

Research of Functional Aspects of Toponyms in Modern Linguistics

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Abstract

The aim of this study was to examine the key functions performed by toponyms in Kyrgyzstan, in particular nominative-localising, artistic, chronographic, and cultural memory functions. By analysing the topographic profiles of Bishkek and Osh cities, the functionality of toponyms motivated by geographical objects, cultural and historical events or figures was examined. The nominative-localising function of toponyms was considered in the context of naming and localising specific geographical objects (cities, rivers, mountains) in space. Such toponyms as Ala-Archa, Kyzyl-Asker, and Orto-Sai in Bishkek, and Ak-Buura, Zhapalak in Osh were named as examples. The function of cultural memory was related to the fixation of certain cultural monuments, personalities, historical events, and colonial influences. Such toponyms as Asanbai and Yunusaliev Street in Bishkek, and Sulaiman-Too and Manas-Ata in Osh were provided as examples in this study. The artistic function of toponyms was studied in terms of metaphorical (transfer on the basis of similarity of objects) and metonymic (transfer from part to whole, from action to object) motivation of toponymic units. Examples included Alamedin and Kara-Balta in Bishkek, and Zhylan-Artyk and Biike-Too in Osh. Thus, it was found that Kyrgyz toponymic units, in terms of pragmatics, reflected cultural, historical, geographical, linguocultural, and ethnographic aspects.

Keywords: cultural memory, spatial objects, metaphorical connotations, colonial history, geocoding, energy.

1. Introduction

The relevance of studying toponymic units of Kyrgyzstan in this study is due to the importance in the context of understanding historical, cultural and social processes in the country. Toponyms are a reflection of national identity and ethnic diversity, as the names of settlements, mountains, rivers, and other geographical objects carry important information about the history, traditions, culture, as well as the interaction of different ethnic groups that have inhabited and continue to inhabit the territory of Kyrgyzstan. Thus, the study is relevant in terms of presenting ethnographic information.

One of the functions of toponymic units is the ability to convey the cultural and linguistic characteristics of the people. The names of geographical objects often emerged as a result of the influence of different languages and cultures, in particular Kyrgyz, Arabic, Persian, Russian, and others. The study of such names makes it possible to trace the history of contacts between peoples and the influence these interactions had on the development of the region. The study of Kyrgyz toponyms containing elements indicating natural features of the area, such as rivers, mountains or steppes, makes it possible to study the spatial relations and location of geographical objects on the example of Kyrgyz toponyms. Thus, the study of toponyms helps people to better orientate in space and convey information about places.

Toponyms can be personifications of important historical events, changes in the administrative-territorial structure, prominent figures, local heroes or events. The study of toponymic units in the context of national memory and national identity is especially relevant. The modern period of Kyrgyzstan's development is accompanied by the processes of revival and preservation of national heritage, including through the rethinking and use of toponyms, which contributes to strengthening the sense of national belonging, realisation of one's own historical path and restoration of historical justice in relation to certain events or personalities. Thus, the study of the functionality of toponymic units in this research allows restoring the historical and cultural links between them.

The problem of improving the systematisation of toponymic information has been considered in the works of such researchers as Bai et al. (2021) and Fize et al. (2021). This issue has also been investigated by Vrbik and Labus (2021) and Tongjing et al. (2023). In the work of Bai et al. (2021), the authors dealt with the development of an integrated toponymic information system based on Topographic Geographic Information System (TGIS) technologies and extensive data. Thus, this paper focused on the development of a modern information system for processing, analysing and managing toponymic data using geographic information system technology and extensive data processing. It should be noted that the study by Fize et al. (2021) aimed at deep learning for toponym pair-based geocoding to improve accuracy for recognising and geolocating place names in large textual data sets. In the work of Tongjing et al. (2023), the authors presented a new method for toponym classification using lexicon-based text mining. The study by Vrbik and Labus (2021) was related to the collection and preservation of popular

toponyms through crowdsourcing, i.e., involving a wide audience for data collection. Still unresolved is the problem of determining the functionality of toponymic units in contexts.

The study of theoretical aspects related to toponymic units has been presented in the works of such researchers as Giraut (2020), Tavares and Isquerdo (2022). In addition, this topic has been investigated by Perono Cacciafoco and Cavallaro (2023), Ursini and Samo (2023). In the work of Perono Cacciafoco and Cavallaro (2023), the authors examined the different theoretical and methodological approaches to the study of place names and the meaning in contemporary scientific research. The authors also analysed the main trends in toponymy and toponomastics. It should be noted that in the study of Ursini and Samo (2023), the authors developed a model related to the nomination of places (geographical spaces) motivated by the names of geographical objects, cultural, historical, social factors. Theoretical aspects related to toponymic units, such as polysemy, linguistic diversity in toponyms, historical and cultural contexts, evolution of toponymic units, were considered in the study of Giraut (2020). In the work of Tavares and Isquerdo (2022), the taxonomies of the toponymic corpus were presented, particularly focusing on linguistic and encyclopaedic information. But these studies did not consider the problem of functionality of toponymic units in Kyrgyzstan.

