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## **A STUDY OF THE COGNITIVE SYNESTHETIC MECHANISM AS A SUPPLEMENT TO THE SOUND IMITATION THEORY OF LINGUAL GENESIS**

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**Abstract.** In this article an analytical view of the general theories of language genesis is presented. The evolutionary, idealistic and cognitive approaches to the exploration of language origins are described in the theoretical part. At the end of this part the author explains the meaning and origin of the term «synesthesia» and demonstrates the foundation of its practical reasonability. In the practical part of work an empirical study of the phenomenon of synesthesia is carried out, based on literal Ukrainian-language material. The phenomenon referred to is considered to have been one of the sources of the creation of new words during the development of civilization. It is ascertained that synesthesia is a genuine phenomenon which, in the author's opinion, is able to reinforce the sound imitation theory of language genesis, along with the concept of memes.

**Key words:** *language genesis, cognitive conception, idealistic conception, synesthetic mechanism, associative connections, source of words creation, sound imitation.*

**Лавриненко Олександр. Вивчення когнітивно-синестетичного механізму в доповненні до звуконаслідувальної теорії мовної генези.**

**Анотація.** У статті викладено аналітичний огляд основних теорій походження мови. У теоретичній частині описано еволюційний, ідеалістичний та когнітивний підходи у дослідженні проблематики мовної генези. Наприкінці теоретичного викладення автор пояснює зміст та походження терміну «синестезія» й обґрунтовує його практичну доцільність. В практичній частині дослідження проведено емпіричне дослідження прояву феномену синестезії на літерному матеріалі української мови, як одного із можливих джерел словотворення в історіогенезі. Встановлено, що синестезія є реальним явищем, яке на думку автора, разом із теорією мемів здатне підсилити звуконаслідувальну теорію походження мови.

**Ключові слова:** *мовна генеза, когнітивна концепція, ідеалістична концепція, механізм синестезії, асоціативний зв'язок, джерело словотворення, звукоімітація.*

**Лавриненко Олександр. Изучение когнитивно-синестетического механизма в дополнение к звукоподражательной теории языкового генезиса.**

**Аннотация.** В статье предлагается аналитическое обозрение основных теорий происхождения языка. В теоретической части описаны эволюционный, идеалистический и когнитивный подходы в исследовании проблемы языкового происхождения. В конце теоретического раздела автор объясняет смысл и происхождение термина «синестезия» и обосновывает его практическую целесообразность. В практической части работы проведено эмпирическое исследование проявления феномена синестезии на буквенном материале украинского языка. Установлено, что синестезия является реальным явлением, которое, по мнению автора, вместе с теорией мимов способно усилить звукоподражательную теорию происхождения языка.

**Ключевые слова:** происхождение языка, когнитивная концепция, идеалистическая концепция, механизм синестезии, ассоциативная связь, источник словообразования, звукоимитация.

## **Introduction**

Man has been interested in the phenomenon of language genesis since ancient times. Linguists, philosophers, psychologists and other scientists have been exploring the problem of language genesis for many centuries. Beginning from the period of early research, people realized that the functioning of any language would be impossible without the accumulation of a certain number of generalized notions, which any native speaker needs to have in his mind in order to be able to use language for communication. The source of these generalized notions and the means by which they are transmitted from one mind to another continues to be the subject of numerous philosophical discussions.

However, no single one of the numerous modern theories is able to explain the appearance and functioning of unique language phenomenon completely, without any supplementation or qualification. The scientific polemics in this sphere became sharper after the publication by Charles Darwin of his main work *The Origin of the Species*. All these facts led to the consequence that for a certain period of time, this topic was banned in many scientific societies. Linguists, philosophers and biologists of the nineteenth century understood that the expansion of unproved and speculative ideas could simply lead to confusion and additional endless disputes.

