

## Teaching analysis of synharmonic sound in the Kazakh language

A. Zhunisbekov<sup>1</sup>, M. Taldybaeva<sup>2</sup>, B.A. Ospanova<sup>2</sup>, G. O. Berkinbaeva<sup>3</sup>

<sup>1</sup>A.Baitursynov Institute of Linguistics, Almaty, Republic of Kazakhstan (050010 Kurmangazy, 29)

<sup>2</sup>K.A.Yasawi International Kazakh-Turkish University, Turkistan, Kazakhstan (161200, B. Sattarkhanov 29)

<sup>3</sup>Abai Kazakh National Pedagogical University, Almaty, Republic of Kazakhstan

[saltanur@mail.ru](mailto:saltanur@mail.ru)

**Abstract:** One of the urgent problems of modern linguistics is still a need for educational and methodical analysis of synharmonic sounds in Turkic (including Kazakh) languages. Theoretical and practical (especially teaching) research of specificity of phonological and phonetic organization of Turkic word is an important component of the general linguistic problems. Lack or insufficient research on synharmonic verbal prosody led to a "Eurocentric" and interpretation of segmental super segment of phenomena in phonetics of the Turkic languages. The results will be theoretical and illustrative supplement in section of phonetics textbooks and teaching aids on the Kazakh language.

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### Relevance of research.

History of the study of the sound system of Kazakh language consists of several stages and each stage has depending on peculiar feature of the research purpose. Results of the study adequately reflect the theoretical and practical level of linguistic (phonetic) science of a particular time. Thus the chronological sequence of interdependent study periods in a fairly long history of study of the Kazakh language phonetics was formed.

The initial phase of the study of phonetics of Kazakh language began in the mid nineteenth century, and it covers the entire second half. Learning the language of the population has been one of the methods of political and military development of the Kazakh steppe which requires compilation of dictionaries and textbooks of elementary grammar.

Researchers (researchers were non-native) of the time (Ilminsky, Melioranskii, Radloff, etc.) did not have ready linguistic material. Therefore, they were forced to study and collect samples of "lively" Kazakh speech directly from native speakers by auditory observation. Phonetic samples collected by them were the most accurate copies of clean, unencumbered spelling rules of Kazakh speech, because the researchers recorded (fixed) as they hear themselves. To some extent, their method of recording can be compared with modern recording equipment, as accurately reflect synharmonic assimilative and modification of sounds in the composition of words. Particularly striking results against labial harmony, labial harmony was fixed through polysyllabic words. Written records of researchers can be placed next to modern pronouncing dictionary.

A positive aspect of the results of the study of this period, can be called sounds of a precise definition of the Kazakh language and synharmonic structure of words.

However, there are some inaccuracies in the determination of the sound structure of sound combinations such as "narrow vowel + I [y] or y [w] ».

Because by the time the study was auditory (perceptual) observations of speech of carriers of Kazakh language, this period can be described as a period of perceptual (perceptual phonetics) analysis.

The next study period covers 10-30 years of the last century. The main feature of this period is a massive connection to the study of phonetics of Kazakh national staff (Baitursynov, Dosmukhamedov, Zhubanov etc.). Since all researchers were carriers of the Kazakh language, they intuitively pinpointed many features of the sound system of the Kazakh language, which remained outside the purview of foreign language researchers of the previous period.

Research achievements of this period can be regarded as the definition of the real structure of synharmonic timbre of specification of the structure of sounds and syllable description of the morphemic structure of the word, the development and establishment of synharmonic letters.

However, unfortunately, labial vowel harmony of spelling rules has not been fixed, the negative consequences of which are still being felt, every year more and more intensified, disrupting the tonal and rhythmic structure of the Kazakh language.

Since the method of research is an intuitive analysis of the native language, this period can be

described as a period of intuitive (intuitive phonetics) analysis.