The study of topographic profiles of Turkic-speaking states was carried out in the studies of such authors as Khakimov and Kasimov (2021) and Bashirova (2023). For example, the study by Bashirova (2023) examined the ethnotoponymy of Azerbaijan, with the help of which the ancient culture of Turkic peoples was studied. The study is devoted to descriptive and onomasiological parameters, in particular, it studied the historical tribes that inhabited the territory, as well as the social-political environment and culture of the ancient Turkic peoples. In the work of Khakimov and Kasimov (2021), it is possible to trace the key stages of formation of Kyrgyz geographical names, as well as ethnogeographical features of the Kyrgyz. However, it should be noted that the functionality of toponymic units has not been sufficiently studied.

The aim of this study was to examine the pragmatic aspects related to the use of toponymic units on the example of the cities of Bishkek and Osh. The main objectives that were realised in this study were as follows: to study the topographic profiles of Bishkek and Osh cities from the point of view of the functional aspect, to form an idea of the key motivation of topographic units on the example of names in Kyrgyzstan, to give examples of toponyms correlated with cultural and historical events and geographical objects.

2. Materials and methods

In this study, the topographic profiles of cities such as Bishkek, Osh and Jalalabad, were studied. In particular, the toponymy of the cities was considered in terms of the implementation of the following functions: nominative and localising (designation of specific places on the map, geocoding, identification of natural objects), artistic (metaphorical and metonymic reinterpretation of the names of geographical objects), chronographic (identification of the cultural stratum to which the name referred: Iranian, Kyrgyz, Russian), and the function of cultural memory. This study also used a lexicographic source – the Dictionary of Toponyms of Kyrgyzstan (Alymkulov et al., 2013), from which toponymic names were taken.

At first, this study explored theoretical aspects related to toponymic units, in particular, etymological analysis of toponymic units, the relationship of toponyms with historical events, cultural processes and traditions, key functions of toponymic units, comparison of toponyms of different regions or countries to identify common and unique features in the formation of names, renaming of geographical objects due to political changes, the study of symbols of national identity, strategies of structuring of perceptions, and the structure of toponyms was studied.

The study also investigated issues related to the influence of global processes and urbanisation on toponymic heritage, colonial influence of one culture on another, etymological reinterpretation of urban toponyms, changes in the topographic profiles of cities and countries, the origin of toponyms, and the transformations over time. These directions were related to the reflection and preservation of information about various aspects of history, culture, and society. Thus, the theoretical study of toponymic units covered a wide range of issues – from etymological to semantic, from functional to sociocultural aspects.

After studying the theoretical aspects, this study examined the functions of toponymic units using the example of analysing the topographic profiles of the cities of Bishkek, Osh and Jalalabad. The analysis investigated urbanonyms that reflected the history of the city and served as a tool of ideological influence. The nominative-localising function related to the naming of objects and phenomena and the localisation in space and time was considered, and the artistic

function was explored in the context of metaphorical and metonymic meanings embedded in toponymic units.

The study of the chronographic function was directly related to the reconstruction of three cultural and historical layers – Iranian, Kyrgyz, and Russian. The function of cultural memory was studied in the context of preservation and transmission of cultural and historical knowledge about the toponyms of Kyrgyzstan. In particular, the toponymic units of the three cultural layers – Iranian (Persian), Russian, and Kyrgyz – were emphasised.

In the course of this study, toponymic units were presented, and the motivation was considered (using the example of the cities of Bishkek and Osh), in particular from colouronyms, zoonyms, phytonyms, anthroponyms, and other lexical units. Thus, the study of the functions of toponymic units took place in parallel with geographical (climatic conditions, landscape type, location of resources), linguistic (word-formation motivation, lexical resources), and cultural and historical (colonial influence, cultural monuments, historical figures) factors.

3. Results

Toponyms are onyms denoting the names of natural or man-made objects on Earth. Toponyms or place names have a significant place in linguistics because of not only pointing to specific places but also carrying cultural, historical and social meanings. Toponymy is the science that studies aspects of place names such as origin, semantic meaning, spelling, pronunciation and others. Thus, toponymy is at the intersection of three sciences: geography, history and linguistics. Motivation of toponymic units is connected with geographical, cultural-historical, sociocultural, linguocultural names.

The pragmatics of using toponyms is conditioned by the way in which the names of geographical objects are introduced into different communicative contexts and for what purposes. It should be noted that toponyms fulfil not only the function of indicating the locality, but are also used to achieve specific communicative goals: creating a certain emotional background, associative series. Toponyms are often used for political purposes to emphasise certain ideological views or to change the perception of territories (for example, changing the names of cities after revolutions). In addition, toponyms can also have commercial significance, becoming brands that symbolise certain qualities or levels of prestige (as in the case of city or

region names in product names) (Rose-Redwood et al., 2009; Zeini et al., 2018). Table 1 summarises the main functions that toponymic units can perform and notes the role of the indicated functions.

Table 1. Functions and roles of toponymic units

Functions	Role
Nominative and localising	Orientation in space, indicating the location of objects, organising spatial information
Cultural memory function	Reflection of historical, cultural events, dates, names of cultural figures
Artistic function	Enriching speech, introducing linguocultural information
Chronographic function	Indication of one of three strata: Iranian, Kyrgyz or Russian

Source: compiled by the authors.

