles were wide and stuck to the ground. From the perspective of anthropology, language as a technical tool and as an evolutionary perspective has played a key role in shaping the culture of society. This evolution has been very effective in the importance and origin of the language of human culture and has caused the differentiation of human language from the system of animal language.

Language is constantly changing and largely depends on the views, values, and customs of its people. Obviously, the differences between the two cultures are well reflected in their languages. Also, it should be noted that people in two countries and with two different languages grow up with completely different values and beliefs. You need to prepare yourself to understand and accept these differences. Differences in values and beliefs can manifest themselves in different situations. It is enough to look at the slang terms and

expressions of different cultures to understand this difference and to understand what is important in each society. For example, if you read Chinese terms about family, you will find that family relationships are very valuable to the Chinese, and we can learn more about the structure and characteristics of the family. Whatever culture you look at, you cannot ignore its history. Understanding the history of any culture allows you to understand why certain ideas, beliefs, and values were formed in that culture and why certain words and phrases exist in a language. If you take a closer look at the science of etymology, you will find that words that used to have a specific meaning have a completely different meaning today.

The Global Language System (GLS) is an intelligent model of communication between language groups. The Dutch sociologist De Swaan (2013) presented this theory in 2001 in his book, "World Words", entitled "The World Language System". According to the book, multilingual communication between language groups does not happen by chance, but on the contrary, they form a very efficient and powerful network that connects the six billion inhabitants of the planet. The GLS uses the theory of the world system to calculate the relations between the languages of the world and divides them into a hierarchy consisting of four levels: peripheral languages, central, super-central, and over-central (De Swaan, 2013). According to De Swaan (2013), the GLS has constantly been developing since the time of "military-territorial" regimes (De Swaan, 2013). Under these regimes, rulers forced their own language, and thus the first "central" languages emerged, linking the peripheral languages of agricultural societies to the language of the conquerors through bilingual speakers. Then came the formation of empires, which led to the next stage of the integration of the GLS.

For example, Latin first emerged from Rome. Under the Roman Empire, which ruled a large group of countries, the use of Latin spread along the Mediterranean coast, the southern half of Europe, and rarely to the north and then to the Germanic and Celtic lands. Thus, Latin became the main language in Europe from 27 BC to 476 AD. Second, due to the unification of China in 221 BC by Qin Shi Huang, there

was widespread use of the pre-classical Han Chinese version in contemporary China. Third, the Sanskrit language in South Asia is popularized by the widespread teaching of Hinduism and Buddhism in South Asian countries. Fourth, the expansion of the Arab Empire also led to an increase in the use of Arabic as a language in the African-Eurasian landmass.

The military defeats of centuries in the past generally regulate the distribution of languages today. The super central languages are spread by sea and land. Land-based languages spread through marching empires: Chinese, German, Hindi, Russian, Japanese, and Arabic. However, when the conquerors were defeated and forced out of the realm, the spread of languages slowed. On the other hand, the maritime languages spread by the conquests abroad: English, Spanish, French, and Portuguese. As a result, these languages became popular in areas inhabited by European colonizers, forcing indigenous peoples and their languages into peripheral situations.

The core of the language system, transmitted to succeeding generations, represents the lexical riches of any language, which create knowledge of the world around – the worldview of native speakers; that is why studying a word and its meaning started long ago. From ancient times to the present day, the sky of stars and celestial bodies have attracted humans' attention, so the process of their naming is of special interest to both linguists and the public at large. The names of celestial bodies keep some data of the sky structure in ancient times when the language originated, of positions of the stars and the solar system planets regarding the Earth. In the epoch of scientific and technological progress, stars and other spatial objects have lost their primary functions of serving for route and time determination or of making weather forecasts. In most modern languages, Tatar included, ancient names of celestial bodies have vanished from the memory of people; consequently, cumulating and studying cosmonyms are instrumental in keeping the language heritage for the generations to come. These linguistic units should be analyzed and classified; the changes that occur in them should be scientifically explained for the

purpose of forecasting the further development of the language.

All of these determine the relevance of this work. Studying names of celestial bodies in the framework of onomastics is quite a new and unexplored field in Tatar linguistics. In Russian onomastics, the question of whether this field should be termed as *cosmonymics* or *astronymics* is under discussion; the problem has not been resolved so far. In this article, the term *cosmonymics* is utilized.