From the middle of last century the general influence of the whole European theoretical and practical phonetics on training research personnel and methodology for analyzing the Kazakh language. This situation has led to the fact that in the studies "Eurocentric" interpretation of the laws of the Kazakh phonetics began to dominate completely or almost completely. Researchers (Kenesbayev, Talipov, Aralbayev, Schwartzman Turkmenbaev, etc.) have a high theoretical Indo-European training and entered into the Kazakh phonetics on the segment level, the notion of the phoneme. As a result, the fundamental law of the Kazakh (Turkic) language synharmonism remained at the level of simple phonetic phenomena consideration of the Kazakh language sounds at phoneme led to the fact that the signs Russian language i, u, ya, were introduced in spelling of native Kazakh words, which led to a breach of rules of pronunciation synharmonic syllabic and morphemic structure of the word, as well as the rules of transfer words.

Moreover, totalitarian rule of spelling and pronouncing "write as written in the Russian language and pronounce as pronounced in the Russian language was introduced." As a result of the more than ten new characters and more than thirty new spelling rules regulating their writing and reading was introduced in Kazakh alphabet.

Research achievements of this period can be regarded the mass possessing European researchers of theoretical advances as well as the creation of academic Kazakh language's phonetics.

However, that all of the analysis of sound structure of the Kazakh language was reduced to accent - phonemic interpretation led to spelling and pronouncing violation morphemic - syllabic and, most importantly, sinharmonic - tonal structure of Kazakh word.

Since the method of research is accent-phonemic analysis, this period can be described as a phonemic accent period (accent - phoneme phonetics) analysis.

The latest phase of the study of Kazakh phonetics includes 70-90 years of the last century and the beginning of the current. During this period, 20-30 repressed national scientists of the last century and their works became publicly available for a wide range of specialists were rehabilitated. New generation of scientists appeared (Myrzabekov, Kaliev, Uali etc.). In addition, a group of researchers was able to pass aspirance - probationer training in leading scientific centers of Russia (Abuov, Isaev, Koshkarov, Taylakbaev, Raymbekova etc.). Due to their high theoretical and research training new and

original research results in the Kazakh phonetics were provided.

Most importantly synharmonism as the fundamental law of the Kazakh language became the basis of all segmental phonetic research. Palatal and labial timbres are treated as units of equal phonological status. Sound composition consisting of letters borrowed native Kazakh words is defined. The Indo-European parallels are separated from native Kazakh "appropriate". Phonetic basis to reform Kazakh letters is prepared.

It is important that the articulatory phonetics is revived as a basis for explaining the nature of the sound phenomena in the Kazakh language.

On the base of any formation of phonetic segment (sound, syllable, phrase, sentence, text) or process (co articulation, vowel harmony, boundary signals, logical- emotional and rhythmic phrasal intonation) stands articulation, i.e. each phonetic segment or phonetic process has its own articulation. Phonetic description of any segment or any explanation of the phonetic process in language is an analysis of its articulation. A real or tangible result of articulation is the perception. Consequently, the main way of the language is phonetic analysis of articulatory- perceptual method (acoustic method is the only way to visualize the quantitative results of articulatory - perceptual analysis).

Sound is the easiest articulatory form, so articulation is traditionally perceived as referring only to the description of the individual sounds. All other segments and processes have more complex continuous linear (linear and over), the sequence of closely related articulation of individual sounds.

Hence, we have the articulation of sound, syllable, word combinations, phrases and text segments and as co articulation, vowel harmony, boundary signals, logical- emotional and rhythmic phrasal intonation as suprasegments. In all cases, a native speaker perceives one or another set of movements of the speech organs and its sonic result as tactile- perceptual speech signal of a particular segment.

Since the method of research is synharmonic analysis, this period can be described as a period of synharmonic (synharmonic phonetics) analysis.

Consideration of Turkic verbal prosody synharmonism is turned out of incomplete and one-sided, more flawed for Turkic linguistic science, research apparatus of linguists fell main and important typological features of the Turkic languages. Therefore, there necessary to complete and comprehensive description of native Turkic verbal prosody, otherwise it is impossible to identify the principles of phonological segmentation of Turkic (Kazakh) speech, as well as segments themselves.

Vagueness of the study of verbal prosody has impact on the theory of writing, as a result of the contradiction between orthoepic compounded rate of speech and its reflection in the chart and spelling.