From the point of view of the cognitive aspect, toponyms contribute to the organisation of spatial information in human consciousness, i.e., the toponyms perform nominative-localisation (localisation, localisation-route) function. Toponyms help people to orientate in space, fulfil the function of fixing and structuring spatial knowledge. For example, the names of cities, rivers, mountains, and other geographical objects allow creating a mental map of the area. Various innovative technologies can be used to process toponymic units, including recognising place names using natural language processing (NLP), detecting geospatial descriptions of places in texts (Stock et al., 2022; Tao et al., 2022). For example, in the Chui province of Kyrgyzstan, the hydronymic map of the area consists of such onyms as Aksu, Ala-Archa, Alamedin, Aspara, Jylamysh, Kichi-Kemin, Sokuluk, Chong-Kemin, Chu, and Ysyk-Ata. Among the gorges in Chui Oblast are Alamedin, Issyk-Ata, Shamsi, Sokuluk, Ak-Suu, Ak-Tyuz, Chong-Kemin. Among the cities of Chui oblast, the following can be distinguished: Kara-Balta, Shopokov, Kemin, Orlovka, Kaindy, Kant.

It should be noted that many toponyms are based on semantic information about the features of the object, its location, characteristic features. For example, many toponyms are descriptive and contain an indication of natural features of the area. One of the groups performing nominative-localisation function are colouristic toponyms (with affix “ak” – “white”: Ak-Suu, Ak-Bashat, Ak-Beles, Ak-Beyit, Ak-Zoo, Aksai, with affix “boz, bos” – ‘grey’: Bo-Tektir, Bostery, with affix “kok” – “blue”: Kokdala, Kok-Moinok, with affix “sary” – “yellow”: Saryjas, Sary-Bel, Sary-Tash, with affix “kara” – “black”: Karakol, Kara-Bulak, Karakeche, Karadarya, with affix “Kyzyl” – “red”: Kyzyl-Adyr, Kyzyl-Bulak) (Alymkulov et al., 2013).

For instance, the name of the town Karakol in the Issyk-Kul region comes from the Kyrgyz words “kara” (black) and “kol” (lake), which means “black lake” and correlates with the colour of water in Lake Issyk-Kul. The name of the lake and nature reserve Sary-Chelek in Jalal-Abad oblast, which is translated from Kyrgyz as “yellow bucket” or “yellow bowl”, indicating the colour of the lake water, has a colonymic motivation. Other toponyms include Kek-Terek, the name of a village and river in Talas oblast, translated from Kyrgyz as “blue tree” or “green poplar”, which may indicate the rich vegetation along the river or the surrounding landscape, and Boz-Uchuk, the name of a village and river in Issyk-Kul oblast, translated as “grey entrance” or “grey passage”, which may indicate the characteristic colour of the soil or the stony terrain. These toponyms not only describe geographical and natural features, but also preserve the cultural memory associated with the use and perception of these places by local people over the centuries.

The motivation for the name of Naryn is related to its location on the banks of the Naryn River: this onym means “close” and describes the topography of the area surrounded by mountains. Lake Issyk-Kul, located in northern Kyrgyzstan, derives its name from the Kyrgyz words “Issyk” (warm) and “kul” (lake), meaning “warm lake”. It received this name because it does not freeze even in winter due to its high mineralisation and special climatic conditions. The name Ala-Too literally translates as “colourful mountains” and describes the multicoloured shades of rocks and vegetation. The Chatkal mountain range means “fork of rivers” or “place of confluence” and reflects the complex hydrographic pattern of the region with numerous rivers and streams converging from the mountain slopes. Suusamir is a valley in the central part of the country, the name of which is derived from the Kyrgyz words “suus” (grass) and “amir” (lord),

which means “valley rich in grass” and indicates the fertile pastures in this valley, traditionally used for grazing.

In addition to the function of naming geographical objects, toponyms fulfil the function of cultural memory, fixing in the semantics important events, personalities, and phenomena for society. For example, the names of cities often have historical roots, reflecting the past of a certain people or area. For example, the name of Bishkek comes from the Kyrgyz word “Byshkek”, which means “stick for beating koumiss”, a traditional Kyrgyz drink made from mare’s milk, and reflects linguocultural realities of Kyrgyz life. The name of the town of Batken, located in the southern part of Kyrgyzstan, is of Turkic origin and means “camel bones” (“bat” – “bone”, “ken” – “camel”), which may reflect the local culture of nomadic peoples. The name of the valley in the Issyk-Kul region Jeti-Oguz translates as “seven bulls” from the Kyrgyz language and is associated with a legend about rocks resembling the shape of seven bulls.

Onyms can also be motivated by historical events: the name of the city of Talas is associated with the historic battle of Talas in 751 between the Chinese Tang Dynasty and the Abbasid Caliphate. It should be noted that this battle influenced the spread of Islam and the containment of Chinese influence in Central Asia (Koy, 2021). The name of the city Tokmak in the Chui region comes from the Turkic word “tokmok”, which means “fist” or “blow”. This name may be associated with the historical role of the city as an outpost in different historical periods. The name may also be based on the names of famous historical figures: for example, the name of Jalal-Abad is connected with the name of Saint Jalal ad-Din, a famous Islamic figure who, according to legend, built healing springs in the area.

Names can also be motivated by biblical stories: for example, the name of the oldest city in Central Asia, Osh, founded in the 3rd century BC, is connected with ancient traditions and legends. According to one version, this onym derives from the name of the biblical prophet Job (Ayub in Islam), who prayed on Mount Sulaiman-Too, located in the centre of the city (Osh City Mayor’s..., 2024). Thus, toponyms also contribute to the formation of the cultural context in which communication takes place. The use of certain toponyms can create an idea of historical or cultural context. For example, the names of historical cities can be used to emphasise the significance of certain events or phenomena.