Certain aspects of studying cosmonyms and their functioning were presented in the works by Superanskaya (1973), Karpenko (1981), Rut (1987), Galiullina, Kadirova, Khadieva, Kuzmina, and Kajumova (2018), Khadieva, Galiullina, and Kuzmina (2019), Kajumova, Galiullina, and Khadieva (2016), Abdrakhmanova, Galiullina, and Khadieva (2016), and others. Considering that the issues of studying cosmonyms are allied to analyzing the development of the standard language and literature in its entirety (folk literature, in particular), the works by Kuzmina, Khadieva, Galiullina, and Akhunzhyanova (2019) served us as the basis for studying the names of celestial bodies.

The purpose of this paper is to determine the historical genetic layers of Tatar cosmonyms, to reveal the earliest appellations, and to demonstrate the specificity in the Tatar cosmonymy formation. We have studied the linguistic characteristics of cosmonyms functioning in the Tatar language and revealed that linguistic, extralinguistic, and ethnocultural features promote the use of cosmonyms in the Tatar standard and everyday language.

## 2. Theoretical Framework

Numerous studies have been conducted on the Tatar language and its linguistic dimensions. Khanova, Zamaletdinov, Nurmukhametova, Zamaletdinova, and Zakiev (2017) say that in the age of close international cultural, diplomatic, and economic relations, the study of traditional culture and its reflection in language have become a vital need, which provides sufficient mutual understanding of people, creating a sense of tolerance and respect for the culture of others. The language of any country is closely related to the culture and lifestyle of the people. It reflects the

identity, philosophy, cultural and social development as well as cultural and social relations by other people. Knowledge of this type of cultural vocabulary presupposes a person's understanding of belonging to a certain nation, and knowledge of foreign cultural elements is necessary for a comprehensive understanding of each other in communication.

Wertheim (2002) was believed that linguistic performance, particularly speech carefully cleansed of salient Russian influence, plays a significant role in the construction of Tatar identity: this performance can be both for outsiders, such as field workers or unknown members of large audiences, and for insiders, such as members of a small social network. Broadly speaking, Tatar identity appears to be defined in opposition to Russian, such that the focus is less on what Tatars are and more on what they are not, and what they are not is Russian. In this context, with an oppositional definition, the pure Tatar individual comes to mean the de-Russified Tatar individual, the one who has removed the Russian influence from his or her life.

In her study of Core Linguistic Properties, Crain (2010) wrote: There are two perspectives on the distinction between nuclear and environmental linguistic characteristics. Proponents of the universal grammar theory claim that the difference between the core and the periphery is significant, with the main features having several features that are not shared by the environmental structures of individual human languages. On the other hand, proponents of language-based reporting claim that the distinction between the core and the periphery is not appropriate. Because human languages are very different, the same mechanisms that language learners use to acquire ancillary structures are sufficient to obtain the basic characteristics.

Galieva (2018, p. 55) states that the construction of the thesaurus is aimed at establishing all the individual Tatar words and multi-word cases related to the socio-political sphere with their Russian equivalent. A distinctive feature of the contemporary Tatar dictionary is the many absolute synonyms that have arisen due to a combination of interlinguistic and extralinguistic factors. Body data proves that synonymy in socio-political

terms is an artificial and superficial phenomenon. Currently, most Tatar socio-political idioms are coined with idioms related to Russian idioms, and the lexical preferences of translators and terminology developers may differ, leading to a large number of competing items of different origins and structures. At the level of multi-word items, lexical diversity is complicated by a syntactic change factor, which in turn multiplies the number of synonymous combinations. Parallel sets are used for a wide range of phenomena, including the official names of government structures and social institutions.

Mukhametova, Kadirova, Yusupov, and Alkaya (2019) say: According to the generally accepted classification of medieval Turkic literary languages, from about the 15<sup>th</sup>-16<sup>th</sup> centuries, the period of the regional Turkic literary language existence starts, such as Old Uzbek, Old Azerbaijani, Old Tatar, and the rest. Medieval Tatars recognized themselves as a whole for a long time and continued to use the literary traditions laid down in the 13<sup>th</sup>-14<sup>th</sup> centuries. However, political fragmentation, vast geographical distances, and a number of other reasons served as some linguistic changes on the principle of khanates.

### 3. Methodology

The research involved general scientific and linguistic methods. The scientific methods include analysis, synthesis, inductive and deductive methods. When conducting research, the two methods of inductive reasoning and inferential reasoning have different "feelings" towards them. Inductive reasoning is inherently more open and exploratory, especially at the beginning. Deductive reasoning is narrower in nature and involves testing or confirming hypotheses. Even though a particular study may seem entirely inferential (e.g., an experiment to test the hypothetical effects of some therapies on some outcomes), most social research involves both inductive and deductive reasoning processes in some periods. In fact, the rocket scientist does not see that we can add the two diagrams above into a single circle that is constantly seen down from theories and back to the theories. Even in the most limited experiments, researchers may observe patterns in the data that lead them to develop new theories (Kennedy & Thornburg, 2018).

