

# Comparative and typological features of consonant system in Turkic languages<sup>1</sup>

Z.M. Bazarbayeva<sup>a</sup>, \*A.M. Zhalalova<sup>b</sup>, N. Ospangaziyeva<sup>c</sup>

<sup>a</sup>Akhmet Baitursynuly Institute of Linguistics, Almaty, Republic of Kazakhstan

ORCID: 0000-0003-1141-1027

(E-mail: zeynepmb@mail.ru)

<sup>b</sup>Temirbek Zhurgenov Kazakh National Academy of Arts, Almaty, Republic of Kazakhstan

ORCID: 000-0003-1216-3889

(E-mail: akshaim01@mail.ru). \*Corresponding author: akshaim01@mail.ru

<sup>c</sup>Akhmet Baitursynuly Institute of Linguistics, Almaty, Republic of Kazakhstan

ORCID: 000-0001-8875-5747

(E-mail: nb\_ospangazievana@inbox.ru)

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## ABSTRACT

The article examines the consonant system of Turkic languages, which undergoes modifications in accordance with the articulatory features of the language. Identification of such changes as adjacent phoneme interaction, sound harmony, phoneme transformation, sound merging, their combinatorial variation depending on a speech rate, vowel assimilation between two consonants, sound voicing, etc., is the primary task of phonology. A comparative study of similar phonological patterns in related Turkic languages is currently a pressing task. The comparative-historical method of studying Turkic languages, which traces its origin back to Mahmud Kashgari's work "Diwan Lughat-at-Turk", has contributed significantly to determining the phonological structure of dialects within this language family. The comparative-historical study of languages is a research method based on the comparison of various historical and diachronic phenomena or processes to identify similarities, differences, and patterns observed over a certain period. This method allows for deeper understanding of the characteristics of individual languages included in a given language group, general trends in the development of related languages, and the acoustic-articulatory nature of consonants in general.

The primary purpose of the article is to identify the phonetic and structural features of the consonant systems of related Turkic languages (Kazakh, Bashkir, Uyghur, Karakalpak, Khakass, Shor, Chuvash, among others) through a comparative and typological lens. To achieve this goal, the study focuses on analyzing consonantal structure of these languages, the emergence of new phonemes, and the patterns by which they are integrated into phonological system of the language in the language sound system.

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The article applies a descriptive approach, drawing on existing research materials and data related to Turkic languages. It examines the distribution and behavior of consonant sounds in various word positions (anlaut, inlaut, and auslaut), highlighting both commonalities and differences. The analysis examines phoneme composition, sound harmony, articulatory features, and consonant transformations from both phonetic and phonological perspectives. Identifying shared and language-specific traits highlights the study's significance. Consonant variability shapes language norms, affects acquisition and competence, and informs the development of language processing technologies. The investigation of consonantal variation based on linguistic data has important implications for both theoretical and applied linguistics.

### З.М. Базарбаева<sup>a</sup>

<sup>a</sup>Ахмет Байтұрсынұлы атындағы Тіл білімі институты,  
Алматы, Қазақстан Республикасы  
ORCID: 0000-0003-1141-1027  
(E-mail: zeypertmb@mail.ru)

### \*А.М. Жалалова<sup>b</sup>

<sup>b</sup>Темірбек Жүргенов атындағы Қазақ ұлттық өнер академиясы, Алматы,  
Қазақстан Республикасы  
ORCID: 000-0003-1216-3889  
(E-mail: akshaim01@mail.ru)  
\*Байланыс үшін автор: akshaim01@mail.ru

### Н. Оспанғазиева<sup>c</sup>

<sup>c</sup>Ахмет Байтұрсынұлы атындағы Тіл білімі институты, Алматы, Қазақстан Республикасы  
ORCID: 000-0001-8875-5747  
(E-mail: nb\_ospangazievan@inbox.ru)

## Түркі тілдеріндегі консонантизмнің салыстырмалы-типологиялық ерекшеліктері

**Аннотация.** Мақала түркі тілдеріндегі консонантизм жүйесіне арналған, ол тілдің артикуляциялық ерекшеліктеріне сәйкес өзгерістерге ұшырайды. Мұндай өзгерістерді анықтау фонологияның негізгі міндетіне жатады. Фонологиялық процесс – көрші фонемалардың өзара бір-біріне әсер етуі, дыбыстар үндестігі; бір сөздегі екі бірдей фонеманың біреуінің басқа дыбысқа айналуы; сөздің айтылу жылдамдығына байланысты дыбыстардың бір-біріне қосылып кетуі немесе олардың комбинаторлық

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күйі; екі дауыссыз дыбыстың арасына дауысты дыбыстың кірігуі; дыбыстың ұяңдануы, яғни ұяң дыбыстың қатаң дыбысқа айналуы, т.б. да құбылыстарды қамтиды. Туыстас түркі тілдеріндегі мұндай фонологиялық заңдылықтарды салыстырмалы түрде зерттеу қазіргі таңда өте өзекті мәселе болып табылады. Махмұд Қашқаридің «Диуани лұғат-ат-түрк» еңбегінен бастау алған түркі тілдерін зерттеудің салыстырмалы-тарихи әдісі бұл тілдегі диалектілердің дыбыстық құрылымын анықтауда көптеген жетістіктерге әкелді. Салыстырмалы тарихи әдісі – белгілі бір кезеңдегі ұқсастықтарды, айырмашылықтарды, заңдылықтарды анықтау үшін әртүрлі тарихи-диахрондық құбылыстарды немесе процестерді салыстыруда қолданылатын әдіс. Бұл әдіс аталмыш тілдер тобына кіретін жеке тілдердің ерекшеліктерін, туыстас тілдердің жалпы даму тенденцияларын, жалпы дауыссыз дыбыстардың акустикалық-артикуляциялық сипатын түсінуге мүмкіндік берді.

Мақаланың басты мақсаты – туыстас түркі тілдерінің (қазақ, башқұрт, ұйғыр, қарақалпақ, хакас, шор, чуваш және т.б.) дауыссыз дыбыстар жүйесінің (консонантизм) дыбыстық ерекшеліктерін құрылымдық және типологиялық аспектілерінде салыстыра отырып айқындау. Бұл мақсатқа жету жолында туыстас түркі тілдерінің өзара байланысы, дауыссыз дыбыстар құрамы, жаңа фонемалардың пайда болуы және олардың тілдің дыбыстық жүйесіне ену заңдылығын саралау міндеті қойылған.

Мақала сипаттамалық негізде жазылған, себебі онда осы уақытқа дейінгі туыстас түркі тілдері бойынша зерттеу материалдары қарастырылған және оған қатысты шолулар жасалған. Жұмыста түркі тілдеріндегі дауыссыз дыбыстардың сөздің кез келген буынындағы (анлаут, инлаут және ауслаут позицияларында) көрінісі, олардың ұқсастықтары мен айырмашылықтары, фонемалардың құрамы, үндестік сипаты мен ерекшеліктері, сондай-ақ консонантизм жүйесіндегі дыбыстық қатынастардың қалыптасу және өзгеру тәсілдері фонология және фонетика тұрғысынан талданады. Дауыссыз дыбыстар арасындағы жекелеген айырмашылықтар мен ортақ белгілерді анықтау мақаланың өзектілігін көрсетеді, себебі дауыссыз дыбыстардың вариативтілігі – тілдік нормаларды сақтауда, тіл үйрету процесінде, тілдік дағдыларды меңгеруде, тілді автоматты түрде өңдеуде өзіндік орны бар. Тілдік деректер негізінде сараланып отырған дауыссыз дыбыстардың вариативтілігі теориялық және қолданбалы лингвистика үшін өте маңызды.

**Кілт сөздер:** түркі тілдері, фонетика-фонологиялық жүйесі, дыбыстық өзгерістер, фонема, консонантизм, салыстырмалы талдау, диахрондық зерттеулер, анлаут, инлаут, ауслаут позициялары.