In this regard, any phonetic research should be directed at identifying the actual synharmonic characteristic of prosody words and explanation on this basis, the specificity of the phonological and phonetic systems of Turkic languages. The task of any science is not only the object of description, but in the explanation of the observed phenomena, i.e. it is required to report not only on how studied object is arranged, but also why it is so arranged. Meanwhile, the vast majority of the authors concerning the problem of vowel harmony in Turkic languages, limited to ascertaining consonant harmony is notes that the native Turkic (Kazakh) vowels in the words are part of either the same firm, or equally soft. As a result of vowel harmony (word-forming role is emphasized by Baudouin de Courtenay), remains in the background and is referred to only as "vowel harmony", while this term is not justified phonologically and phonetically is not accurate.

Thus, the presence of identical segments of vowels and consonants in European and South Asian languages, as is now clear, was not sufficient grounds for an identical flow of speech articulation for minimal functional unit the latter were not identical: in European languages - phonemes, in the eastern - tonemes. The presence in the Turkic languages of the same segments also gives grounds of unconditionally reduce the linear termination of Turkic speech to one of the above-noted forms. Great structure of Turkic languages implies a criterion of speech articulation and other minimum semantic segments, on a quest of which the efforts of turkologists - phoneticians should be directed.

**Research methods.** Research methods are phonological and phonetic (articulation, perceptual) analysis and modeling method of phonetic-phonological data.

**Results of the study.** The main result of this study is synharmonic Kazakh speech segmentation. For traditional Kazakh phonetics at school and college textbooks analyzes only the so-called "alphabet" sounds, i.e. only the version of sounds that are included in the Kazakh alphabet under alphabetical name. As a result, many modifications, including synharmonic modifications, sounds are not covered by any theoretical or practical phonetics. For example, it is written that " in the Kazakh language there are consonants [t], [s] » (alphabetical name t<sub>1</sub>, s<sub>1</sub>) and generalized articulatory description of each of them is given, which, of course, satisfies the elementary grammar. However, such a simplified description of the sounds of the Kazakh language does not satisfy

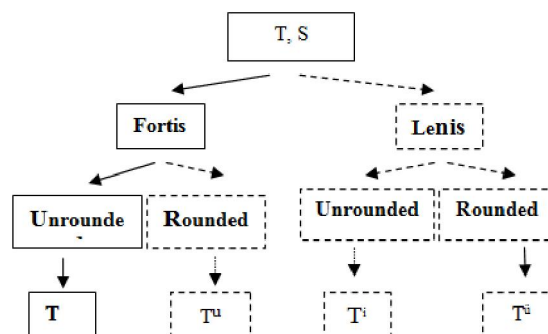
the theoretical (phonological) and practical (teaching aids, etc.) phonetics. For example, elementary grammar only describes the options for the articulation of consonants [t], [s] in the composition of words tis, siz, which coincides with their alphabetical name (Figure 1) while the rest, for example, synharmonic options [t<sup>h</sup>], [s<sup>h</sup>], [t<sup>o</sup>], [s<sup>o</sup>], [t<sup>o</sup>], [s<sup>o</sup>] in the composition of words tis, siz, tus, soz, t<sup>h</sup>is, s<sup>o</sup>z are not covered (Figure 1).

### Figure 1. Description of alphabetical variant of sounds

Articulation characteristics of alphabetical variant are marked by solid line, consonant articulation is marked dotted lines.

Alphabetical description applies only to one variant of the sound, while the other options with unimportant independent articulation characteristics remain unnoticed.

In synharmonic method of segmentation Kazakh speech when the analysis begins with the text (sentences) of which is allocated a certain tone synharmonic word of synharmonic words allocated the same synharmonic tone syllable of synharmonic syllable stands out the same sound and tone synharmonic in the final stage of the sound gets really synharmonic with specific (true) phonetic characteristics. This analysis of the research field of view does not escape any sound option, the most important thing we will always get a particular sound (Figure 2).



### Figure 1. Description of alphabetical variant of sounds

Quantity of singem (sinharmonic phonem) vowels in the Turkic languages, of course, less than the amount of their allosingem (synharmonic variants or shades).