The linguistic methods include descriptive, comparative-historical, and etymological ones. The descriptive method was utilized while primary gathering and analyzing the factual material; the comparative-historical method was linked to the study of the history of the onomastic material of the Ancient and Old Turkic written monuments through comparison with the data of sister languages (Maitra, 2017; Tavakol & Allami, 2014). The etymological analysis involved in the work revealed the links of proper nouns to their initial denotations while classifying cosmonyms. Some elements of the structural method were used to facilitate reducing the onomastic units meaning structure, and some elements of the statistic method were involved in counting the percentage of structured groups of cosmonyms.

Etymology is one of the subsets of linguistic knowledge that studies how words and their roots are formed and the historical course of their change and evolution. There are two forms of etymology. One is its scientific form, which is done through extensive historical comparative studies, and the other is the folk etymology that is formed by general storytelling and passed down from generation to generation. Folk etymologies generally have no scientific basis and are based solely on the search for the apparent similarity of words.

It should be noted that in the inductive approach, researchers begin by collecting data related to the subject matter. After collecting data, it examines the data. At this step, the researcher is looking for patterns in data and is looking to discover a theory that can explain those patterns. Thus, when researchers take this method, they begin with a set of observations and then move from those particular experiences to a more general set of propositions. It is obvious that in this approach, the researchers are transferred from data to theory or from specific to general (Blackstone, 2018).

#### 4. Results

There are many differences between theories of the origin of language. The main difference between them stems from the question: “What is language?”. Some theories are based on the premise that language is so complex that it can be imagined to simply emerge from its final form in appearance, but it must be derived

from previous pre-linguistic systems among our ancestors before man has evolved. These theories can be called continuity-based theories. The opposite view is that language is a unique human trait that cannot be compared to what is found among non-humans, and therefore must have suddenly appeared in the transition from pre-homocid to early man. These theories can be defined on the basis of discontinuity. Similarly, theories based on the language-generating view pioneered by Noam Chomsky see language as more of an innate school that is largely genetically encoded, while functionalist theories see it as a system that is largely cultural and learned through social interactions. From the point of view of linguistics, Tatar cosmonymics is one of the least explored fields of Tatar onomastics. The names of celestial bodies were lexicalized in the ancient Turkic written monuments (the Orkhon Turkic inscriptions, such writings as “*Kutadgu Belek*”, “*Divanu lugat at-Turk*”, “*Kissai Yusuf*”, and others). Linguistic study and classification of those names in Tatar, as well as in the other Turkic languages, began only in the latter half of the 20<sup>th</sup> century. Galeev and Timergalin (1974) published the Russian-Tatar Dictionary of Astronomic Terms. That publication had a great impact on onomastics, for it contained ancient names of planets and stars.

The question of cosmonyms classification is in suspense in linguistics. In essence, individual works utilize the subject classification, the classification based on the lexical-semantic models (Karpenko, 1981; Rut, 1987).

In this work, we tend to examine one aspect of classification, namely, the linguo-genetic attribute. Due to the continuous vocabulary accumulation of new lexical units borrowed from other languages, Tatar cosmonymy is heterogeneous as far as the origins are concerned, and it should be carefully examined.

Among cosmonyms of the Tatar language, very old and comparatively new appellations can be found. The old names are dated back to the times before the invention of the telescope; in other words, those are the names of the celestial bodies which could be seen by an unaided eye. They are also called “folk cosmonyms”. People named the celestial bodies by means of metaphors based on

similarity-comparison. Some of them got recorded by astronomy and included in the science as terms. Among new cosmonyms, the most frequently occurred are the names related to the surface of the Moon or planets, newly discovered celestial bodies, and the names of stars and constellations, galaxies, registered in modern astronomy by letters and identification numbers. The conducted research revealed that Tatar cosmonyms could be classified into three large groups: 1) cosmonyms of Turkic-Tatar origin; 2) cosmonyms borrowed from Arabic; 3) cosmonyms borrowed from the Indo-European languages (Greek & Latin) through Russian.

*Cosmonyms of Turkic-Tatar origin.* The traces of ancient astronomic appellations date back to antiquity, and it is quite difficult to state in which century they originated. In the modern Tatar language, the ancient cosmonyms of Turkic origin are not numerous. This is explained by the fact that the ancient names of celestial bodies vanished from the language in the context of the Tatars' converting to a sedentary life. Other Turkic peoples (e.g., the Khazakhs, the Bashkirs), who ceased nomadic life more recently, preserved originally Turkic cosmonyms quite well.