**З.М. Базарбаева<sup>a</sup>**

<sup>a</sup>Институт языкознания имени Ахмета Байтурсынулы, Алматы, Республика Казахстан

ORCID: 0000-0003-1141-1027

(E-mail: zeynepmb@mail.ru)

**\*А.М. Жалалова<sup>b</sup>**

<sup>b</sup>Казахская национальная академия искусств имени Темирбека Жургенова,

Алматы, Республика Казахстан

ORCID: 000-0003-1216-3889

(E-mail: akshaim01@mail.ru)

\*Автор для корреспонденции::akshaim01@mail.ru

**Н. Оспангазиева<sup>c</sup>***<sup>c</sup>Институт языкознания имени Ахмета Байтурсынулы, Алматы, Республика Казахстан*

ORCID: 000-0001-8875-5747

(E-mail: nb\_ospangazievan@inbox.ru)

**Сравнительно-типологические особенности консонантизма в тюркских языках**

**Аннотация.** Статья посвящена системе консонантизма в тюркских языках, претерпевающей изменения в зависимости от артикуляции языка. Выявление таких изменений является основной задачей фонологии. Фонологический процесс включает в себя такие явления, как взаимодействие соседних фонем друг с другом, гармония звуков; превращение одной из двух одинаковых фонем в одном слове в другой звук; слияние звуков друг с другом или их комбинаторное состояние в зависимости от скорости произношения слова; слияние гласных между двумя согласными, озвончение звука, то есть превращение глухого звука в звонкий звук и т.д. Сравнительное изучение подобных фонологических закономерностей в родственных тюркских языках в настоящее время является весьма актуальной задачей. Сравнительно-исторический метод изучения тюркских языков, берущий начало в труде Махмуда Кашкари «Диван лугат-ат-тюрк», привёл к многочисленным успехам в определении фонологического строя диалектов этого языка. Сравнительно-исторический метод – это научный метод, основанный на сопоставлении различных историко-диахронических явлений или процессов для выявления сходств, различий и закономерностей, наблюдающихся в течение определённого периода. В нашем исследовании данный метод позволил нам понять особенности отдельных языков, входящих в данную языковую группу, общие тенденции развития родственных языков и акустико-артикуляционную природу согласных в целом.

Основная цель статьи – выявить звуковые особенности консонантного строя (консонантизма) родственных тюркских языков (казахского, башкирского, уйгурского, каракалпакского, хакасского, шорского, чувашского и др.) в структурно-типологическом аспекте путём их сопоставления. Для достижения этой цели ставится задача проанализировать родственные тюркские языки, состав согласных, появление новых фонем и закономерности их включения в звуковую систему языка.

Статья написана на описательной основе, так как в ней рассматриваются материалы исследования по родственным тюркским языкам до настоящего времени и сделаны соответствующие обзоры. Анализируются проявления согласных звуков в тюркских языках в любом звене слова (в позициях анлаута, инлаута и ауслаута), их сходства и различия, состав фонем, характер их гармонии и особенности, а также способы формирования и изменения звуковых отношений в системе консонантизма с точки зрения фонологии и фонетики. Выявление индивидуальных различий и общих черт между согласными свидетельствует об актуальности статьи, так как вариативность согласных имеет свое место в соблюдении языковых норм, в процессе языкового обучения, в овладении языковыми навыками, в автоматической обработке языка. Вариативность согласных, дифференцируемых на основе языковых данных, очень важна для теоретической и прикладной лингвистики, общего языкознания.

**Ключевые слова:** тюркские языки, фонетико-фонологическая система, звуковые изменения, фонема, консонантизм, сравнительный анализ, диахронические исследования, позиции в анлауте, инлауте, ауслауте.

## Introduction

Changes in a language, influenced by internal and external extralinguistic factors, have an impact on its development. Under the influence of substrate and adstrate languages, particularly through contact and interaction with other languages, the consonant system can expand, leading to the emergence of new phonemes. This process, known as phonologization, results in the enrichment of the system. Besides, evidence can be observed in the Turkic languages. The use of distinct symbols to represent marked consonants in the the Orkhon-Yenisei inscriptions suggest early awareness of phonological system. Additionally, the preservation of the ancient consonantal features in certain modern Turkic languages, alongside the incorporation of new phonemes introduced through borrowed words, names and concepts from neighbouring languages, underscores the dynamic nature of consonant system evolution. These factors highlight the relevance and urgency of the problem addressed in this article. While considering such significant phenomena, we analyze the views of researchers and compare the data in related languages. H. Paul, A. Martine, et al. gave great importance to changes in the regularity of sounds. In the work “About the Principle of Language Economy in Linguistic Literature”, it is believed that in the flow of words, the fate of an individual element in a language depends not only on the sound next to it, but also on all elements in the entire language system.

## Materials and research methods

When speaking about the comparative historical study of Turkic languages, we first mention the work “Diwan Lughat at-Turk”, a dictionary of Turkic languages written in the 11th century by Mahmud Kashgari. The scientist comparatively analyzed the genetic affinities of words borrowed from related languages and the exchange of certain sounds that indicate the kinship of Turkic peoples. Historical-comparative, typological research, which laid the foundation for a systematic comparison of the phonological structure of Turkic languages, is also widely described in the works of V. Radlov and his followers (Tenishev, 2002).

Turkologists specializing in phonetics have noticed that the simultaneous use of inductive and deductive methods in the study of Turkic languages is effective. The inductive method aims at revealing general patterns by collecting lexical, phonetic, and grammatical specific linguistic data in one or more related or unrelated languages and comparing them. However, researchers have found that the comparative-historical method is most effective when based on materials from languages that are related to one another and belong to the same group or branch. The deductive method systematizes the identified patterns and considers the need for a typological or historical classification. These methods are widely used in the study of Turkic consonants (Bazarbaeva, 2022).

Throughout its long history, the structure of the sound system of Turkic languages has changed significantly. The sound systems of those languages differed in several ways as a result of the modifications they underwent before reaching our present era. These distinctions can be heard in both vowel and consonant sounds (Namazova, 2024: 463).

The instrumental-phonetic investigation of Turkic consonants before 1951 was sporadic. In the articles of that time, one could mainly find studies based on one instrumental method of investigation and devoted to individual problems of consonantism (sometimes of a single sound) (Baitchura, 1975). In the late XX and early XXI centuries, more and more comparative works devoted to the study of phonetics of related Turkic languages, phoneme composition, peculiarities of their pronunciation, syllable structure, prosody, describing the characteristic

features of vowels and consonants began to be published. Fundamental studies of scientists as M. Tomanov (1981), S. Omarbekov, N. Zhunisov (1985), Zh. Aralbaev (1988), N. Baskakov (1988), G. Musabaev (1988), L. Johansson, E. Chato (1998), E. R. Tenishev, G. F. Blahova, E.A. Grunina, A.V. Dibo, I.V. Kormushin, L.S. Levitskaya, D.M. Nasilov, O.A. Mudrak, K.M. Musaev, A.A. Chechenov (Tenishev et al, 2002), M. Orazov (2004), M. Eskeeva (2007), B. Sagyndikhuly (2009), Z. Bazarbaeva (2022), I. Darvishov (2022), Y. Madaliev (2024), and others have made significant contributions to the study of the history of the development of Turkic languages.

Guided by the research of those scientists, the article discusses the method of historical-comparative, typological phonetic analysis. It allowed for identifying systemic correspondences and differences between the branches of the related Turkic languages (Bazarbayeva et al., 2024: 52). The method is based on two principles: *comparative-historical* (identification of Proto-Turkic, Proto-Kipchak forms of modern languages); *typological* (comparative differentiation of sound changes).

### Research background

In modern studies, it can be seen that Turkicologists divide the consonants in the language into three categories:

- labial consonants (p, b, m, w);
- front lingual consonants (t, d, n, l, č, š, s, ž/ž, z/ž, r);
- middle lingual consonants (k, g, q, γ, j, ž, h).