Many toponymic units are based on metaphor, that is, in addition to nominative-localisation and linguocultural function, toponyms can also perform an artistic function. Metaphorical and

metonymic toponyms are place names that have a hidden, figurative meaning or associations that go beyond the literal description of a place. In Kyrgyzstan, such toponyms often reflect cultural, historical and natural features of the region through the use of metaphors or metonymy. Metaphorical toponyms are often based on zoonyms: Arslanbob (lion bean), Kara-Buura (black camel), Ala-Buka (multicoloured bull), Jilandy (snake), At-Bashi (horse's head), as well as phytonyms: Oryuktyu-Khutor (apricot), Besh-Alma (five apples).

Metaphorical toponyms occur when the name of an object is presented on the basis of its resemblance to something else, often due to imagination or association. For example, Sulaiman-Too (Solomon's Mountain) is the name of a mountain in the city of Osh, which has an important religious and cultural significance, based on a metaphorical representation of the spirituality and sanctity of the place where, according to legend, Solomon himself prayed. Dordoi – the name of the largest market in Bishkek, translated from Turkic languages means “central place” or “main road”, the metaphor conveys the idea of the significance and importance of the market as a trade centre, which is the economic heart of the city and the country. Chon-Arik, a suburban settlement of Bishkek, translates as “big canal” or “big irrigation system”. This toponym metaphorically conveys the image of a large waterway that supplies the city with water and supports agriculture, which is important for the development of the region. The name of the Ak-Orgo housing estate literally translates as “white yurt”. This toponym is a metaphor symbolising cleanliness, traditional households and hospitality, conveying national colour and reflecting the symbolic significance of the yurt as a central element of Kyrgyz culture. Such names as Karakol, Boz-Uchuk, Kek-Terek can also be considered at the level of metaphorical onyms.

Metonymic toponymic units arise when the name of an object is given on the basis of associations with something that has a direct connection with this object (part instead of whole, action instead of object, etc.). Among the names that are metonymic in the basis, it is possible to name the following: Kant – a city whose name translates as “sugar” and is a reference to the economic activity of the city, where a sugar factory was built in Soviet times, “Tokmok” (fist, blow) – a metonymic name of the city, indicating its defensive role or the performance of the function of an outpost. Metaphorical and metonymic toponyms of Kyrgyzstan reflect the rich cultural, natural and historical heritage of the country, convey the perceptions and feelings of

local residents about the lands, preserving valuable knowledge about geographical features and cultural values.

Toponymic names also serve as a reference point not only in space, but also in time, thus, with the help of certain toponymic names it is possible to determine to which cultural and historical stratum these names belong. Kyrgyz toponyms can relate to three different strata: lower (ancient, Iranian), middle – Kyrgyz and upper – Russian, thus fulfilling a chronographic function. Iranian toponyms in Kyrgyzstan originated from ancient Iranian peoples, such as the Sakis, Sogdians and others, who inhabited the territory of modern Kyrgyzstan in different historical periods. These toponyms often retain ancient linguistic features and can have both direct and metaphorical semantics. For example, the name Osh is of Iranian origin and can mean “master”, “ruler” or comes from a Sogdian word that means “fortification” or “city”, the name Talas comes from the Sogdian word “talas” meaning “place of rest”, “passage” or “place of crossing”, the name Issyk-Kul is of Iranian origin and is translated as “warm lake”.

The following toponymic units indicate Kyrgyz origin: The name Suusamir is derived from the Kyrgyz words “suus” (grass) and “amir” (lord), indicating the fertile pastures in this valley, the name Naryn is of Kyrgyz origin and means “narrow”, describing the deep valley through which the Naryn River flows, the name Toguz-Bulak means “nine springs” and metaphorically emphasises the presence of numerous water springs on the territory of a district or locality, the name of the Bishkek district Kok-Zhar translates as “blue or green ravine” and points to the natural landscape of the area, where a green gully dominates the landscape. The toponymic units of Kyrgyz origin include Ak-Argo, Orto-Sai, Dordoi, Karagach, Chon-Arik, Alamedin, Ala-Too.

Toponymic units with Russian roots appeared in Kyrgyzstan as a result of colonisation of Central Asia in the XIX-XX centuries (Toponymic Factfile, 2022). Many were changed or abandoned after Kyrgyzstan gained independence in 1991. For example, the name of the city of Kant is derived from the Russian word “sakhar”, which is associated with the construction of a sugar factory during the Soviet regime; the name Tokmak is associated with the Kazakh word “tokmak”, which means “fist” or “hammer” and became popular during Russian colonisation, when relevant maps and registers were created (Toponymic Factfile, 2022).

Among the Russian layer of toponyms, a group of anthroponymic units is frequent. For example, Grigoryevka (Grigory Nikolaevich Lytkov), Semenovka (Pyotr Petrovich Semenov Tien-Shansky), Pristan-Przhevalsk (Nikolai Mikhailovich Przhevalsky). Changing the names of

toponyms in post-colonial countries can serve as a symbol of rejection of the colonial legacy and aspiration for one's own cultural identity. For example, Przhevalsk (now Karakol) is a town in the Issyk-Kul region named after the Russian traveller Nikolai Przhevalsky, and Frunze (now Bishkek) – until 1991 the town was called Frunze after the Soviet military leader Mikhail Frunze. Despite multiple renaming, many names in Kyrgyzstan are still motivated by Russian roots, which preserves the memory of the colonial heritage.