So singem of vowels formed by contrasting vowels in the series, as well as the participation and / or non-participation of lips, but not on the open / closed formation of singarmo timbre opening / closing in the Turkic languages is missing. As a result, three

forms of singem of the Kazakh vowel is formed: 1) the upper vowels (closed  $V_1$ ) - implemented as four allosingems (sinharmosounds), 2) the lower vowels (open  $V_a$ ) - implemented as two allosingem (sinharmosounds) 3) diphthongs ( $V_e$ ) - a realization in

the form of three allosingem (sinharmosounds). The main principle of forming singem is uniting of vowel sounds that contrasted between themselves only at sinharmosyllables.

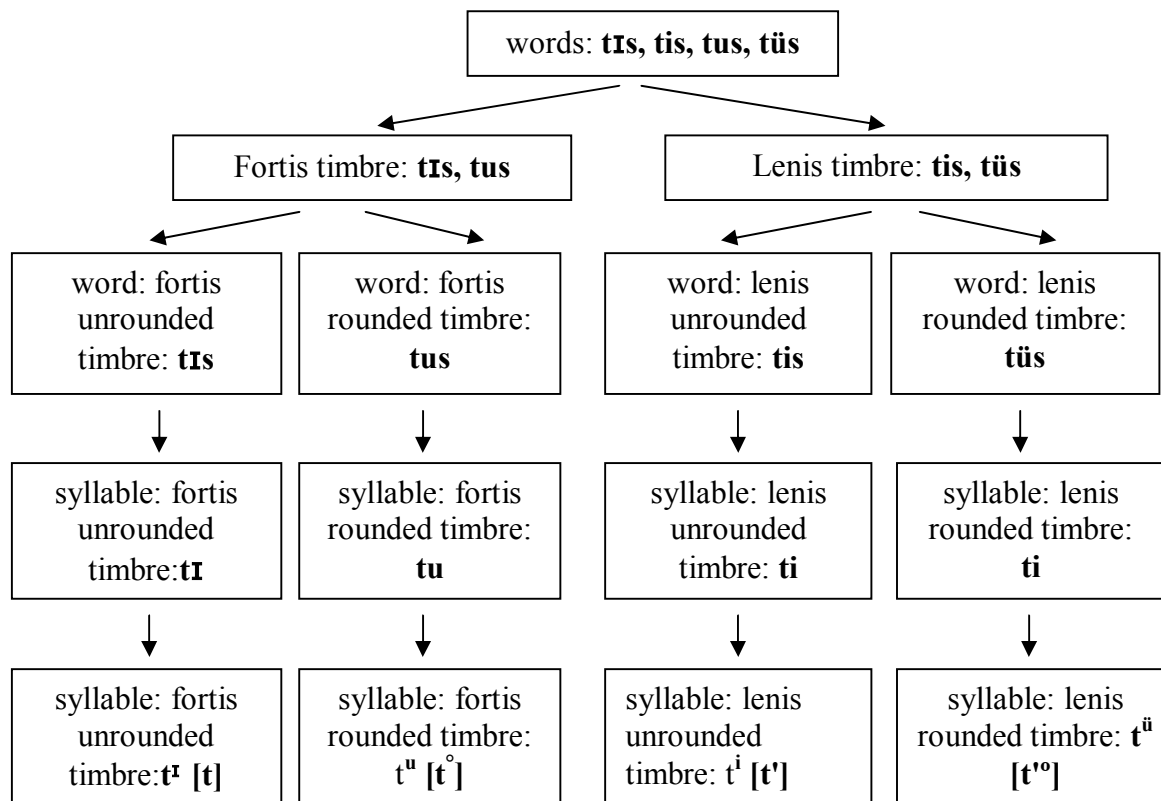


Figure 2. Synharmonic segmentation of Kazakh speech

We consider separately each of the vowels singem. Upper vowels form one singem, because they like syllable segment can not be opposed to each other.