Given the impossibility of considering all consonant sounds of the language in this article, we have decided to take only a few consonant phonemes: labial consonants – p, b, m, front lingual consonants – t, d, s/š, and middle-lingual consonants – k, g, q, i(ñ).

According to some research data on labial consonants, in the ancient Turkic languages, the consonants *b*, *m*, and *w* were allophones of the phoneme /p/. In the course of language development, the allophones became independent phonemes based on the phenomena of sonorization [m] and spirantization [w]. Therefore, it is explained that as a result of the phenomenon of phonologization, the phonemes <*b*>, <*m*>, and <*w*> in the Turkic languages spread from the archetype <*p*> (Baskakov, 1988).

If we consider the assimilation variants in the Proto-Kipchak languages, we can see that it is used in the form *p-b-m*. In modern Turkic languages, the soft consonant *b* is more common at the beginning of words than the hard consonant *p*. And in ancient monuments, the hard consonant *p* is often found. This situation suggests that the hard consonant /p/ is among the ancient phonemes. Among the Kipchak languages, although the consonant *p* is frequently used in the Karakalpak language, the occurrence of the sound *b* predominates.

In the Kazakh language, the sounds *p* and *b* are sometimes pronounced alternately at the beginning of a word, for example, the words *pyshaq-byshaq* (knife), *putaq-butaq* (branch), *pu-bu* (steam), *zhipek-zhibek* (silk). Also, in the Karakalpak language, instead of the voiceless sound *p* in the Kazakh language, the voiced sound *b* is used at the beginning of the word, for example, in the Kazakh language – *baki* (pocket knife), *bal* (honey), *bitti* (finished), *bitim* (peace agreement; build), *bolat* (steel), *bu* (steam), *buta* (bush), *butaq* (branch), *buqara* (public), *butin* (whole), in the Karakalpak language – *paki*, *pal*, *pitti*, *pitim*, *polat*, *pu*, *puta*, *putaq*, *puqara*, etc. Between two vowels, the voiceless *p* changes to the voiced sound, and alternates with the sounds *b* and *w* in a combinatorial manner, for example, *jap-y* – *ja-by*, *kop-i* – *ko-bi*, *sebe-p-i* – *sebebi*, *mektep* – *mekteb-i*, *jap-a* – *ja-ba*, *ek-e* – *ege*, *qap aldy* – *qab aldy*, *kop eken* – *kob eken*, *tap-yp* – *tawyp*, *jap-yp* – *jawyp*, *tep-ip* – *tewip*, *sep-ip* – *sewip* etc. (Aralbaev, 1988: 46).

The peculiarity of the *p* and *b* sounds at the beginning of words is that among Turkic languages, the number of words beginning with the *p* sound is smaller than that of the *b* sound, and the occurrence of the *b* sound instead of the *p* sound at the beginning of words is especially dominant in the Bashkir language.

In Kazakh dialects, the consonants *p* and *b* alternate in the position of anlaut; the consonant *p* does not occur in Kazakh literary language, but in other Turkic languages, e.g., in dialects of Turkmen and Turkish, it is used together: *pishir-bishir*, *puz-buz*, *palta-balta*, *pu-bu*. In the position of inlaut, the consonant *b* changes to the *v* sound, for example, the word *taba* (griddle) occurs in Uyghur as *tava* and in Uzbek as *tova* (Sagyndykuly, 2009: 66).

Labial consonants are used interchangeably because they share common characteristics. The difference between voiced and voiceless consonants depends on the vowels. For example, voiceless consonants become voiced when they are placed between vowels, and sometimes change to nasal consonants.

The increased use of the consonant *b* at the beginning of words is characteristic of Turkic languages. This includes the languages of the Oguz and Kipchak subgroups (Tomanov, 1981: 62). But in the Chuvash, Khakas, and Shor languages, the Proto-Turkic *b* consonant at the beginning of a word is replaced by a *p* sound. For example, *balyq* (fish) – *pāla* (Chuvash), *palakh* (Khakass), *palakh* (Shor); *bel* (waist) – *pēl* (Chuvash), *pil* (Khakass), *pil* (Shor); *bar* (there is, exist) – *pār* (Chuvash), *par* (Khakass), *par* (Shor).

The use of voiceless and voiced consonants in the middle of a word in Turkic languages also has its system and peculiarities. The transformation of every voiceless consonant into a voiced sound in the middle of a word is not the same in all languages. It happens because of the doubling of consonants or the influence of a vowel between two consonants. In the Kipchak and Karluk languages, both voiceless and voiced consonants are pronounced in the root. Voicing of consonants occurs in the root and suffix, e.g., in Kazakh *tap-tabı* (find), *daq-dagy* (stain), *oq-ogy* (bullet); in Tatar *baq-bagy* (garden), *aq* (white)-*agym* (current) (Tomanov, 1981).

At the beginning of a word, between two vowels, *b* is often pronounced. On the contrary, at the end of a word in modern Kazakh, only the *p* sound is pronounced. Of course, it is also found in the anlaut and the case of intervocalic. One of the peculiarities of the Kazakh language is that no word ends with the *b* consonant. Since the writing of these two letters was previously one character, each of the Turkic peoples read it in its own way. In the Oirot language, which belongs to the Altai language group, no word begins with the *p* sound. Tatar, Bashkir, Kyrgyz, Kazakh, Karakalpak, Nogai, and Altai languages are similar. In Uzbek, Turkmen, and Azerbaijani, the *p* sound is active. That is, in these languages, the influence of Persian is strong, and the voiceless *p* sound becomes softer and is pronounced more often, e.g., *push* (*bos* – empty), *pas* (*baseng* – low), *parchyn* (*barshyn* – precious fabric), *pakir* (*baqyr* – copper-bucket), *peshment* (*besment* – quilted jacket), *pustek* (*bostek* – cushion), etc. So, even in ancient times, the sounds of the voiced *b* and the voiceless *p* are mentioned in only five words in both the large and small inscriptions of the Kultegin monument, and only 12 times in the -*yp* (*ын*), -*ip* (*ин*) converb (participle) form of the verb. Of course, this use is not often. In the Talas alphabet, there is a special symbol for the *p* sound. It is not divided into hard and soft, like other consonants (Musabaev, 1988).

### Analysis

From the point of view of the genesis of the sound system of the language, considered in the context of the acoustic-articulation capabilities of the ancient Turkic peoples, the hypotheses

about the primacy of voiceless consonants may be correct. And the explicit preservation of the anlaut *b* in the Old Turkic language, which was formed in direct chronological continuity with the Proto-Turkic language, indicates that it was clearly in use. It is impossible not to preserve continuity in the process of language development, which includes successive chronological periods. Linguistic data fully confirm the use of anlaut *b* in the language of medieval Turkic speakers. Thus, theoretically confirming the possibility of the origin and formation of the bilabial sound *b* from the hard phoneme *p*, we can note that the anlaut *b* was used along with the sound *p* at the early stages of the development of Turkic languages (Eskeeva, 2007).

In all Turkic languages, pairs of voiceless and voiced consonants are often used in combination at the beginning of words. However, even among its latter language group, the extent to which each pair of these consonants is used in the anlaut is not the same. Among them, one can find languages that use one of these labial consonants more frequently at the beginning of words. For example, in Kazakh and Kyrgyz, the voiced consonant *b* is much more often found at the beginning of a word than the voiceless consonant *p*. In some individual dialects, the use of voiced *b* and voiceless *p* at the beginning of numerals often changes, and sometimes they are interchangeable. Be that as it may, the transition of *b* to *p* is a phenomenon that is too rarely observed in Kazakh colloquialisms at the beginning of a word (Omarbekov, Zhunisov, 1985).

