Artículo de investigación

Cognitive bases of phono-grammar in russian and arabic

Bases cognitivas de fono gramática en ruso y árabe

Bases cognitivas da fono-gramática em russo e árabe

Recibido: 20 de enero de 2018. Aceptado: 10 de febrero de 2018

Escrito por:
Nailya G. Mingazova[1]
Vitaly G. Subich[1]
Raheem Ali Al-foadi[2]
Rafis R. Zakirov[3]
[1]Kazan Federal University
[2] University of Baghdad (IRAQ)
[3] Russian Islamic University
e-mail: info@ores.su

Abstract

This article discusses the relationship of the inflected changes with the thought processes in two inflected languages belonging to different languages families i.e. Russian (the Slavonic subgroup of the Indo-European language family) and Arabic (the Semitic subgroup of the Afro-asiatic language family) by analyzing semantic, phonetic, morphological, and syntactic bases of phono-grammar of cognition – the knowledge of the full progressive inflectional categorization of linguistic levels represented by sound changes. The article is aimed at disclosing a direct relationship of the quantitative sound change of consonant composition with thought processes by which the human brain recognizes language categorization, identification of the mechanism of phonemic structure, which is quantitatively modified to mark the word morphologically and syntactically. Disclosed are the rules of the relationship of phonetic changes with thought processes. It's stated that cognitive bases of phono-grammar in the Arabic and Russian languages reflect the perceivable association of the sound with meaning.

Keywords: cognitive bases of phono-grammar, marker, phonetic changes, sound quantity of the root, Russian, Arabic.

Resumen

Este artículo discute la relación de los cambios inflexos con los procesos de pensamiento en dos idiomas inflexibles pertenecientes a familias de diferentes idiomas, es decir, ruso (el subgrupo eslavo de la familia de lengua indoeuropea) y árabe (el subgrupo semítico de la familia de lengua afroasiática) mediante el análisis de las bases semánticas, fonéticas, morfológicas y sintácticas de la fono gramática de la cognición: el conocimiento de la categorización flexiva progresiva completa de los niveles lingüísticos representados por los cambios de sonido. El artículo tiene como objetivo revelar una relación directa del cambio de sonido cuantitativo de la composición consonántica con los procesos de pensamiento mediante el cual el cerebro humano reconoce la categorización del lenguaje, identificación del mecanismo de la estructura fonémica, que se modifica cuantitativamente para marcar la palabra morfológica y sintácticamente. Se revelan las reglas de la relación de los cambios fonéticos con los procesos de pensamiento. Se afirma que las bases cognitivas de la fono gramática en los idiomas árabe y ruso reflejan la asociación perceptible del sonido con el significado

Palabras clave: bases cognitivas de la fono gramática, marcador, cambios fonéticos, cantidad de sonido de la raíz, ruso, árabe.

Resumo

Este artigo discute a relação de mudanças flexionadas processos de pensamento em duas línguas inflexíveis pertencentes a famílias de diferentes línguas, ou seja, russo (eslava subgrupo da família de línguas indo-européias) e árabe (Família subgrupo semita Afroasiatic) linguagem através da análise semântica, fonética, bases de telefone gramática morfológicas e sintáticas de cognição: o conhecimento da categorização flexiva progressiva cheio de níveis lingüísticos representados por mudanças de som. O artigo destina-se a revelar uma relação directa de mudança de som quantitativa da composição em consonância com os processos de pensamento, através da qual o cérebro humano reconhece a categorização de identificação dos idiomas estrutura mecanismo de fonemas, que é modificado para marcar o quantitativamente palavra morfológica e sintaticamente. As regras da relação das mudanças fonéticas com os processos de pensamento são reveladas. Afirma-se que as bases cognitivas da fono gramática nas línguas árabe e russa refletem a associação perceptível do som com o significado

Palavras-chave: bases cognitivas da gramática do fonograma, marcador, alterações fonéticas, quantidade de som radicular, russo, árabe.

Introduction

Subtle changes in the sound quantity of words, as a result of which full inflectional progressive categorization occurs in Russian and Arabic, (phono-grammar), clearly reveal the indivisible interconnection of materially expressed linguistic elements with thought processes. According to Evans, cognitive linguistics is a modern school of linguistic thought and practice (Vyvyan Evans, 2007). Such changes exist and function as a result of materially expressed linguistic changes that are the interpretation of linguistic thinking associated with their cognitive bases.

The thinking process is so rigidly organized that it is impossible to overlook the particular combination of consonant sounds associated with the basic meaning. It serves as the main structure with language markers being attached to it. Therefore, it is necessary to start with the semantic bases of cognitive processes, since not every combination of sounds can serve as a significant language unit capable of including the phonetic changes revealing language markers.