The example of the toponymy of Bishkek can be used to trace the functional aspects of toponyms related to the reflection of the social, cultural and political processes of the city. Among the toponyms performing nominative-localising function, it is possible to name toponyms with colouristic elements: Ala-Archa – the name of a popular gorge and national park near Bishkek, translated from Kyrgyz as “variegated archa” or “variegated archa” (“ala” is a colouronym meaning “variegated”, “variegated”), Ak-Kula – the name of a hippodrome in Bishkek, translated from Kyrgyz as “white horse” (“ak” is a colouronym, Kyzyl-Asker is the name of a micro-district in Bishkek (“Kyzyl” means “red” in Kyrgyz), Kara-Zhygach is one of the micro-districts in Bishkek, the name is translated from Kyrgyz as “black tree” (“kara” is a colouronym for black colour). The location of toponymic objects is indicated by such toponymic units as Ortho-Sai – the name of one of the markets and a residential area in Bishkek (“orto” is translated as “middle” and “sai” – “river”, “valley”). It should be noted that toponyms can also be based on zoonyms (Ak-Kula) and phytonyms (Ala-Archa) (Alymkulov et al., 2013).

Toponyms that fulfil the function of cultural memory, carry information about the city's past, its heroes, significant events and historical periods, reflect national traditions and cultural values, form local identity, are a source of knowledge about significant events, personalities and cultural achievements associated with the city. For example, Kyzyl-Asker microdistrict – the name translates as ‘red soldier’ and is associated with the Soviet period of history, symbolising the military past and the memory of soldiers who served in the Red Army and reflecting the ideological influence of the Soviet era on the city toponymy and cultural memory of the residents.

The toponyms that fulfil the function of cultural memory may be based on the following. For example, Toktogul Street is named in honour of Toktogul Satylganov, a famous Kyrgyz akyn and composer of the 19th century. This toponym preserves the memory of Kyrgyzstan's cultural and literary achievements, emphasising Toktogul's contribution to the development of national

literature and music. Asanbai microdistrict is named in honour of Asanbai Askarov, an outstanding statesman and public figure of Kyrgyzstan. This name preserves the memory of Askarov's contribution to the development of the republic and its cultural and economic life. Yunusaliev Street is named in honour of Kurmangazy Yunusaliev, a famous Kyrgyz linguist and philologist who made a significant contribution to the development and study of the Kyrgyz language. Thus, the toponym reflects the importance of preserving and studying the native language and culture.

The group of toponymic units that fulfil an artistic function is a frequent one. For example, among the metaphorical toponyms of Bishkek city, based on figurative meaning and associative links, the following can be distinguished. Ak-Bata is the name of a residential area in Bishkek, "ak" is translated as "white" and "bata" as "blessing". In this case, "white blessing" is a metaphor symbolising purity, safety, and happiness for the residents of the area. The name of the town Kara-Balta ("black axe") evokes associations with hard labour or symbolises the importance and power of industrial facilities. These toponyms are based on metaphors to create symbolic images that help residents and visitors not only to navigate in space, but also to perceive the city as a living environment with a rich culture and history. Among the metonymic toponymic units, it is worth highlighting such as Alamedin – the name of the river, microdistrict and district in Bishkek (transfer by contiguity – the river and the territory next to it), onym Kyzyl-Asker (red soldier) denotes a microdistrict built for the military (transfer from the private to the whole).

Toponyms can preserve traces of former epochs, languages, and peoples. For example, many toponyms on the territory of former empires preserve old names that tell about the past of these places. From the point of view of preserving chronography in the toponymy of Bishkek, the combination of three cultural layers is important: the first is Kyrgyz, the second is Iranian, and the third is Russian. Each of these cultural traditions has contributed to the formation of names of streets, districts and other objects of the city, creating a multi-level and multi-layered toponymic picture. Among the names used, which are based on Kyrgyz language nominations, are the following: Ala-Archa (variegated archa) is the name of a national park, reflecting the natural features of the region and symbolising the connection with Kyrgyz traditions and nature, Chon-Aryk (large irrigation canal) is the name of a district and locality in Bishkek associated with the traditional irrigation system and symbolising the importance of water resources for local

agriculture, Kurmanjan Datka Street is named after a famous Kyrgyz ruler who is called the Alai Queen.

The Iranian (Persian) cultural layer in the toponymy of Bishkek is less pronounced, but it is present in some names, which may be associated with historical contacts and mutual influences of Persian and Turkic cultures. For example, Ferdowsi Park is named in honour of Abul-Kasim Ferdowsi, the great Persian poet of the 10th-11th centuries, author of the epic poem “Shahnameh”. The name reflects respect for the cultural heritage of Iranian literature and reminds of the role it played in Central Asia. Navoi Street is named in honour of A. Navoi, a famous poet and philosopher of Turkic-Persian origin, whose work was significant for the cultural space of Central Asia and Iran. A. Navoi wrote in both Turkic (Chagatai) and Persian languages, so Navoi’s name is intercultural.

The Russian cultural layer in the toponymy of Bishkek was formed mainly during the Russian Empire and the Soviet era: Leo Tolstoy Street is named in honour of the Russian writer Leo Tolstoy, Pushkin Street is named in honour of Alexander Sergeyevich Pushkin. These toponyms reflect cultural and literary ties with Russian culture. Despite the Kyrgyz component “baatyr” (hero), Baitik Baatyr Street bears features associated with the Soviet period and the desire to create an identity that would combine national and international elements. Thus, the toponymy of Bishkek is a vivid example of cultural mixing and mutual influence of Kyrgyz, Iranian and Russian cultural layers. These layers reflect the history of the region, political changes, as well as cultural and social processes that have shaped the image of the city for many centuries.