The occlusive voiced consonant phoneme *b*, formed by the closing and abrupt opening of the lips, often occurs at the beginning of a word and within a word, and depending on its phonetic position, it can be pronounced in several combinatorial variants, retaining its main variant at the beginning of a word: *bol* (*be*), *bekem* (*strong*), *bugin* (*today*), *birge* (*together*). And among two vowels, the consonant *b* is pronounced as a semi-occlusiveness spirant, which is found between *b* and *v*, for example, *ab(v)ayla* (*be careful*), *sab(v)a* (*kumis leather vessel*), *shab(v)aq* (*fry*), *qab(v)an* (*boar*), *ayta b(v)er* (*go on*). The spirant variant of the occlusive consonant *b* is also found in modern Kazakh, Nogai, and Kyrgyz languages. Instead of the initial *b* in Karakalpak, the sonant *m* is sometimes pronounced in Kazakh, e.g., in Karakalpak – *bunyng*, *buny*, *bunda*, in Kazakh – *munyng* (*this ...'s*), *muny* (*this or it*), *munda* (*here*), there is also a variant *bunyng*, *buny*, *bunda*. From a historical point of view, the form starting with *m* probably appeared a long time ago. In Khakass, Shor, and Chuvash languages, instead of *b* at the beginning of a word, solid *p* is always used, for example, in Kazakh-*bas* (*head*), in Shor-*pash*, in Khakass-*pas*, in Chuvash-*pus* (Aralbaev, 1988: 45).

It is a well-established fact in phonetic works that the consonants *p* and *b* are interchangeable in related Turkic languages. Since the functions of these phonemes are similar, they can be used interchangeably. The difference between voiceless and voiced consonants is that one has a sound, while the other does not. Voiceless consonants become voiced when they fall between vowels, sometimes becoming voiced consonants. The fact that voiced and voiceless consonants are not opposed to each other is a feature that dates back to the time of Proto-Turkic, is also characteristic of the Proto-Kipchak language, and can be considered a feature not far removed from the dialects of modern Kipchak languages. In the dialects of the Bashkir language, the difference between the above-mentioned voiceless and voiced sounds is not noticeable.

The voiced plosive *b* consonant at the beginning of the word has remained unchanged from Proto-Turkic, Proto-Kipchak to the present-day Kipchak languages, for example, in Kazakh, Karachay-Balkar, Karakalpak, Nogai – *boj* (*figure; body*), in Bashkir, Tatar – *buj* (*figure; body*), in Kazakh – *pis* (*cook; figuratively meaning is be ready*), in Nogai – *bis*. The correspondence of *b* / *p*, which comes from Proto-Turkic, is like a relic preserved from the past, in Kazakh *pyşaq* / *byşaq* (*knife*), in Bashkir dialect *pysaq*, *palta* (Tenishev et al, 2002: 262). In Bashkir,



the consonants *p* / *b* / *m* are used together, for example, *pajtaq* / *majtaq* / *bajtaq* (boundless, wide steppe). In the middle of a word, in the inlaut position, the consonant *b* is often used in the Proto-Kipchak language and modern Kipchak, in Kazakh, e.g., *žalbarynu* (pleading). In most modern Kipchak languages, the consonants *b* / *p* are spirantized and change to *w* when they occur between two vowels. In Kazakh, Karakalpak languages, *saba* > *sawa* (kumis leather vessel). In Kazakh, Karakalpak, Bashkir, Nogai, and Tatar languages, *tabaq* > *tawaq* (plate). In this position, the change of *b* to *w* does not change the meaning of the word, since they are optional variants of the same phoneme, and they do not form a phonologically meaning-distinctive opposition. It is known that in the Proto-Kipchak language, as well as in modern Kipchak languages, the voiced *b* consonant does not occur. In words derived from borrowings, *b* becomes a voiceless *p* consonant: *kitab* > *kitap* (book), *klub* > *qulup* (club).

It is known that in the Turkologists' works, the consonant *m* is considered along with the consonants *b* and *p*. They alternate with each other in a combinatorial manner. The consonant *m* is an implosive nasal sonorant or sonant phoneme, which is formed by the lips sticking together. Earlier the sonant *m* was rarely used at the beginning of a word, but in today's vocabulary, it is used in all word positions: *men* (I), *mal* (livestock), *mol* (a lot), *muz* (ice), *mindet* (obligation, responsibility, duty), *aman* (healthy), *keme* (ship), *tam* (house), *adam* (man). In dialects, the sounds *m*, *b*, *p* are pronounced alternately even within the root word: *aspan-asban* (sky), *batpan-batman* (heavy; massive), *ketpen-ketben* (mattock). In some Turkic languages, the pronunciation as *asman*, *batman*, *ketmen* is considered the norm. At the end of a word, the front lingual consonant *n* sound is combined with the labial *m* sound under the influence of the *b* sound at the beginning: *nanbady-nambady* (didn't believe), *janba-zamba* (don't burn), etc. (Aralbaev, 1988). In this regard, if the final *n* sound of the root is before the sounds *b* and *p*, it changes to *m*, for example: *senbe* – *sembe* (don't believe), *Zhanpeis* – *Zhampeis* (a man's name). The fact that the consonant *n* changed to *m* can also be seen in historical monuments, for example: *unutmaq-umytpaq* (will forget), *naqyl* – *maqal* (saying-proverb), etc. (Sagyndykuly, 2009).

As for the front lingual consonants, *t* is considered a voiceless alveolar plosive (occlusive) phoneme, which is produced by the contact of the front tongue with the upper front teeth. When this phoneme is pronounced, an implosive phase is observed. After it, one can observe an explosive phase due to the abrupt opening of the tongue and teeth (Aralbaev, 1988: 50).

The consonant *t*, which was derived from Proto-Kipchak, is used in most modern Kipchak languages in the beginning and middle of words without changes. However, we notice that in some Kipchak dialects it has changed to *d* under the influence of the Oghuz language. It is expressed in the Kazakh, Altai, Karakalpak, Nogai, Kumyk, and Urum languages as follows: *til* > *dil* (language), *taw* > *daw* (mountain).

In the Khakass and Shor languages, the consonant *t* is preserved in the words *til* and *tau*. In the Chuvash language, the Proto-Turkic word *til* changes to *čĕl* (*t* → *č*). And although the sound *t* is preserved in the word *tāv* (tau), sound changes are observed in the process of pronunciation. These changes show a typical feature of the Oghuric languages.

Sound *d* is a voiceless phoneme produced by the front of the tongue touching the upper incisor. This consonant is pronounced voiced at the beginning and in the middle, but voiceless at the end. This is a rare sound originating from the Proto-Kipchak language. It is also rare in modern Kipchak languages, often influenced by the Oghuz language, for example, in Kazakh – *dejin* / *šejin* (until, up to), which are phonetically close to the root words *dek* and *sek*, although their meanings may be different (Aralbaev, 1988: 51). The consonant *d* also occurs in the Kazakh language in the words *dauys* (voice, noise), *durys* (right), *adyr-budyr* (uneven).

There is also a person named Adyrbek. In Kazakh, there are curses *adırä qalgyr* (damn you), *essiz qalgyr* (you brainless fool). Since these words do not exist in other Kipchak languages, they may be old words derived from Proto-Turkic.

In Proto-Kipchak and modern Kipchak languages, the *d* consonant in the inlaut position occurs only in affixes: *berdi* (gave), *ajtady* (say), *qolda* (support; in hand), *jerde* (on the ground). If *d* existed in Proto-Turkic, it would have undergone reconstruction to Proto-Kipchak at that time, and the sonant *j* would have appeared instead of it.

In the modern Kipchak languages and medieval writing monuments, *j* is always used instead of *d* among vowels: *d-j ajaq* (leg), *qajun* (in-law). The word *quwushan* in the Karachay-Balkar language can be compared with the Kazakh language – *qujushan* < *qudushan* (*d* > *j* > *w*). Sometimes we can notice the version *d* > *n* in the word *tamda* > *tamna*. *D* – is not used in the auslaut position in Proto-Kipchak. Instead of the reconstructed *d*, *j* is used at the end of a word in modern Kipchak: *qoj*, *quj*, *qyi*. In borrowed words, *d* becomes *t* (*d* → *t*). The Russian word *zavod* (plant) becomes *zawyt* in Kazakh (Tenishev et al, 2002: 266).