Materials AND Methods

-***Semantic bases of cognitive phono-grammar.*** The process of actual interconnection of linguistic thought with practical semantics of the classical Arabic language is close to the physiological recognition of phono-grammatical semantics in Russian, but it is more strictly organized, due to the three-consonant Arab root that presents a whole system of cognitive self-defense of the Arabic language and it is inseparable from the actual material expression of thought processes (Al-foadi, 2014)

In Arabic the meaning of linguistic elements is decoded by the human brain with the help of physiological consonant pauses, which cause a person to cognitively express the sound. Belova asserts: «According to the consonant quantity, the three-consonant structure is dominant in the Semitic root» (Belova, 1991). So, interrelation of the thinking processes with the semantics of the Arabic root is determined by the physiological sound of the consonant sound, on the one hand, and the strict arrangement of the three-consonant root, on the other hand. The sequential physiological consonant semantics is required with the movement of the organs of speech producing sounds and causing sound-meaning association in the human brain. Consonant sound order is decoded by the brain as the general meaning of a certain verb respectively. So, the human brain perceives an Arabic verb and its key meaning is associated with the first two consonants, and is defined by the third consonant. The mental processes of the brain consistently and rigidly cognize the semantics of the root of the following type:

1. The key meaning of the disconnection is associated with the consonant / f-r /, and the third consonant determines, specifies, and concretizes the general meaning: *farada* «to make nicks about the tree», *farat̲a* «to break the contents of the stomach and intestines of the animal», *faraja* «to open, release».
2. The general meaning is connected with the sounds / '-ş / «to press» and the third consonant concretizes the meaning: *'aşara* «to press», *ʿaşafa* «to blow, to rage».

3. The general meaning «to cut» is connected with the sound / q-ṭ / and is clarified by the third consonant: *qa.t'a* «to cut», qa.tafa «to tear, collect flowers and fruit».

The cognitive process of the basic meaning of the Arabic root is carried out by the correlation of the sounding of consonants with the action of the object. Therefore, a well-known Arabic linguist Ibn Jini almost a century ago clearly established the relationship between the physiology of sounds and thought processes that help to establish the meaning (Ibn Jini, 1990). In this case, it is necessary to identify that the phono-semantics of sounds, percepted by the human brain through the coincidence of the physiological movements of the organs of speech with the actual action of the object, can be represented by a certain set of consonant sounds (Al-foadi, 2015).

- ***Phonetic bases of cognitive phono-grammar.*** Undoubtedly, the cognitive process of the key meaning of the root is connected with the sounding of a certain group of consonant sounds (*slovo* «a word» and *slava* «glory», *slushat'* «to listen» and *slyshat'* «to hear» in Russian, ***sām**aḥa* «to forgive» and ***sam**aḥa* «to allow» in Arabic). In these examples, the key meaning is understood as a result of the semantic basis of the cognitive phono-grammar by means of which the sounding of consonants of the rigid order are decoded by the brain as an association of a certain set of consonants with its meaning.

Longitude and shortness of the modifying vowel leads to the formation of different sound quantities of the same consonant, on the basis of which the human brain can distinguish different sounding of the consonants and is caused by different semantic markers in the words like: *slushat'* and *slyshat'* in Russian, *sāmaḥa* and *samaḥa* in Arabic. The sound quantities of consonants in these examples are not the same, but different, because «consonant sounds must be accompanied by the air movement and according to the place of sound formation the various consonant sounds are determined» (Buslaev, 1992). Therefore, it can be established that the cognitive process of the semantic and grammatical differences of one and the same consonantal composition of the root is accomplished by changing the place of sound formation, which leads to a sounding and physiological pause change, which produces different sound quantities of the same consonant.

Consequently, we can say that the vowel shift demolishes the place of the same consonant sound formation creating its different sound quantities – different consonants, connected with different grammatical and semantic markers. Therefore, the consonant sounds in the Russian words *slovo* and *slava*, *slushat'* and *slyshat'* have different sound quantities.

The sound quantity changes of the same consonants, causing physiological pauses that help the human brain to differentiate the semantic and grammatical variations of the root are called microflexion.