Components of syllable (closed combinations of vowels and consonants) are relatively predictable, which excludes two closed vowels in the same phonetic allosingem position, therefore, they acquire phonological function only at the level of the syllable: [tɪs], [tɪs], [tus], [t̥üs]. Vowels [ɪ], [i], [u], [ü] form prosodically conditioned phonological subsystem which is realized by four allosingem of one vowel singem. As sound segments they play syllabic role, functioning as a vowel. As sinharmosegment they act as vocal sinharmocomponent of singarmosyllable, functioning as four singarmo vowel.

Next, the lower vowels form one singem, because they like syllable segment can not be opposed to each other. The components of the syllable (a combination of open vowels and

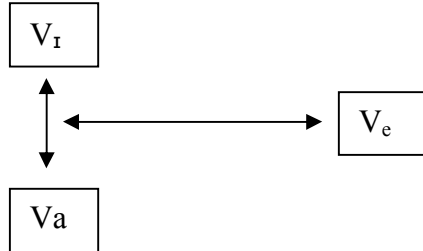
consonants) are relatively predictable, which excludes the formation of two open vowels in the same phonetic allosingem position, therefore, phonological function is acquired only at the level of the syllable [al] - [alʰ]. Vowels [a], [ä] form prosodically conditioned phonological subsystem which realise two allosingem of one vowel singem. As sound segments they play syllabic role, functioning as a vowel. Sinharmo segments act as vocal sinharmo components of sinharmo syllable, functioning as two singarmo vowels.

And, singem form one diphthong, because they like syllable segment also can not be opposed to each other. Syllable components (combination of diphthongs and consonants) are relatively predictable, which eliminates the appearance of two vowels in the same phonetic diphthongs position, therefore, they acquire phonological function only at the level of the syllable: [en], [on], [ön]. Diphthongs [e], [o], [ö] form prosodically conditioned phonological subsystem of implementation of three

allosingem singem of one vowel. As sound segments they play syllabic role, functioning as one vowel. Sinharmo segment as they act as vocal sinharmo component sinharmo syllable, functioning as three sinharmo diphthong.

In terms of syllable forming as it is already mentioned, each subsystem is presented as a single sound segment.

Since the vowel of the Kazakh language is formed of three vowels singem, is appeared as a phonological model of trivocalic (Figure 3):



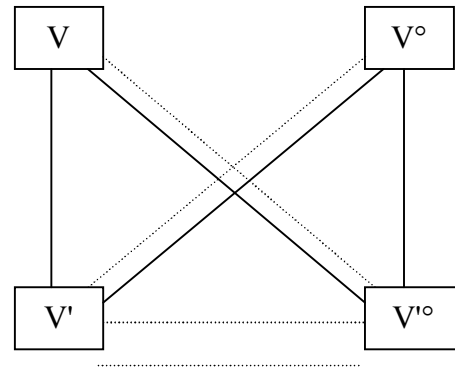
**Figure 3. Trivocalic model of vowels**

As it is seen from the model: subsystem of closed vowels [V<sub>I</sub>] opposed to subsystem of open vowels [V<sub>a</sub>] by opening mouth and diphthongs' subsystem [V<sub>e</sub>] as monophthong ; subsystem open vowels [V<sub>a</sub>] opposed to subsystem of closed vowels [V<sub>I</sub>] by opening mouth for oral vowels and subsystem of diphthongs [V<sub>e</sub>] as monophthong; subsystem of vowel diphthongs [V<sub>e</sub>] opposed to subsystem of closed vowels as monophthongs [V<sub>I</sub>], subsystem of open vowel monophthongs [V<sub>a</sub>] as a diphthong.

Synharmonic model of each subsystem of vowels is constructed taking into account sinharmo timbre.

Subsystem of closed vowels is organized by interaction for all possible singarmo timbre of Turkic languages, they are four. There are two sinharmo timbre according to the row, and two according lips participation (Figure 4).