In the middle of the 20<sup>th</sup> century the ideological and philosophical opposition between idealistic and materialistic world-views became less antagonistic and more constructive, which provided an opportunity for scientists to improve the existing theories and to work out new ones. For that reason, research which is conducted using an analytical view of the basic reliable and well-grounded language genesis theories and with an empirical exploration of new additional word-building mechanisms will be relevant and timely.

Among all the theories that were first enunciated in ancient Greece, the sound imitation theory of language genesis has continued to be the most trustworthy one up to the present time. The concept of the presence of sound-imitating words in most languages served as the foundation of this theory. Such words in their phonetic form reflected and still reflect sounds created by animals or occurring in natural phenomena. Emotional exclamations, according to this theory, were regarded as another source of word creation. In the view of ancient Greek scholars, the primary sound-imitating and exclamatory words were modified and developed to produce

the lexical material of any language. This supposition has several weak points. First of all, the appearance of compound abstract notions and semantic generalizations can hardly be explained using this hypothesis. Moreover, the sound imitation theory ignores the role of society and work activity in the process of language development. Consequently, the sound imitation theory referred to above has been in the process of being displaced by emerging new ideas over the course of several centuries.

During the first part of the twentieth century the evolutionary activity theory of language genesis was theoretically based and promoted. A major contribution to this conception was made by the famous Russian scientists L.S. Vygotsky and A.N. Leontyev, who analyzed the process of language development in ontogenesis and historiogenesis (Vygotsky 1982; Leontyev 1963). They both insisted on the simultaneousness of language development and processes relating to the progression of human activity. From the evolutionary point of view the primary human language resembled in many of its features the so-called “quasi-language” of highly-developed animals of the present age, which is able to render only emotional states and impressions. However, the transformation of the conduct of human life from adaptive activity to labour-oriented activity and specific productive activity was the crucial factor that provoked rapid language development. Human beings demonstrated a tendency to create various work-related tools, which changed their relationship with their environment. The originators of this theory usually make a distinction in language development between the transitional stage, when humans were able to communicate more effectively than other living beings, but most lexical units carried only a temporal meaning, being functionally tied to a concrete practical situation. The latter idea was partially borne out by the anthropological research of B. Malinovsky (Malinovsky 1988) who spent many years exploring several primitive and isolated human cultures. In one of his works he described a group of cases when aborigines underwent some confusion and some misunderstandings when they were obliged to communicate in areas beyond those of practical tasks. Another Russian scientist, Alexander Luria, defined the nature of such ancient words by stating that «they were implemented into practice” (Luria 1979: 26). The third stage of in the simultaneous development of language and labour activity implies a new level of coordination of human actions in the further cultural historical progression of human civilization, which elevated our language to a compound lexical, semantic, and syntactical system, which appeared adequate to express any type of thought or to describe any real or imaginary situation.

The theory of the language phenomenon being a gift from the Creator has always been topical and philosophically well-based. During the first twelve centuries the latter hypothesis of language genesis was the one which predominated, although even in the twenty-first century some researchers are seeking new facts and arguments that are able to support this theory. Many idealistic philosophers speaking about language genesis refer to Scripture, where God was the creator of the first human language, having taught Adam to give various names to different animals which inhabited the ancient Earth. In the opinion of idealistic scientists, human language is not a unique form of rational thinking, but it is necessary for

people to control and utilize their thinking capacities in order to raise the human mind to a higher level. The only problem of this idealistic vector is the serious methodological dead-end with which confronts any researcher who seeks to explain the deep nature of the phenomenon of language basing it only on idealistic theoretical positions. This problem was first noticed by W. Wundt and W. Dilthey while analyzing the theoretical work of famous philosophical idealists like R. Descartes, I. Kant. According to the latter conception, animals act mostly on the basis of mechanical principles and for that reason their behavior can be explained from the deterministic regularities. However, human beings are endowed by God with consciousness, lingual ability and capacity for abstract rational thinking. These peculiarities give us the possibility to function in all areas of thought and abstract categories, and to mentally go beyond the boundaries of visible experience. At the same time all these features are embedded deeply within the human spirit and for that reason they cannot be fully examined or analyzed, but only described superficially.