- ***Morphological bases of cognitive phono-grammar.*** The cognition process of morphological markers in speech and writing is inseparable from the semantics and the sound quantity of the root consonants, since on the basis of the sounding of the root consonants, the basic meaning is determined, and its sound quantity is the clarifier of the semantic and grammatical markers of the Russian and Arabic roots. The human brain cannot immediately identify the morphological markers in the phono-grammatical structure of the Russian and Arabic languages before identifying the key meaning of the sound combination. The semantic basis of cognitive phono-grammar serves as the initial base for a morphological one for the following reasons: 1) the cognition process of the key meaning is ahead of the definition of their morphological marker. In this case, the brain can distinguish words according to the rigidly organized order of consonants with the decoded sounding as a distinctive part of the basic meaning; 2) after the brain recognizes the key meaning of «listening», associated with a certain combination of consonants as in the Russian words *slovo* and *slava*, *slushat'* «to listen» and *slyshat'* the brain has to distinguish its morphological markers, based on the sound quantities of consonant sounds.
-

The most vivid examples of human brain's recognition of gender, number, and case markers by the whole sound form are the words *berega* «river banks», *doma* «houses», *veka* «centuries», *kolos'ya* «ears, spikes», *stul'ya* «chairs», and *uchitelya* «teachers». These words show that the sound quantity of each consonant, measured by the vowel, modifying it, varies; it affects the overall sound quantity, e.g. *bereg* «a river bank» → *berega* «river banks», *dom* «a house» → *doma* «houses», *vek* «a century» →

veka «centuries», *kolos* «a spike» → *kolos'ya* «spikes». It should be pointed out that the whole word's sound form should be perceived as a marker, recognized by the brain to define morphological and semantic indicators – gender, number, and case, because as Humboldt declares, «The words modified in their grammatical form only with the help of the inflexion sound are whole valuable entities» (Humboldt, 1984; Humboldt, 2000).

Phonetic changes of the Russian and Arabic inflexions are inseparable from the thought, following the strict rules which regulate inflexional sound changes. Despite the loss of a big amount of set rules concerning phonetic peculiarities of the Indo-European languages, those few of them that have remained can give general understanding of such peculiarities. Thus, the consonantal composition which is associated with the singular number of objects may quantitatively increase to form the plural number: *bereg* → *berega*, *dom* → *doma*. The last full vowel sound makes the whole sound form be pronounced longer, since the word is a consolidated sound entity which finds accord with the energy of the vowels, modifying the consonants. Consequently, all the sound entity gets increased when the last full-vowelled syllable is located at the end of the word, with the other syllables adjusting to it harmonically. Hence, the process of cognition of the plural number in the words of this kind is fulfilled via the increase in the sound quantity of the consonants with which key meaning is associated.

Another indicator of the laws which regulate phonetic changes connected with morphological markers is the variability of the sound quantity of the key consonant. Phonetic variation leads to the quantitative change of the root sound form on the basis of which morphological markers are discerned, such as *morosit'* «to drizzle» - non-finite verb form → *moros'* «drizzle» - nominative case of the feminine, singular noun; *ryaboy* «spotted» - nom. case of the masculine, singular adjective → *ryab'* «spots» - nom. case of the fem., singular noun; *zevat'* «to yawn» - non-finite verb → *zov* «a cry» - nom. case of the masc., sing. noun. This is the situation when the first key root consonant gets acoustically increased owing to the energy of the vowels modifying it (cf. *ryaboy* → *ryab'*), as the Russian root consists of two consonants – the first of them is the key consonant while the second is specifying.

Thus, we can claim that the process of cognition of the morphological markers in the inflected Russian and Arabic languages is fulfilled via analyzing the whole sound form of the root. Morphological categorization is perceived via the quantitative changes of the consonants with which the key sense of the root is associated.

"All language meanings – semantic, morphological, and lexical – are expressed in this type of words by the quantitative changes of the root consonants (characterized by certain sequences), which makes it impossible to point out a single sound as the expressing means of some meaning" (Al-foadi, 2016). If a single sound is pointed out as the marker of meaning, then it is impossible to establish the markers of other meanings. This is confirmed by Amirova's citation, stating that the changes in the word's sound form are always caused by its whole phonetic form, which leads to multiple specific changes… and brings about multivariance of expression of the same categories and differentiation of the meanings of the same forms (Amirova, 2005).

- ***Syntactic bases of cognitive phono-grammar.*** These foundations are, in fact, inseparable from the other basic factors of phono-grammar, since the human brain perceives such foundations as the logical sequence or the so-called "progressive inflexional categorization principle". The first thing which the brain perceives is the key sense as soon as "the general idea" or the root key sense is stable in all word modifications, i. e. on all the levels the key meaning is preserved: Rus. *chitat'* «to read» – *chitatel'* «a reader» – *chteniye* «reading» – *chitateli* «readers» – *chitatelya* «the reader's»; *ryaboy* «spotted» – *ryab'* «spots» – *ryabi* «of spots»; Arab. *kataba* "to write" → *kātib* "a writer" → *kutāb* "writers"**.**

The human brain will inevitably discern morphological markers, as recognizing syntactic forms is impossible without perception of morphological markers, which are essential basis for syntax. Gender, number, and case markers, formed as the result of phonetic changes in root consonants, are the basis of syntactic forms. In other words, the morphological marker, recognized by the human brain via the association of certain sound matter connected with some morphological peculiarities, implies syntactic markers, which convey syntactical meanings. The words which obtained new morphological markers by way of the whole

quantitative change of their sound forms are, by all means, declined in accordance with those morphological markers that are formed as the result of the phonetic root changes.