Allosingem of closed vowel singem [V<sub>I</sub>] vertical (solid line) associated with sign of the row and horizontal (dashed line) the labial sign. Diagonal connection is done by having two signs as the series, and on labial. Allosingem [V<sub>I</sub>] is characterized by a lack of softness and labial, respectively, in its missing designation diacritical signs are missed; allosingem [V<sub>I</sub>] is characterized by softness and lack of labial, respectively, in its present designation of a diacritical sign; allosingem [V<sub>u</sub>] is characterized with softness and lack of presence of labial, respectively in its present designation of one diacritical sign; allosingem [V<sub>ü</sub>] is characterized as soft, and labial, respectively in its designation, there are two diacritical sign.



**Figure 4. Sinharmo timbral model of allosingem, narrow (closed) vowel singems**

Consequently, each of these has the following allosingem with synharmonic timbral characteristics:

Allosingem [ɪ] - fortis, unrounded

Allosingem [i] - lenis, unrounded

Allosingem [u] - fortis, rounded

Allosingem [ü] - lenis, rounded

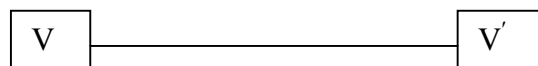
A few words about the terms "hard" and "soft" in relation to vowel sounds. In classical linguistics they are only used when describing the system of consonants. And the fact that these terms are used in the description of the Turkic vowels causes misunderstanding in Indo-European. For them, the division of vowels into soft / hard seems unnatural (non -phonological). However, there is nothing reprehensible in the application of the terms "hard" and "soft" in the description of the Turkish vowels, as in phonological terms, it splits into two linguistically distinct subsystem. What is offered instead of the terms "soft" and "hard" by research investigators? The terms "front " and "back" vowels seem to be more accurate. We believe that a description of the phonological system of the Turkish vowels, are not suitable for two reasons: first, they are not phonological terms but phonetic, i.e. articulatory, and secondly, in the system of Kazakh vowels there is not front vowels, they are all of central row (we think the same articulatory system exists, if not all, most of Turkic languages ). It should be added that the appearance of such confusion contributed by Turkic phoneticians who inconsistently used four terms in both the phonology and phonetics.

Using a large number of works of the terms "front / back vowels" once again shows how much current on linguistic research thinking is oriented on Indo-European scientific apparatus. Once again we repeat that to identify and describe the specific linguistic units of sound system of Turkic languages requires a system of terms that will facilitate the release of the familiar and well-established concepts of Indo-European linguistics. The handling of these concepts (and terms) prevent to see the organic



essence of the sound system of the Turkic languages, which is due to the very nature of language and through which there is an independent, original Turkic speech.

Next, subsystem of open vowels is organized by reacting sinharmonic timbre on the series. There are two kinds of sinharmonic timbres: fortis [Va] and lenis [Vä] (Figure 5).



**Figure 5. Sinharmonic timbral model of allosingem of open vowel singem**

Here allosingems connected only with sign of a row. Allosingem [Va] is characterized by a lack of softness and labial, respectively, in its transcription there is not diacritical signs. Allosingem [Vä] is characterized by softness and lack of labial, respectively, in its description there is one diacritical mark. Common to both allosingem there is the lack of sinharmonic timbre on labial.

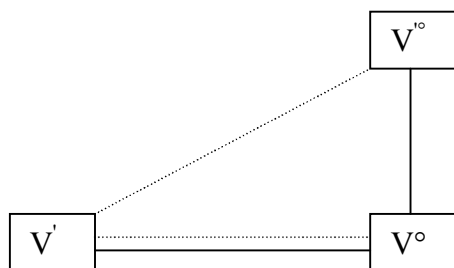
Consequently, each of these has the following allosingem synharmonic timbral characteristics:

Allosingema [a] - fortis, unrounded

Allosingema [ä] - lenis, unrounded

Subsystem of vowel diphthongs is organized by interaction of four singarmonic timbre, but only in three combinations (Figure 6).

Here allosingem [Ve] associated with allosingem [Vö] by labial/non-labial and with allosingem [Vo] and simultaneously on a row and labial. Allosingem [Vo] and [Vö] among themselves vary in hardness and softness. Allosingem [Ve] is characterized by softness and lack of labial, respectively, in its present designation of a diacritical mark. Allosingem [Vö] is characterized as soft, and labial, respectively, in its designation, there are two diacritical marks. Allosingem [Vo] is characterized by a lack of softness and the presence of labial, respectively in its designation one diacritical mark is presented.