In the second half of the twentieth century an American scientist Susan Blakemore continued the cognitive vector of sound imitation theory in her work *The Memes Theory*. In this book the point of view is expressed that the unique human ability to use facial expressions, movements and sounds to imitate their tribesmen, neighbors and many other biological beings was the real foundation for the formation and development of human language. In Blakemore's ideas it is easy to identify the continuation of the sound imitation theory, although she was not insistent with regard to that linkage. In the latter aspect it is necessary to recognize that humans are not the only biological type that is capable of imitation: comparable behaviors can be observed in some primates, other mammals, conducting water way of living and many birds. But only human beings have managed to create the full value language, able to render any type of information. The cognitive vector of language genesis exploration was still lacking some concepts needed for explaining the process of lexicon-formation. The author's point of view in this research is that the recently-discovered synesthetic physiological mechanism of word creation can give both theoretical and practical support to the cognitive vector which originated in the theory of sound imitation.

In the history of the development of many sciences there have sometimes been cases when a particular theoretical conception that was creative and progressive at one stage of its development appeared to be archaic and to impede progress toward the next stage of development of the same science. In the linguistic branch there are some reasons to regard the lingual conception formulated by Ferdinand de Saussure as belonging to this type. This involves his idea of exploring and analyzing the language phenomenon separately from the parallel processes and the concept of the absence of any connection between the phonetic sounds and elements of meaning structure in all the words (Luria 2006).

During the past thirty years a volume of research results has been built up which cast some doubt on the ideas described above. The studies referred to were conducted by the following famous psychologists and linguists: A. R. Luria, O. Krasnikova, A. Zhuravlyov, V. Krasnykh, and A. Leontyev (Krasnykh 2001;

Leontyev 2003; Luria 2006). As the consequence, in modern linguistics a new theory has been formulated regarding the existence of some neuro-associative relationships between the different sounds of any language and the sense-related characteristics which many physical objects possess.

### **Methods**

One of the first studies involving this area was the scientific work by Zhuravlyov, in which he proposed to a large group of people (about three hundred) that they evaluate Russian letters in terms of colour, weight, form and image size. The results which were obtained were actually unexpected even for the researcher himself: for many letters, the level of unanimity reached 72 per cent and in some cases even 90 per cent (Krasnykh 2001:32). It is quite clear that these results are beyond the limits of random choice, though all the respondents insisted on making their selection randomly. The research described here was continued by another Russian scientist, O. I. Krasnikova, who created a colour-weight-size chart diagram of the Russian alphabet. The set of experiments conducted by the famous neuropsychologist A. Luria confirmed the existence of this strange new phenomenon that he designated using the term “synesthesia” and which he explained in the following way: “the psycho-physiological mechanism of such feelings, fixed in the letters of any language, is based on nerve impulses which pass from various sense receptors (in the eyes, ears, nose etc.) to the cerebral cortex of the human brain show a tendency to excite one another, because they are situated in very close proximity” (Luria 2006:36).

In order to conduct the research referred to above, it is necessary to carry out the following tasks:

- to make a descriptive analysis of general language genesis theories, which will demonstrate the extent to which they are valid, as well as being promising in terms of future prospects.
- to explain the general meaning and the principles of the functioning of the synesthetic phenomenon that is involved in the process of the creation of new words.
- to carry out empirical research into the phenomenon of synesthesia using genuine material found in the Ukrainian language.

The general aim of the empirical research is to explore and analyze the validity of the ‘synesthetic mechanism’ that has been described, using actual material from the Ukrainian language. The empirical material for fulfilling the practical task for this research was collected by means of questioning students in the master's programme at Lesya Ukrainka East European National University. The respondents who were chosen, numbering 40 people in total, are from the specialties of general psychology, zoology, social geography, applied physics, computer science and corporate finance. The specificity of this sampling was based on two factors: the responders had to have not less than an intermediate level of lingual knowledge, to avoid the associations that might result simply from poor language mastery; and in the study, representatives of various future professions were to be included.