The phoneme *ʃ* is a spirant, a two-focus voiceless postalveolar fricative phoneme formed by the approximation of the anterior tongue to the alveolar ridge. In the Kazakh language, the phoneme *ʃ* occurs at all word positions: *šaʃ* (hair), *qaʃan* (when), *ʃelek* (bucket) (Aralbaev, 1988: 55). Some Turkic languages use the *č*, *s* sounds instead of the phoneme *ʃ* in the Kazakh language, e.g., the Kazakh word *üʃ* (three) becomes *üč* in the Azerbaijani, Kyrgyz, Turkmen, Uyghur languages; the Kazakh word *ʃyǵar* (take out, release, in some cases maybe) in Kyrgyz becomes *čyǵar* (Aralbaev, 1988: 56).

In the Proto-Kipchak language, *ʃ* is consistently used in the auslaut position. This position of the *ʃ* phoneme is preserved in most modern Kipchak languages. For example, in the Karachay-Balkar, Kyrgyz, Kumyk, and Crimean Tatar languages, it is *baʃ* (head), *boʃ* (empty), *iʃ* (business). In the dialect and written language of the Kazakh language, *ʃ/s* is used: *baʃ* / *bas* (head), *beʃ* / *bes* (five), *alpysʃ* / *alpys* (sixty) (Tenishev et al, 2002: 271). In Chuvash *bas* (head) → *pus*; *beʃ* / *bes* (five) → *pěʃ* / *peš*; *alpys* (sixty) → *ultär*, there is a big difference, since this language does not belong to the Kipchak languages; in Khakass – *bas* → *pas*; *bes* (five) → *pis*; *alpys* (sixty) → *alpis*; in Shor *bas* → *bas* (the same as in the modern Kazakh language); *bes* (five) → *pis*; *alpys* (sixty) → *alpis*. In the Shor and Khakass languages, the word *alpys* (sixty)– *alpis* has the same form, and it is very close to Kazakh, but there are some phonetic pronunciation features.

In the Central Kipchak languages and the Gaitaş dialect of the Karaim language, *ʃ* > *s* changed at the end of words. For example, in the Kazakh, Karakalpak, and Nogai languages, it is *bas* (head), *is* (business). In the affixes of the Central Kipchak languages, *ʃ* was replaced by the *s* sound, e.g., *is* (business). In the *Karachay-Balkar*, *Kyrgyz*, *Crimean Tatar*, *Kumyk languages*, *alyš*, *keliš*, in the Kazakh, Karakalpak, *Nogai languages*, *alys* (far), *kelis* (agreement) (Tenishev et al, 2002).

The phoneme *k* was considered from the middle lingual consonants. This is a voiceless, plosive (occlusive) phoneme produced by a clear touch of the center of the tongue to the hard palate. The nature of the *k* sound in Turkic languages is different; for example, the *k* phoneme is pronounced with a front articulation in the Karakalpak, Kazakh, Nogai, and Turkic languages, unlike in the Karluk and Oghuz Turkic languages. In most cases, the *k* phoneme is accompanied by front vowels, for example, *kün* (the Sun), *kel* (come), *eki* (two), *terek* (poplar). The phoneme *k* also occurs at the beginning, end, and middle of words, for example, *kök* (blue), *köz* (eyes), *kerek* (need), *tülki* (fox) (Aralbaev, 1988: 57).

The next phoneme we considered was the *g* phoneme – a voiced plosive phoneme formed by the strong contact of the middle of the tongue with the hard palate, a voiced form of the

voiceless *k* consonant. In the Proto-Kipchak language, *g* does not occur in the anlaut position. It occurs only in the middle of a word. Therefore, the *g* consonant can be considered as a phoneme that arose based on the assimilation phenomenon of the *k* sound. This phoneme occurs between two vowels, in Kazakh: *bu + kun > bugun* (today), *keše + keldi > kešegeldi* (came yesterday) (Tenishev et al, 2002: 276). Aralbayev noted that instead of *k* at the beginning of words in Kazakh, the consonant *g* is sometimes pronounced in the Karakalpak language, and gave the following examples: *kilem-gilem* (carpet), *kereñ-gereñ* (deaf), *keude-geude* (chest), *köze-göze* (soup), *kürek-gürek* (shovel), *küzet-güzet* (security) (Aralbaev, 1988: 58).

The consonant *q* is a voiceless plosive phoneme, produced by the back of the tongue touching the back of the palate. In spoken language, the sounds *q* and *h* are pronounced alternatively within a word, and in intervocalic position, the voiceless *q* and the voiced *ɣ* alternate combinatorially, for example, *taqta-tahta* (board), *toqsan-tohsan* (ninety), *toqta-tohta* (stop), *şyqty-şyqty* (went out), and *aq-y – aɣy*, *oraq-y – oraɣy*, *aq ala – aɣ ala*. Instead of the back-tongue sound *q* in the Kazakh language, in the modern Chuvash, Khakass, Tuvan languages, the spirant *h* is always pronounced, for example, in Kazakh – *qabyrga* (rib; wall), in Khakass – *habyrga*, in Kazakh – *qazan* (cauldron), in Khakass – *hazan*, in Kazakh – *qap* (bag, sack), in Tuvan – *hap*, in Kazakh – *qol* (arm, hand) corresponds to Tuvan – *hol*, in Kazakh – *qar* (snow), in Tuvan – *har* are pronounced (Aralbaev, 1988: 59).

A spirant (single-focus) oral sonorous phoneme *i(ü)* is produced by the tongue touching the hard palate. This consonant is most often found at the end and in the middle of words (*aiaq/ leg*, *saia /shade, shadow*, *qaiyq/ship*), *tai/young horse, foal*) (Aralbaev, 1988: 56). In dialects, sometimes the sounds *j* (дж), *i* (й) are pronounced alternately at the beginning of words (*jaqsy-iahşy* (good, ok), *joq-ioq* (no), *jol-qol* (way, road), *jyl-iyl* (year)). The fact that the sounds *j* / *i(ü)* sometimes alternate at the beginning is closely related to the history of the language. When the spirant *i(ü)* comes with a vowel at the end of a word, it creates closing diphthongs (*tai/ foal*, *toi/ celebration*, *süi/ kiss*). Instead of the *i(ü)* spirant, other sounds are pronounced in some Turkic languages, e.g., in Kazakh – *aiaq* (leg), in Khakass – *ağah*, Shor – *ayaq*, in Yakut – *ataq*, in Chuvash – *ävät*, in Orkhon – *adaq*; in Karakalpak – *qūiryq*, in Shor – *kuzuruk*, in Tuvan – *kuduruk*, in Yakut – *huturuk*. This alternating pronunciation of *i(ü)* / *z/d/t/u* sounds in Turkic languages is associated with the history of language development (Aralbaev, 1988: 57).

## Results

As noted by Johanson and Csato, most Turkic languages are characterised by a similar set of consonants: (p, b, t, d, k, g/q), nasals (m, n, ŋ), fricatives (s, z, ʃ, ʒ, h), liquids (l, r) and glides (j, w). It may differ in their exact distribution and sound, as some languages have velar and uvular sounds /k/ or /g/ (Johanson, Csato, 1998).

In the Proto-Kipchak language and the modern Kipchak languages, the phenomenon of *p > b > m* is firmly established. Starting from the Proto language, the *p* sound that comes after a vowel at the end of a word has been preserved in all Kipchak languages that descended from Proto-Kipchak, in Kazakh – *žap*, in Bashkir, Tatar, Karakalpak, Karachay-Balkar, and Nogai – *jap*. When affixes beginning with vowels are added to the root, the final *p* becomes voiced (*p > b > w*). In Kazakh, *žap + yl* (close) > *žabył/ žawyl*, *tap + yl* (find) > *tabyl > tawyl*. The use of p, b, m in interrogative and negative affixes in Kipchak languages is a legal one: *-pa/-pe/-ba/-be/-ma/-me: aqpa, ketpe, kezbe, alma, kelme* (Bazarbayeva, 2022).