**Figure 6. Sinharmonic timbral model of allosingem of vowel diphthongs singem**

Consequently, each of these allosingems have the following timbral characteristics:

Allosingem [e] - lenis, unrounded

Allosingem [ö] - lenis, rounded

Allosingem [o] - fortis, rounded

Thus, we examined two essential principles of the system of description of Turkic vowels on example of Kazakh language. On the first principle nonsinharmonic description of Kazakh vowels is justified three groups of vowels are identified - a narrow, open, diphthong, each group consists of a certain number of vowels: vowels of narrow group - four, a group of open vowels - two, group of vowel diphthongs - three, only nine vowels. The second principle is justified by synharmonic description of Kazakh vowels three singems are revealed, each of which unites a number of allosingem: hard nonlabial - two, soft nonlabial - three, solid labial - two, soft labial - two, just naturally allosingem - nine.

Thus, the system of vocalism of Kazakh language is formed by three vowels singems, which fall into nine allosingem.

In native Kazakh consonantism we highlight the following consonants: [b], [d], [ğ (-g)], [j], [z], [y (y)], [q (-k)], [l], [m], [n], [ñ], [p], [r], [s], [t], [w], [š].

In synharmonic language every consonant is a system which consists of four sinharmonic sound that besides the general features present in the consonant which has mutually articulatory - acoustic characteristics. In Turkic languages sinharmonic timbres of each consonant system is formed by contrasting signs of hardness /softness, labial/ nonlabial. The main principle of forming consonant singem is as follows: in one combined allosingem singem, which are opposed to each other only at the level of the syllable.

Let's consider, as example, consonant singem [t]. This system is formed by four sinharmonic sounds that as allosingems can not be opposed to each other. Components of syllable mutually predictable, which excludes two allosingem (singarmonic syllable) of consonant [t] in the same phonetic positions. Consequently, phonological function acquire only at the level of syllables (words): [tus], [tis], [tus], [tüs]. Sinharmonic consonants [t], [t'], [t°], [t'°] form prosodically phonological subsystem which is realized by singems of consonant.

Basic articulation singem [t]: alveolar, occlusive, voiceless.

Synharmonic allosingem articulation signs are:

Allosingem [t]: back lingual, unrounded sinharmonic sound

Allosingem [t']: advanced, unrounded sinharmonic sound

Allosingem [t°]: back lingual, rounded sinharmonic sound

Allopingem [t<sup>o</sup>]: advanced, rounded sinharmonic sound

Allopingem perceptual features are:

Allopingem [t]: fortis, non-labial singarmo timbre

Allopingem [t<sup>l</sup>]: lenis, non-labial singarmo timbre

Allopingem [t<sup>o</sup>]: fortis, labial singarmo timbre

Allopingem [t<sup>l</sup>]: lenis, labial singarmo timbre

Some description is given for synharmonisms of all consonants. It is only necessary to add that in terms of options synharmonic [q], [k], [g̃], [g] is very revealing: as allopingem (singarmo variants) appear consonants which are distant from each other in respect of articulation, consonant singem [w] has only two singarmo shade – fortis labial [w] and lenis labial [w<sup>l</sup>]; non labial pronunciation is excluded. Thus, the system of consonantism of Kazakh language is formed from 17 consonants singem or 66 allopingem (singarmo sounds).

Consonant singems:

Consonant singem [b] consists of four allopingem: [b, b<sup>l</sup>, b<sup>o</sup>, b<sup>l</sup>°];

Consonant singem [d] consists of four allopingem: [d, d<sup>l</sup>, d<sup>o</sup>, d<sup>l</sup>°];

Consonant singem [g̃] consists of four allopingem: [g̃, g<sup>l</sup>, g̃<sup>o</sup>, g<sup>l</sup>°];

Consonant singem [j] consists of four allopingem: [j, j<sup>l</sup>, j<sup>o</sup>, j<sup>l</sup>°];

Consonant singem [z] consists of four allopingem: [z, z<sup>l</sup>, z<sup>o</sup>, z<sup>l</sup>°];