Judging by logical statements, syntactic foundations of cognitive phono-grammar is a multi-staged procedure, performed by the brain in half a second or even less, because in the process of speech many language codes are deciphered prior to the moment when the brain ultimately recognizes the morphological marker which the word is declined by.

Recapitulating, the human brain receives the whole sound matter as the morphological marker – gender, number, and case – as well as the semantic marker, which is why it is impossible to point out a certain separate sound as the marker. The analysis of this phenomenon reveals that the process of cognition of the morphological markers is fulfilled on the basis of the whole sound form; otherwise the essential (for inflexional languages) integrity of the word would be damaged, since the language units are modified by inflexions.

Results

It was established that the cognitive process of the semantic and grammatical differences of one and the same consonantal composition of the root is accomplished by changing the place of sound formation, which leads to a sounding and physiological pause change, which produces different sound quantities of the same consonant.

The process of cognition of the morphological markers in the inflected Russian and Arabic languages is fulfilled via analyzing the whole sound form of the root. Morphological categorization is perceived via the quantitative changes of the consonants with which the key sense of the root is associated.

Syntactic foundations of cognitive phono-grammar is a multi-staged procedure, performed by the brain in half a second or even less, because in the process of speech many language codes are deciphered prior to the moment when the brain ultimately recognizes the morphological marker which the word is declined by.

Discussion

Sound waves, which constitute the word's form, serve as the signs for the process of thinking, as soon as the combination of specific sounds represents the key meaning associated with it. Recognition of the word's meaning is realized via the physiological sound waves, which are decoded by the brain as a certain key from the main meaning, associated with a sound combination. The combination of sounds constituting the root's meaning is subject to further progressive categorization, as soon as its quantitative changes directly affect the definition of the marker of the following language level, being morphological.

Quantitative changes of the sound form of a certain sound combination, which is associated with the root's meaning, constitute morphological marker. This marker is determined by the whole sound form of the word, not as a separate sound. That is the reason why the human brain perceives the whole quantitative change of the sound form in morphological constituents as the whole valuable marker in the inflected words of the Arabic and Russian languages.

Conclusions

Acoustic waves of certain sound combinations, which pose as signs for the thinking process, are prone to further quantitative changes so that the root will acquire its morphological markers basing on the changes of the whole word's sound quantity to subsequently serve as the words' inflectional markers. Thus, morphological markers, obtained as the result of changes in the word's sound quantity, directly influence syntactic markers. Gender, number, and case markers, being morphological, serve as the basis for syntactic markers.

Cognitive bases of phono-grammar in the Arabic and Russian languages reflect the perceivable association of the sound with meaning, since the acoustic waves, associated by the brain with some meaning and categorization, are not merely a peripheral association, it is a real whole valuable perceptive process.

Acknowledgements

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

References

Al-foad, R. (2014). One key of the limitless world of Arabic: main indicators of inflection. Berlin.: Lambert publishing Academy, 73 p.

Al-foadi R. (2016). Principles of phono-grammar in annex to progressive linguistic categorization of Arabic and Russian roots / Philological sciences "Scientific Essays of Higher Education", P. 20-26.

Al-foadi R. (2015). Progressive semantic phono-grammar: principles of Arabic phono-structure // Philological sciences. Issues of theory and practice. Tambov: Gramota , № 5 (47): in 2 parts. P I. P. 13-23.

Amirova, T. (2005). History of linguistics: Proc. a manual for students. ouch. proc. institutions / T. A. Amirova, B. A. Olhovikov, J. V. Christmas; ed. by S. F. Goncharenko. – 2nd ed. erased. – M.: Publishing center "Akademiya", 672.

Belova, A. (1991). The structure of Semitic root and Semitic morphological system // Voprosy Jazykoznanija № 1. Moscow.: " Nauka" ,P.79-91.

Buslaev, F. (1992). The Teaching of the national language. – M.: Education, 512 p.

Humboldt, W. (2000). Selected works on linguistics / V. Background. Humboldt. – M.: JSC IG "Progress", 400 p.

Humboldt, W. (1984). Selected works on linguistics / W. Von. Humboldt. – M.: Progress, 396 p.

Ibn, J. (1990). Khasais, taḥqiq Mohamed Ali Alnajar, Matbaʿat dar alshun, Baghdad.

Vyvyan, E. (2007). The cognitive linguistics enterprise: an overview / Vyvyan Evans, Benjamin K. Bergen,Jörg Zinken // The Cognitive linguistics reader. London: Equinox, pp. 263-266.