Table 1. The appearance of labial consonants (p, b, m) in the Kipchak and Shor, Khakass, and Chuvash languages.

Таблица 1. Губные согласные в кыпчакском, шорском, хакасском и чувашском языках (p, b, m).  
1-кесте. Қыпшақ, шор, хакас және чуваш тілдерінде еріндік дауыссыздар (p, b, m)

bas (head)	bas	bas	baš	baš	baš	bas	pas	pus
bol (become)	bol	bol	bul	bul	bol	bol	pol	për
myŋ (mīŋ) (thousand)	myŋ	myŋ	miŋ	miŋ	miŋ	mīŋ	möŋ	měŋ
temir (iron)	temir	temir	timir	timir	temir	temir	tömir	těmër
keme (ship)	keme	keme	kimä	kima	keme	keme	kemi	kamä
baqa (frog)	baqa	baqa	baqa	paqa	maqa	baka	paha	paka
qap (bag)	qap	qap	qap	qap	qap	hap	hap	hup
жұм-žum (round, soft, bend)	žum	jum	jom	Jom	žum	yum	yum	chēm

As we can see from the examples given in Table 1 above, the word жұм – *žum* (round, soft, bend) is pronounced in the Shor and Khakass languages as *yum*, similar to other Turkic languages, while in Chuvash it is pronounced as *chēm*. This is explained by the fact that the word жұм (*žum*) does not exist in the language. It corresponds to the Proto-Turkic word *chēmlē* (yumšaq). Here, we assume that the root of the word *yum* is preserved, but it has been transformed into the *chēm* form.

While in Kazakh words usually begin with the letter m, in Turkmen and Azerbaijani words usually begin with the letter b: *men* – *ben* (I), *müryn* – *büryn* (nose), *masaq* – *baçaq* (ear (of grain)) (Orazov, 2004: 97).

I. Darvishov states that one of the signs indicating the inseparable connection of Proto-Turkic language with modern Turkic languages in the system of consonantism is the presence of  $b > p$ ,  $b > v$ ,  $b > m$  (Darvishov, 2022: 7651).

The group of phonemes *m*, *b*, *p* in the Old Turkic languages also includes the sounds *v*, *f*, which are produced by the lips. Since the first three sounds (*m*, *b*, *p*) are a reflection of the ancient phonological system of the Turkic languages, they are pronounced in the original Turkic words, while the sounds *v*, *f* are pronounced in the borrowings from other languages, for example, *vagon* (wagon), *fabrica* (factory). However, the consonants *v*, *f*, which are pronounced in any word, cannot be considered as a result of external influence, they sometimes occur as a result of phonetic changes in the structure of the language or the word, for example, in Azerbaijani *var* (there is), *varlyq* (life), in Turkish *varlyq* (life), in Azerbaijani *govulmaq*, in Turkish *kovumak* (establishment, exile), in Azerbaijani *dovšan*, in Turkish *tavšan* (hare), in Azerbaijani *ovlag*, in Turkish *avlag* (hunting ground), in Gagauz *kufne* (kitchen), *tafta* (board), *foroz* (rooster), in Turkmen *arfa* (barley), *γafy* (gate). In Turkic languages located to the East, a significant group of words pronounced with the *f* sound was formed in ancient times under the influence of Iranian languages, and in later times, under the influence of Western languages. The sounds *f* in the word *saf altyn* (pure gold) and *f* in the word *factory* or in personal names such as *Fazyl* and *Fedor*, which are spoken in modern Turkic languages, have different etymological origins (Tomanov, 1981: 52). As we have seen, the consonant *f* is pronounced in the Oghuz subgroup of Turkic languages, while in the Kipchak subgroup, the consonants *v* and *f* are found only in borrowed words.

It is clear that the words in the Kazakh language that begin with the sound *t*, which we considered among the front lingual consonants, begin with the sound *d* in foreign languages. For example, Kazakh *tal* (tree), Turkish *dal*, Kazakh *talaq* (divorce), Turkmen *dalaq*, Kazakh *taldyru* (to make someone faint), Turkmen *daldirmek*. In Turkish, the transformation of the *t* sound at the end of a word in Kazakh into the sound *d* is also common. Comparatively, in Kazakh – *at* (name; horse), Turkish *ad*, Kazakh *qat* (letter), Turkish *qad* (Sagyndykuly, 2009: 95).

The consonant sound *t* in the middle of a word, for example, in the word *butaq* (branch), is preserved in all Kipchak languages, although we can notice the *d* sound in the word *budaq*, which appeared in the Altai dialect after assimilation.

The phoneme *ş* in Proto-Kipchak dialects alternates with the consonant *s* (*s* → *ş* or *ş* → *s*). It is mostly found in the anlaut position. This phenomenon is observed in the Central Kipchak languages. For example, in the Kazakh, Karakalpak, and Nogai languages, *sol* (that), and *şul* in Tatar. Some Turkologists argue that the consonant *ş* does not occur at the beginning of words in the Proto-Turkic language. In their opinion, this is a reflex of the Proto-Kipchak language, for example, in the Kazakh and Karakalpak languages – *şaş* (hair), *şeş* (take off clothes; undress). The use of *ş/s* in the Kazakh language is found both in the language and the written literary language: *şura/sura-* (ask), *şerik/serik* (partner) (Omarbekov, Zhunisov, 1985: 92). Proto-Turkic *saç* (hair) in Shor is *sas*, Khakass – *sas/saas*, Chuvash – *şăç*. These examples show a regular sound correspondence (Proto-Turkic *č* changes to the *ç* sound in Chuvash; Proto-Turkic *č* consonant to the *s* phoneme).

The phoneme *s* is a single-focal voiceless alveolar fricative phoneme, formed not by the tip of the tongue sticking to the lower incisor, but by moving closer to it. It is found at all levels of the words – *san* (number), *sazan* (carp), *suren* (noise; hubbub), *masak* (ear of grain), *tasa* (cover, shelter, protection), *aitys* (poetic duel; oral poetry contest), etc. In the Kazakh dialect it is occurred the alternation of sounds *s*, *ş*, for example: *tas-taş* (stone), *esek- eşek* (donkey), *bas-baş* (head), etc. (Aralbaev, 1988: 52). In Altaic, the consonant *s* has become the *z* consonant. The consonant *s* is often found in the anlaut position, for example, in Kazakh, Karachay-Balkar, Kyrgyz, Karakalpak, Crimean Tatar, Kumyk, Nogai, Tatar. In the Shor, Khakas languages it is as (food, meal), *es* (mind, memory), but in Chuvash – *ăş* (food, meal), *ěş* (mind, memory). In Bashkir – the consonant *s* has changed to *ş*, for example: *as* (food, meal) > *aş*, *es* (mind, memory) > *eş*. Sometimes, due to assimilation, the consonant *s* has changed to *č* in Karachay-Balkar, for example, *basqych* (ladder) – *basqyč* > *bačqyč*.

In the Proto-Kipchak language, the consonant *ş* is often used in the position of inlaut. It is also preserved in modern Kipchak languages (Table 2).

Table 2. The use of *ş* in the position of inlaut in modern Kipchak languages.

Таблица 2. Использование буквы *ş* в середине слова в современных кыпчакских языках.  
2-кесте. Қазіргі қыпшақ тілдерінде сөз ортасындағы *ş* әрпінің қолданылуы.

Kazakh	Kyrgyz	Karakalpak	Tatar	Bashkir	Karachay-Balkar	Written monument
<i>kisi</i> (man)	<i>kişi</i>	<i>kişi</i>	<i>keşe</i>	<i>keşe</i>	<i>kişi</i>	<i>kişi</i>
<i>besik</i> (cradle)	<i>beşik</i>	<i>beşik</i>	<i>bişik</i>	<i>bişik</i>	<i>beşik</i>	<i>beşik</i>

But the Proto-Turkic *ş* in the word *kisi* in the Chuvash dialect changes to an *r* sound (*kiři* – *hěr*). Also, the consonant *k* changes to *h*. And in the Shor language, the same word sounds

like *kis* without the final sound – *i*. In Khakass – *his*, as in most Siberian Turkic languages, that is, instead of the *k* phoneme, *h* is written.