While studying Turkic cosmonyms, one should pay attention to appellative lexis, which forms the basic perceptions of outer space. Such words as *kök* (sky), *täjri* (sky; Sky God), *asman* (sky), *joldyz* (star), utilized in Tatar since ancient times, represent appellative lexis of cosmonymic character.

In modern Tatar, among names of stars and constellations of Turkic origin, the following cosmonyms are present: *Ay* (Moon), *Koyash* (Sun), *Kiek Kaz* (*Kyr qazy*) *yuly* (Milky Way), *Жидегән* (*Eteğän*) *joldyz* (Big Dipper), *Chymech joldyz* (Big Dipper), *Tustagan joldyz* (Big Dipper), *Timer Kazyk joldyz* (Pole Star), *Kotyp joldyz* (Pole Star), *Kykbyzat joldyz* (Star Ferkad), *Akbyzat joldyz* (Star Kokhab), *Өлкәр joldyz* (Pleiads), *Äwernä joldyz* (constellation of Cross), *Iläk joldyz* (Pleiads), *Köyantä joldyz* (Orion), *Chulpan joldyz* (Venus), *Zöhrä joldyz* (Venus), *Taḥ joldyzy* (Venus), *Shäfäk joldyzy* (Venus), *Kyzyl joldyz* (Mars).

The research revealed that the Tatar language possesses around twenty ancient cosmonyms of Turkic origin. With the development of computer technologies, the necessity of

observing the celestial bodies with the purpose of determining the route and weather is no longer of relevance; this made the names of stars and constellations vanish from the Tatar language. Teaching astronomy in schools par excellence in Russian from the mid-20<sup>th</sup> century and the development of Russian-Tatar bilingualism with an overpoise to Russian was instrumental to the loss of originally Turkic appellations of stars (Galiullina, Kuzmina, & Kadirova, 2018). In spite of that, in public perception until the present days, the names of the main, seen by the unaided eye celestial bodies are kept in creative folk products and in everyday speech.

## 5. Discussion

As mentioned earlier, the current study presents the results of the research of Tatar cosmonyms with regard to their origins. It is noteworthy that the lexis of any language is heterogeneous in terms of origins and consists of both aboriginal and borrowed words. The language of the modern Tatars traces its roots to the ancient Turkic language, which was influenced by the Indo-European languages. The research revealed that all those lexical layers are reflected in the cosmonyms of the Tatar language. The smallest group is represented by ancient Turko-Tatar cosmonyms. The next group comprises cosmonyms, borrowed from Arabic. One more group is made up of cosmonyms borrowed from Russian and earlier derived from Latin and Greek. In the 20<sup>th</sup> century, many Russian cosmonyms (astroponyms, for the most part) were translated into Tatar. Lexemes of the first group are used in everyday speech. Meanwhile, Arabic and Latin names of celestial bodies are employed only in scientific and literary Tatar.

It is notable that in the 20<sup>th</sup> century, some names of stars, constellations, and galaxies were translated from the European languages into Russian, and when teaching astronomy in schools in Tatar became necessary, those names were translated from Russian into Tatar and evolved into scientific terms. Those cosmonyms are treated as the Turkic-Tatar layer of cosmonyms. For example, *Pochmaklyk* (Norma), *Jokyga Talgan Gyzäl* (Sleeping Beauty), *Chongyl* (Deep), and so on.

*Cosmonyms borrowed from Arabic.* The 11<sup>th</sup>-16<sup>th</sup> centuries are well known as the golden

age of astronomy in Eastern Arabia. Through Islam, the Turkic peoples gained the achievements of Eastern culture and science; Arabic became the language of science. It should be noted that a significant number of names functioning as generally accepted astronomic scientific terms are derived from Arabic words.

The calendar system, used by the peoples of Russia nowadays, had not a strong presence among the Tatars until the latter half of the 19<sup>th</sup> century. The zodiacal calendar, used prior to that one, was based on the appellations of constellations borrowed from Arabic. In counting time, the forbears of the Tatars made use of the names of months of Arabic origin derived from the designation of twelve zodiacal constellations: such as *Dəly* (bail) – January, *Xut* (fish) – February; *Xəməl* (lamb) – March; *Səver* (bull) – April, and so on.