Among the toponyms of the city of Osh, performing nominative-localising function, it is possible to single out a group of toponymic units with coloronymic elements: Ak-Buura (white camel) is the name of the river flowing through the city of Osh, the coloronym “ak” in Kyrgyz culture is associated with positive meanings: light, purity, holiness, Kara-Suu (black water) – the name of the district and river that are located to the north of Osh, the toponym indicates the dark colour of the water due to natural conditions, Kyzyl-Kyya (red cliff, rock) – the name of a town in Osh oblast, not far from the city of Osh, the colouronym “Kyzyl” is associated with strength, life and energy, Ak-Tash (white stone) is the name of the area in the vicinity of Osh, where light or white rocks prevail, Kara-Too (black mountain) is a mountain massif near the city of Osh.

It should also be noted that toponyms of Osh city and its surroundings often reflect the features of the local landscape. These names not only help to orientate on the terrain, but also convey important information about natural conditions, relief character, water bodies and other geographical features. Among the examples of toponyms of Osh city, reflecting the peculiarities of the landscape, are the following: Zhapalak – the name of one of the suburban districts of Osh, the toponym is associated with the flat character of the terrain and proximity to certain natural objects such as rivers or fertile soils, Chiyirchik – the name of a mountain pass near Osh, associated with the concept of pasture or place where chiy (a type of cereal) is grown, indicating the presence of pastureland in the area and emphasising the importance of the pass as an important transport artery linking different regions.

Toponyms of Osh carry elements of cultural memory, reflecting historical events, legends, religious beliefs, traditions and national peculiarities. Such names enshrine important elements of cultural heritage in the spatial image of the city, ensuring the preservation and transmission from generation to generation. Examples of Osh toponyms reflecting cultural memory are the following: Sulaiman-Too (Solomon's Throne) – a sacred mountain in Osh, which is a pilgrimage centre for Muslims and is associated with the ancient religious traditions of the region, Zhibek Jolu (Silk Road) – the name of the street, reminding of the great trade route that passed through the territory of modern Kyrgyzstan, including Osh, is a reference to the history of ancient trade routes that connected East and West. The names of cultural figures can also be the basis of toponyms that perform the function of cultural memory: Navoi – the name of one of the streets in Osh, given in honour of the great Uzbek poet and thinker Alisher Navoi, who made a significant contribution to the development of literature and culture of Central Asia. Manas-Ata – the name of a park in Osh, which was named in honour of Manas, the epic hero of the Kyrgyz people.

The artistic function in toponyms of Osh city is realised on the example of metaphorical and metonymic constructions. Among the examples of toponyms based on metaphor are the following: Zhylan-Artyk – the name of the area near Osh, translated as “snake pass”, which metaphorically points to the winding shape of the pass or road resembling the movement of a snake, Tash-Koro – the name of the toponym in the vicinity of Osh, which is translated as “stone fence” and points to the area surrounded by mountain ranges or rocks. Among the examples of metonymic word combinations in toponyms of Osh city are such as Caravanserai – the historical name of the area in Osh, reminding of caravanserais – special inns for merchants and the

caravans, which existed in the Silk Road era, “Biyke-Too” – the name of the mountain massif near Osh, comes from the word “biy”, which means “ruler” or “judge” and indicates the place where the “biy” sits, emphasising the importance and grandeur of the mountain.

Kyrgyz toponyms are the most common in Osh and its neighbourhood, reflecting local traditions, natural features, as well as historical events important for the Kyrgyz people: Ak-Buura (white camel), Kara-Suu (black water), Teshik-Tash (hole stone). Iranian (Persian) toponyms of Osh testify to the influence of Persian culture and language on the region. These names may be associated with ancient trade routes, religious influences, as well as political and cultural contacts: Navoi Street, Gulbaar (“gul” means “flower” and “baar” means “garden”), Shahid-Tepe (“shahid” means “martyr”), Babur – a park and street in Osh named in honour of Zahiriddin Muhammad Babur, the founder of the Mughal Empire. Russian toponyms appeared in Osh mainly in the XIX-XX centuries, when the city became part of the Russian Empire and then the Soviet Union. Among the Russian names of streets and objects are such names as the Park named after M.V. Gubkin, the 40th Anniversary of October Revolution, Osh Street, and the 40th Anniversary of October Revolution. 40th Anniversary of October, Pushkin Street (Alymkulov et al., 2013). Table 1 describes the main functions and examples of toponymic units of Bishkek and Osh.