The phoneme *ş* sometimes occurs between a vowel and a voiceless consonant, for example, in the Kazakh and Karakalpak languages, *eşki* (goat). Sometimes exchanges are observed in the inlaut position (*mysyq* / *myşyq* (cat), *başqar* / *başşar* (lead; manage), *tösök* / *töşök* (bed). This phenomenon indicates that the use of the *ş/s* consonants in Proto-Kypchak was not differentiated, and there was no phonological difference.

The *k* consonant in the Proto-Kipchak language, which belongs to *the middle lingual consonants*, is used at all word positions. In the anlaut position, this phoneme is preserved in all Kipchak languages (Table 3).

Table 3. The phoneme *k* in the anlaut position.

Таблица 3. Фонема *k* в начале слова.

3-кесте. Сөз басындағы *k* фонемасы

Kazakh	Karakalpak	Karachay-Balkar	Nogai	Crimean Tatar	Kyrgyz	Tatar	Bashkir
kel (come)	kel	kel	kel	kel	kel	kil	kil
köp (a lot)	köp	köp	köp	köp	köp	küp	küp
kök (blue)	kök	kök	kök	kök	kök	kük	kük

The verb *kel*, which is considered one of the most stable verbs in the related Turkic languages, is given in the anlaut position in Shor – *kel*, in Khakas, the consonant *k* changes to the consonant *h* – *hil* (*kel*), and in Chuvash – *kil* (*kel*), that is, in these languages, in addition to consonant changes, vowel shifts in the root (*e* → *i*) can also be observed.

Between two vowels, the *k* at the beginning of the second root becomes voiced and changes to *g*, for example, in the Kazakh language – *bu* (*this*) + *kiin* (*day*) > *bugiin* (*today*), *bul* (*this*) + *künde* (*every day*) > *bulgiinde* (*today; currently; at present*) (Tenishev et al, 2002: 275).

Voiceless *k* is combinatorially exchanged with *g* (*terek-i-teregi*, *kök egis* – *kög egis*, *balasy keldi* – *balasy geldı*, *kara köz* – *black eye*). The sound *k* is preserved in the middle of the word.

In the position of auslaut, Proto-Turkic *k* was preserved in modern Kipchak languages, e.g., in Kazakh, Karakalpak, Nogai – *etek* (hem), *erkek* (man), *kürek* (shovel). If an affix starting with a vowel is added to the root, the last sound of which is a voiceless *k*, the voiceless sound that precedes it becomes voiced: *erkek* > *erkegi*, *bek* > *begi*, *bekzat* > *begzat*. Zh. Aralbayev pointed out the fact that instead of the voiceless *k* at the beginning of words in the Kazakh language, the *g* sound is used in the languages of the Oghuz group: *kir* (come in) in Kazakh, *gir* in Turkmen, *köl* (lake) in Kazakh, *göl* in Turkmen, *kel* (come), *kiin* (day, the Sun) in Kazakh, *kür* in Turkmen, *gel*, *giin* in Azerbaijani (Aralbaev, 1988: 57). One of the phonetic peculiarities of the Oghuz languages is the alternation of *k* and *g* sounds. Such phonetic phenomena are peculiar to individual languages (Orazov, 2004: 96).

In the inlaut position, the consonant *g*, which is a remnant of the Proto-Kipchak language, is often used between two vowels, e.g., in Kazakh, Karakalpak, Karachay-Balkar, Nogai, Crimean Tatar, Kyrgyz, Kumyk languages – *ege*, in Tatar, Bashkir languages – *ige*. In Kazakh, Karakalpak

languages – *egiz*, *kelgen* (Tenishev et al, 2002: 277). In the Proto-Kipchak language, there was no consonant *g* in the position of anlaut, and the reconstructed *g* is a voiced version of the final *k* sound. However, some Turkologists say that the consonant *g* in the middle of a word changed to *i(ü)*, for example, in Kazakh, Karakalpak, Karachay-Balkar, Nogai, Crimean Tatar, Kyrgyz, and Kumyk languages – *teg* > *ti(ü)*. If the consonant *g* was in the position of auslaut in Proto-Turkic, it must have changed to *i(ü)* before the Proto-Kipchak language.

Some phonologists consider *q* and *k* to be one phoneme. And a sound *h* is used at the beginning, middle, and end of a word in the Proto-Kipchak language. In the position of anlaut, it is in Kazakh, Karakalpak, Karachay-Balkar, Nogai, Crimean Tatar, Kyrgyz, and Kumyk languages – *qoi* (sheep), in Tatar and Bashkir languages – *qui*. Since the consonant *q* is inconvenient for the pronunciation of the sound from an articulation viewpoint, in some Kipchak languages it has been replaced by *k*, *h* (*koi* (sheep; stop), *kara* (black; see), *kar* (snow); *hap* (bag), *hum* (sand)). Proto-Kipchak *q* in the inlaut position is preserved in modern Kipchak languages. In the Kazakh, Karakalpak, Nogai, Tatar, Kyrgyz, and Kumyk languages, it sounds like *buqa* (bull), *baqyr* (bucket).

In the Western Kipchak languages, the consonant *q* has changed to *ğ*, *h*. For example, in the Kumyk and Karachay-Balkar languages – *buɣa* (bull), *bağyr* (copper pot); *tohsan* (ninety), *ahča* (money), *qoçhar* (ram), *ashaq* (noble; lofty; proud). In the auslaut position, the Proto-Turkic consonant *q* has been preserved in most modern Kipchak languages. For example, it sounds like *aiaq* (leg) in the Kazakh, Karakalpak, Karachay-Balkar, Nogai, Crimean Tatar, Kyrgyz, Kumyk languages, in the Tatar, Bashkir languages – *äiäq* (Tenishev et al, 2002: 278).

In general, the distinctive feature of the sounds in the Turkic language is their acoustic sign; however, we say whether they are voiceless or voiced, they are closely connected. But voiceless consonants often occur at the beginning of words (Tenishev et al, 2002: 283).

The consonant *i(ü)* is found in medieval Kipchak monuments and modern Kipchak languages in the anlaut position. In some modern Kipchak languages, older sounds such as *j*, *ž*, which existed even earlier in Proto-Turkic, were used instead of the *i(ü)* consonant, e.g., in the Kazakh, Karakalpak, Karachay-Balkar dialects – *žyl*, *jyl* (year), in Tatar, Bashkir, Nogai languages – *iył*. In the words – *jyr* > *yr* (song), *yrda* (sing) from the Kyrgyz and Altaic languages, the letter *i(y)* in front of a word is dropped (Tenishev et al, 2002: 281). In Kazakh, words start with *j*, while in Uzbek, they start with *i(y)*: *jaqsy* (good /ok) – *iaqsy*, *jyl* (year) – *iył*, *jol* (way, road) – *iol* (Orazov, 2004: 97).

In the Kazakh dialect, the consonants *j*, *ž* are used instead of *i(ü)*, e.g., *i(ü)* *as*, *jas*, *žas*; *i(ü)* *at*, *jat*, *žat*; *jarym*, *i(ü)* *arym*. In the Karachay-Balkar dialect, *i(ü)* corresponds to *d*, *j*, *č*, *c* (*dulduz*, *žulduz*, *čajqa*, *cajqa* /shake). Judging by the examples given, it can be seen that in the Proto-Turkic language, several sounds are used at the beginning of words and have no phonemic significance (Omarbekov, Zhunisov, 1985).