The following old names of seven stars of the Big Dipper prove the results of our research: α- Dubhe (Arabic *kahil ad-dubb* “bear's back”); β- Marak (Arabic *marak* “belly”); γ- Fakda (Arabic *faqda* “bear's thigh”); δ- Magriz (Arabic *magriz* “head, origin of a tail”); ε- Alzun (Arabic *alzun* “black horse”); ζ- Mizar (Arabic *almizar*, “apron”); η- Banatnash or η- Alkaid (Arabic *Banatnash*, *Alkaid* “heads of the crying”). All of these are examples of names of Arabic origin.

The European languages also made use of appellations borrowed from Arabic; they got phonetically adapted and entered Russian, and further in the 20<sup>th</sup> century, Tatar borrowed them in Russian sounding: *Betel'gejze* – the star in the constellation of Orion, *Mirzam* – the star in the constellation of Great Dog, *Al'debaran* – the star in the constellation of Taurus, *Micar* – the star in the constellation of Big Dipper, *Vega* – the star in the constellation of Lyra, and others. At first sight, belonging of these names to Arabic is not obvious (for example, the name of the star Fakt is the borrowing of the Arabic word *Fahit*, *Fomal'gaut* – Arabic *Fum al' hut* (fish mouth), and others.

Thus, the number of cosmonyms of Arabic origin, utilized in the scientific Old-Tatar language, is quite considerable. They require further examination and systematization.

The third group represents *cosmonyms borrowed from the Indo-European languages (Greek, Latin) through Russian*.

Nowadays, the scientific prose style of most of the languages in the world utilizes the terms of the Latin and Greek languages; that is why a number of Tatar cosmonyms have Latin or Greek origins; they were borrowed from Russian.

For example, *Al'ciona* – is the star in the constellation of Taurus. The name of the star is derived from the name of one of the mythological Pleiades (of the constellation of Taurus) – Alkiona (daughter of mythological Gods of Atlas and Pleione, the beloved of Poseidon).

*Antares* – the star in the Cygnus constellation. The word “*Antares*” is borrowed from Greek and means “against Ares (Mars)”. This star is red and resembles Mars. In Arabic, it is named “*Kal'b-al'-Akrab*”, which means “heart of Scorpio”.

*Bellatriks* – the star in the constellation of Orion. *Bellatriks* (Latin *Bellatrix*) can be translated from Latin as “warrior-woman, Amazon”.

Among Greek-Latin appellations-cosmonyms are the following: *Kapella* (*Capella*), *Arktur* (*Arcturus*), *Pleiona* (*Pleione*), *Sirius* (*Sirius*), *Tseleno* (*Celaeno*), *Elektra* (*Electra*), *Eros* (*Eros*), *Tserera* (*Ceres*), and others.

Onomastic units reveal various peoples' primary inhabited areas and the process of their resettlement, mutual cultural, economic, and political connections, the most ancient language conditions, and dialectal particularities. Thus, cosmonyms, being one of the essential sources for studying ancient people's primary perceptions of the world and cosmic arrangement, way of living, philosophy, mythology, and folklore, serve as curious material for linguists.

Having examined and analyzed the gathered material, we made a conclusion that Tatar cosmonyms can be classified according to the linguo-genetic attribute into three groups: 1) The language of Tatar is spoken in Russia (about six million people), China, Uzbekistan, Ukraine, Turkey, Finland, Uzbekistan, America, Azerbaijan, Romania, Israel, Kazakhstan, Georgia, Lithuania, Latvia, and other

countries. There are more than eight million speakers of the Tatar language in the world (Tovar-García, 2020). Also, it should be mentioned that the Tatar language is native to several thousand Marises. It is interesting to know the Mordva's Qaratay group also speaks a type of Kazan Tatar. cosmonyms of Turkic-Tatar origin, which fall into two classes: a) ancient Turko-Tatar names of celestial bodies (*Жидегән joldyz, Өлкәр joldyz, Koyas*, and others); b) Russian cosmonyms, translated into Tatar (*Өчпочмак, Орчык, Дымлы дингез*, and others); 2) cosmonyms, borrowed from Arabic and adapted to Tatar pronunciation (*Өлтair, Жәди, Жәйза, Хәмәл, Хут, Кәлбелрагы, and others*); 3) cosmonyms, borrowed from the Indo-European languages (Greek, Latin) through Russian (*Sirius, Kapella, Arktur, Elektra*, and others). Nowadays, Tatar cosmonymic lexis is confirmed, and those linguo-genetic groups are reflected in the scientific prose style of the Tatar standard language.

Cosmonyms reflect political, cultural, and economic connections among peoples. Due to the extralinguistic factors occurring in a language, the primary appellations can vanish and be replaced by words borrowed from foreign languages. That phenomenon was most noticeable in the Volga region in times of Islamization and the influence of the European sciences.

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