Table 2. Functions and examples of toponyms (cities of Bishkek and Osh)

Function	Bishkek	Osh	Jalalabad
Nominative and localising	Ala-Archa	Ak-Buura	Sary-Chelek
	Ak-Kula	Kara-Suu	Kara-Suu
	Kara-Zhygach	Kyzyl-Kyya	Toktogul Reservoir
	Kyzyl-Asker	Ak-Tash	Yshambirdi
	Orto-Sai	Zhapalak	Naryn Canyon

Cultural memory function	Toktogul street	Sulaiman-Too	Shah-Fazil Mausoleum
	Asanbai	Zhibek Jolu	Saimaluu-Tash
	Yunusaliyev Street	Manas-Ata	Arslanbob
Artistic function	Ak-Bata	Zhylyan-Artyk	Chychkan
	Alamedin	Tash-Koro	Altyn Balalyk
	Kara-Balta	Biyke-Too	Ayub-Tau
	Kyzyl-Asker	Caravanserai	Kara-Alma
Chronographic function	Ala-Archa	Kara-Suu	Maily-Suu
	Chon-Aryk	Teshik-Tash	Kok-Yangak
	Kurmanjan Datka Street	Ak-Buura	Kyzyl-Suu
	Ferdowsi Park	Navoi Street	Kochkor-Ata
	Navoi Street	Gulbaar	Lenin Street
	Pushkin Street	Shahid-Tepe	Dostoevsky Street

Source: compiled by the authors.

Thus, this study examined the main functions performed by toponymic units, including nominative-localising function, cultural memory function, artistic function, and chronographic function. On the example of the cities of Bishkek and Osh, metaphorical and metonymic units were also considered, as well as three cultural layers, including Kyrgyz, Iranian and Russian. It should be noted that the above functions were determined taking into account geographical, linguocultural, sociocultural, linguistic factors.

4. Discussion

In the analysis of Kyrgyzstan's toponymy, this study examined the influence of various factors, including geographical (related to the nominative-localization function), cultural-historical, linguocultural (related to the function of cultural memory and the chronographic function), conceptual, and cognitive factors (related to the artistic function). Similar issues were addressed in the work of Nargizaxon (2024), with particular attention paid to geographical factors (natural features of the territory, specifically climatic conditions, type of landscape, and the location of resources in a specific area), linguistic factors (influence of lexical, morphological, and phonetic elements), ethnocultural factors (influence of migration flows, colonialism, and socio-economic conditions), historical factors (changes in state borders, influence of administrative reforms), and sociolinguistic factors (local identity, influence of political factors and cultural traditions). In the study by Basik (2023), using examples of microtoponymic units, such functions were considered as the navigational function, which helps to orient oneself in the city and determine the location of specific objects; the cultural-historical function, which preserves the memory of historical events, prominent figures, cultural phenomena, or local traditions; and the identification function, which contributes to the formation of local identity and a sense of belonging to a particular community or district.

In this study, the key functions of toponyms include nominative-localising function (orientation in space, indicating the location of toponymic objects), cultural memory function (reflecting historical and cultural events, dates, names of cultural figures), artistic function (enriching speech, introducing linguocultural information) and chronographic function (indicating one of three cultural layers: Iranian, Kyrgyz or Russian). Also, the study of toponyms' functionality was devoted to the article by Fasya et al. (2024), in particular, it focused on Indonesian toponyms, which fulfil the following functions: identification (identification of location and geographical boundaries, which is important for navigation and orientation in space), social (strengthening of social identity and connection between local communities, reflection of cultural features and history), cultural function (preservation of cultural heritage, local traditions, historical events of importance for society).

The study of the chronographic function of toponyms on the example of two cities (Bishkek, Osh) showed the preservation of three main cultural-historical and linguocultural layers, including Iranian, Kyrgyz and Russian. The results of the study by Balduino et al. (2020) were also aimed at studying the main chronographic profiles of names on the example of São Tomé

and Principe. It should be noted that in this paper, the influence of Portuguese on African culture was studied from the perspective of colonial influence. In Kyrgyz toponyms, despite more than 30 years of independence, there are still names marked by the influence of the Russian language. Chronographic aspects related to topographic names were also studied in the work of Rusu and Ribeiro (2021), in particular, statistical results were presented regarding the predictors used for street renaming, among which were highlighted such as toponymic characteristics of streets, arterial rank, and topographic features. It should also be noted that in the work of Walkowiak (2022), the author raised a topic related to the etymological reinterpretation of urban place names, particularly street, neighbourhood and city names. It was emphasised that the original meaning or origin of a name can be changed or forgotten, and new interpretations can emerge based on folk etymology. The paper also considered the various processes that influence changes in urban toponyms: cultural influences, historical changes or language contacts.

When analysing the toponymic profile of Bishkek and Osh, it was found that the toponymic image of the cities has changed significantly over the years of independence, which is directly related to the rejection of symbols of Russian colonial culture. In the work of Williamson (2023), the author examined the problem related to the historical and geographical aspects of place names, and special attention was paid to colonial practices and the consequences after the colonial era. The concept of postcolonial change was considered: after independence, former colonies revisited and changed place names in order to reclaim the national identity and reclaim the historical and cultural heritage. In a study by Pardo (2023), the author focuses key attention on how traditional architecture (usually arising from local cultural, climatic and material conditions) faces the challenges of today's rapidly changing world. The main reasons for changes in toponymy include the impact of globalisation on the preservation of vernacular architecture, environmental sustainability, cultural identity, and socio-economic challenges.

During the study of toponyms of Kyrgyzstan, it was shown that these toponyms can fulfil such functions as nominative-localising, cultural memory, chronographic and artistic functions. In the study by Komaraa et al. (2019), the authors examined the relationship between toponymy (the study of place names) and environmental identity among the Sundanese ethnic group living in the west of Java Island, Indonesia. In particular, it was noted that place names in Sundanese culture may be motivated by natural sites, local traditions, history, and environmental features of the region. In a study by Socquet-Juglard (2022), the author analysed how the toponymic profile

of the West Jerusalem territories was influenced by colonialism, focusing in particular on names that continue to be used even after changes in the political and social context. Among the main functions of such toponymic units are cultural identity, political symbolism, historical and social memory. It should also be noted that in the work of Zhao et al. (2021), the authors identified such functions of toponymic units as cultural identity, cultural evolution, historical identity, spatial reference, social organisation. The study of cultural development was considered in the context of spatial characteristics of toponymic landscapes.