There were also opinions that the sounds *j/č* in the Old Turkic Talas alphabet were considered as only one symbol. A consonant *č* was read as *jygan*, if not *čygan*, depending on the context. The direct successors of the Kipchaks considered the sound *j* in the Kazakh language to be an affricate – they could not go beyond the traditional form. The *ž* in the Kazakh language has long since moved away from the affricate form. It may have been an affricate in the 12th-14th centuries, because it was observed that the Karluks, who crossed through the Semirechye and Syrdarya at that time, were in the East until the 7th century and used the *ž* affricate (Bazarbayeva, 2022).

According to G. Musabaev, *i(ü)* was originally one sound, and thanks to the property of continuous pronunciation, it turned into a complex sound – a *diphthongoid*. As a result, *i* (*iü*, *yiü*), *e* (*üe*), *я* (*üa*), *ю* (*üy*) appeared (Musabaev, 1988: 73). The scientist provided the

following table (Table 4), pointing out the fact that from a historical viewpoint, *i(ü)* and *j* began to coexist in the Middle Ages.

Table 4. The use of *i(й)* and *j* (by G. Musabayev).

Таблица 4. Использование букв *i(й)* и *j* (Г. Мусабаев).

4-кесте. *i(й)* және *j* әріптерінің қолданылуы (Ғ. Мұсабаев).

Kazakh	Tatar	Bashkurt	Ozbek	Kyrgyz	Karakalpak
жұмсақ (soft)	йомшақ	йомшақ	юмшоқ	жұмсақ	жұмсақ
жүк (baggage)	йөк	йөк	юк	жүк	жүк
жас (young)	йәш	йаш	еш	жаш	жас
жіп (thread)	еп	еп	ип	жип	жип
жайлау (pasture)	жәйләу	йөйләу	яйлоу	жайлоо	жайлау

In the position of *inlaut*, the consonant *i(y)* in Proto-Turkic, Proto-Kipchak, and Modern Kipchak languages continues to be used both between two vowels and in the presence of a sonorous, strict sound following it. For example, the word *moiyn* (neck) exists in Altai, Kazakh, Kyrgyz, Karakalpak, and Nogai languages, in Tatar and Bashkir languages – *muïun*, in Karaim, Karachai-Balkar, and Kumyk languages – *boiun*. This word in Khakass is *poyin*, in Shor is *poyun* (similar to the Proto-Turkic form *boyun*).

In the *auslaut* position, the consonant *i(ü)* is used in both the Proto-Kipchak and the modern Kipchak languages. In all Kipchak languages, words like *ai* (Moon) and *toi* (celebration, party, wedding) are common; however, in the Tatar and Bashkir languages, it is *tui*. The sounds *j*, *d*, *i(ü)* share a common history, and the development of *j* began long before the era of the Karakhanids (Musabaev, 1988: 70). In written monuments, including the Orkhon-Yenisei monuments, the correspondence of the sounds *d*, *z*, and *i(ü)* has been observed since ancient times. In some monuments, all three forms of the word – *adaq/azaq/aiaq* (leg) are used simultaneously. It is noticeable that the consonant *i(ü)* in the *anlaut* alternates with other sounds, but it is very stable in the *inlaut* and *auslaut* positions. Such stability can be considered the final stage of the consonant *i(ü)* in the following  $\check{z} > \check{c} > s > j > d > n > i$  position. Such results demonstrate the complexity and richness of the Turkic phonological landscape and emphasize the importance of comparative studies for both theoretical and applied linguistic research (Madaliev, 2024).

## Conclusion

The article examined consonant phonemes in the material of Turkic languages. The stages of historical development of the phonetic system and the ways of the emergence and formation of phonemes were described. The realization of these processes in each of the modern Turkic languages had its peculiarities, which were probably due to the heterogeneity of the ethnic composition of the population and the diversity of historical ties. However, it has been observed that there are more similarities than differences in the phonology of related Turkic languages. Knowledge of the sound features of a language is quite important for the classification of Turkic dialects and is suitable for describing the system of dialectal consonantism by hardness/softness. In conclusion, it should be noted that through the phonological system, it is possible to reveal not only the composition of phonemes in related Turkic languages of different periods, but also to understand the phonological relations in



the system of consonantism by describing the peculiarities of phoneme combinability and character.

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### **Information about authors:**

*Bazarbayeva Zeynep Muslimovna*, Doctor of Philological Sciences, Professor, Academician of NAS RK, Akhmet Baitursynuly Institute of Linguistics, 29 Kurmangazy Str., Almaty, Republic of Kazakhstan.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=56195378100>

*Zhalalova Akshay Maksutovna*, PhD, Temirbek Zhurgenov Kazakh National Academy of Arts, Almaty, 127 Panfilov Str., Republic of Kazakhstan.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=58109914500>

*Ospangaziyeve Nazgul*, Scientific Researcher, Akhmet Baitursynuly Institute of Linguistics, 29 Kurmangazy Str., Almaty, Republic of Kazakhstan.

**Авторлар туралы мәлімет:**

*Базарбаева Зейнеп Мүсілімқызы*, филология ғылымдарының докторы, профессор, Қазақстан Республикасы Ұлттық ғылым академиясының академигі, Ахмет Байтұрсынов атындағы Тіл білімі институты, Құрманғазы көш., 29, Алматы, Қазақстан Республикасы.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=56195378100>

*Жалалова Ақшай Максұтовна*, PhD, Темірбек Жүргенов атындағы Қазақ ұлттық өнер академиясы, Панфилов көш., 127, Алматы, Қазақстан Республикасы.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=58109914500>

*Оспангазиева Назгүл*, ғылыми қызметкер, Ахмет Байтұрсынов атындағы Тіл білімі институты, Құрманғазы көш., 29, Алматы, Қазақстан Республикасы.

**Сведения об авторах:**

*Базарбаева Зейнеп Муслимовна*, доктор филологических наук, профессор, академик НАН РК, Институт языкознания имени Ахмета Байтурсынулы, ул. Курмангазы, 29, Алматы, Республика Казахстан.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=56195378100>

*Жалалова Ақшай Максұтовна*, PhD, Казахская национальная академия искусств имени Темирбека Жургенова, ул. Панфилова, 127, Алматы, Республика Казахстан.

Scopus ID: <http://www.scopus.com/authentic/details.uri?authorId=58109914500>

*Оспангазиева Назгүл*, научный сотрудник, Институт языкознания имени Ахмета Байтурсынулы, ул. Курмангазы, 29, Алматы, Республика Казахстан.

**Authors' Contributions:**

*Z.M. Bazarbayeva* developed the concept and theoretical framework of the study, conducted a comparative-historical and typological analysis of the phonological systems of Turkic languages, and formulated the conclusions.

*A.M. Zhalalova* participated in the collection and processing of linguistic material, carried out a phono-phonological analysis, and contributed to the structuring and editing of the article's content.

*N. Ospangaziyeve* conducted an analytical review of sources and a comparative analysis of consonants in Turkic languages.

**Авторлық үлес:**

*З.М. Базарбаева* зерттеудің тұжырымдамасы мен теориялық негізін әзірледі, түркі тілдерінің фонологиялық жүйелерін салыстырмалы-тарихи және типологиялық талдады, қорытындыларын жасады.

*А.М. Жалалова* тілдік материалды жинау және өңдеуге қатысты, фонологиялық талдау жүргізді, мақала материалын құрылымдау және редакциялауға үлес қосты.

Н. Оспангазиева дереккөздердің аналитикалық шолуын жасап, түркі тілдеріндегі консонанттарды салыстырмалы талдады.

**Вклад авторов:**

З.М. Базарбаева разработала концепцию и теоретическую основу исследования, провела сравнительно-исторический и типологический анализ фонологических систем тюркских языков, сформулировала выводы.

А.М. Жалалова, участвовала в сборе и обработке языкового материала, провела фоно-фонологический анализ, внесла вклад в структурирование и редактирование материала статьи.

Н. Оспангазиева сделала аналитический обзор источников и сопоставительный анализ консонантов в тюркских языках.



**Conflict of Interest.**

There is no conflict of interest related to this article.

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