Consonant singem [y] consists of four allopingem: [y, y<sup>l</sup>, y<sup>o</sup>, y<sup>l</sup>°];

Consonant singem [q] consists of four allopingem: [q, q<sup>l</sup>, q<sup>o</sup>, q<sup>l</sup>°];

Consonant singem [l] consists of four allopingem: [l, l<sup>l</sup>, l<sup>o</sup>, l<sup>l</sup>°];

Consonant singem [m] consists of four allopingem: [m, m<sup>l</sup>, m<sup>o</sup>, m<sup>l</sup>°];

Consonant singem [n] consists of four allopingem: [n, n<sup>l</sup>, n<sup>o</sup>, n<sup>l</sup>°];

Consonant singem [ñ] consists of four allopingem: [ñ, ñ<sup>l</sup>, ñ<sup>o</sup>, ñ<sup>l</sup>°];

Consonant singem [p] consists of four allopingem: [p, p<sup>l</sup>, p<sup>o</sup>, p<sup>l</sup>°];

Consonant singem [r] consists of four allopingem: [r, r<sup>l</sup>, r<sup>o</sup>, r<sup>l</sup>°];

Consonant singem [s] consists of four allopingem: [s, s<sup>l</sup>, s<sup>o</sup>, s<sup>l</sup>°];

Consonant singem [t] consists of four allopingem: [t, t<sup>l</sup>, t<sup>o</sup>, t<sup>l</sup>°];

Consonant singem [w] consists of two allopingem: [w, w<sup>l</sup>]

Consonant singem [š] consists of four allopingem: [š, š<sup>l</sup>, š<sup>o</sup>, š<sup>l</sup>°]

There are only 66 consonants allopingem.

Hence in the Kazakh language there are 75 (9 vowel + 66 consonant allopingem) synharmonic sounds. Kazakh synharmonic word is formed (drawn) from the combination of allopingem.

It turned out that phonetic features of vowels of synharmonic options in articulatory and acoustic terms is highlighted more clearly than the features of embodiments of consonants. Articulatory vowel of central row make group of synharmonic lenis vowels. They are characterized by the front position of language, i.e. smaller mouths and larger pharyngeal cavities. Articulatory vowels of back row constitute a group of synharmonic fortis vowels. They are characterized by the back position of the tongue, i.e. mouths and lower pharyngeal cavities. It seems that for the realization of synharmony extremely comfortable front and outer back articulation of vowels. However, it is surprising that in the Kazakh language, all vowels are articulated in close proximity to the central row, lenis vowels are pushed back to the middle row, and fortis vowels are moved forward to the back row.

It turned out that on the articulatory and perceptual level, you can find signs corresponding to each tonal group and of sinharmonic vowels and sinharmonic consonants.

### Bibliography

1. Zinder, L.R., 1979. General Phonetics. Moscow: Higher School, pp: 312-320.
2. Orphoepic dictionary of Kazakh language. 2007 Almaty: Aris, pp: 781-786.
3. Abuov, J., 1999. Perceptual phonetics. Almaty: Kazakh State Law University, pp.226-236.
4. Ilminsky, N.I., 1960. Materials for the Study of the Kyrgyz dialects. Kazan. pp: 125-136.
5. Zhunisbek, A., 2009. Introduction to synharmonic phonetics. Almaty: Aris. pp: 90-109.
6. Ashby, M. and J. Maidment. 2005. Introducing phonetic science. Cambridge: CUP. pp: 96-108.
7. Brown, A., 1992. Approaches to pronunciation teaching. London: Macmillan. pp: 70-88.
8. Hagen, S.A. and P. Grogan. 1992. Sound advantage. A pronunciation book. Englewood Cliffs, NJ: Prentice Hall Regents. pp: 45-48.
9. Ladefoged, P. 2003. Phonetic data analysis. An introduction to fieldwork and instrumental techniques. Oxford: Blackwell. Pp: 258-265.
10. Odisho, E.Y. 2003. Techniques of teaching pronunciation in ESL, bilingual and foreign language classes. München: Lincom. pp: 78-88.