### The study

The students selected were to consider the sounds of Ukrainian as reflected in letters of the alphabet, and to attach characteristics of colour and weight to those sounds, seeking to do so spontaneously. The most frequently-used letters of the Ukrainian alphabet were suggested to the respondents for making the described psychological associations. On the other hand, letters that are used very rarely (І, Ї) and symbols that have no their own phonetic form (‘, Ъ) were not included in the experiment. From the point of view of mathematical sufficiency, it was deemed that the quality of a letter could be regarded as having been defined if it received a score of at least 48% of the total number of selections. The results of the first part of the empirical exploration are presented in Table 1.

Table 1

### The list of statistically significant synesthetic relationships between the letters of Ukrainian and perceptible images of the physical objects

Letters in the Ukrainian Alphabet	A	O	I	И	E	У	B
Dominating Color	Red 52%	Yellow 48%	Not defined	Not defined	Not defined	Not defined	Blue 50%
Dominating Weight	Heavy 48%	Light 75%	Medium 60%	Not defined	Medium 75%	Light 48%	Medium 70%

Letters in the Ukrainian Alphabet	Г	Ш	Ф	Н	Х	М	Т
Dominating Color	Blue 50%	Black 55%	Brown 75%	Not defined	Brown 65%	Pink 50%	Not defined
Dominating Weight	Light 55%	Heavy 80%	Heavy 55%	Light 50%	Heavy 80%	Light 62%	Medium 55%

Letters in the Ukrainian Alphabet	Щ	Д	Ж	Ц	Р	Л	З
Dominating Color	Black 60%	Not defined	Yellow 55%	Not defined	Red 55%	Blue 48%	Green 75%
Dominating Weight	Heavy 75%	Medium 60%	Heavy 70%	Medium 55%	Heavy 65%	Light 80%	Medium 60%

In the second stage of the experiment the students referred to had to characterize 20 combined images of imaginary animals created with the «Spore» program. For the next step, the researcher singled out from these 20 images only 4 images, which had been characterized almost unanimously by the group. The selected images are: Object 1 (small, peaceable); Object 2 (large, neutral); Object 3 (large, predacious); Object 4 (small, predacious). The last task for the respondents was to consider their own names in terms of having an association with the names of the four imaginary animals. The researcher’s aim was to calculate the average occurrence within the group of each Ukrainian letter in terms of the devised designations. The final statistical results of the second stage of the research are presented in Table 2.

*Table 2*

**The list of frequency of Ukrainian vowels and consonants occurring in the designations devised by the group**

<b>Selected Objects Groups of letters selected</b>	<b>Object 1 (small, peaceable)</b>	<b>Object 2 (large, neutral)</b>	<b>Object 3 (large, predacious)</b>	<b>Object 4 (small, predacious)</b>
<b>The most frequently used vowels</b>	Y – 30 usages	A – 33 usages	A – 27 usages	O – 35 usages
	A – 18 usages	O – 24 usages	Y – 18 usages	I – 20 usages
	O – 16 usages	И – 15 usages	O – 11 usages	A – 15 usages
<b>The most frequently used consonants</b>	Л – 33 usages	Б – 29 usages	Р – 37 usages	Р – 26 usages
	М – 23 usages	Ж – 17 usages	Ж – 22 usages	З – 20 usages
	С – 18 usages	Д – 16 usages	Ш – 16 usages	Б – 18 usages
	Н – 15 usages	Р – 13 usages	Ф – 14 usages	С – 15 usages
	В – 11 usages	В – 9 usages	Г – 12 usages	Ш – 13 usages

### **Discussion and results**

The comparative analysis of the occurrence of Ukrainian vowels and consonants must be carried out separately, taking into account the fact that they are not equal in number within the Ukrainian alphabet, which evidently has a bearing on the potential frequency.