The topic of toponymic functionality has also been addressed by Ursini and Zhang (2023), in particular, it studied the specificity of topographic profile formation depending on the language, culture or history of the region. It should also be noted that an important aspect has been the discussion of how the extracted toponyms can be used for various tasks, such as the creation of multilingual maps, geographical analyses or the study of the cultural characteristics of regions. Thus, with the help of automated technologies, it is possible to determine what functions toponymic units fulfil, as well as the linguistic and cultural differences between these units. The direction of development of innovative methods of toponymic information processing is important to consider in the context of toponymic functionality, as automated systems can help to determine the motivation of toponymic units.

The study of toponyms on the example of the city of Bishkek and Osh showed that the key aspects influencing the naming of toponymic units were cultural, linguocultural, historical, chronological, geographical. It should be noted that the motivation of toponymic units was also considered in the works of other authors. In particular, the study of Ong and Perono Cacciafoco (2022) was devoted to the historical origin of the toponymic units of Sardinia, it also considered the linguistic features of Sardinian toponyms, in particular the influence of dialects on the formation of the topographic profile, cultural and social influences, and the preservation of cultural heritage. According to the results of the work of Daniel and Matyas (2022), among the main functions of toponyms (place names) can be considered such as cultural heritage, community identity, educational and outreach functions, global and local heritage, and knowledge integration. Still, the names of toponymic units were influenced by such factors as lack of documents, change of unofficial place names.

Thus, the following issues were considered in the modern scientific paradigm: the influence of geographical, historical, linguocultural, cognitive factors on toponymic profiles, functionality

of toponyms, predictors used for renaming streets, colonial practices and renaming of geographical objects, specifics of topographic profiles formation, origin of toponymic units. It should be noted that in addition to analysing topographic profiles of cities and countries, key functional aspects related to toponymic units were also presented.

5. Conclusions

The present study analyses the toponymy of Kyrgyzstan (the cities of Bishkek and Osh) and reveals several important functions reflecting different aspects of the use of place names in cultural and historical contexts: nominative-localising, artistic, chronographic, and cultural memory functions. The nominative-localising function is fundamental for toponyms and consists in the fact that the names of geographical objects perform the role of designating specific places on the map. With the help of this function, it is possible to identify and localise natural and artificial objects such as rivers, mountains, cities, etc. In the context of Kyrgyzstan, this function is important for describing the unique geographical and natural conditions of the country, in particular, mountainous terrain, climatic features, colouronymic details. Among the toponymic units performing nominative-localising function are such as Ala-Archa, Ak-Kula, Kyzyl-Asker, Orto-Sai (Bishkek city), Ak-Buura, Kyzyl-Kyya, Zhapalak (Osh city).

The function of cultural memory is that toponyms are peculiar carriers of the collective memory of the people, storing information about historical events, outstanding personalities and cultural features of the past. In Kyrgyzstan, many geographical names are associated with the names of national heroes, local legends or events that played an important role in the formation of national identity. Toponyms also record colonial processes, resettlement of peoples, wars and other events that contribute to the formation of national identity. For example, such toponymic units as Toktogul Street, Asanbai (Bishkek) and Sulaiman-Too, Zhibek Jolu, Manas-Ata (Osh) fulfil the function of cultural memory.

Toponyms often fulfil an artistic function, reflecting aesthetic and cultural ideas of the people about certain places. This is manifested in the use of metaphorical and metonymic names that convey an impression of the natural beauty or importance of a geographical object. Among the toponymic units, it is possible to single out the following: Ak-Bata, Alamedin, Kara-Balta (Bishkek city), Zhylan-Artyk, Tash-Koro, Biike-Too (Osh city). The chronographic function is

connected with the intersection of three temporal layers in the toponymy of Kyrgyzstan: Iranian, Kyrgyz and Russian, forming a multilayered topographic picture. In Kyrgyzstan, as in other Central Asian countries, many toponyms have been changed during different historical periods, particularly during the Soviet period, when some names underwent Russification or were renamed in honour of political figures. The study of such toponyms allows reconstructing the history of power changes, social transformations and cultural influences. After independence, many names were returned to the historical forms, which also reflects important historical processes. Among the toponyms that fulfil the chronographic function are the following: Ala-Archa, Kurmanjan Datka Street, Ferdowsi Park (Bishkek city), Ak-Buura, Gulbaar, Shahid-Tepe (Osh city).

Thus, the toponyms of Kyrgyzstan fulfil not only practical functions of designating places, but also reflect deep cultural, historical and artistic aspects that contribute to the preservation of the collective memory of the people. The limitations of this study are related to the fact that the results were based on toponymic profiles of two cities: Bishkek and Osh. Priority tasks could be such as studying morphological, phonetic and syntactic features of toponyms, etymology of toponymic units, conducting historical and cultural diachronic analysis, comparing toponyms of different regions or countries to identify common and unique features in the formation of names, studying toponyms of urban areas, especially large cities, reconstructing topographic profiles with traditional names.

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