When analyzing the vowel results, attention should be given to an interesting interaction of the letters A with O and A with Y. It should be recalled that the sound connected with letter A is associated in most cases with the colour red (52%) and with a heavy weight (48%). This appeared to be the most frequently used in the designation of Object 2 and Object 3, both of which objects were evaluated as “large”. In “small” objects the first place was taken by the letters O or Y, which were regarded as “light”.

With respect to consonants, it is interesting to note that in designating Object 1 (small, peaceful) the majority of the respondents preferred to use the sonorant letters L and M. The sounds connected with latter two letters were associated with a light weight and with bright colours. At the same time in predacious objects the most «popular» was letter R, whose phonetic sharp reflection was recognized to be “heavy” (65%) and “red” (55%). Another worth attention fact is the frequent usage of letters III and Ф by nominating “predacious” animals which denote sibilant voiceless sounds and were associated by the group with black (55%) and brown (75%) colors.

### Conclusions

The research described in this article made it possible to arrive at the following conclusions: at the present time, all the major vectors of the exploration of language genesis (cognitive, idealistic and evolutionary) continue to be relevant, though the number of evolutionary vector followers is tending to decrease; recognizing that the managed results can be regarded in secondary aspects as contradictory, one must define the objective existence of the ‘synesthetic mechanism’ and its noticeable influence on the word-formation process; the phenomenon that has been identified will probably magnify the cognitive theories of language genesis.

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## СПЕЦИФІКА СУЧАСНОГО АНГЛОМОВНОГО МУЛЬТИМОДАЛЬНОГО ДИСКУРСУ

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**Анотація.** Статтю присвячено дослідженню сучасного англомовного мультимодального дискурсу. Окреслено низку причин, що зумовлюють потребу у всебічному дослідженні вербальних і невербальних засобів, які використовують у писемному дискурсі для реалізації комунікативних інтенцій. Проаналізовано ключові концепції, які уможливають поліаспектно розглянути специфіку вербальних і невербальних засобів, що функціонують в англомовному комунікативному просторі. Звернуто увагу на взаємозв'язок і взаємозалежність кількох лінгвістичних дисциплін (графічної лінгвістики, соціальної семіотики, візуальної лінгвістики, когнітивної лінгвістики, візуальної комунікації, лінгвістики тексту, комунікативної лінгвістики, теорії мультимодальності й мультимодальної комунікації), в межах яких розглядають вербальні й невербальні засоби комунікації. Схарактеризовано основні поняття, якими послуговуються під час аналізу мультимодального дискурсу. Висвітлено ключові ознаки та специфіку семіотичних ресурсів й модусу. Описано особливості мультимодального дискурсу, звернуто увагу на системно-функціональний підхід і проблеми оволодіння спеціальними навичками письма та читання, які потрібні кожній людині в цифрове століття. Виокремлено перспективні напрями подальших досліджень з урахуванням останніх комунікативних тенденцій, притаманних сучасному англомовному соціуму.

**Ключові слова:** мультимодальність, мультимодальний дискурс, вербальні й невербальні засоби, візуальна грамотність, системно-функціональний підхід.

### **Makaruk, Larysa. Peculiarities of Modern English Multimodal Discourse.**

**Abstract.** This article deals with the investigation of English multimodal discourse. An outline is given of reasons for which it can be considered necessary to investigate verbal and non-verbal means used in written discourse for the implementation of communicative intentions. An analysis is made that focuses on multidimensional key theories, which make possible the study of the peculiarities of verbal and non-verbal means functioning in the English communicative space. Attention is also devoted to the interrelationship and the interdependence of several linguistic disciplines—graphic linguistics, social semiotics, visual linguistics, cognitive linguistics, visual communication, textual linguistics, communicative linguistics, multimodal theory and multimodal discourse—within which verbal and non-verbal devices are considered. The key concepts which are involved in considering multimodal discourse have also been described. Essential points and specifics relating to semiotic modes and resources have been explained, and distinctive features of multimodal discourse have been described. Some attention has been devoted to the systemic and